

India's Golden Quadrilateral: The Mother of all Projects (A)

Infrastructure is a fundamental enabler for a modern economy...bottlenecks and delays in the implementation of infrastructure...will be systematically removed (President of India, Pratibha Patil's welcome address, Houses of Parliament, September 2009)

Dubbed the 'Mother of all Projects', the Dedicated Freight Corridors (DFC) was a crucial railway scheme to catalyse socio-economic growth in India. To mark its commencement, in September 2006, the Prime Minister and the Congress President Sonia Gandhi laid a foundation stone. The project was a national imperative, and benefited from strong cross-party political support even if some officials expressed concerns that its boon seemed to have been captured by just a few states. But how, in May 2014, could one argue that the DFC was a success story if the performance targets announced in 2006 had all long been abandoned?

Showcasing the DFC as a success was a priority for the board of the Dedicated Freight Corridor Corporation of India (DFCCIL), notably its managing director since May 2011 Mr. R.K. Gupta. The world's largest democracy was at the cusp of national elections and all polls suggested an incoming radical change in the political landscape. The DFC scheme was politically sensitive, and thus Mr R.K. Gupta had his work cut out for him.

DFCCIL was a public agency set up by the Government of India (GoI) in December 2006 to develop and operate a railway network for dedicated freight. The aim was to link several major cities and regions along the intensively utilised Golden Quadrilateral – a set of railway lines that represented less than 16% of the overall network, but carried more than 60% of the freight load and an equal percentage of passenger load [**Exhibit 1**]. The scheme was deemed essential to overcome the acute lack of transport capacity affecting Asia's third-largest economy, and thus impairing the socio-economic growth of India; Mr. Gupta explained:

South Africa is having this kind of operation, Australia is having this kind of operation, America is having this kind of operation, and of course China. These are the four countries which are basically having these, they are predominantly freight countries

Despite a steady increase in demand for freight and passenger transport, railway capacity had hardly changed since the British Raj. As a result, both the highways and railways suffered from chronic congestion. This lack of transport capacity in India was choking the growth of manufacturing and impeding the diversification of the economy away from agrarian activities. This, in turn, made it more difficult to create new jobs for young people, develop new cities, slow down the expansion of slums, and tackle poverty.

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

The idea for a Golden Quadrilateral railway scheme had been around since the 1990s, but only gained traction in 2005 when the Planning Commission¹ started to work on the XI Five-year Plan for public spending between 2007 and 2012. By then the railway community was in a state of crisis. Railways remained the most popular means of transport, but all critical lines were running way above the design capacity.² Freight trains in particular were extremely slow given that they had to give precedence to the fast-moving passenger trains.

Railways in India had their own ministry—the Ministry of Railways (MoR). The MoR presided over the destiny of Indian Railways (IR), the public company that owned and operated the railway infrastructure. IR had been losing a share of the freight transport market to highways since the 1990s. This was a major concern since IR used freight tariffs, amongst the highest in the world, to subsidize passenger fares, amongst the lowest in the world

But financing the Golden quadrilateral was not trivial. Borrowing money on the markets was not cheap, and India was struggling to address macroeconomic imbalances. It imported about 80% of its oil, and was one of the world's largest importers of coal due to deficient rail connectivity between domestic mines and power plants and stagnant domestic production.

Attracting private investment in Indian infrastructure provision was also complicated. State-owned monopolies were arguably reluctant to facilitate the entry of private players and thus obstructed efforts to modernize outmoded policies. But in many cases of private investment, flawed contracts and opaqueness had allowed private concessionaires to extract exorbitant rents, defeating the purpose of privatisation and giving it a bad reputation with public.

In April 2005, however, things took a turn for the better after the Japanese prime minister pledged finance to the DFC through ODA loans³. To move forward, the GoI commissioned a feasibility study from Rail India Technical and Economic Service (RITES), a public agency specialising in railway transport, and it also invited the Japan International Cooperation Agency (JICA)⁴ to conduct its own independent feasibility study.

¹ The Planning Commission was set up in 1950 to assess the resources of India, and formulate 5-year plans for utilising those resources and determining priorities; it was chaired by the Prime Minister; the membership was not political but rather technocrat, and it had no implementation responsibility

² In 2009, Goldman Sachs estimated that the India track length was around 35km/1,000km² versus a global average of 125km/1,000km², and an average train speed of 25km/hr versus China's 150km/hr (*India can afford its Massive Infrastructure Needs*, Goldman Sachs Global Economics Paper No. 187)

³ Official Development Assistance (ODA) Loans aimed to support developing countries by providing low-interest, long-term and concessional funds to finance their development efforts.

⁴ The transport sector accounted for 25% of the JICA assistance to India between 2002-2011, and railways represented about 12% of that; by 2012, JICA had committed 349 billion yen in ODA loans (JICA 2013, *Operations and activities in India*. JICA A India Office, New Delhi, April

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

The 2006 'RITES report' proposed to build two dedicated freight corridors by 2012 at Rs. 22,000 crore⁵ [Exhibits 2 and 3]: a Western Mumbai-Delhi corridor extending over a 1,500km stretch to link the Jawaharlal Nehru port near Mumbai to Dadri near Delhi, running through the states of Gujarat, Rajasthan, Haryana, and National Capital Territory. And an Eastern corridor extending over 1,400km and connecting Ludhiana in Punjab, a state north of Delhi to SonNagar. The announcement triggered political pressure to extend the corridor to the Howrah port near Kolkata, a port that was trying to attract North Indian cargo heading for Asian countries - "[the] absence of a freight corridor could be even bigger than the oil shock in terms of future potential," a port official said⁶.

Fuelled by optimism after Japan's pledge, in December 2006 the government awarded DFCCIL a Rs 22,000 crore budget to deliver the Western (Rs 12,000 crore) and Eastern corridors (Rs 10,000 crore), and announced a 2012 completion date for the two schemes.⁷

By 2014, Mr. R.K.Gupta was genuinely proud of what DFCCIL had accomplished in eight years. In 2013, the DFCCIL had awarded the first two major contracts to design and build the first phases of the Eastern and Western corridors. It did so after acquiring over 90% of the land needs through fair negotiation with the state governments and local communities, and after conducting environmental studies and providing upskilling opportunities to the farmers who lost their land. DFCCIL had also created a three-level mechanism of appealing—a socially responsible approach that broke grounds with the past, said Mr. R.K. Gupta:

[land acquisition] is a rough area...today environmentalists are everywhere, very, very active ...But we've been able to get almost all the [environmental] clearances within a reasonable period of time because of basically two approaches: one, we did try to compromise on our alignment so that the displacement is minimal. Second, wherever we went through the wildlife and bird sanctuaries... we do with minimum disturbance.

Financing for the two corridors was also by and large resolved. Japan had committed a total of 1,616 billion yen to finance the Western corridor under STEP (Special Terms for Economic Partnership) conditions⁸: the first loan (2.6 billion yen) was signed off in 2009 to cover engineering costs; the second loan was signed off in March 2010 (90,3 billion Yen~Rs

⁵ A crore is a unit in the South Asian numbering system equal to ten million (10,000,000).

⁶ Freight corridor key to Calcutta port, The Telegraph, Calcutta, India, 6th March 2006

⁷ The Government of India projections for the 11th five-year plan for 2007-2012 stipulated a \$555bn in infrastructure spending

⁸ The Special Terms for Economic Partnership (STEP) scheme promoted "development assistance with a distinct Japanese profile through technology transfer utilizing the advanced Japanese technology and know-how to developing countries.

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

5,350 crore) and represented about 18% of the Japan's estimated cost of the first phase of the Western corridor. And the third loan was signed off in July 2010 (~Rs 8,055 crore) and represented about 32% of Japan's estimated cost of the second phase of the Western corridor.

In turn, the World Bank had signed a \$0.975bn loan agreement to help finance the first phase of the Eastern corridor, which the Bank reckoned corresponded to 66% of the costs of the first phase; the Bank had also pledged a total of \$2.725bn for the Eastern corridor.

The *first phases* of each corridor were now expected to open in 2018. Figures reported by DFCCIL in February 2014 indicated that the budget had climbed up to Rs 97,725 crore (~\$16billion)⁹. But concerns of further slippages were mounting since the most difficult parts of the line were yet to be procured. The first phases mainly crossed rural areas, whereas incoming works affected densely populated urban areas like Mumbai.

Going forward, the million-dollar question was how would India be able to complete the Golden quadrilateral? How many decades would it need to achieve this goal? Where would finance come from? Vision 2020, a capacity enhancement plan that Indian Railways published in 2010 did not make any firm commitments. And only in 2012 DFCCIL commissioned to RITES a 3-year study to investigate the feasibility of more corridors. One senior official in the Planning Commission was sceptical of India's ability to deliver:

There's nothing concrete on the table [on the Golden Quadrilateral]. These are visions and dreams, the prime minister prefers it, it's a priority - he'll have to figure out how to do it.

The work of DFCCIL was monitored by the Planning Commission, and its progress was also being reviewed on a quarterly basis by the Prime Minister's Office. With a new political force in power, Mr R.K. Gupta would have to argue that the DFCCIL had fundamentally changed India's approach to large infrastructure development. How could Mr. Gupta convince the new political masters that DFCCIL was a high-performing outfit operating in one of the world's most challenging institutional environments?

Indian Railways

The history of railways in India dated back to April 16, 1853 with a 53km line connecting Mumbai and Thane. Initially, private players controlled the railways and the 1890 Indian Railways Act restricted the role of the government to coordination and regulation. But overtime, the government took over some companies and post-independence, in 1958, the railways were nationalised into a single organization, the Indian Railways (IR).

⁹ This budget corresponded approximately to approximately 65% in hard costs (construction, design, 8% overhead, 10% land, and 25% in soft costs (price escalation, 3% contingency, interest doing construction, and insurance fees). It excluded the PPP section and Rs. 6,000 crore estimated for rolling stock; for price escalation it assumed 5% inflation, slightly lower than the average rate.

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

By 2009, with over 1.3million employees, IR was one of the largest organizations in the world by number of employees. IR operated a rail network of about 64,000 km, which was about the same length as China's national rail network at the time. India's national rail carried over 6,900 million passengers and 833 million freight tons, making it the fourth busiest railway in the world in terms of total traffic unit km carried. Regulatory changes had taken place to promote competition in the railway sector, and private firms were allowed to run non-core activities and participate in railway operations through public-private partnerships.

