Document of
The World Bank

FOR OFFICIAL USE ONLY

Report No: PAD1426

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF
US$650 MILLION

TO THE DEDICATED FREIGHT CORRIDOR CORPORATION OF INDIA LTD.

WITH THE SOVEREIGN GUARANTEE OF INDIA

FOR AN

EASTERN DEDICATED FREIGHT CORRIDOR 3 (EDFC3) PROJECT

INVESTMENT PROJECT FINANCING – SERIES OF PROJECTS

June 1, 2015

Transport & ICT Global Practice
India Country Management Unit
South Asia Region

CURRENCY EQUIVALENTS
(Exchange Rate Effective Apr 3, 2015)

Currency Unit = INR
INR 62 = US$ 1

FISCAL YEAR
April 1 – March 31

ABBREVIATIONS AND ACRONYMS

APL	Adaptable Program Lending	IHHA	International Heavy-Haul Association
ARTC	Australian Rail Track Corporation	IIFCL	India Infrastructure Finance Company Ltd
CAS	Country Assistance Strategy	IR	Indian Railways
CIL	Coal India Limited	IRB	Indian Railway Board
CGFA	Corp. Gov. and Financial Accountability	IT	Information Technology
CONCOR	Container Corporation of India Limited.	IUFR	Interim Unaudited Financial Report
CPAR	Country Procurement Assessment Report	JICA	Japan International Cooperation Agency
CPM	Chief Project Manager	LA	Land Acquisition
CPSU	Central Public Sector Undertaking	LRDSS	Long Range Decision Support System
CR	China Railways	M&E	Monitoring and Evaluation
CW&T	Civil Works and Track	MMD	Maximum Moving Dimensions
CVO	Chief Vigilance Officer	MOEF &CC	Ministry of Environment, Forests and Climate Change
DFC	Dedicated Freight Corridor	MOR	Ministry of Railways
DFCCIL	Dedicated Freight Corridor Corporation.	MOU	Memorandum of Understanding
DIR	Detailed Implementation Review	NRRP	National Rehabilitation & Resettlement Policy
DPC	Dedicated Passenger Corridor	NGO	Non-Government Organization
DPE	Department of Public Enterprises	PAD	Project Appraisal Document
EA	Environmental Assessment	PAP	Project Affected Person
ELI	Existing Line Improvement	PIO	Public Information Officer
EMF	Environmental Management Framework	PS	Performance Specifications
ERR	Economic Rate of Return	PP	Procurement Plan
ERP	Enterprise Resource Planning	PPPs	Public Private Partnerships
FIRR	Financial Internal Rate of Return	PWD	Public Works Department
ERP	Enterprise Resource Planning	QSAC	Quality and Safety Audit Consultant
FIRR	Financial Internal Rate of Return	RAA	Railway Amendment Act, 2008
GAAP	Governance and Accountability Action Plan	RAP	Resettlement Action Plan
GBS	General Budgetary Support	RDSO	Research, Designs and Standards Organization.
GDP	Gross Domestic Product		
GGM	Group General Manager	RFP	Request for Proposal
GHG	Greenhouse Gas	RPF	Resettlement Policy Framework

GM	General Manager	ROBs	Road Over Bridges
GOI	Government of India	RS	Rolling Stock
GPN	General Procurement Notice	RTIA	Right to Information Act
GQ	Golden Quadrilateral	SEMU	Social and Environment Management Unit
HR	Human Resources	SESMRC	Social & Environment Safeguards Monitoring and Review Consultants
HHC	Heavy-haul Committee	SHE	Safety, Health and Environment
IBRD	International Bank for Reconstruction and Development	SIA	Social Impact Assessment
		SPN	Specific Procurement Notice
IDC	Interest During Construction	ToR	Terms of Reference

Regional Vice President:	Annette Dixon
Country Director:	Onno Ruhl
Senior Global Practice Director:	Pierre Guislain
Practice Manager:	Karla Gonzalez Carvajal
Task Team Leader:	Benedict Eijbergen/Atul Agarwal

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PAD DATA SHEET

India

Eastern Dedicated Freight Corridor 3 (EDFC 3) Project (P150158)

PROJECT APPRAISAL DOCUMENT

SOUTH ASIA

Report No.: PAD1426

Basic Information			
Project ID P150158	EA Category Category A – Full Assessment	Team Leader Benedict L. J. Eijbergen/Atul Agarwal	
Lending Instrument Investment Project Financing	Fragile and/or Capacity Constraints [ ]		
	Financial Intermediaries [ ]		
	Series of Projects [ ]		
Project Implementation Start Date 11/30/2015	Project Implementation End Date 11/30/2021		
Expected Effectiveness Date 11/30/2015	Expected Closing Date 11/30/2021		
Joint IFC No			
Practice Manager/Manager	Senior Global Practice Director	Country Director	Regional Vice President
Karla Gonzalez Carvajal	Pierre Guislain	Onno Ruhl	Annette Dixon

Borrower: Dedicated Freight Corridor Corporation of India Limited			
Responsible Agency: Dedicated Freight Corridor Corporation of India Limited			
Contact:	Mr. Adesh Sharma	Title:	Managing Director, Dedicated Freight Corridor Corporation of India Limited
Telephone No.:	(91-11) 2345-4601	Email:	adeshsharma@dfcc.co.in

Project Financing Data(in USD Million)					
[X]	Loan	[ ]	IDA Grant	[Guarantee]	
[ ]	Credit	[ ]	Grant	[Other]	
Total Project Cost:	1107.00	Total Bank Financing:	650.00		
Financing Gap:	0.00				

Financing Source	Amount
Borrower	457.00
International Bank for Reconstruction and Development	650.00
Total	1107.00

Expected Disbursements (in USD Million)

Fiscal Year	2016	2017	2018	2019	2020	2021
Annual	20	60	160	280	100	30
Cumulative	20	80	240	520	620	650

Institutional Data

Practice Area / Cross Cutting Solution Area

Transport & ICT

Cross Cutting Areas

[X] Climate Change
[ ] Fragile, Conflict & Violence
[X] Gender
[X] Jobs
[X] Public Private Partnership

Sectors / Climate Change

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Transportation	Railways	100	2	15
Total		100		

☐ I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.

Themes

Theme (Maximum 5 and total % must equal 100)

Major theme	Theme	%
Financial and private sector development	Infrastructure services for private sector development	97
Environment and natural resources management	Climate change	3
Total		100

Proposed Development Objective(s)
The project development objective is to: (a) provide additional rail transport capacity, improved service quality and higher freight throughput on the 401 km Ludhiana- Khurja section of the Eastern rail corridor; and (b) develop the institutional capacity of DFCCIL to build, maintain and manage the DFC infrastructure network.

Components

Component Name	**Cost (USD Millions)**
Component A: Design, Construction and Commissioning of the Ludhiana – Khurja (401 km) section of the Eastern DFC	630.4
Component B: Institutional capacity strengthening	18
Front End fee	1.6
Total	650

Systematic Operations Risk- Rating Tool (SORT)

Risk Category	**Rating**
1. Political and Governance	Low
2. Macroeconomic	Low
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Low
5. Institutional Capacity for Implementation and Sustainability	Moderate
6. Fiduciary	Moderate
7. Environment and Social	Substantial
8. Stakeholders	Low
9. Other	-
OVERALL	Substantial

Compliance

Policy

Does the project depart from the CAS in content or in other significant respects?	Yes [ ] No [X]
Does the project require any waivers of Bank policies?	Yes [ ] No [X]
Have these been approved by Bank management?	Yes [ ] No [X]
Is approval for any policy waiver sought from the Board?	Yes [ ] No [X]
Does the project meet the Regional criteria for readiness for implementation?	Yes [X] No [ ]

Safeguard Policies Triggered by the Project	**Yes**	**No**
Environmental Assessment OP/BP 4.01	**X**	
Natural Habitats OP/BP 4.04		**X**

Forests OP/BP 4.36	**X**	
Pest Management OP 4.09		**X**
Physical Cultural Resources OP/BP 4.11	**X**	
Indigenous Peoples OP/BP 4.10		**X**
Involuntary Resettlement OP/BP 4.12	**X**	
Safety of Dams OP/BP 4.37		**X**
Projects on International Waterways OP/BP 7.50		**X**
Projects in Disputed Areas OP/BP 7.60		**X**

Conditions

Name	**Type**
Concession & Track Access Agreements & DFCCIL's Legal Framework	Disbursement

Description:

DFCCIL's legal framework, the Concession Agreement and/or the Track Access Agreement has/have been suspended, abrogated, voided, repealed, waived or material and adversely amended whether in whole or in part.

Legal Covenants

Name	**Recurrent**	**Due Date**	**Frequency**
Procurement, contract, financial, social and environment management	Yes	N/A	Throughout project implementation

Description of the Covenant

DFCCIL to maintain qualified staff in adequate numbers to carry out the procurement, contract, financial, social and environment management and general oversight monitoring and reporting of the project.

Name	**Recurrent**	**Due Date**	**Frequency**
Social and Environmental Management Unit (SEMU)	Yes	N/A	Throughout Project implementation

Description of the Covenant

DFCCIL to maintain a social and environmental management unit with staff at headquarters and in the field offices with functions, powers staff and resources to implement the social and environmental safeguard measures required under the safeguard documents.