Organizationally, IR was divided into geographical zones (seventeen by 2013) with each zone headed by a general manager who reported to a Railway Board. The Railway Board, which included a representative from the Ministry of Finance, reported to the Minister of Railways. Zones were sub-divided into divisions under the control of divisional managers. In addition, fifteen public agencies operated under the control of the Railway Board including the port operator (CONCOR), the railway consultant (RITES), and DFCCIL [Exhibit 4]

By 2006, IR's market share of freight traffic had declined to 35% while the market share of passenger traffic was less than 20%. By way of comparison, the rail cargo share in China and the US was around 50%. In India, freight and passenger traffic were being diverted to roads, which was causing a substantial loss in revenue to IR. This diversion increased the negative impact of transport on the environment and the country's dependence on oil and coal imports.

Challenges notwithstanding, IR was still seeing growth in both freight and passenger volumes. Between 2001 and 2007, the average annual growth rate had been 7.4%¹⁰ and IR had exceeded most of the targets set in the government's 10th 5-year plan for 2001-2007, turning a cash surplus before dividend of over Rs 20,000 crores [Exhibit 5].

To meet increasing demand, IR chose to focus on bulk commodities like coal, iron ores, and food grains that formed about 90% of the goods traffic. With the roads congested, perishable goods often rotted with growers despite insatiable demand for them in parts of the country. Bottlenecks at ports, mines and major consumption and production centres further prevented goods from reaching the right place, at the right time and in the right quantity. This contributed to goods scarcity, keeping up inflation, impeding economic growth, and making it more difficult to contain inflation through monetary measures such as high interest rates.

On the passenger side, almost all long-distance passenger trains were running at full capacity, and waiting lists were long. Tickets for long distance travel had to be booked months in advance and trains were generally congested. The low strata income group, particularly migrant workers, were the most affected by the lack of railway capacity.

¹⁰ 2006 Report of the working group on railway programmes for the eleventh five-year plan (2007-2012). Government of India. Ministry of Railways. Railway Board

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

Turning the company around was not easy, though. IR's budget relied on an annual allocation from the federal government that had fallen sharply since the 70s. And IR's pricing policies, and thus its capacity to generate internal revenues, were also constrained by government; the alternative left was for IR to increase the share of finance through market borrowings, but the company was reluctant to do so [Exhibit 6 and 7]. Cash-strapped, IR's capital investment was mainly directed at maintaining and modernizing existing tracks and rolling stock.

To start a conversation, in 2010 IR published Vision 2020, an 'unprecedented and ambitious plan' to turn its market share around and increase efficiency in ten years. Vision 2020 highlighted how improving the quality of railway infrastructure would spur trade, industry and employment. Vision 2020 made the modernisation and electrification of the existing network a priority, and argued for the need to increase capacity by 25,000 km by 2020. For IR, these ambitions needed to be supported less so by borrowings on the market, and more by extra government funding and a major increase in Private Public Partnerships.

Vision 2020 estimated that the elasticity¹¹ of transport demand to GDP was about 1.25, implying that a projected GDP growth rate of 9% would translate into growth in transport demand of more than 11%. Furthermore, it projected that the demand for passenger services would continue to outstrip supply. It was thus imperative to segregate passenger service from the freight corridors. For IR, the ultimate goal was to capture 50% of the freight transport over a 300km distance and more than 70% of the bulk cargo in the same distance range.

Vision 2020 goals were noble, but seemed unrealistic. IR's budget was saddled with commitments for maintaining and modernizing the network such as electrification, gauge conversion, and doubling the line. In 2013 the Planning Commission committee pointed to a massive shortfall in funds, and it estimated that the completion of the projects already sanctioned¹² would require Rs 147,188 crore, about as much as the total IR annual allocation.

Attracting private finance to IR remained an issue. In the XI 5-year period, only 4% of IR needs had been met by private-public partnerships compared with 42% in national highways and 80% in ports. Unless private investment increased, IR problems would only get worse. To address these issues, the Planning Commission insisted that for commercially viable projects, IR should seek finance from (a) market borrowings and Indian Railway Finance Corporation (IRFC) and (b) contributions from State Governments and bulk users¹³.

¹¹ In economics, elasticity is the measurement of how responsive an economic variable is to a change in another.

¹² IR had a portfolio of over 4,000 capital projects, the largest traditionally around 100 to 200 crore

¹³ Gol (2014). Creative Financing for Indian Railways. Report of the Committee. PPP& Infrastructure Division. Planning Commission. Government of India. New Delhi.

The Planning Commission also encouraged IR to shed a self-imposed limitation that had seen it only leasing rolling stock. The commission proposed that funding by IRFC be restricted to financially viable projects undertaken on a turnkey basis to eliminate time and cost overruns¹⁴; financing by or through IRFC would have to be self-sustaining as the borrowings raised for this purpose would have to be serviced.

The Planning Commission also suggested that IR should pursue more PPPs and stand-alone private investment. Private finance could be generated, the Planning Commission argued, for station redevelopment, construction of new lines, gauge conversions, dedicated freight corridors, procurement of locomotives, power generation, and private trains. Financially unviable projects would have to be funded by public investment.

In addition, the Planning Commission proposed that the Government set up Infrastructure Development Funds (IDFs) for channelling long-term debt from domestic and foreign pension and insurance funds. Besides augmenting debt resources for financing infrastructure, the IDFs would refinance PPP projects after their construction was completed, and in this way release fresh lending for new infrastructure projects.

The Dedicated Freight Corridors (DFC)

As early as 2005 the GoI made known its ambition to develop a national network of dedicated freight corridors. The envisioned scheme would include six corridors linking industrial regions and major cities such as Delhi, Mumbai, Chennai and Kolkata. For the GoI, the corridors would contribute to India attaining the full potential of economic development outlined in the Government's XII Five Year Plan. Initially, two freight corridors, the Western and Eastern Dedicated Freight Corridors would be constructed.

The Western corridor would connect the Delhi area to the Mumbai port and other deep-water ports along the western coast. It was conceived against expected growth of demand for freight transport in the region and the need to connect ports in the western coast to the manufacturing centres along the western corridor. This corridor was crucial to make the area attractive for global investors considering that an estimated 17% of India's population, a massive pool of cheap and qualified labour, lived along the corridor¹⁵.

The Eastern corridor in turn would connect Dankuni in West Bengal to Delhi in a first phase, and then Delhi to Ludhiana in Punjab.¹⁶ It would run through several states along the Ganges plain—one of the most crowded areas in the world—but also an area rich in natural resources

¹⁴ GoI (2014). Ibid

¹⁵ Concept paper – Delhi Mumbai Industrial corridor" Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, Government of India, August 2007

¹⁶ In 2007, a decision was taken to extend the corridor to a proposed deep-sea port near Kolkata

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

notably coal, iron, and cereals. Hence the Eastern corridor was more than a catalyst for economic growth in the area along the corridor. It was a major contribution to resolving India's shortage of power in the North and Western regions, and thus enable the transformation of the Western corridor area into a manufacturing hub.

The four other corridors included: a 2,000km East-West corridor (West Bengal-Maharashtra), the 2,173km North-South corridor (Delhi-Tamil Nadu), a 1,100km East-South corridor (West Bengal-Andhra Pradesh), and an 890km South-South (Tamil Nadu-Goa) corridor.

In 2006, the RITES feasibility study estimated a Rs 22,000 crore budget for the Eastern and Western corridors, assuming works would start in 2008 and would be completed by 2012. It also assumed that the rolling stock (diesel locomotives, wagons) would be leased, and thus the estimated Rs 5,000 crore investment was not factored in the estimated budget.

Importantly, the GoI planned to seize the economic growth opportunities that the new corridors could create. With core finance from the government, and extra finance pledged by Japan, the Ministry of Commerce and Industry formed the Delhi-Mumbai Industrial Corridor Corporation in 2007. The aim was to explore economic growth and urban development opportunities on a 150km band on either side of the corridor along the lines of the Tokyo-Osaka corridor. The plans for the \$90bn (2008 prices) Western Industrial corridor were ambitious—one eco-city, Dolhera, out of more than seven under planning, would be twice the size of Singapore. Plans to develop six industrial parks were also on the drawing table.

GoI's ambition did not stop here. And in 2013, another public agency was formed to explore similar opportunities along the Eastern corridor, and a budgetary support of Rs 5,749 crore was allocated to plan 20 cities along the Eastern Industrial corridor.

The ambition for the industrial corridors made it critical to avoid slippages in the completion of the dedicated freight corridors. If global manufacturing groups, property developers and other investors lost confidence on India's ability to deliver the freight corridors on time, they would surely put off investment in the new industrial corridors.

Furthermore, slippages in the budget and timescale for the DFC project would complicate the viability of DFCCIL. The company was expected to be profitable, and thus use future freight tariffs to cover operational costs and pay off all the debt. One DFCCIL official said:

For me, the economic benefits aren't important because we're not government. ... For them [government] economic and socio benefits takes precedence over the financial benefits. For me the priority is financial or my profits. My job is to do business.

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

The Dedicated Freight Corridor Corporation of India (DFCCIL)

MoR established the Dedicated Freight Corridor Corporation of India (DFCCIL) in 2006. DFCCIL's remit was to undertake planning and development, mobilize financial resources and construction, and maintain and operate the dedicated freight corridors [Exhibit 8].

The government's concession agreement¹⁷ (CA) with DFCCIL laid down the rules governing the relationship. DFCCIL was responsible for the project and operations, but MOR kept overriding powers to conduct inspections and tests and to resolve disputes with contractors and train operators. MOR also remained the owner of the land [Exhibit 9].

The CA left the business model unresolved. Discussions were ongoing as to whether DFCCIL should collect the freight revenue or these should first be collected by IR and then partially apportioned to DFCCIL. It was also unclear how much autonomy DFCCIL would have to set track access charges, go after new business, and build reserves. Without an adequate revenue stream, DFCCIL would be wholly dependent on the Ministry of Railways.

Appointments for the DFCCIL high-level posts would be made for 5-year periods. These appointments had to go through the Public Enterprises Section Board - a governmental body tasked with advising Government on top management appointments in public agencies. As it turned out, DFCCIL was mostly manned by IR staff and had limited autonomy from IR, which some officials in the Planning Commission found deeply frustrating:

All sound principles of corporate functioning are conspicuous by their absence...there's no cohesive, coherent [DFCCIL] management team. The chief executive has little say or choice in the selection of the team... DFCCIL has all the weakness of the MoR, no accountability, no incentives to do well ...as long as you keep the MoR happy you cannot be removed...people are happy to be appointed because they've their own empires, nice salaries, preside over large contracts, can hire who they want... can take bribes if they want...right or wrong, everyone believes the Indian government is not one notorious for low levels of corruption.