Name:	**Recurrent**	**Due Date**	**Frequency**
Quality and Safety Audit Consultant (QSAC) & Social and Environmental safeguards Monitoring and	Yes	Six (6) months after the Effective Date	Throughout Project implementation

Review Consultant (SESMRC)			
Description of Covenant			
DFCCIL to select and engage the services of a QSAC and SESMRC in order to prepare quarterly monitoring reports on the implementation of the civil works and compliance with the Safeguard Documents.			
Name:	**Recurrent**	**Due Date**	**Frequency**
Project Management Consultant (PMC)	Yes	Three (3) months after award of first Civil Works Contract for the project.	Throughout Project implementation
Description of Covenant			
DFCCIL to select and engage the services of a PMC in order to assist with contract management functions for the design-build contracts, and the general implementation of the project.			
Name:	**Recurrent**	**Due Date**	**Frequency**
Project Documents	Yes	N/A	Throughout Project implementation
Description of Covenant			
DFCCIL to implement the project in accordance with the Project Implementation Manual, the Concession Agreement and the Track Access Agreement.			
Name:	**Recurrent**	**Due Date**	**Frequency**
Phase Plan for Signaling and Telecommunications Systems	Yes	Prior to award of any systems contract.	Continuous
Description of Covenant			
DFCCIL to agree: (i) with the respective contractor carrying out the railway track construction, on a phase plan for the installation of signaling, telecommunications and electrical system; and (ii) with the respective authorities and/or relevant utilities, on an interconnection and/or utilities relocation plan.			
Name:	**Recurrent**	**Due Date**	**Frequency**
Track Access Regime	Yes	Prior to commencement of commercial operations	Continuous
Description of Covenant			
DFCCIL to ensure that the track access regime is in place and operational prior to commencement of commercial operations of the EDFC.			
Name:	**Recurrent**	**Due Date**	**Frequency**
Safeguard Documents	Yes	N/A	Throughout Project implementation

Description of Covenant			
DFCCIL to implement the Project in accordance with the Safeguard Documents (i.e. EMF, RPF, EAs, EMPs, SIA, and RAPs), and to refrain from unilaterally amending, suspending, voicing or waiving any provision of said documents.			
Name:	**Recurrent**	**Due Date**	**Frequency**
Governmental Permits & Resettlement Measures/Compensation	Yes	Prior to commencing any civil works	Throughout Project implementation
Description of Covenant			
DFCCIL to ensure that for all civil works: (i) the necessary governmental permits have been obtained, and any conditions attached thereto have been met/fulfilled; and (ii) all resettlement measures (including compensation, and/or relocation assistance to Displaced Persons have been carried out, prior to commencing the respective civil works.			
Name:	**Recurrent**	**Due Date**	**Frequency**
Contractors compliance with Safeguard Documents	Yes	N/A	Throughout Project implementation
Description of Covenant			
DFCCIL to ensure that the contracts for civil works include the obligation of the relevant contractor to comply with the relevant Safeguard documents applicable to such civil works.			
Name:	**Recurrent**	**Due Date**	**Frequency**
Implementation Reviews of Safeguard Documents	Yes	March 31	Yearly
Description of Covenant			
DFCCIL to undertake annual reviews and prepare reports on the results obtained and experiences gained in the implementation of the RPF and the RAPs; and implement adjustments to the RAPs and RPF as per the recommendations made by the Bank.			
Name:	**Recurrent**	**Due Date**	**Frequency**
Ineligible Expenditures (negative list)	Yes	N/A	Throughout Project implementation
Description of Covenant			
DFCCIL shall ensure that the proceeds of the Loan are not utilized to finance land acquisition or to pay any compensation for resettlement and rehabilitation of displaced persons under the Project.			
Name:	**Recurrent**	**Due Date**	**Frequency**
Grievance Redressal Mechanism	Yes	N/A	Throughout Project implementation
Description of Covenant			

DFCCIL to maintain a two stage grievance redressal committee at district level and headquarters, and an ombudsman to handle/process any complaints arising out of the implementation of the RPF and the RAP.

Name	**Recurrent**	**Due Date**	**Frequency**
Mid-term review	NO	November 30, 2018	N/A

Description of Covenant

DFCCIL to carry out a comprehensive mid- term review of the progress achieved in the implementation of the project.

Name	**Recurrent**	**Due Date**	**Frequency**
Final Impact Study	No	1 year after commissioning of EDFC facilities	N/A

Description of Covenant

DFCCIL to provide to the Bank a final impact study of the Project, conducted under terms of reference satisfactory to the Bank.

Name:	**Recurrent**	**Due Date**	**Frequency**
Linked Activities - Safeguards	Yes	Prior to commencement of civil works	Throughout Project implementation

Description of Covenant

India to ensure that no civil works related to linked activities commence until and unless the activities have been screened pursuant to the RPF and the EMF, and any required EA(s), SIA(s), RAP(s), EMP(s) have been prepared, and reviewed and agreed with the Bank

Name	**Recurrent**	**Due Date**	**Frequency**
Annual work plan of proposed Linked Activities	Yes	December 31	Each Year

Description of Covenant

Bank to be furnished with an annual work plan of proposed linked activities to be implemented in the following fiscal year, which plan shall be carried out in compliance with the safeguard documents.

Conditions

Source Of Fund	**Name**	**Type**

Description of Condition

Team Composition

Bank Staff

Name	**Title**	**Specialization**	**Unit**
Benedict L.J. Eijbergen	Program Leader – Economic Integration	Transport	GTIDR

Atul Agarwal	Sr. Transport Specialist	Railway Engineering	GTIDR
Martha B. Lawrence	Sr. Railway Specialist	Railway Economics	GTIDR
Manoj Jain	Lead Financial Management Specialist	Financial Management	GGODR
Samuel Haile Selaisse	Sr. Procurement Specialist	Procurement	GGODR
Sanjay Srivastava	Lead Environmental Specialist	Environmental Management	GENDR
I.U.B Reddy	Senior Social Development Specialist	Social Safeguards	GSURR
A.S. Harinath	Senior Environmental Specialist	Environmental Management	GENDR
Satya N.Mishra	Social Development Specialist	Social Safeguards	GSURR
Sudip Mozumder	Senior Communications Officer	Communications	SAREC
Bernard Aritua	Transport Specialist	Transport	GTIDR
Krishnan Srinivasan	Extended Term Consultant	Transport/ Governance	GTIDR
Carylann Lobo	Extended Term Consultant	Transport/ Project Monitoring	GTIDR
Neetu Sharda	Program Assistant	Project and Task Management	GTIDR
Comfort Onyeje Olatunji	Program Assistant	Project and Task Management	GTIDR
Junxue Chu	Senior Finance Officer	Finance	WFALN
Martin M. Serrano	Senior Counsel	Senior Counsel	LEGES

Non Bank Staff

Name	Title	City
Jitendra Sondhi	Consultant Railway Engineer	New Delhi
Paul Amos	Consultant Policy & Management	Cologne
Richard Bullock	Consultant Rail Financial Model	Melbourne
Santhadevi Meenakshy	Consultant Operations	Washington
Puneet Kapoor	Consultant Financial Management	New Delhi
Rashi Grover Kashyap	Consultant Governance	New Delhi
Stephen Leonard	Consultant Electrical & Systems	Liverpool
Davinder Sandhu	Consultant Railway Expert	Washington DC
Ranjan Jain	Consultant Railway Expert	New Delhi

Locations

Country	First Administrative Division	Location	Planned	Actual	Comments
Republic of India					

INDIA –Eastern Dedicated Freight Corridor Project 3 (EDFC3)
Investment Project Financing – Series of Projects

I. STRATEGIC CONTEXT

A. Country Context

1. After some years of lower growth, the Indian economy is likely to grow at a higher rate over the next few years. One of India's building blocks for sustaining higher economic growth is investment in improved infrastructure. India's Twelfth Five Year Plan (2012-2017) set out a high infrastructure investment target of US$1 trillion. An important part of that Plan is to modernize critical parts of the ageing and congested transport infrastructure, including the railway network.

2. GOI has reaffirmed its strong support for development of the railway system and railway technology as crucial for India's economic growth as well as empowering communities by connecting them to social and economic opportunities. Wider GOI policy is to create an enabling environment for private sector investment. There is no intention to privatise the national railway network itself but GOI intends to encourage greater private sector investment in railway facilities through public private partnerships. An independent committee has also been established to consider ways of improving public governance of the railway industry.[1]

3. More recently, in his 2015-16 budget speech, the Minister of Railways (MOR) announced a major increase in railway sector investment for both freight and passenger services over the next five years. While maintaining the high priority that GOI gives to the EDFC program, he has also requested the Bank's advice and international expertise in wider railway industry reforms and its support in attracting new sources of private capital into a long-term railway investment fund, building upon the Bank's engagement with India's railway sector over the last eight years.

B. Sectoral and Institutional Context

4. India's railways are governed by The Railways Act (1989). The railway sector is administered by MOR. The Indian Railway Board (IRB) assists MOR in the discharge of ministerial responsibilities, exercises the policy powers of the central government in relation to all India's railways and executes the administration, supervision and direction of the entities that provide the great majority of rail services in India. The term Indian Railways (IR) is typically used to refer collectively to the IRB and the railway infrastructure and services that are delivered by its 17 geographically-based Zonal Railways (ZRs)[2]. IRB is responsible for the establishment (or merger/abolition) of these ZRs, appoints ZR General Managers, oversees their compliance with MOR policies, determines staffing policy for senior level officers and remuneration policies, allocates rolling stock, fixes tariffs, approves ZR operating and capital budgets, approves specific capital expenditures over certain limits, and reallocates cash deficits or surpluses of individual ZRs to maintain adequate financial balance in each. India has a few separate railways which are special

[1] An expert panel drawn from private and public sectors has been established under the chairmanship of economist Bibek Debroy to advise on the modalities of separating the policy-making functions of MOR from the operational functions of IR and to suggest policies to raise financial resources to meet future capital investments.
[2] In this document Indian Railways is also used in the same sense.

purpose joint ventures between MOR and other entities (such as the Kutch Railway Company Ltd and the Konkan Railway Corporation Ltd), but in practice IR carries over 99 percent of railway traffic in India.

5. IR operates a national rail network of about 65,400 route-kilometers, one of the most densely-used in the world. In 2013-2014, it carried over 8.4 billion passengers and 1.05 billion tons[3] of freight. Its total traffic task (measured by total traffic units carried[4]) has more than doubled in the last ten years. Despite strong growth in its freight business, IR has been losing market share to road haulage. This is because of insufficient physical capacity and service quality, aggravated by the need to fit freight trains into a busy passenger service schedule in which passenger trains constitute almost two-thirds of train-km. Without additional rail network capacity, traffic for which rail should have competitive advantage will be forced to use road haulage or be suppressed entirely. In both cases this would be at a cost to the economy, and in the former case, at a cost to the environment as well. Over the last decade, IR has successfully adopted many management measures to: (i) squeeze more capacity from existing assets; (ii) increase average trainload; (iii) utilize equipment more efficiently; and (iv) improve railway labor productivity. Today, physical capacity in IR's main transport corridors is the most pressing constraint.

6. The main railway corridors are part of a Golden Quadrilateral connecting New Delhi, Mumbai, Chennai and Kolkata. They account for less than a fifth of the railway network's route length but carry more than 60 percent of its freight task. Because the rail sector urgently needs to add capacity to these routes, GOI approved a long-term plan to build freight-only lines (DFC) paralleling the existing Golden Quadrilateral lines. The DFC lines are being built for maximum speeds of up to100km/h and to carry bulk freight trains of 6,000 or 12,000 gross tons at 25 tons axle load at opening, but designed to enable migration to 32.5 tons axle load later on. These new 'heavy-haul' freight lines will wholly transform the achievable capacity, productivity and service performance of India's busiest rail freight corridors. The new freight network will allow trains to carry more freight, with faster transit times, more reliably and at lower cost. The relief on the existing lines will allow improvements in passenger services. At completion, total corridor railway capacity will more than double[5], thereby creating a new platform for supporting economic growth. By investing in the biggest single railway construction project in India since independence, the country is hoping to replicate the same kind of benefits thought to have stemmed from the original construction of India's railways, namely decreased trade costs and interregional price gaps, increased interregional and international trade, and increased real income levels[6].

7. The first dedicated freight corridors (DFC) to be built are the Western and Eastern Corridors. The Western Corridor (Delhi-Mumbai or WDFC), which is 1,502 km long and is funded

[3] Unit of measure used throughout in a metric ton (sometimes referred to as a tonne).
[4] Traffic-km are passenger-km plus freight ton-km.
[5] The combined effect of doubling the number of tracks (on busiest sections), more homogeneous train operations on new and existing lines, and higher performance DFC track, will provide more than proportionate increase in corridor capacity than doubling number of tracks alone would achieve.
[6] Donaldson D. (2012) Railroads of the Raj: Estimating the Impact of Transportation Infrastructure, London School of Economics, Asia Research Centre, Working Paper 41.

by the *Japanese International Cooperation Agency (JICA)* is in the early stages of implementation. The Eastern Corridor is 1,840 km and extends from Ludhiana to Kolkata[7]. World Bank support for the Eastern Dedicated Freight Corridor (EDFC) was designed as a series of projects in which three EDFC sections would be delivered sequentially, but with overlapping construction schedules. EDFC1 was approved by the Bank in May 2011[8] and is under construction. A successful procurement of civil works yielded significant loan savings which are planned to finance a key connector link between EDFC and the WDFC. Although construction and disbursement are proceeding at a slower rate than planned, progress is substantial and improving with experience by both DFCCIL and contractor. EDFC2 was approved in April 2014 and its two civil works contracts were awarded in March 2015. This Project Appraisal Document relates to the EDFC3 section (Ludhiana- Khurja). Table 1 summarizes the three sections included in the World Bank support.

Table 1- World Bank Funded sections of Eastern Dedicated Freight Corridor (EDFC)[9]

WB Loans	Board Approved	Project ID	Sections Financed	Route Length (km)	Estimated Cost (US$ m)
EDFC1	31 May, 2011	P114338	Khurja- Kanpur	390[10]	1,604
EDFC2	April 22, 2014	P131765	Kanpur- Mughal Sarai	402[11]	1,650
EDFC3	N/A	P150158	Ludhiana- Khurja	401	1,107

8. The GOI has adopted a new institutional framework for the DFC initiative. In an innovative delivery model for India's rail network, the Dedicated Freight Corridor Corporation of India Ltd. (DFCCIL), an Infrastructure Company set up under the Companies Act (1956), whose shares are currently owned by MOR, will deliver and manage the DFCs. Under its Concession Agreement with the Government, signed in February 2014, DFCCIL is not permitted to run trains but is obliged to offer non-discriminatory access to qualified train operators. An arm's length relationship between DFCCIL and MOR is governed by the Concession Agreement. MOR will pay DFCCIL track access charges for use of the entire DFC network. The Concession Agreement will apply to the entire DFC network (including both Western and Eastern Corridors). Based on commercial principles, the access charging regime contains provisions for utilization and performance incentives. More details are provided in Annex 3.

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[7] Main cities are cited to aid geographic understanding; the precise route sections are provided in the text.
[8] EDFC1 was funded under the *Adaptable Program Loan (APL)* instrument. In accordance with new World Bank policy (OP/BP 10.00 introduced April 2013), EDFC2 and EDFC3 will be financed as a *Series of Projects* under the *Investment Project Financing* instrument. EDFC1 was formerly referred to in some project documents as APL1.
9 The Kolkata-Mughal Sarai section will be the last link in EDFC. The section between Mughal Sarai and Son Nagar (120 km) is being implemented by MOR funds. The lower priority of Son Nagar – Kolkata is because of its lower traffic flows. Its financing structure has not yet been determined.
[10] The restructuring of EDFC1 is under consideration to include Khurja – Dadri section of 47 km (approx. US$ 151 million).
[11] As per the present status.

C. Higher Level Objectives to which the Program and the Project contribute

9. The World Bank's support for the EDFC Program will contribute to attainment of economic growth, poverty reduction and shared prosperity. The program is aligned with the three important areas of engagement set out in the World Bank's Country Partnership Strategy for India[12], for the period FY2013–17 is to support integration**; transformation***;* and **inclusion** in India. *First*, the projects will improve transport connectivity and domestic market integration for freight-consigning industries in India and will contribute significantly to the integration objectives of the CPS. *Second*, the project will have a transformational value both in improving freight supply chains in Eastern India and in reducing greenhouse gas emissions and other environmental costs by promoting transfer of freight from road haulage to rail transport. Moreover, the project will be a catalyst for accelerated economic development in the relatively poorer states in the country such as Uttar Pradesh and Bihar. These poorer states will benefit more from the new rail infrastructure. *Third*, the project's contribution to inclusion will follow from the release of passenger transport capacity on existing rail lines. This will lead to communities along the corridor having better access to employment opportunities, health, education and other social services.

II. PROJECT DEVELOPMENT OBJECTIVES

A. Program and Project Development Objectives

10. The development objectives of the EDFC Program are to meet growing freight and passenger demand on the Eastern Corridor with an improved level of service, and develop institutional capacities of DFCCIL and IR to build, maintain and manage the entire DFC network. Bank funding is designed to achieve high level objectives through sustained engagement. Progression is also subject to World Bank Board approval for each of the three loans.

11. The specific PDO for the EDFC3 is to: (a) provide additional rail transport capacity, improved service quality and higher freight throughput on the 401 km Ludhiana-Khurja section of the EDFC; and (b) develop the institutional capacity of DFCCIL to build, maintain and manage the DFC infrastructure network.

B. Program and Project Beneficiaries

12. The direct beneficiaries of EDFC will be the power and heavy manufacturing industries of Northern and Eastern India and their customers. These industries rely on railway transport for their material inputs and in part for the distribution of bulk processed and semi-processed commodities and consumer goods to markets and ports. On the EDFC3 section, northbound freight is dominated by coal, iron and steel and general commodities while the principal southbound freight is food grains and containers. Other beneficiaries of the program and project will include: community groups, residents, farmers and vulnerable groups along the corridor who stand to benefit from the progressive resettlement and rehabilitation package provided and from income opportunities likely to emerge as a result of an expansion in the local labor market because of EDFC and allied economic activities along the corridor, especially at transport hubs. Rail passengers will also

[12] Report number 76176-IN, discussed at the Board on March 21, 2013.

benefit from construction of a dedicated freight railway since congestion will be relieved on existing passenger lines by the transfer of freight to dedicated freight lines.