The Planning Commission was not alone in calling for IR to give more autonomy to DFCCIL. A 2010 mission of a World Bank (Bank) team commented on the need to change the DFCCIL governance¹⁸. For the Bank, DFCCIL needed to incubate a culture of ownership among employees who were motivated as stakeholders in institution building, instead of being treated as anonymous parts of a hierarchical organizational.

¹⁷ A negotiated contract between a company and a government that gives the company the right to operate a specific business within the government's jurisdiction, subject to certain conditions.

¹⁸ Agarwall and Raghuram (2012). Structuring the Dedicated Freight Corridor Project: A Lost Opportunity. Indian Institute of Management.

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

These were, however, difficult changes to implement. IR was the owner of assets, notably land, which had been under-utilized for decades. IR was reluctant to make the assets available to DFCCIL unless DFCCIL remained under its control. Also, as long as DFCCIL remained under IR's control, the MoR would have to bail DFCCIL out if the budget slipped. Hence IR wanted to maintain the status quo. At an even higher level, the lines of separation between MoR as a policy-making institution and IR as an implementation arm were unclear.

Planning for the delivery of the DFCs

Land Acquisition

Given that agrarian activities were central to Indian economy, land acquisition was a politically sensitive issue, and had to be dealt carefully. Additionally, to attract international lenders such as Japan and the World Bank, the DFCCIL had to follow their own accepted procedures that by and large mirrored standards adopted in developed economies.

India's track record on this dimension was not good. Many projects in the past had stalled in the courts due to judicial fights over plots of land. The government was thus keen to pass legislation to make it easier for DFCCIL and other utilities to acquire land. A major breakthrough came about with the change in the Railways (Amendment) Act in 2008. Following this, utilities were empowered to acquire land for special infrastructure projects approved by the Centre. The land would be acquired through hearings before magistrates; one official said, "If the railway ministry approves a special project, the officer overseeing the plan can acquire land directly by informing, but not involving, the state administration."¹⁹

Building upon the new legislation, in 2009, DFCCIL issued a notification under Section 20A of the Indian Railways (Amendment) Act, 2008, for nearly 5,000 hectares across eight states. And after the DFCCIL was granted special powers to take possession of land for projects of national importance, it issued a final notice for 6,000 hectares.

Politicians in the opposition outrightly attacked the government, and demanded it to repeal the act; these attacks were targeted to the Railways Minister, Mamata Banerjee, who had previously sided with farmers and landowners who did not want to part with their land for a plant promoted by Tata Motors [**Exhibit 10**]

Facing a public outcry, in 2010, the Railways Minister Mamata Banerjee instructed the DFCCIL to hold individual negotiations with each landowner whose property needed to be acquired, and thus refrain from forcibly acquiring land for the project:

¹⁹ Deb land jab at railways, The Telegraph, Calcutta, India, December 14

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

*We're using our land bank for various railway projects including the dedicated freight corridor (DFC), and there is no need for forcible land acquisition ... It [land acquisition bill] is draconian, and against farmers' interest*²⁰

This decision by the Ministry of Railways was popular with landowners, but frustrated the Planning Commission. Needless to say, the history between the two public bodies was not good. The Planning Commission, who had one representative on the DFCCIL board, had long asked the MoR to delegate more powers to DFCCIL management. It was also frustrated with the reluctance of the MoR to seek out alternative sources for financing the corridors.²¹ In the midst of a war of words between the two bodies as to who was to blame for the delays and cost escalation with DFC, and unsuccessful effort by the Prime Minister's Office to mediate the conflict, the DFCCIL continued to act upon the recommendations of the MoR.

Under governmental pressure to limit compulsory land purchases, the DFCCIL re-aligned the corridors and brought them closer to the existing tracks, thereby reducing the need for land acquisition by a significant margin. These changes put pressure on the performance targets, at a time when the opening date had already slipped to 2015-16 and the budget had more than doubled. In 2010, the DFCCIL managing director announced a new budget of Rs 60,000 crore. But by August 2010, the press reported that the Planning Commission expected the DFCCIL budget (by then estimated at Rs 75000 crore) to rise up to at least Rs 100,000 crore.

Land issues continued to dog the DFCCIL even after a new politician was appointed to head the MoR. In 2011, IR agreed to fall in line with the Uttar Pradesh government's new land acquisition cum resettlement and rehabilitation policy while acquiring the land for the stretch of the Eastern Corridor that passed through the state. And in 2013, in a relief to over 100 farmers from 26 villages, the Gujarat High Court cancelled the land acquisition by DFCCIL.

Later, in January 2014, the DFCCIL experienced another setback when Mamata Banerjee, the former Railways Minister by now at the helm of the Bengal government, asked the DFCCIL to pay the market price for the land under its possession that was needed for the corridor along the Bengal stretch (other states had settled for lower, traditional rates). In Bengal, a total of 427 hectares was required to lay rail tracks, of which 37 hectares belonged to the state government. The cost of the land was not much. But the IR feared that if the demands for market prices were accepted, it would set a precedent that would make public-purpose projects more expensive.²² Mr. R.K. Gupta wrote to Bengal chief secretary Sanjay Mitra:

²⁰ News Outlook, India, October 29, 2010

²¹ <http://expressbuzz.com/nation/mamata-hauled-up-for-delaying-project/190124.html>

²² The ambitious Eastern Freight Corridor has run into a tricky federal speed-breaker. The Telegraph, Calcutta, January 29.

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

The state government is insisting on including land vested to the state under the provisions of Section 20A of the Railway (Amendment) Act, 2008.... In all other states, government-owned land is kept out of the provisions of Section 20A

Despite these challenges, by 2014, the DFCCIL reported that it had acquired 90% of the land needs. It had achieved this by undertaking a more participatory approach to land acquisition than had been done in the past, and of this Mr R.K. Gupta felt proud

I can appoint my own land acquisition officers, or act as land acquisition officer myself. But what we did - and that is where the success of this project lies...I've appointed state government officials with consent from the state government as land acquisition officers...I'm using that to win expertise of the state government but also of federal legislation.

Japan's Involvement

The performance expectations set out in the 2006 RITES report were discarded in October 2007 when the Japan International Cooperation Agency (JICA) published its own feasibility study (commissioned to Nippon Koei, a Japanese consultant).²³ Building upon the RITES study, JICA doubled the budget to Rs 50,000 crore whilst excluding the costs of upgrading the feeder routes and of rebuilding the roads that crossed the railway. With regards to scheduling, JICA expected that if construction were to start in 2008 the project would be completed no earlier than 2015/2016. When including the procurement of the locomotives and wagons, the completion date was estimated to be 2019.²⁴ [Exhibits 11, 12 and 13]

Clearly JICA was unwilling to finance a number of items listed by RITES. First, JICA argued against including Rs 5,000 crore for constructing hundreds of railways overbridges (ROBs)²⁵ in the budget. For JICA, the users and beneficiaries were the road transport community, and thus the items should be funded by other agencies. JICA also reckoned that many ROBs would be both difficult and costly to implement, and proposed keeping some level crossings with automatic train detection systems²⁶. JICA also excluded from the budget the cost of modernizing over 3,000km of feeder routes, whilst leaving unchanged the costs for land acquisition, compensation for relocation, and consultancy services [Exhibit 14]

²³ JICA (2007). *The Feasibility Study on the Development of the Dedicated Multimodal High axle Load Freight Corridor with Computerised Control for Delhi-Mumbai and Delhi-Howrah in India*. Executive Summary. September, JICA

²⁴ JICA (March 2010). Ex-ante Evaluation (for Japanese ODA Loan)

²⁵ Where a bridge takes one form of transport over another it is both an overbridge and an underbridge, depending on the reference level. For example, where a road passes above a railway, the bridge is an overbridge from the point of view of the railway and an underbridge from the point of view of the road.

²⁶ Since the DFC ran along the existing railway line, eliminating level crossings on DFC also required eliminating them on the existing line, which in turn required Indian Railways to find extra funding

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

JICA agreed with the main assumptions set out in the RITES report, notably the demand forecasts and the principles of laying down the route along the existing railway and avoiding urban areas to avoid large involuntary resettlements. For JICA, the scheme was commercially viable insofar the interest rates on loans were kept low. But to be eligible for ODA loans from the Japanese Bank for International Corporation (JBIC), JICA candidly stated that a number of things in the scheme would have to change, clearly flexing its muscle as a lender.

JICA agreed that the track should be designed at least to accommodate an axle load of 25 tons on the track structures, and an axle load of 30 tons on other structures (the RITES assumption). But given the global trend toward adopting stronger head-hardened rails, JICA suggested adopting even stronger head-hardened rails designed for a 32.5 tons axel load. It also recommended introducing advanced traffic control systems to integrate telecommunication, signaling, and traffic management systems.

JICA also requested a re-examination of the route in locations where it found that the reconstruction of the railway over-bridges (ROB) would be too difficult and costly, and expressed concerns with the lack of data for some tunnel structures. Finally, JICA recommended investment in double-stack containers on 'well-type' wagons as opposed to single stack containers on flat-type wagons as proposed by RITES. Double stack wagons were in use in freight corridors in other countries, and JICA felt they were a superior option.

Importantly, JICA recommended electrifying the DFC (RITES has proposed diesel traction). This change would require more capital, and Indian Railways argued freight trains were also hauled by diesel locomotives in the USA and Australia. But JICA argued that the life-cycle costs would be lower due to lower locomotive procurement cost and lower operations costs.

JICA also insisted that DFCCIL needed to conduct an Environmental and Social Consideration Study. Although the GoI did not require any Environmental Impact Assessment for railway projects, JICA noted that this was a requirement by international lenders. In line with JICA's own Environment and Social Impact Mitigation Measures Study, the DFCCIL would have to incorporate more detours, stakeholder meetings, provisions to resettle houses, and livelihood restoration plans for migrant and non-migrant squatters.

JICA also noted critical differences between its expectations in terms of compensation for land acquisition and involuntary resettlement and the assumptions in the RITES report. Hence JICA requested that the application of the Replacement Cost be based on market rates of the farmland, which was higher than domestic practice based on India's National Rehabilitation Policy-2006. And JICA asked to budget the cost of the wagons, locomotives, and a locomotive depot as it assumed the DFCCIL would procure them directly (rather than

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

freight operators as assumed by RITES). JICA also revised the DFC budget to include the costs of project management consultants, administration, price escalation, and interest.

The soft loan extended by Japan - at an interest rate of 0.2% per annum - would last 40 years with a moratorium of 10 years²⁷, but at least 30% of the contract had to be sourced from Japan; the project management consultant²⁸ and the leading partners of the design-build consortiums would also have to be Japanese. To contrast against its offer, JICA assumed an annual interest rate of 6.5% for self-finance, 6% for other international lenders, and 12% for commercial loans. For the works that were ineligible for JBIC loans, JICA encouraged India to seek additional finance from the World Bank or the Asian Development Bank.