13. As part of a related initiative, the World Bank is working with GOI and state governments to identify economic and physical development opportunities along the freight corridor. GOI and state governments are planning to set up seven integrated manufacturing clusters using EDFC as the backbone. These clusters will be set up with an investment of about $1 billion on either side of EDFC. This initiative is expected to generate substantial employment and development opportunities in the poorer parts of the poorer states.

C. PDO Level Results Indicators

14. Key PDO results that indicators will capture are: (a) number of additional train paths produced on the DFC; (b) volume of freight carried; (c) average speed of freight trains; and (d) institutional performance of DFCCIL. The Results Framework for the project is described in Annex 1.

III. PROJECT DESCRIPTION

A. Project Components

15. The Project has two components:

(a) Design, construction and commissioning of the Ludhiana-Khurja section of the Eastern DFC consisting of 401 km of single-track electrified railway with 1500m crossing loops at approximate 10 km intervals, designed for freight only train operations with 25-ton axle-load (upgradable to 32.5 ton axle loads) at maximum speed of 100 km/h. The DFC lines are being built to carry bulk freight trains of 6,000 or 12,000 gross tons.

(b) Continuing development of DFCCIL's/IR's institutional capacity to build, maintain and manage DFC lines including both technical assistance and ancillary works and equipment focusing on supporting three priority areas of operational management , commercial management (including private participation) and environmental management:

- ***Operational:*** Design of system to optimize interfaces at the interchange of trains between IR and EDFC line at connection points, including train holding yard requirements;
- ***Commercial:*** A freight logistics centers market-testing program to promote private investment in freight logistics centers/terminals (along either or both of) Eastern and Western Corridors plus development of a contractual model and seed capital for implementation of a pilot project; and
- ***Environmental:*** Design and implementation of pilot project to attain energy savings in IR train operations through a driver advisory system with potential for scaling up across DFC with associated reduction in GHG emissions.

B. Project Financing

16. *Lending Instrument.* The lending instrument for the Project is investment project financing.

17. Table 2 summarizes the Project cost and financing plan for EDFC3 by component.

Table 2- Summary of Project Components, Costs and Financing for EDFC3 (US$ Million)

Project Component	IBRD	GOI	Total
(a) Design, Construction and Commissioning of Ludhiana-Khurja section	630.4	457	1087.4
(b) Institutional capacity strengthening	18	0	18
Front End Fee	1.6	0	1.6
Total Financing Required	**650**	**457**	**1107**

C. Lessons Learned and Reflected in Program and Project Design

18. As the largest and most complex new railway building project since India's independence, the EDFC program naturally confronts DFCCIL and IR with new challenges in many spheres in procurement, construction, and (in due course) when the network is available for commercial operations. The program has adopted radically new ways of doing things in all these areas, reflecting the lessons of previous experiences in India's railway sector.

19. ***Procurement:*** IR traditionally experienced high budget overruns and very long delays under its traditional 'Time and Materials' contracts. The new approach adopted by DFCCIL, a specialist company outside the traditional IR capital works structure, of seeking lump sum bids for 'Design and Build' contracts responds to that experience and has borne early benefits with the successful procurement of the major civil works contracts under EDFC1 which yielded substantial loan savings compared to estimate.

20. ***Construction:*** The physical progress with building EDFC1 is behind target, but progress is faster than the previous experience of IR projects. However, the contract form, based on physical milestone payments, is providing incentive to the contractor to improve its rate of delivery. On the client side, this is also DFCCIL's first major contract supervision and the company is finding a need to improve its own project supervision arrangements, particularly communications and issue resolution as between contractors, supervisory consultants, and its own project managers. The Bank has also strengthened its supervisory resources in terms of technical skills and resources to underpin a more thorough understanding of complexities in the field and the capability to respond earlier to developing issues. Attention by all parties to these issues has seen progress in execution of the contract improve and a more 'hands-on' supervisory approach will be extended to EDFC2 and EDFC3 as well.

21. ***Commercial operations:*** Creating an autonomous railway infrastructure construction and management company for the DFC network responds to lessons learned and wider government perception of lack of commercial focus and competition in rail services. In particular the relationship between DFCCIL and IR is governed by a Concession Agreement and a Track Access Agreement, putting DFCCIL at commercial 'arm's length' from IR, giving it a commercial mandate, and with an obligation to move towards opening access to independent train operators. These specific commercial dimensions and potentialities of the DFC network are entirely novel in India and test many traditional ways of thinking and doing things. For this reason the Bank has created a strong framework of institutional strengthening and support funded by EDFC loans. In 2015 major contracts funded by EDFC1/2 will be awarded to specialist advisers to assist the parties to: (a) develop long-term commercial and marketing strategies to optimize the use of DFC network (b) develop the local technical and engineering expertise by establishing a Heavy Haul Institute; and (c) assess alternative approaches to offering non-discriminatory access to qualified train operators.

22. ***Resettlement Management Lessons***. Resettlement planning for EDFC3 has benefited from the implementation experience of EDFC1 and EDFC2. The EDFC3 corridor route was altered in view of the farmers' disagreement with the originally planned alignment based on similar experience of EDFC1. The adaptive approach to safeguards management established for EDFC1 and EDFC2 has been maintained to allow course correction in resettlement policy and practice through independent monitoring and evaluation arrangements. Some of the good practices of EDFC1 and EDFC2 continued for EDFC3 include: (i) holding wide community consultations; (ii) hiring land survey and LA facilitation consultants for demarcating impacts and for preparing land plans; (iii) regular updating of land records ensuring transfer of land titles after LA compensation payment,; (iv) resolution of compensation-related grievances through arbitration; (v) provision of land compensation to traditional occupiers settled on village lands (abadi deh); and (vi) holding regular monitoring and inter-agency coordination meetings with the state governments.

23. ***Corporate Governance and Financial Management.*** DFCCIL faces the challenge of continuing vacancies in the positions of independent directors on its Board and inadequate staffing in its risk management function. There is slippage in timeline for transition of financial management including accounting to ERP. DFCCIL has agreed to an action plan which continues from EDFC1 and EDFC 2, reflected in the PAD and has been further updated during appraisal.

24. ***Other management lessons***. Implementation capacity and processes reflect lessons from EDFC1/2. For example, DFCCIL is using a *Human Resources Plan* to match capacity to implementation needs. An internationally qualified Consultant has been engaged to advise DFCCIL on technical specifications, and provide support on project management and quality control. The compliance mechanisms for Bank safeguard policies established under EDFC1 and EDFC2 will be extended to EDFC3 by the *Social and Environment Management Unit* (SEMU) with additional human resources planned to cover the workload. The institutional support component will include a pilot project to attract the private sector to build logistics centers/terminals alongside the DFC network to exploit its commercial capabilities.

25. More details on challenges and lessons in the EDFC Program are given in Annex 6.

IV. IMPLEMENTATION

A. Institutional & Implementation Arrangements

26. DFCCIL is responsible for Project implementation. Its Managing Director reports to the DFCCIL Board. When all positions are filled, the Board is composed of the Chairman, five full time Directors (including the Managing Director), four independent directors, and two government nominees. DFCCIL has its headquarters in New Delhi, with field-based offices for the Eastern and Western Corridors.

27. Each section of the Eastern Corridor is the responsibility of a Chief Project Manager (CPM); for the Ludhiana-Khurja section, the CPM and associated staff will work from offices already established at Ambala and Meerut. The Quality and Safety Audit Consultant (QSAC) will provide oversight and monitor compliance. DFCCIL's SEMU headed by a General Manager will oversee the implementation of environmental management plan (EMP) and the resettlement action plan (RAP). These activities will be undertaken by operational staff at headquarters and by field staff, supported as necessary by consultants. A two-stage public grievance redress mechanism will be established with two grievance committees operating at the field and DFCCIL levels, and with

an Ombudsman. Safeguard quality monitoring will be carried out by third party consultants (Social and Environmental Safeguards Monitoring Review Consultants – SESMRC).

28. Table 3 lists the indicators established by the Bank team at the start of the program in 2011 which at that time were termed 'triggers' under the APL structure, a structure and terminology discontinued by the Bank in 2013. The individual measures have been retained not as triggers but as useful indicators to help assess DFCCIL's general preparedness with a new stage of the DFC program. In terms of DFCCIL's preparedness for implementing the construction phase of EDFC3, the indicators (a-f) are substantially met. Indicator (c) is met length wise. As regards governance preparedness, the appointment of Independent Directors (indicator g) needs to be expedited. Preparedness for actual commercial operation of the network is lagging the 2011 expectations; but some internal progress has been made in meeting each of the indicators (i – l) and this is likely to accelerate as procurement of external specialist advisors is completed in the next few months. (Given the physical program delays, these commercial requirements are on course to be completed before the overall EDFC is actually commissioned for commercial operations). Finally, no progress has yet been made to meet indicator (m), though MOR has ample time to meet its obligations with respect to track access under its Concession Agreement with DFCCIL.

Table 3- Preparedness indicators for EDFC3

Summary of Indicators
INDICATORS OF DFCCIL PREPAREDNESS FOR CONSTRUCTION IMPLEMENTATION
a. Civil works contracts awarded for EDFC 2
b. SIA, RAP, EA and EMP completed, approved and disclosed for EDFC3
c. 50 percent of land acquisition complete for EDFC3
d. Safeguards management capacity enhanced with hiring social specialist and required field staff
e. Staffing per DFCCIL Human Resources Plan
f. MIS substantially implemented for construction phase
INDICATORS OF DFCCIL GOVERNANCE PREPAREDNESS
g. Appointment of DFCCIL independent directors
h. DFCCIL MoU (with MOR) rating is 'Good' or higher
INDICATORS OF IR/DFCCIL PREPAREDNESS FOR COMMERCIAL OPERATION OF NETWORK
i. Method for establishing track access charges
j. Heavy-haul locomotives and wagons specifications finalized and procurement strategy in place
k. Traffic Marketing Plan for DFC capacity by MOR
l. Development of long term heavy haul strategy and implementation plan
m. Assessment of approaches to non-discriminatory access by qualified operators completed by MOR

B. Results Monitoring and Evaluation

29. The Results Framework is provided in Annex 1. In addition to the immediate transport outcomes, a 'before and after' impact study will be initiated subsequent to opening of the first stage of the Eastern DFC (EDFC1). This study will establish the pre-commissioning benchmarks and an appraisal methodology to capture wider and longer-term range outcomes of the project and will be augmented to assess the achievement of the Bank's shared prosperity goal for the bottom 40 percent of India's population by income. The current logic framework and terms of reference for the *Impact Study* are described in the PAD for EDFC1.

C. Sustainability

30. There has been sustained institutional commitment to the DFC Program by all stakeholders since its conception. The new GOI has also confirmed it as one of the country's highest public infrastructure priorities, because of the concern that insufficient railway capacity will impede growth in both energy and industrial sectors. IR considers this project an essential step to increasing the volume and profitability of its freight business.

31. The operational sustainability of the DFC Program is very high as it will be built and maintained using established technologies that are in wide use internationally and will be subject to rigorous commissioning tests. DFCCIL is financially sustainable because under the agreed track access principles, both DFCCIL and IR will earn a positive financial contribution from using the new lines, with mutual financial incentives to increase that use.

32. In a wider sense, the DFC Program will contribute to greater environmental sustainability of India's transportation systems as a whole, because greater use of railways for freight will be more energy efficient and generate lower greenhouse gas emissions than road haulage.

V. OVERALL RISK RATING AND EXPLANATION OF KEY RISKS

33. The overall risk rating is assessed as 'Substantial' primarily due to the social safeguard risk assessment in the Khurja-Pilakhni section where new land acquisition has been initiated. An extended analysis of all risks and corresponding ratings are provided under the Systematic Operational Risk-Rating Tool (SORT) in Annex 5.

34. Fiduciary risk is rated *moderate* as DFCCIL has made progress in completing many actions in the agreed Corporate Governance and Financial Accountability (CGFA) Action Plan while others are in progress. Internal audit has been strengthened and is current, financial manuals have been prepared/updated, development of Finance Module in ERP is in an advanced stage, there is a full time Director Finance and staffing capacity and numbers in the finance function is being continuously enhanced. A risk management framework has been developed and implemented and there is a functioning Audit Committee of the Board. There are no pending audit reports/issues and submission of IFRs is up to date. Going forward, efforts would need to be stepped up to complete actions under progress - filling vacancies of independent directors to further strengthen the Board; engaging consultants to spearhead implementation of risk management framework and recruitment of appropriate regular staff; and rolling out ERP Finance module across the entity in the next 2-3 months. Implementation of the CGFA Action Plan will strengthen governance and accountability in the organization. DFCCIL is a relatively new and developing entity and the actions agreed are dynamic and can change during implementation depending upon progress made, and will be continuously reviewed to keep them contemporary.

35. Environmental and Social risk is rated substantial because of potential risks and challenges associated with: (i) slow land acquisition (LA) process and delays in RAP implementation due to (a) alterations in alignment of detour stretches of the Khurja- Pilakhni section requiring fresh land survey, social impact assessment (SIA) and preparation of Resettlement Action Plan (RAP), (b) slow legal process affecting early resolution of court litigations related to LA, and (c) recent changes in the legal framework for LA and R&R applicable to land compensation payment for EDFC3 after January 1, 2015, (ii) external factors beyond DFCCIL's control affecting cooperation

among the state revenue administration, local authorities and the affected people; (iii) limited experience in implementation and monitoring of Environmental Assessments (EA) and Environmental Management Plans (EMP); and (iv) difficulties associated with monitoring compliance with regard to environmental and social safeguards due to dispersed and linear nature of the project activities.

36. These risks are proposed to be mitigated through: (i) updating the Resettlement Policy Framework of 2011 reflecting the changes in legal framework for LA and R&R and timely RAP preparation for Khurja-Pilakhni section; (ii) measures to be taken by DFCCIL to boost its safeguards management capacity in the field and in the SEMU with appointing Social and Environmental Specialists, (iii) implementation mechanisms established by DFCCIL for planning and implementing safeguards activities and experience they have gained in applying the Bank Safeguard Policies in the course of EDFC1 and EDFC2; (iv) the hiring of independent SESMRC for safeguards implementation quality control as per the EMF and RPF; (v) establishment of a multi -stage grievance redress mechanism for receiving and resolving complaints and grievances with an Ombudsman established at the corporate level to deal with any unresolved grievances; (vi) DFCCIL's efforts to improve safeguards implementation quality following up on the safeguards quality review of 2013, inputs from SESMRC and Bank implementation support missions; (vii) DFCCIL's agreement in EDFC2 to undertake livelihood skill training measures as a part of RAP implementation undertaken by DFCCIL to improve employability of the affected youth; and (viii) on-site and classroom training on environmental management to DFCCIL to augment the capacity to implementing EMPs during construction.

37. As the construction of EDFC1 and EDFC2 proceeds, the Bank team will give active support to SEMU and Project Managers' Staff in the field which will reduce these risks when EDFC3 is under implementation. The Bank team will also work with DFCCIL management to ensure that necessary capacity is developed at DFCCIL HQ. The above measures will enable DFCCIL to implement environmental and social safeguards in a manner compliant with the Bank's safeguards policies and also the agreed safeguard management measures for the project.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

38. The base freight traffic growth projections underlying this appraisal represent the following average annual growth in tons consigned: to 2021/2 at 6.5 percent, slightly below the projected increase in GDP; and from 2021/2 – 2041/2 at 5 percent. Northbound freight to the Punjab is dominated by coal, iron and steel and general commodities while the principal southbound freight is food grains and containers. Base passenger trips on existing lines are anticipated to continue to grow at 4 percent per year throughout the evaluation period. While primary benefits are to freight, passengers benefit from the capacity released and congestion reduced on existing lines. The existing Delhi - Ambala - Ludhiana corridor currently carries around 70 pairs of passenger trains each day.

39. As per the World Bank's analysis, the project has an estimated EIRR of 14 percent and an ENPV at a discount rate of 10 percent per year of INR 30 billion (USD 483 million) estimated in 2015 constant prices. The strong EIRR reflects the fact that the existing route which EDFC will augment is a busy rail corridor which is the main link to and from the Punjab. Without the project, track capacity would need to be amplified much earlier on existing tracks, but would be only a

partial solution and with much traffic disruption. The EIRR, together with its sensitivity to changes in key variables, is shown in Table 5. In all cases the EIRR remains at least 11 percent and the NPVs therefore remain positive.

Table 5 - Estimated Economic Internal rate of Return (2015 constant prices)

	EIRR (%)	NPV in billion INR @ 10%
Base appraisal result (EDFC3)	14	30
Sensitivity tests:		
Construction costs increased 20 %	12	16
Transfer rate to DFC reduced to 70 %	13	24
DFC above-rail cost savings reduced from 25% to 15%	13	24
IR construction avoided reduced to 50 %	13	19
Diverted traffic reduced by 50%	11	6

40. The Project financial appraisal was carried out from three perspectives:

(i) a stand-alone financial assessment of the remaining Program (relative to the completion of Phases 1 and 2, financed by EDFC1 and EDFC2).

(ii) an assessment of the overall finances of DFCCIL, the entity which will construct and operate both Western and Eastern DFCs, and be responsible for servicing and repayment of debt.

(iii) an assessment of the ability of MOR to make the required equity contributions to DFCCIL.

41. The FIRR of the EDFC3 Project has been estimated from the total Project cash flows, irrespective of funding source (including financial flows of DFCCIL, IR and IBRD). The FIRR is shown in Table 6, together with its sensitivity to various risks. The FIRR was calculated in nominal terms (i.e., using projections that include inflation) over 30 years from 2015. A 'real' FIRR has been estimated approximately[13] by netting-off the assumed inflation rate of 6 percent.

42. The project financial returns are robust to variations in capital costs, assumptions about traffic transfer rates, and avoided investment. However, the ability to attract generated traffic (i.e. high-value container traffic that would otherwise travel by road) also has a significant impact on the FIRR and emphasises the need for IR and DFC to maximize the new traffic opportunities provided by the project. EDFC3 has an FIRR of 14 percent nominal (approximately 8 percent in 2015 constant prices) and FNPV of INR 15 billion (USD 241 million).