Unsurprisingly, negotiations between the two countries were protracted, and controversy surfaced over the loan conditions. JICA stressed its commitment to India - one official said:

The Western Corridor is the largest project by far in India, the largest project by far in the entire world for JICA...the total commitment is like 640 billion Yen. We do that in phases ...We're sketching a new avenue of growth for this country...we find immense pleasure in doing that as a bilateral partner ... to a limited extent, we're doing whatever we can

And indeed, some GoI officials argued that even if India had refused many tied-aid proposals in the past, things were different this time. The loan conditions were attractive as the GoI struggled even to raise 5,000 crore with more than 10 years tenure in the Indian domestic bond market. Others disagreed. The finance ministry leaned against tied low-interest aid, which officials felt "had always proved to be more costly than normal sovereign guaranteed forex loans".²⁹ And others noted that given the fixed exchange rate, India would have to shoulder the risks of foreign exchange fluctuation; one DFCCIL official explained³⁰:

I'm carrying the foreign exchange risk which is very huge in the Indian currency...[if] the rupee will devaluate 8% per annum during the next 10 years...and I'm borrowing on 1%, my borrowing cost will become 9%...[The moratorium] doesn't help because ... the effect is going to be there...it looks very soft... but my true cost is not going to be less than what I borrow from my Indian market...[And I'm incurring huge costs for meeting the governance... to hire certain class of consultants ...to follow a particular procurement process...my prices

²⁷ A soft loan is a loan with a below-market rate of interest. A moratorium is a time during the loan term when the borrower is not required to make repayment; the interest will accrue and accumulate but payment is deferred

²⁸ The job went to Nippon Koei, the firm who had produced JICA's feasibility study

²⁹ Terms set for Japan Rail Loan, the Telegraph India, April 16, 2006

³⁰ Controversy was such that cynics suggested the decision was about gaining Japan's support for India's ambition to get a permanent seat in the UN World Security Council.

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

[with JICA] are almost 20-30% more than what they should be otherwise...There's no advantage [of going with JICA] except that the government has taken a policy decision.

As negotiations continued, DFCCIL decided to forge ahead with a 109km-long section on the Eastern corridor (Mughalsarai-Sonnagar) using resources from Indian Railways. And by 2008 the DFCCIL announced a new alignment for the first phase of the Western Corridor with about 20 changes from the original route plan to avoid heavy settlements³¹.

In 2010, in the midst of geopolitical negotiations, agreements were finally signed to finance the 1,500km Western corridor and the procurement of electrical locomotives. Japan's loan included Rs 21,000 crore (90.3 billion Yen) for financing Phase I (Rewari-Vadodara, 950 kms) (which total cost JICA estimated to be 498 billion Yen); and Rs 11,500 crore for financing Phase II (Mumbai Port- Vadodara and Rewari-Dadri, 584 kms).³²

Overall, JICA committed to cover 80% of the fundable costs of the Western corridor, arguably financing the most profitable scheme of the Golden Quadrilateral since 60% of India's GDP came from the north and the western part³³. All the remaining costs would have to be borne by the Ministry of Railways as equity funding to the DFCCIL.

The World Bank's Involvement

Following negotiations with Japan, the GoI approached the World Bank to explore opportunities for funding the Eastern corridor [**Exhibit 15**]. In response, the Bank initiated a feasibility study drawing on the existing feasibility studies. The Bank shied away from announcing any decision before the Summer 2010, and the WB president said³⁴:

We discussed a partnership with the Indian government for its eastern railroad freight corridor...we all look at India now as a rising global economic power...the larger growth challenge for India is to look 15-20 years ahead ...

This statement was enough, however, for the GoI to rush in announcing that the World Bank would lend up to \$1.8 billion for the section of the eastern corridor linking Mughalsarai with Khurja; the press also reported that the funds would start flowing in 6 months.

³¹ <http://www.livemint.com/2008/09/05123206/Changes-in-Western-Dedicated-F.html>, 6 September 2008

³² Among all the Japanese ODA loans granted to India, 33 projects worth 586 billion Yen had been directed to India's transport sector by 2010 (JICA 2010); and in October 2009 Japan had already signed a Rs 130 crore engineering services loan agreement

³³ Freight corridor to be operational by 2016, Forbes India, June 17, 2009

³⁴ The Telegraph, Calcutta, India, December 5, 2009

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

By 2010, the DFC was budgeted at over Rs 60,000 crore including the cost of land acquisition and interest; the completion was targeted for 2016-17.³⁵ The routes had also changed. DFCCIL had made further adjustments to the alignment and added detours to avoid thickly populated locations. It had also tried to maximise the use of railway land within the existing right of way, and asked Indian Railways to transfer un-utilised loop-lines and yards.

In a report released in 2010, the World Bank officials recommended that the board supported the DFC project through its Adaptable Program Loan³⁶ scheme.³⁷ For them, the scheme effectively addressed India's transport capacity problems, contributed to decreasing fuel consumption and carbon emissions, and thus matched the World Bank's goal of promoting environment-friendly infrastructure. The officials also indicated that India would struggle to obtain commercial loans at reasonable rates of interest given the lumpy nature of the investment and the long pay back periods. The scheme also created an opportunity for the World Bank to help India develop capital project capabilities.

The report proposed that the World Bank financed the design and construction of the Eastern section between Khurja and Mughalsarai through an IBRD loan³⁸ over three phases. The estimated cost for this section was around \$3.6bn~Rs 16,200 crore (1 US\$=45 Rps). The World Bank officials expected Indian Railways to provide a third in equity.

Importantly, the World Bank asked for the works to be awarded under three design-build lump-sum contracts for civil work & track (one for each phase) and one design-build lump sum contract for all the control systems. This was a radical change for IR, which used to procure works on itemized contracts. For IR management, design-build contracts were too rigid and tried to shift too much risk to the contractors, and thus would make it harder to get contractors to bid for the job; they would also lead to many requests for extra compensation and thus a tough working environment for both parties; one DFCCIL official said:

There will be variations, mitigations and court cases. That's what we're deciding ...[to reduce the variations] we've spent a lot of time in preparing the employers' requirements so

³⁵ Indian Railways (5th May 2010). Dedicated Freight Corridor project summary

³⁶ Adaptable program loans (APLs) provide phased support for long-term development programs. They involve a series of loans that build on the lessons learned from the previous loan(s) in the series.

³⁷ World Bank (2010). Indian railways Eastern Dedicated Freight Corridor Project Information document (PID). Concept Stage

³⁸ IBRD loans are public and publicly guaranteed debt extended by the World Bank Group. The International Bank for Reconstruction and Development (IBRD) lends at market rates.

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

.. so that the contractor understands the scope of the works more clearly. ...But this remains a tester with us because we're dealing with such a contracting strategy for the first time

But the World Bank officials disagreed; one said:

...if the payment terms [of the lump sum design-build contract] are so that he [the contractor] makes profit only if he completes it, and his cash flow is taken care of as far as he is working and incurring expenditures, then you will see the contractor completing it at the earliest because incentives are aligned.

The World Bank committed to finance a few essential railway over bridges. But the Bank would only release the loans after the DFCCIL had acquired at least 80 percent of the required land for each contract, half of which in continuous blocks of no less than 10km. Furthermore, before releasing a new loan, all major civil works contracts for the preceding loan would have to be awarded and the contractors mobilized.

The World Bank would also require environmental assessments even if Indian law did not mandate IR to secure environmental clearances from the Ministry of Environment and Forests. Still, for the World Bank, the Railways Act 2008 amendments to streamline the process of land acquisition, and India's 2007 National Policy on Resettlement and Rehabilitation were in line with the Bank's Operational Policy on Involuntary Resettlement.

With the OK from the board, the World Bank officials started working on a Project Appraisal document to release funding for the first section. The first loan (APL1 for Khurja-Kanpur, 343 kms, \$975m) was finally signed by the GoI and the World Bank in May 2014; the WB also committed funding for **APL 2** (Kanpur -Mughalsarai, 393 kms) and **APL 3** (Ludhiana-Khurja-Dadri, 447 kms) conditional to DFCCIL meeting the Bank's predefined milestones.

The World Bank ruled out, however, financing the 534km Sonnagar-Dankuni (near Kolkata) section. For the Bank, this extension was not viable due to the shallow depth of the river port in Kolkatta and the fact that less than 20% of the ports traffic was handled by the Eastern Coast ports. But this politically sensitive extension had been already committed in 2007 - "In view of the representation by the Bengal government and considering the possibility of increase in freight traffic, the eastern corridor will be extended up to the proposed deep sea port in the Calcutta area," said the finance minister P. Chidambaram at the time.³⁹

³⁹ Freight Corridor to connect Calcutta, The Telegraph, 27 November 2007

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

Hence, in February 2010, the Railway Minister⁴⁰ announced that a PPP would be pursued to fund this leg of the scheme. Ms Banerjee's decision for a PPP was controversial. The Railways Act 1989 allowed for private railway systems, but the government's Industrial Policy Resolution of 1991 had reserved railway transportation for the public sector. Many argued that train operations should be the preserve of the public sector, although they were happy to involve private concessionaires to build and maintain new railway lines.

As the negotiations with the World Bank unfolded, it became obvious that the performance expectations would slip again. Frustrated with new slippages, the Planning Commission exhorted IR to seek alternative finance through market borrowings and private finance. The Planning Commission also exhorted IR to go ahead with at least two new corridors on a PPP mode if they had an IRR of more than 5%. Any gap in funding could be provided by IR, which was allowed to borrow up to 20% debt of the project costs⁴¹. But resistance to innovate finance was high in IR, and the Planning Commission recommendations fell flat.

Delivering the Dedicated Freight Corridors

A Clash of Contracting Strategies

By 2013, DFFCCIL was proud to have acquired around 90% of the land. But procuring the works turned out to be quite complicated. IR had a tradition of procuring works, admittedly for smaller projects, through itemized contracts with unitary costs. Both the Planning Commission and the World Bank argued that this practice was responsible for frequent cost and schedule slippages and created a project environment vulnerable to bribes and corruption.