[13] As certain of the financial costs, most notably the dividend payment to GOI, do not increase with inflation.

Table 6 - Estimated FIRR of project (all funding sources combined) (constant prices)

	FIRR %
Base EDFC3	8
Sensitivity tests:	
Construction costs increased 20%	3
Transfer rate to DFC reduced to 70%	5
DFC above-rail cost savings reduced from 25% to 15%	4
IR construction avoided reduced 50%	3
Diverted traffic reduced by 50%	5

43. Financial projections for DFCCIL as a stand-alone company show that it will at least break even over the period, reflecting the Concession Agreement principle that track access charges will, while providing commercial incentives, meet a test of overall revenue adequacy that will include O&M costs, capital repayments and interest.

44. Analysis of the impact of the project on IR finances shows IR's projected investment program during the next few years (including rolling stock funded through IRFC) is anticipated to be around INR 1000 billion/year (2015 prices). The DFC program (both Eastern and Western corridors) requires around INR 100 billion/year from IR, i.e., about 10 percent of the total planned IR capital expenditure, well within IR's capacity to reallocate funding.

45. GOI determined that the DFC project at least in its early years should be undertaken by the public sector and delivered by a publicly-owned SPV (now DFCCIL) under a concession contract. The decision recognises the very high project risks that would be perceived by a purely private investor because of: (a) the 'network' nature of the investment, requiring a number of sections to be complete before revenue is maximised; (b) the greenfield nature of the project requiring substantial land acquisition and resettlement and interaction with a number of Indian State governments; (c) the fact that most DFC traffic originates or terminates on other lines so that opportunity of a private investor to influence final markets demand is constrained; and (d) the numerous other interactions with the state-owned IR (which would be a private investor's dominant user and its regulator). However, as the network is established the GOI decision and DFCCIL's company charter allow that shares in the company may be sold to private investors.

46. In addition to financing EDFC, the value added by the Bank in the EDFC program has included (a) close oversight of and input to the creation of the new institutional framework (especially the Concession Agreement and Track Access Agreements between GOI and DFCCIL); (b) technical expertise in support of commercial perspectives on the international use of the heavy-haul rail to improve services to customers at lower operating costs; (c) procurement expertise in application of Design and Build contracts which have not previously been used in India's railway sector; (d) applied economic and social expertise used to guide and assist DFCCIL to meet its obligations under Bank safeguards policies and Indian law; and (e) expertise to strengthen the governance and financial management of the project.

B. Technical

47. The physical infrastructure proposed is the construction of 401 km Ludhiana-Khurja section of the Ludhiana-Kolkata Eastern Dedicated Freight Corridor. The Ludhiana-Khurja section will be constructed as a single-line ballasted track laid on concrete sleepers with crossing-loops. at approximate 10 km intervals. A single track configuration reflects somewhat lower traffic volumes on this section (c.f. EDFC 1/2) and is likely to provide adequate capacity for at least 10

years, with incremental capacity enhancing measures likely to be necessary thereafter before eventual line duplication. It will be electrified with 2 x 25 kV AC, 50 Hz power delivered by an overhead catenary system, and capable of operating at a maximum train speed of 100 km/h. It will be designed for an initial maximum axle-load of 25 metric tons on the track infrastructure and 32.5 tons for supporting structures (so that later increases in axle-loads may be adopted). It will have absolute block signaling, new telecommunications, and train radio and a SCADA control systems. It will connect with IR's existing network at Khurja, Pilakhni, Kalonaur, Raipura, Sirhind, and Sahnewal. All the crossing stations have been planned with single loop; as the traffic grows, there may be need for additional loop lines to be implemented in a phased manner.

48. EDFC3 parallels the existing line for 100 km between Sahnewal to Ambala. The existing (2012-13) traffic on this section is 50-60 pairs of passenger trains and 30-40 pairs of freight trains, in both cases with the greater volume at the Ambala end. At Ambala, existing traffic to and from Delhi and the south branches to Delhi via Panipat while EDFC3 continues to parallel the line towards Lucknow for a further 80 km to Saharanpur. On this section, current traffic is 30 pairs of passenger trains and 20 pairs of freight trains. EDFC3 then branches south at Saharanpur and parallels a single-track secondary line carrying limited traffic (22 pairs of local passenger trains and 5 pairs of freight trains); the main purpose of this section of EDFC3 is to relieve the direct line to/from Delhi which branches at Ambala and which currently carries around 40 pairs of passenger trains and 50-60 pairs of freight trains. By the projected opening date of 2020 for EDFC3, these volumes are likely to have increased by about 40 percent. The capacity of the existing double-track lines is approximately 120 pairs of trains and most of the existing parallel lines will thus be very close to, if not exceeding, capacity.

49. While the EDFC line as a whole commences at its southern end at the major port and urban agglomeration of Kolkata, it is not currently planned to extend northwards from Ludhiana. The freight traffic north of Ludhiana falls off rapidly. The line from Ludhiana into Amritsar is already double-tracked and electrified, and though a busy passenger line, carries only about 4 pairs of freight trains/day into Amritsar itself. Even allowing for traffic growth, there is no case for building a new dedicated freight railway line northwards from Ludhiana in the foreseeable future. The most economical approach will be, in due course, for IR to increase average axle load on the existing line (as with other feeder lines) so that trains of EDFC locos/wagon characteristics will be able to be run seamlessly from the DFC network through to Amritsar.

50. Four main technical principles underpin the approach to and design of EDFC3 and these principles were those that were also applied to EDFC1/ 2.

51. ***Heavy-haul:*** The heavy-haul approach adopted accords fully with international experience. High-tonnage trains of high net/tare weight, operated with well-utilized rolling-stock, drive freight train operating costs lower and offer greater competitiveness. A heavy-haul railway is typically one operating trains of at least 5,000 tons with locomotives and wagons of average axle loadings of 25 tons or more. All major rail freight companies internationally, including in Australia, Brazil, Canada, China, Russia, South Africa, USA and elsewhere, have successfully adopted the heavy-haul rail freight system where infrastructure and operating conditions allow it.

52. ***Dedicated freight-only lines:*** Dedicating the new lines to freight will overcome infrastructure and operating constraints on existing Indian lines. Most heavy-haul freight trains in the world travel on either exclusively or heavily predominant freight lines. Indian Railways'

existing lines are joint-use lines with lower axle-load capability, predominantly occupied by an extremely busy passenger timetable, creating slow and unreliable freight transit times.

53. ***Proximity:*** The third design principle has been to align Eastern DFC tracks to be adjacent to the existing tracks where possible thereby minimizing land-take and disruption. The Ludhiana-Khurja section detours around certain built-up areas avoiding the major disruption, resettlement and environmental problems of driving new rail tracks through the urban fabric. Detour alignments have been selected on multiple environmental, social and engineering criteria.

54. ***Grade separation:*** Grade-separated junctions have been adopted where possible on grounds of safety, avoidance of local traffic disruption and better train performance and no new level crossings will be built on detour sections. A large number of underpasses will be built for providing local connectivity across the railway tracks.

C. Financial Management

Corporate Governance

55. A Corporate Governance and Financial Assessment (CGFA) of DFCCIL, the project implementing entity, was carried out at the time of the preparation of EDFC1 and updated during EDFC2. DFCCIL agreed on an action plan to meet the Corporate Governance Guidelines of the Department of Public Enterprises (DPE). DFCCIL had taken steps to meet the requirements of the DPE model code. The status of implementation of DPE's Model Code of Corporate Governance and further action to be taken to strengthen corporate governance is summarized in Table 9 in Annex 3.

56. Presently, all four positions of independent directors are vacant.. This status does not meet the requirements of the Companies Act, 2013 and the DPE guidelines. Filling of positions of independent directors is an indicator of preparedness for EDFC3 (Table 3). These vacancies need to be filled by MoR and the process is underway. Besides, DFCCIL's risk management function is inadequately staffed, including the vacant position of General Manager (Risk Management), to spearhead implementation of the recently developed Enterprise Risk Management Framework approved by its Audit Committee. In the interim, DFCCIL is engaging consultants for handholding support to implement the Risk Management Framework and appointment of regular staff is underway.

Financial Management and Disbursement

57. DFCCIL will provide the fiduciary assurance over proper and effective use of project funds, including loan proceeds. The FM arrangements under EDFC3 will be the same as agreed for EDFC1 and 2 that are predicated on DFCCIL's mainstream FM systems supplemented by the Bank's reporting requirements. Agreed Project FM arrangements will be updated and documented in the *Project Implementation Manual* (PIM). The organization systems are still developing and the systems once implemented would need to be fully tested and improved.

58. At the time of preparation of the earlier phases of EDFC, DFCCIL was in the process of putting in place the entity's FM systems and controls. A CGFA action plan was agreed with DFCCIL to further strengthen FM arrangements. DFCCIL has completed many of the agreed activities and others are in various stages of implementation (status is provided in Table 12 in Annex 3). All the three phases of EDFC will run concurrently and DFCCIL will need to

expeditiously complete implementation of its FM systems to cope with the increased volume of business transactions. FM staffing is continuously being enhanced and DFCCIL has plans to further strengthen staffing through a mix of regular appointments and deputation.