After much heated debate, in 2009 Indian Railways caved in and agreed to use lump-sum design-build contracts. DFCCIL would adopt the Fédération Internationale Des Ingénieurs-Conseils (FIDIC) Conditions of Contract for Plant and Design-Build as the foundation for the bidding, contracting and implementation process. This required that Contractors participated in design work to promote innovation and help reduce the costs, especially for high cost components like railway embankment and sleepers. One contractor explained:

FIDIC it is a Swiss thing. ...The implication is that as a designer I'm responsible for the work that I carry out according to my design... The client will never approve the design that I

⁴⁰ Names by Time magazine in 2012 one of the "100 Most Influential People in the World", Mamata Banerjee was a powerful politician from West Bengal, a state in the Eastern region (state capital Kolkata); she was minister of railways between May 2009 and May 2011.

⁴¹ VGF: Viability Gap Funding aims at supporting infrastructure projects that are economically justified but fall short of financial viability. This is done by means a one-time grant provided by the Public Sector (Central Government / State Government) for Financial Support to PPPs in Infrastructure, with the objective of making a project commercially viable

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

*forward to him....He'll just give the 'no-objection'...I'm the master with that responsibility. If the client thinks my design is wrong, it becomes his responsibility.*⁴²

But by 2010, the DFCCIL's commitment to the new contracting strategy appeared to be drifting. In October a mission from the World Bank criticized DFCCIL's procurement approach, pointing that the bid documents were not design-build in spirit and limited innovations by bidders since most designs were provided as employers' requirements, and asked bidders to follow RDSO⁴³ approved designs⁴⁴. The World Bank mission said:

The key aspect of our (the Bank) agreement has been reduced to incorporating these FIDIC Conditions of Contract in a perfunctory way and without really paying attention to how this FIDIC document clearly and consistently defines the respective roles, obligations and relationship of the Employer, the contractor and the Engineer in a typical design-build contract. Much of the guidance provided by FIDIC in this document has been disregarded, especially where it counts the most: customizing the Particular Conditions of Contract

Furthermore, the World Bank mission had asked DFCCIL to adopt a 2-stage bidding process to create more opportunities for bidders to propose innovative solutions. The DFCCIL documents had copied the 'Instructions to Bidders' in the Bank's documents almost verbatim. But the World Bank mission said they then contradicted them with detailed elaborations in an "Employer's Requirements" section that had left negligible opportunities for innovation.

The World Bank mission also expressed concerns for the large number of approvals envisaged during construction. Particularly, they noticed that a contractor was required to get design approval even in cases where the employer had provided the design. To reduce delays, the Mission asked the DFCCIL to review the contracting documents, use consultants to review the contractors' innovations and provide legal and project management advice, and to reduce the number of employer approvals to the ones that would be truly essential.

After long discussions, and under pressure from the Planning Commission and even the Prime Minister's Cabinet, Indian Railways and the DFCCIL agreed to modify the contract terms and conditions to allow the contractors to play a greater role.

As it turned out, encouraging international consortiums to bid under fixed price conditions

⁴² It is a FIDIC condition that the client has 21 days to give the no-objection

⁴³ RDSO was the Research Designs & Standards Organization, a public agency which roots could be traced to 1903. RDSO had long been responsible for preparing designs, standards and specifications, and enforce standardisation and co-ordination amongst the railway systems

⁴⁴ Agarwall and Raghuram (2012). Structuring the Dedicated Freight Corridor Project: A Lost Opportunity. Indian Institute of Management.

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

proved difficult. Furthermore, despite the lenders' pressure on Indian Railways to streamline procurement and contracting, the Research Designs & Standards Organization (RDSO) continued to play a key role in approving the contractors' proposals. The bidders themselves were concerned RDSO validation could be a source of delays, and were lobbying government to create another organization that could validate designs and thus offer competition to RDSO, a stakeholder that had limited accountability on the project; one contractor said:

The freight corridors are next to the passenger railway lines just few meters away ... in case there's an accident [it can] hit the Indian railways operations and kill some passengers. So it becomes mandatory for IR to introduce RDSO control for everything... RDSO and the Commissioner of Railway Safety (CRS) work with the Ministry of Railways (MoR)...So the complexities of approvals are there ... DFCCIL has to approach the MoR. MoR in turn will approach CRS and RDSO. They will return back to MoR. MoR will return back to DFCCIL.

By 2011, the World Bank estimated the cost of the first phase for the Eastern corridor in Rs 18,475 crore (US\$4.1bn, with US\$1= Rps. 45) and completion in late 2015 [Exhibit 16]. But it also noted that the completion date could slip further due to delays in awarding the contracts. On the Western corridor, things were also looking complicated. Japan had required that the consortiums should be led by a Japanese firm, but the latter were showing cold feet.

Corruption

Allegations of corruption had long dogged Indian Railways. Between 2005-6, after a series of preventive checks were conducted and complaints investigated, 10,223 corruption cases had been handled and 6741 officials faced disciplinary action. The last thing the DFCCIL scheme needed was an incidence of corruption.

But in 2009, the Central Vigilance Commission (CVC), a government body that addressed problems of corruption in the public office, uncovered 'serious irregularities' in three contracts handling public funds let out by the DFCCIL. In its investigation, CVC observed:

Malicious interpretation of tender provisions and subsequently motivated negotiation against the interest of DFC...The tender itself seems to be awarded at a very high rate, as the consultant's revised estimate was quite inflated and not based on standard analysis and practices⁴⁵

The events soon became the focus of sharp exchanges on the press between the government and political opponents; for example, Sushil Kumar Modi, Bihar deputy chief minister said:

⁴⁵ Riys ask DFC chief to proceed on leave Press *Trust Of India* New Delhi September 22, 2010

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

Mamata Banerjee [Minister of State] should order a CBI [Central Bureau of Investigation] probe into the alleged freight corridor scam with a mandate to investigate the role of the then railway minister [Lalu Prasad] into award of tenders ...Is it not true that CVC has listed out charges of “serious corruption” and “criminal conspiracy against public interest” and the DFCCIL managing director V.K. Kaul has been sent on long leave?”⁴⁶

Indeed, the managing director and other senior officials were put on leave, and a search was launched for a new managing director. Changes to the DFCCIL structure ensued and the DFCCIL lost even more autonomy; one DFCCIL official said:

Following allegations of misappropriation of funds in 2010, our autonomy was scaled down to the level of that of zonal railway...It will be a very complex and time consuming affair if we have to start seeking the railway ministry's approval at every stage

To complicate matters, a five-person Vigilance Office was set up at the DFCCIL in Delhi. The leading official was seconded from the police, and tasked to investigate any suspicions of corruption and scrutinize the award of contracts, land acquisition deals, and activities on site. Some feared that the pendulum had swung too far – middle management appeared reluctant to resolve problems concerned that their actions could be misinterpreted. One said:

Everyone is afraid of vigilance...we don't want to make decisions because we're afraid our decisions will be challenged by the vigilance officer or by senior management...I had an example of a lump-sum contract with some flexibility built-in for variations all of which could be measurable...it was going to be straightforward to measure and thus pay the contractor...it was a really good contract.... senior management said it was too risky and vulnerable to bribes and corruption...it was really disappointing

Mr. R.K.Gupta, the newly appointed chief executive, concurred that the lack of autonomy was an issue for the DFCCIL:

We've commitment on the budget and the budget is very, very tight in the sense, if I can put it this way...contingencies are limited to only 3 percent...project authorities are not really free to do whatever they like, they've to be within budget; they're always under control...So we've to be constantly in touch and in dialogue with the government for various approvals... Every year I've to seek the budget from the parliament

⁴⁶ Modi fires freight salvo, *The Telegraph*, Calcutta, India, September 21

Forging Ahead

Challenges and slippages notwithstanding, DFCCIL continued to plough ahead. This was not a meagre achievement, argued Mr. R.K. Gupta, considering that more than 60% of high-end infrastructure projects would never take off in India due to environmental and land issues.

DFCCIL continued to fight for more autonomy from Indian Railways, 'the big daddy' as one JICA official put it, notably to elevate its MD to the role of chief managing director (CMD). If a CMD headed DFCCIL, s/he would be free to call Board meetings to hasten decision-making. As it were, the government needed to approve any major changes such as in 2012 when DFCCIL asked the Railways board to run trains double the size envisaged earlier. This would more than triple the loading capacity and improve the operating margins to at least 15% from under 10%. But the change would add an extra Rs 10,000 crore to the budget, which would therefore increase to Rs 90,000 crore. DFCCIL was confident that the Railway Board and ultimately the Cabinet would approve the change.

By 2013, land acquisition issues were by and large out of the way. Out of total 3,608 hectares required in phase-I for the Western corridor, 3,186 hectares had been acquired, and for the phase II, out of total 2,252 hectares required, 1,041 hectares had been acquired. And complicated environmental clearances, as the crossings of the Sanjay Gandhi National Park and Wild Life Sanctuaries, had also been resolved.

The negotiations for the final fixed-price contracts were, however, proving complicated. DFCCIL had issued requests for proposals in the summer 2012. But bidders asked for many clarifications. Aware the targets would have to slip again, DFCCIL ditched hard goals, and announced that a *phased commissioning* of the two corridors would start in 2017.

In February 2013, the DFCCIL awarded the Khurja-Bhaupur section (343 kms) on the Eastern Corridor to a 50:50 joint venture of Tata Projects (India) and Aldesa (Spain), a Rs. 3,300 crore contract. The 343 kms stretch was sliced in three lots; all the lots had 8-9 bidders in the running. Execution of the work was planned to last 4 years.

As procurement continued for the Western corridor, by March 2013, the Railways Minister announced in Parliament new performance targets. The estimated cost of the two corridors was now at Rs. 95,836 crore including cost of land, and commissioning would start in 2017.

The requirement for a Japanese firm to lead the consortiums in the Western corridor was a major headache. Due to the conflation of a heated market in Japan in the aftermath of the 2011 earthquake and tsunami, and the rigid contract conditions, Indian companies were struggling to find Japanese companies to tie-up with. A DFCCIL roadshow in Japan had

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

limited impact. One JICA official said:

Indian Railways is considered to be a very tough client...they're using the FIDIC document. But interpretation of the clauses becomes very difficult when you're dealing with the Ministry of Railway officials ...Railways are saying 'design-build lump sum is design-build lump sum-when you feel that there is risk, you cost it' .. the problem is where the geological surprises turn out to be too many....the Japanese guy isn't able to convince himself on the risks.

In response, the DFCCIL suggested to the government and the Prime Minister's office to ask Japan to relax the tie-up condition. As DFCCIL waited for the outcome of bilateral talks, it tacitly chose to use the bids for the World Bank funded eastern corridor as the benchmark for the Western corridor. Their concerns were prescient, as only two bidders ended up qualifying for the Western corridor packages; still, one official underplayed the issues:

The track record of multinationals in transport infrastructure has been extremely poor and the reason for this is that transport infrastructure requires you to manage politics right from the central government down to the village councils ... Most of these guys simply won't do it... the homegrown companies can handle this much better... but you need competition.

Finally, in June 2013, DFCCIL awarded a Rs 6,700 crore contract for the first phase of the Western Corridor to a consortium of Sojitz (Japan) and Larsen & Toubro, one of India's major engineering and construction companies. The competing bidder had submitted a bid of Rs 11,220 crore, which unsettled some observers who worried the 4-year winning bid was too low. Sojitz's role in the winning consortium was described as that of a sleeping partner, subcontracting most of the 51% share of the works back to L&T. The exception were the head hardened rails that would be sourced from Japan at a premium.⁴⁷ Aware of how the process was slipping, in the ex-ante evaluation of the loan for the second phase, JICA admitted that the procurement of the locomotives would not be completed before 2023.

As for the Sonnagar-Dankuni section that the World Bank had refused to finance, the government insisted that it would be delivered through a public-private partnership (PPP). The plan gained traction after the Steel Authority of India expressed interest in funding this stretch if it could get the laying and building contract of the railway tracks. But by 2014 nothing concrete was on the cards, and officials were still trying to figure out the terms of a PPP deal that the market would welcome. This was not trivial as investors demanded guaranteed returns up to 15% and traffic guarantees; regulations also needed to change to

⁴⁷ One bidder suggested that Japanese high-quality rails were 30 to 35% more expensive than European high-quality rails; given that the head-hardened rails amounted to 35% of the bid overall price, this component automatically increased the cost of the bids in around 10%

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

allow for foreign direct investment in railways. Some argued the concept was not doable.

In February 2014, in a written reply to a question in The Rajya Sabha, the upper house of the Parliament in India, the MoR announced that the Western corridor was targeted to be commissioned in 2018 and the Eastern corridor in 2019. In private, the Ministry of Railways had asked DFCCIL to review the scope of the works so as to bring the budget down – the latest estimate -- Rs 97,725 crore –exceeded the finance available from Indian Railways.

With all polls suggesting that power at the Centre would change hands, could Mr. R.K. Gupta convince the incoming political masters to see beyond the continuous performance slippages that had dogged the scheme since its inception? To see that on the whole DFCCIL was a high-performing outfit, but one that operated in a challenging institutional environment? And that there was not much the DFCCIL could do to forge ahead with the remaining corridors?

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

Exhibit 1 - Golden Quadrilateral and its two diagonals (Source: Ministry of Railways)



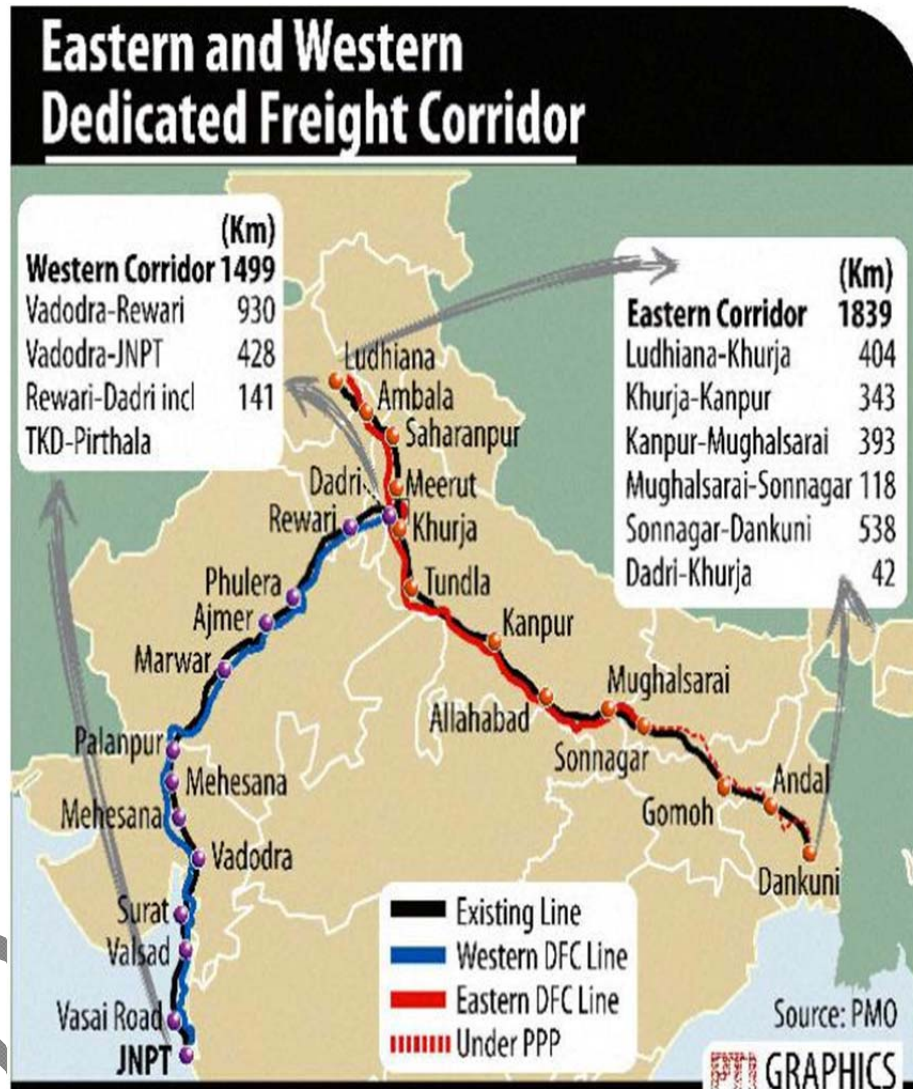
Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

Exhibit 2 - Salient Features of the 2 projects as at 2011 (Source: Dedicated Freight Corridor Project brief document, Indian Railways, February 2011)

Features	Western Corridor	Eastern Corridor
Route Description	JNPT-Ahmedabad-Palanpur-Rewari-Tughlakabad/Dadri	Dankuni-Gomoh-Sonnagar-Mughalsarai-Kanpur-Khurja-Ludhiana
Route Kilometre	1534	1839
No. of lines	Double (Single-Tughlakabad-Pirthala)	Double (Single – Khurja-Ludhiana)
Signalling	Automatic signalling with 2 kms. spacing on double line. Absolute block system on single line.	Automatic signalling with 2 kms. spacing on double line. Absolute block system on single line.
Traction	Electrified (2x25 KV AC)	Electrified (2x25 KV AC)
Axle loads	25 Tonne (sub-structure of bridges fit for 32.5 tonne axle load)	25 Tonne (sub-structure of bridges fit for 32.5 tonne axle load)
Speeds	100 kmph	100 kmph
Traffic projections (2021-22)	128 million tonnes (6 million TEUs), (264 trains)	144 million tonnes (160 trains)
Feeder Routes	1516 Km	3071 Km
Total Cost [current excluding cost escalation, Taxes, Insurance, IDC, Private Investment and Cost of Land (Rs.4200 Cr.)]	Rs. 22,956 crore	Rs. 23,605 crore

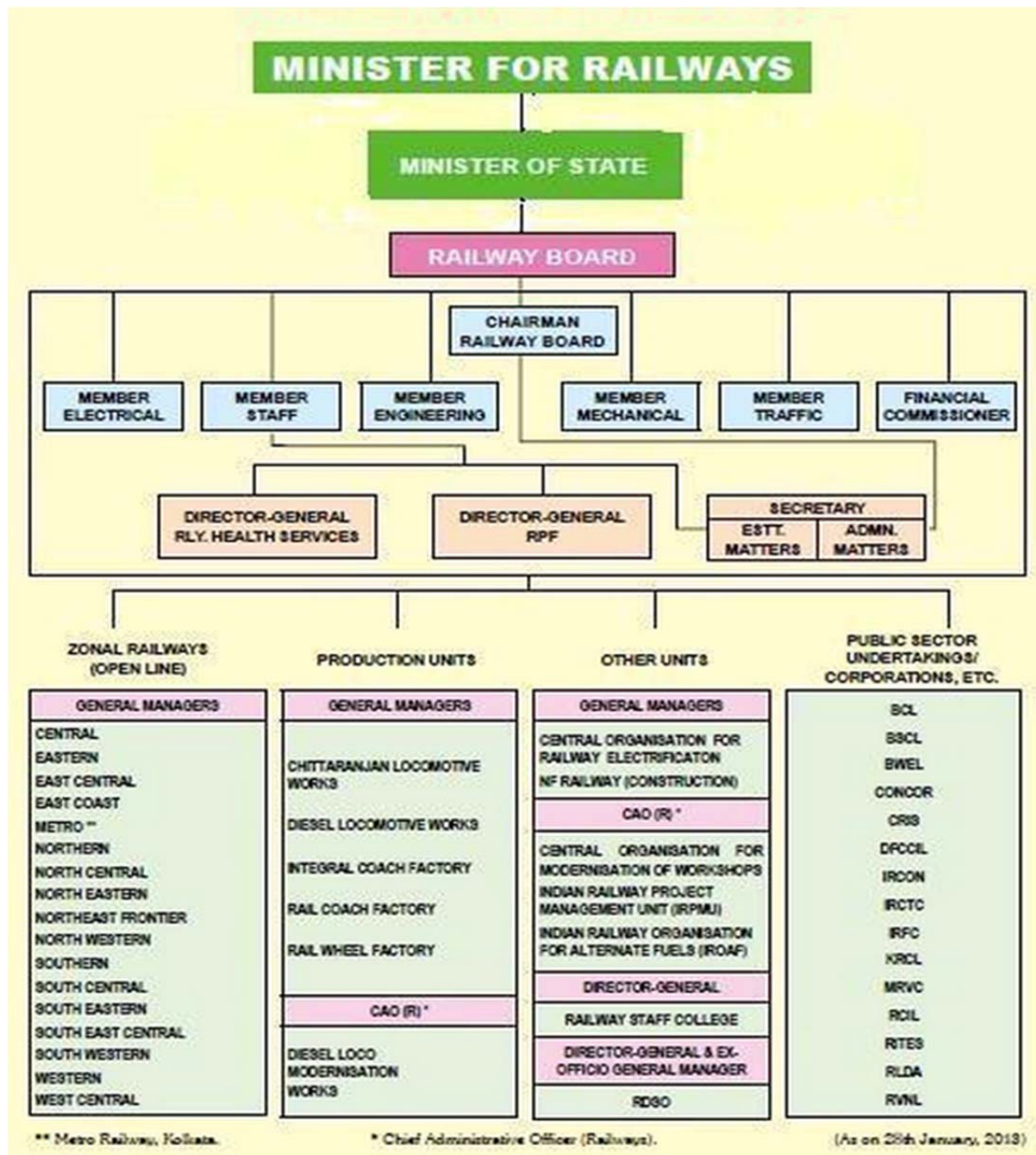
Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