59. Development of the *Enterprise Resource Planning (ERP)* application including FM module is underway and DFCCIL plans to migrate to ERP by October 1, 2015. Budget, Accounting, Financial Reporting, Works and Internal Controls and Internal Audit Manuals are being further updated. Accounting is presently carried out on an off-the-shelf accounting application outsourced to a firm of Chartered Accountants. Reporting to the Bank will be through Interim Unaudited Financial Reports (IFR) in agreed format adopted under EDFC1 and 2 has stabilized and will continue in EDFC3. Internal audit is conducted by a firm of Chartered Accountants and the project transactions will be covered under internal audit. External audit of project financial statements will be conducted by independent auditors (which may include the auditors appointed by Comptroller and Auditor General of India) acceptable to the Bank under agreed terms of reference as is being done for EDFC 1 and 2. There is no backlog of audit[14]. DFCCIL will share the entity and project audited financial statements with the Bank. These steps are expected to strengthen the control environment and the accounting function to provide fiduciary assurance over project funds.

60. The IBRD loan will be disbursed directly to DFCCIL. Methods of disbursement available would be Reimbursement, Advance, Direct Payment and Special Commitment and claims will be made based on IFRs. Retroactive financing will be available as per Bank guidelines and claimed through stand-alone IFR.

61. Key challenges faced during implementation of EDFC 1 are continuing vacancies in the positions of independent directors on the Board of DFCCIL, inadequate staffing in risk management function, slippage in timeline for transition of accounting to ERP, and slow pace of disbursements.

62. With the implementation of the agreed action plan, the FM arrangements of DFCCIL are considered adequate to reasonably account for and report on usage of project resources and provide the required fiduciary assurance. The project FM arrangements are detailed in Annex 3.

D. Procurement

63. ***Procurement guidelines and packaging of contracts***. Procurement for the project will be in accordance with the World Bank's guidelines[15] and the provisions stipulated in the Loan Agreement. Physical works will be procured in four packages, comprising two civil & track work contracts for individual line sub-sections and two Power, Overhead Electrification along with Signal and Telecom works contracts for the sub section. For the two civil & track work contract packages, bids will be invited from prequalified contractors for Design & Build Lump Sum

[14] The entity audit report for financial year 2013-14 made a serious audit qualification that information on frauds and vigilance cases was denied by DFCCIL. This was followed up by DFCCIL and the qualification has been resolved with information provided to the auditors who have issued a separate review report. DFCCIL has assured that necessary information/documentation will be provided to the auditors so that the qualification is does not recur in subsequent audit cycles.

[15] *Guidelines for Procurement under IBRD Loans and IDA Credits* dated January 2011Revised July 2014 (Procurement Guidelines) and *Guidelines for Selection and Employment of Consultants by World Bank Borrowers* dated January 2011 Revised July 2014 (Consultant Guidelines).

contracts following separate prequalification process. The two systems contracts will follow a similar prequalification process.

E. Procurement Plan and functional arrangement

The Procurement function will be carried out by DFCCIL's Procurement Cell. The General Consultant hired by DFCCIL will continue providing services throughout the bidding process until the bid evaluation report and the contract award recommendations have been completed and the Bank's 'no objection' is given. DFCCIL will make appropriate additional arrangements for quality assurance and risk mitigation during the bidding and implementation process. DFCCIL has developed a Procurement Plan for the first 18 months. This plan is available in DFCCIL's project database and on the World Bank's external website. The Procurement Plan will be updated semi-annually.

F. Social (including Safeguards)

64. ***Safeguard Policies***. The social safeguard policy arrangements for EDFC3 are a continuation of those agreed for EDFC1 and EDFC2. The World Bank Operational Policy 4.12 (Involuntary Resettlement) has been triggered and appropriate safeguard measures proposed to deal with adverse impacts of land acquisition (LA) undertaken for EDFC3. OP 4.10 has not been triggered as no tribal people are affected. The LA process for EDFC3 will be carried out in accordance with the Railway Amendment Act (2008) with providing resettlement and rehabilitation assistance as per the entitlement matrix agreed with the Bank and in compliance with applicable provisions of the Right to Fair Compensation and Transparency in Land Acquisition and Resettlement and Rehabilitation Act of 2013 (RFCT-LARRA). The new Act exempts from its purview land acquisition process undertaken under RAA, 2008, but applies to determining land compensation effective from January 1, 2015. The RFCT-LARRA prescribes calculation of compensation at one-to-two times of the government recognized land rates in urban areas and at two-to-four times that in rural areas. The Resettlement Policy Framework (RPF) prepared for EDFC1 in 2011 has been updated reflecting the requirements of RAA, 2008, RFCT-LARRA, 2013 and the Bank safeguard policies. The MoR/DFCCIL has approved and disclosed the RPF with the Entitlement Matrix compliant with RFCT-LARRA. The MoR has issued order clarifying that all land compensation awards made under RAA shall be compliant with RFCT-LARRA with effect from January 1, 2015.

65. ***Safeguard Policy Linkages***. Safeguard policies of the World Bank will apply to all components of the Project, regardless of the source of financing. Bank safeguard policies will apply to concurrent linked activities including construction of7 Road Over-bridges (ROBs), which will be undertaken without Bank financing.

66. ***Social Impact and Mitigation Measures***. The Project corridor is divided into two stretches: (i) Pilakhni-Sahnewal (175 kilometers with detours over 13 kilometers) and Khurja-Pilakhni (226 kilometers with detours over 111 kilometers). The RAP for the Pilakhni-Sahnewal section has been prepared. The RAP for Sahnewal-Pilakhni are socially inclusive and gender sensitive (details in Annex-3). The land survey for detour stretches over 111 km of the 226 km long Khurja-Pilakhni section is nearing completion after late alterations in route. The SIA for this section has been commissioned, and a preliminary draft RAP prepared has been reviewed by the Bank, which DFCCIL will update as per the RPF and disclose. The total land requirements, land compensation awards declared so far have been summarized in the Table-7 below. As of April 30, 2015, compensation has been awarded for 473 ha or 41% of land required for EDFC3. However, length

wise, this is about 70% of the total length. The LA process has been affected due to changes in alignment and limited field staff capacity. Most of the land along the rail line belongs to the Ministry of Railways. Arrangements have been made to relocate these before construction activities.

Table 7 - Land Acquisition and Resettlement Impacts

EDFC- Sections	Length in km	No. of Villages affected	LA required (in ha)	No. of Affected land owners	No. of Affected Structures	Community Prosperities Affected	Land Compensation Awarded as on April 30, 2015 (in ha)
EDFC1 Khurja-Bhaupur	343	287	1410	29253	585	78	1356 (96%)
EDFC1 Khurja – Dadri	47	38	221	1893	121	14	149 (68%)
EDFC2 Bhaupur-Allahabad	402	369	1475	27205	1752	55	1405 (95%)
EDFC3 Impact Details							
EDFC3 (301) .(Pilakhni-Sahnewal)	175	138	355.34	3051	324	8	332 (93.5%)
EDFC3 (303) Khurja- Pilakhni	226	143	802	NA	NA	NA	90.2 (11%)
EDFC3 Total	**401**	**281**	**1157**	**3051+**	**324+**	**8+**	**422 (36%)**

67. DFCCIL is taking several steps to minimize risks associated with land acquisition including: (i) providing livelihood assistance to displaced shop-keepers, those rendered landless and marginal farmers, (ii) resolving compensation related issues through arbitration, and (iii) providing additional R&R benefits to the poor affected families. An independent safeguards monitoring and review system (SESMRC) has been established to help identify and address any emerging risks and to improve overall implementation quality. Gender and social inclusion issues are sought to be addressed with extending special R&R assistances to families headed by single women, persons with disability, and vulnerable project-affected persons.

68. ***Follow up Actions on Resettlement Quality Audit.*** In response to the resettlement quality audit of 2013, DFCCIL has taken measures to improve implementation quality. These include: (i) expanding the scope of district grievance mechanisms; (ii) ensuring compensation payment at replacement value through arbitration; (iii) paying livelihood assistance to poor families losing their livelihoods. A few actions agreed with DFCCIL during EDFC2 that require follow up action are: (iv) imparting job skill training to the poor, eligible, and affected youth; and (vi) improving implementation capacity at field and SEMU levels (Details are in Annex 3).

69. ***Institutional arrangements to support social and environment activities.*** EDFC3 will build on the arrangements under EDFC 1&2: the Social and Environment Management Unit (SEMU), field management teams, NGOs, independent Monitoring and Review, multi-stage Grievance Redress Mechanism, Arbitrators, and an Ombudsman in place. DFCCIL will continue to maintain its safeguards management capacity as agreed with appointment of the social & environment development specialist and taking concrete steps to appoint required additional field staff. (Details in Annex 3)

70. ***Citizen Engagement****:* The key elements of the citizen engagement incorporated in the Project include: (i) consultations with the affected people during project planning and implementation, (ii) information disclosure and dissemination, (iii) grievance redress mechanisms, and (iv) people’s feedback on R&R implementation through third party monitoring. A total of 71

community consultations were held covering 138 villages for preparing the RAP for Pilakhni-Sahnewal section during December 2012 to April 2013. About 21 consultations have been held during February-March 2015 and additional 100consultations will be held as a part of RAP preparation for the Khurja-Pilakhni section. DFCCIL will continue to hold community consultations as a part of the land acquisition process with the help of NGOs hired to provide implementation support at the field level. The RAP (Pilakhni-Sahnewal) and draft RPF for EDFC3 has been disclosed on the DFCCIL website and at the World Bank Info-shop on January 27, 2015. The RAP summary has been translated to Hindi and disclosed locally.