Exhibit 3 – Western and Eastern Corridors (Source: Business Line, 2014. <http://www.thehindubusinessline.com/industry-and-economy/logistics/rlys-reluctance-to-cede-control-delays-1billion-world-bank-loan/article4577431.ece>)



Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

Exhibit 4 - Indian Railways Organization Chart (as on 28th January, 2013) Source: Indian Railways Website



Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

Exhibit 5 – Freight and Passenger Performance during Tenth Plan Source: Report of the working group on railway programmes for the eleventh 5-year plan 2007-2012, Railway Board, 2006

Year	Originating loading (Million Ton)	Annual Growth Rate (per cent)	Freight Output (Billion NTKM)	Annual Growth Rate (per cent)
2001-02	492.5	-	333.23	-
2002-03	518.7	5.32	353.19	5.60
2003-04	557.4	7.36	381.24	7.94
2004-05	602.1	8.02	411.28	7.88
2005-06	666.5	10.70	441.76	7.41
2006-07 (RE)	726.0	8.93	476.77	7.92
Average growth rate	-	8.1	-	7.4

Year	Originating Passengers(million)	Annual Growth Rate (per cent)	Passenger KMs(Billion)	Annual Growth Rate (per cent)
2001-02	5093	-	490.9	-
2002-03	4971	2.4(-)	515.0	4.9
2003-04	5112	2.8	541.2	5.1
2004-05	5378	5.2	575.7	6.4
2005-06	5832	8.4	615.6	6.9
2006-07 (RE)	6242	7.0	699.7	13.7
Average growth rate		4.2	-	7.4

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

Exhibit 6– Sources of funding of Indian Railways Source: Department of Economic Affairs 2009, Position Paper on the Railways Sector in India, Ministry of Finance, Government of India)

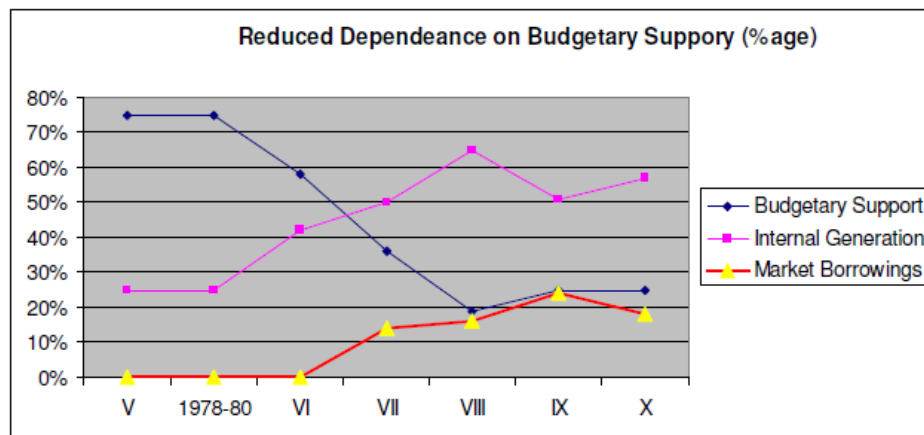


Exhibit 7 – Financing of Year-wide Plans (Rs. Crores) Source: Report of the working group on railway programmes for the eleventh 5-year plan 2007-2012, Railway Board 2006)

Year	Internal Generation	Market Borrowings	Budgetary Support	Total
2002-03	3113	2517	5778	11408
2003-04	3475	2837	7081	13393
2004-05	3712	3041	8669	15422
2005-06	7033	3731	8074	18838
2006-07(RE)	12206	4880	8561	25647
Total (Provisional)	29539	17006	38163	84708

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

Exhibit 8 – Missions and Objectives of DFCCIL Source: Agarwall and Raghuram (2012). Structuring the Dedicated Freight Corridor Project: A Lost Opportunity. Indian Institute of Management.

The mission of DFCCIL⁶⁹ as on October 2011 was:

- a. "To build a corridor with appropriate technology that enables IR to regain its market share of freight transport by creating additional capacity and guaranteeing efficient, reliable, safe and cheaper options for mobility to its customers.
- b. To set up MLP along the DFC to provide complete transport solution to customers.
- c. To support the government's initiatives toward ecological sustainability by encouraging users to adopt railways as the most environment friendly mode for their transport requirements."

The broad objectives of DFCCIL⁷⁰ as on October 2011 were:

- a) "Reduce unit cost of transportation by speeding up freight train operations and higher productivity
- b) Increase rail share in freight market by providing customized logistic services
- c) Create additional rail infrastructure to cater to high levels of transport demand
- d) Introduction of time tabled freight services and guaranteed transit time
- e) Introduction of high end technology and IT tracking of freight services
- f) Segregate freight infrastructure for focused approach on both passenger and freight business of Railways."

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

Exhibit 9 Obligations of DFCCIL and MOR as per the Concession Agreement Source: Agarwall and Raghuram (2012). *Structuring the Dedicated Freight Corridor Project: A Lost Opportunity*. Indian Institute of Management.

Obligations of DFCCIL⁶⁶

- a. Assist MOR in the acquisition of land and interests in land in the New Corridor
- b. Develop the design, construct and commission the New Railway (other than the MOR Improvements) during the Construction Period which meets the Minimum Performance Criteria
- c. Operate, maintain and repair the New Railway during the Operation Period so that the New Railway meets the Minimum Performance Criteria on a continuous basis
- d. Hand over the New Railway to the MOR on the Handover Date: Any amount outstanding as per the CA has to be paid by MOR to DFCCIL on the Handover Date"
- e. "Minimize disruption: In the implementation of the Project, DFCCIL must use reasonable endeavours to minimize disruptions and overall delays to passenger and freight services on any railway corridor used by MOR which is closely proximate to the New Corridor and New Railway"
- f. "DFCCIL must comply with, and must ensure that the construction companies comply with all laws applicable to their respective obligations in respect of the project

Obligations of MOR⁶⁷

- a. **Grant of concession:** MOR grants to DFCCIL for the Concession Period the right to implement the Project subject to and upon the terms of the CA. MOR and DFCCIL will at the end of each period of 5 years of the Concession Period review the performance by DFCCIL of its rights and obligations under the Project Documents having regard to the Project Objectives and any other matters as agreed between MOR and DFCCIL.
- b. **Land:** MOR will license to DFCCIL under the MOR license all land in the New Corridor and associated Railway Infrastructure as agreed by the MOR and DFCCIL and at the time required to comply with the Construction Programme.
- c. **MOR Improvements:** The MOR will procure the design and construction of the MOR improvements in accordance with the MOR Works Design Brief and must ensure the completion of each stage of the MOR improvements so as to allow DFCCIL to comply with the Construction Programme.
- d. **Equity Subscription:** To facilitate the funding of the project, MOR agrees to subscribe to and pay par value of equity shares of DFCCIL and DFCCIL agree to allot the share.
- e. **Financing:** MOR confirms the initial financing arrangement of ₹67,596 cr, and subject to the specific terms of the project finance documentation the total amount to be initially financed prior to Completion of the Project for the purposes of the construction phase of the Project (including the costs of the DFCCIL Works and capitalised interest during construction), to be arranged from: MOR Loan (37,265 cr), MOR Equity (17,596 cr), Senior Debt Finance (12,736 cr).

If at any time the MOR Loan, MOR Equity and Senior Debt Finance is insufficient to fund capex of DFCCIL on implementation of the Project or expenditures required during the Operation Period and

⁶⁶ Taken verbatim from Modified Concession Agreement between MOR and DFCCIL, February 2011.

⁶⁷ Modified Concession Agreement between MOR and DFCCIL, February 2011 (Minor editing has been done by authors)

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

such shortfall in funds is not the result of a negligent act or omission of DFCCIL or a breach by DFCCIL of this document then MOR must in good faith consider whether to fund such shortfall on notice from DFCCIL (accompanied by all necessary supporting documents) and should MOR agree to do so MOR will determine the appropriate form of such funding (including by way of soft loan or a further equity subscription).

- f. **Alternative Financing Support:** MOR must assist DFCCIL to obtain financing on attractive terms from external credit providers (including multilateral agencies) including by assisting in obtaining relevant Tax exemptions and waivers.
- g. **Autonomy of DFCCIL:** MOR acknowledges and agrees that DFCCIL is to have autonomy and independence from MOR in relation to its management of the implementation of the Project and the performance of its obligations and exercise of its rights under the Project Documents”
- h. **“Reasonable assistance:** To the extent reasonably and lawfully possible, the MOR must use all reasonable endeavors to ensure that any third party in relation to whom it has the authority or a contractual right to request or direct (in connection with the Project), provide reasonable assistance to, co-operate with, and do not unnecessarily or unreasonably prevent, hinder, disrupt, delay or otherwise interfere with DFCCIL and its Associates in undertaking the Project as contemplated by this document.
- i. **Zonal Railways.** MOR must ensure that each Zonal Railway with geographical jurisdiction adjacent to any section of the New Corridor or New Railway co-operates with DFCCIL and the Construction Companies in the implementation of the Project in accordance with the terms of mutually agreed program.

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

Exhibit 10– Headlines regarding land acquisition Source: Hindustan times, 4 Jan 2010

IRONIC TWIST

UP farmers do a Singur on *Didi*

Anuraag Singh and Srinand Jha

■ letters@hindustantimes.com

CHANDOULI/NEW DELHI: Farmers groups in Chandouli district of Uttar Pradesh are stoutly resisting the Railways efforts to acquire land for the development of a 1850 km long Eastern Freight Corridor from Ludhiana in Punjab to Dankuni in West Bengal.

Railways Minister Mamata Banerjee, who led the agitation of the farmers of Singur in West Bengal who did not want to part with their land for Tata Motors Nano plant, and finally succeeded in forcing the plant to shift elsewhere, now finds herself embarrassingly poised.

Banerjee had backed the Singur farmers to score political points against the ruling CPI(M)-led Left Front in her state. In UP, most of the UPAs rivals — the CPI(M), the BJP and the Samajwadi Party —



■ Mamata: On the other side of the tracks this time

have joined hands to oppose her.

For the Singur farmers unwilling to lose their land, Banerjee was a saviour: For similar farmers in Chandouli, she is a nemesis.

"Around 1000 farmers in 30 villages have been served notices," said Akhilendra Pratap Singh, who leads the Jan Sangharsh Morcha, one of the farmers' groups opposing the



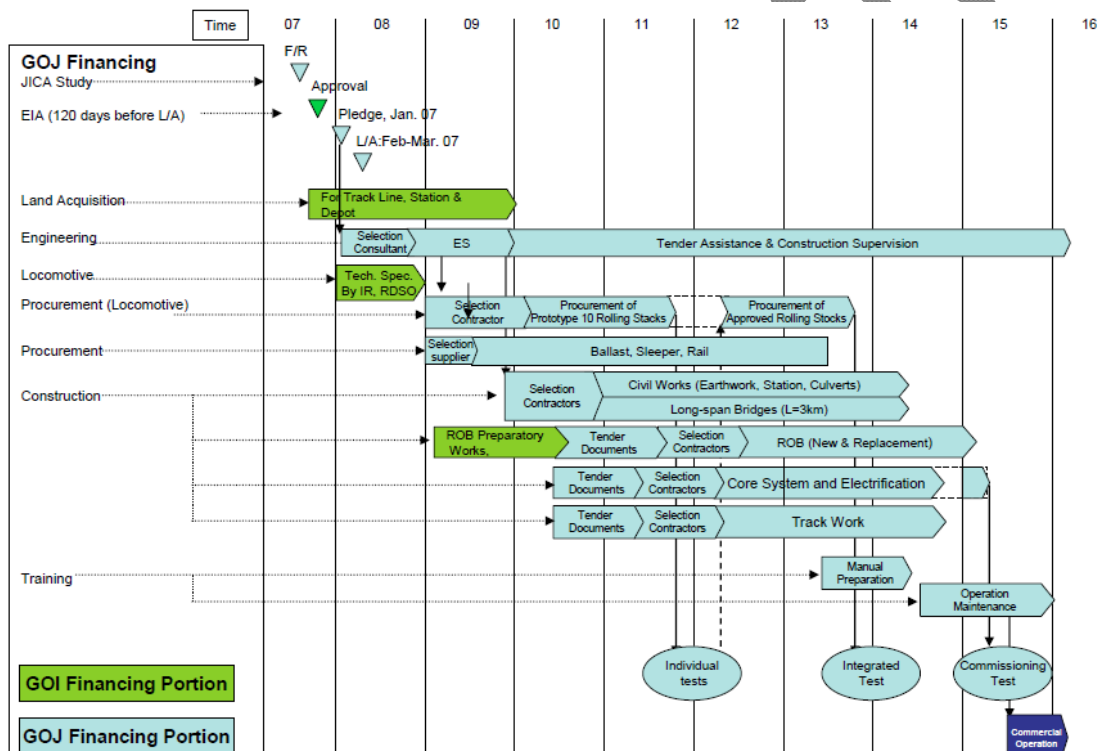
acquisition. The Railways need around 1500 hectares in the area.

"We can't believe, that Mamata Banerjee, who led farmers in Singur, is now hell bent at snatching our land for the freight corridor. This has exposed her double standards," said Ashok Singh, a Parewa farmer, who stands to lose eight of his 10 acres.

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

Copyright © 2014 (September) Nuno Gil and Rehema Msulwa. All Rights Reserved

Exhibit 11 – Project Implementation Schedule (according to JICA 2007 report) Source: JICA (2007) *The Feasibility Study on the Development of the Dedicated Multimodal Highaxle Load Freight Corridor with Computerised Control for Delhi-Mumbai and Delhi-Howrah in India*. Executive Summary. September, JICA.



Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

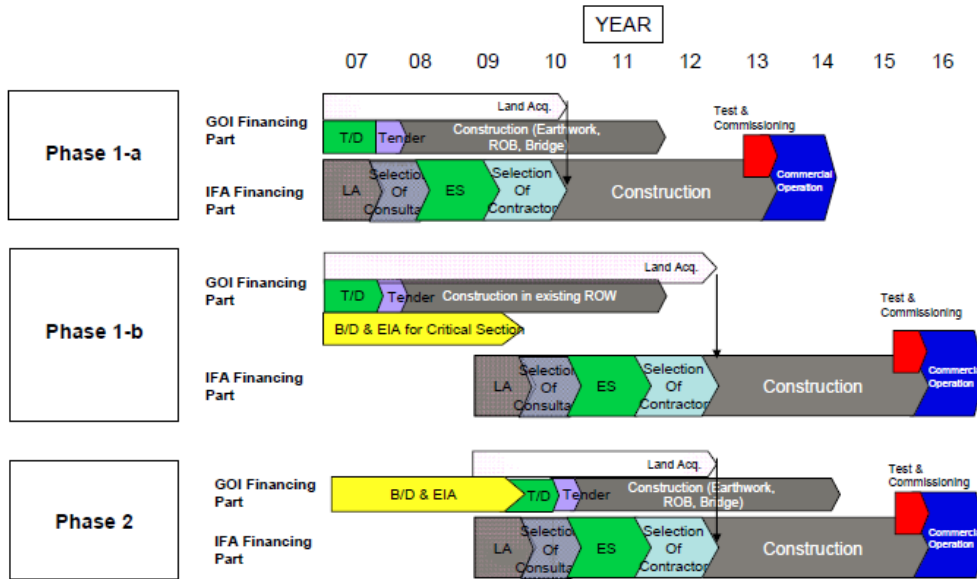


Exhibit 12 – The Western Dedicated Freight Corridor (JICA Phased Development Scenario)

Item	Development Phase						
	Phase I-a				Phase I-b		Phase II
Development Section	Rewari – Vadodara				Vadodara – Vasai Rd. and Vasai Rd. – JNPT		Dadri – Rewari
Section Length	W-A2a 290km	W-A2b 368km	W-A3 124km	W-B1 136km	W-B2 344km	W-B3 89km	W-A1
	918km				433km		117km
Assumed Duration for Construction	6 years				8 years		6 years
Commencement /Completion	2008-09* / 2013-14				2008-09 / 2015-16		2010-11 / 2015-16
Reason for Selection of Section	No significant engineering and environmental constraint on alignment of sections parallel and adjacent to existing lines and detour sections. Basic plan is likely to be fixed this fiscal year.				Substantial numbers of ROB difficult to reconstruct. Requires reconsideration of alignment.		Subject section has a tunnel section and requires further study.

Exhibit 13 – The Eastern Dedicated Freight Corridor (JICA Phased Development Scenario)

Source: JICA (2007). *The Feasibility Study on the Development of the Dedicated Multimodal Highaxle Load Freight Corridor with Computerised Control for Delhi-Mumbai and Delhi-Howrah in India*. Executive Summary. September, JICA.

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

Item	Development Phase					
	Phase I-a		Phase I-b			Phase II
Development Section	Mughal Sarai—Khurja		Khurja – Dadri and Khurja – Dhandori Kalan			Sonnagar – Mughal Sarai
Section Length	E-A1 322km	E-A2 388km	E-A3 46km	E-C1 242km	E-C2 184km	E-B
	710km		472km			127km
Assumed Duration for Construction	6 years		8 years			6 years
Commencement/Completion	2008-09 / 2013-14		2008-09 / 2015-16			2010-11 / 2015-16
Reason for Selection of Section	No significant engineering and environmental constraint on alignment of sections parallel and adjacent to existing lines and detour sections. Basic plan is likely to be fixed this fiscal year.		Substantial numbers of ROB considered as difficult to reconstruct exists along Khurja and D. Kalan which necessitate reconsideration of the alignment at some sections. The traffic between Khurja and Dadri is projected to become saturated in 2020, thus the implementation of the project of this section simultaneous with Rewari – Dadri section is considered to be reasonable.			The traffic between this section is projected to become saturated in 2025, thus the implementation of the project of this section is considered to be not urgent.

Exhibit 14 – Estimated Total Cost of the DFC Project

Source: JICA (2007). *The Feasibility Study on the Development of the Dedicated Multimodal High axle Load Freight Corridor with Computerised Control for Delhi-Mumbai and Delhi-Howrah in India*. Executive Summary. September, JICA.

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

Description	Western Corridor (million Rs.)	Eastern Corridor (million Rs.)	Total (million Rs.)	Ratio
1) Construction Costs (DFCCIL portion)	163,587	108,775	272,362	54.4%
2) Construction Costs (IR portion)	1,056	1,727	2,783	0.6%
3) Rolling Stock Cost (EL by IR portion)	39,334	36,217	75,551	15.1%
4) Consulting Service Cost	5,432	3,419	8,851	1.8%
5) Physical Contingency	10,084	7,369	17,453	3.5%
6) Price escalation	18,846	13,773	32,620	6.5%
Sub-total	238,340	171,281	409,620	81.9%
7) Land Acquisition and Compensation	26,640	25,495	52,134	10.4%
8) Taxes	2,234	1,326	3,560	0.7%
9) General Administration Cost	10,598	7,235	17,833	3.6%
10) Accrued Interest during Construction	9,608	7,102	16,710	3.3%
Total Project Cost:	287,421	212,437	499,857	100.0%
Items excluded from DFC Project Cost				
*Wagon Cost	20,473	14,025	34,498	
*New ROB Construction & Land Cost (PETS2)	30,605	21,962	52,566	

Note: * signify referential estimate.

Exhibit 15 -- World Bank president Robert Zoellick (left) with Manmohan Singh in New Delhi
Source: PTI, New Delhi , Dec 4, 2009



Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.

Exhibit 16 – Procurement Plan for APL-1 Source: World Bank (2011). Project Appraisal document, 19 April 2011

Package No.	Description/ Location	Estimated Cost (US\$)/m	No. of Packages	Procurement Method	Review By Bank (PRIOR / Post)	Invitation Date	Expected Bid-Opening Date	Contract Award Date	Start Date	Completion Date
	A	B	C	D	E	F	G	H	I	K
I. WORKS										
	Civil Works and Track I - Bhaupur- Etawah (135 km)	270	1	ICB	Prior	May 2011		Mar 2012	Apr 2012	Dec 2015
	Civil Works and Track II - Bhaupur- Etawah (101 km)	235	1	ICB	Prior	May 2011		Mar20 12	Apr 2012	Dec 2015
	Civil Works and Track III - Bhaupur- Etawah (107 km)	227	1	ICB	Prior	May 2011		Mar20 12	Apr 2012	Dec 2015
	Power Signals, Telecom Systems - Bhaupur-Khurja (343 km)	225	1	ICB	Prior	Dec 2011		Dec 2012	Jan 2013	Dec 2015

Rehema Msulwa, PhD student, and Professor Nuno Gil at the Centre for Infrastructure Development (CID), The University of Manchester prepared this case as the basis for class discussion. The case does not intend to serve as endorsement, source of primary data, or illustration of effective or ineffective handling of an administrative situation. The authors are solely responsible for any factual inaccuracies.