G. Environment (including Safeguards)

71. ***Environmental Safeguards Policies***. The Project is Environmental 'Category A' and triggers three Bank environmental safeguard policies: environmental assessment (OP/BP 4.01), Forests (OP / BP 4.36) and physical cultural resources (OP/BP 4.11). The project will be implemented in two Lots – Pilkhani to Sahnewal Section (Lot 301) to be implemented in the first year and Khurja to Pilakhni Section (Lot 303) to be implemented in the third year of the project. In compliance with the safeguard policies, DFCCIL conducted a detailed Environmental Assessment (EA) for the 175 km long Pilakhni – Sahnewal section of EDFC 3 (Lot 301) and also in accordance with the Environmental Management Framework (EMF) developed in EDFC 1. The EA identified the following major impacts: (i) conversion of 175 Ha Protected Forest[16] on Railway Land; (ii) cutting of about 28617 trees along the 175 km of the alignment; (iii) about 180,000 m^3 of earthwork in cutting, 730,000 m^3 of earthwork for the embankment and 100,000 m^3 of quarry material; (iv) increased noise and vibration levels at 13 sensitive receptors; (v) impacts on 34 physical and cultural properties; and (vi) health and safety issues during construction. The EA for the remaining 226 km long Khurja – Pilakhni Section (Lot 303), is being carried out and will be finalized prior to inviting price bids for this section of EDFC 3.

72. ***Environment Management Plan and disclosure***. The EA includes a comprehensive environmental management plan, comprising: (i) compensatory afforestation for the loss of protected forest land and trees in compliance with the Forest Conservation Act; (ii) avenue plantation at 10 trees/km along the corridor alignment; (iii) rehabilitation of the borrow areas utilized for project earthworks; (iv) noise barriers in the 13 locations affected by high noise levels; (v) rehabilitation of 34 affected cultural properties in close consultation with the local communities; and (vi) specific construction safety and environmental management measures. The EA was disclosed by DFCCIL on its web site (http://www.dfccil.gov.in/upload/Draft%20Final%20%20Environmental%20Assessment%20%20Pilkhani-Sahnewal.pdf) on January 22. 2015 and at the World Bank Info-shop on January 27, 2015. The executive summary of the EA, along with the EMP, in the local language (Hindi) has also been disclosed at the local villages and districts for the benefit of local communities.

73. ***Health and Safety of Workers***. Silicosis reduction strategies developed in EDFC 1 to address the health impacts on construction workers (due to handling large quantities of quarry and

[16] ''Protected Forest' is an area or mass of land notified under Section 29 of India Forest Act, 1927 or the State Forest Acts having limited degree of protection. In Protected Forests all activities are permitted unless prohibited.

construction material) will also be implemented and incorporated in the EDFC 3 construction contract documents.

74. ***Cumulative Impact Analysis (CIA)***: The project is also carrying out an analysis of cumulative impacts of all the three sections of the Eastern Corridor (Ludhiana – Khurja – Kanpur – Mughalsarai) on the Valued Environmental Components (VECs) of the project area. The CIA is analyzing the impacts of the project on the feeder lines and road network connecting EDFC, induced developments and land use changes and socio-economic impacts of the corridor. The mitigation and management measures of the CIA will be appropriately implemented by DFC and pursued with respective stake holder agencies, for appropriate follow up actions. As part of this study, Scoping Report on Cumulative Impact Assessment has been disclosed on DFCCIL web site and Infoshop on April 15, 2015. Based on the scoping study 'Cumulative Impact Assessment of EDFC' will be finalized and the draft and the final CIA reports will be disclosed both locally (including the executive summary in Hindi) and in the Infoshop.

75. ***Climate Screening and Green House Gas Emission Analysis***. During implementation of EDFC1, DFCCIL carried out a detailed analysis of greenhouse gas emissions (GHGs) from its activities. It estimates that by 2041-42, the Eastern DFC would generate about 10.48 million tons of GHGs compared with 23.29 million tons of GHGs without it - a reduction of 55 percent. The reduction is due to the expected diversion of freight transport from road haulage to rail transport, after allowing for carbon impact of the railway construction itself. The project has also carried out the Climate Screening Analysis to understand the impacts of climate change on the project components and their design.

76. ***Energy Optimization Measures:*** As part of the TA component of EDFC 2, DFC has initiated a study that helps identifying 'Energy Optimization Measures' during the operation phase of the DFC. The recommendations of this study will be piloted in EDFC 3, for their viability and scaled up appropriately.

Annex 1: Results Framework and Monitoring

INDIA: Eastern Dedicated Freight Corridor 3 (EDFC3) Project
Results Framework

Project Development Objective (PDO): (a) provide additional rail transport capacity, improved service quality and higher freight throughput on the 401 km Ludhiana- Khurja section of the Eastern rail corridor; and (b) develop the institutional capacity of DFCCIL to build, maintain and manage the DFC infrastructure network.

PDO Level Results Indicators*	Core	Unit of Measure	Baseline FY 2013-14	Cumulative Target Values** 2016-17	2017-18	2018-19	2019-20	2020-21	Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition etc.)
Indicator One: Additional freight train paths on EDFC3	☐	pairs/day	N/A					23	Annual	DFC section traffic stats	DFCCIL	Available DFC train paths end-to-end Ludhiana-Khurja train plan or calculation for normal week (excludes maintenance time)
Indicator Two: Freight traffic carried on the EDFC3	☐	net ton-km bills/year	N/A					22	Annual	DFC section traffic stats	DFCCIL	On all DFC trains between Ludhiana- Khurja (annual total as per standard operating statistics)
Indicator Three: Average speed of freight trains EDFC3	☐	km/h	25 (existing line)					45	Annual	DFC section ops .stats	DFCCIL	Based on normal week sample of trains (train km/train hours 2 ways) Ludhiana- Khurja
Indicator Four: DFCCIL MoU (with MOR) rating		Independent annual review		Good or higher	Good or higher	Good or higher	Good or higher	Good or higher	Annual	DFCCIL PSU ratings	DFCCIL	GOI standard procedures for evaluation of PSU entities
INTERMEDIATE RESULTS												
Intermediate Result (Component One): Design, construction and commissioning of the Ludhiana- Khurja section												
Intermediate Result indicator One: **Physical construction: civil works**	☐	**Cum. completion of works by value**	**N/A**	15%	40%	80%	100%	first full year of operation	End year	DFCCIL construction monitoring	DFCCIL	
Intermediate Result indicator Two: **Physical construction: systems works**	☐	**Cum. completion of works by value**	**N/A**	5%	30%	70%	100%	first full year of operation	End year	DFCCIL construction monitoring	DFCCIL	
Intermediate Result (Component Two): Continuing institutional support to help DFCCIL to build, operate and manage the DFC network												

Intermediate Result indicator One: **Identification of potential private investors in freight terminals and logistics centers**	☐			Market testing program in place	List of potential investors and projects established		Seed money of US$ 10 million invested			MOR/ DFCCIL	MOR/DF CCIL	
Intermediate Result indicator Two: **Energy optimization pilot project**	☐					Pilot project in operation				DFCCIL	DFCCIL	
Intermediate Result indicator Three: **MOR/DFCCIL adoption of system to optimize interchange of trains between IR and EDFC line at interchange stations**				Study of options completed	System specification Adopted		System in-place EDFC1/2	System in-place EDFC3		MOR/ DFCCIL	MOR/ DFCCIL	

Annex 2: Detailed Project Description

A. Overview

1. The proposed EDFC3 Project consists of the following components:

   (c) Design, construction and commissioning of the Ludhiana- Khurja section of the Eastern DFC consisting of 401 km of single-track electrified railway designed for freight only train operations with 25-ton axle-load (upgradable to 32.5 ton axle loads) at 100 km/h.

   (d) Continuing the provision of institutional support to assist DFCCIL to develop its capability to build, maintain and manage the DFC infrastructure network.

B. Infrastructure Component

2. The physical infrastructure proposed is the construction of 401 km Ludhiana-Khurja section of the Ludhiana-Kolkata Eastern Dedicated Freight Corridor. The Ludhiana-Khurja section will be constructed as a single-line ballasted track laid on concrete sleepers with 1500 meter crossing-loops. It is designed to handle a mix of trains of 6,000 and 12,000 gross tons.

3. A single track configuration reflects somewhat lower traffic volumes on this section (c.f. EDFC 1/2) and is likely to provide adequate capacity for at least 10 years, with incremental capacity enhancing measures likely to be undertaken before eventual line duplication. Whereas EDFC1 and EDFC2 are forecast to carry around 50 pairs of trains each day in 2020-21, requiring a double-track line, EDFC3 is forecast to carry up to 23 pairs of trains daily on its busiest section in the same year. The capacity of EDFC3 as currently planned is about 25 pairs daily, which can possibly be increased to 28-30 pairs by some relatively minor works (intermediate loops and higher-capacity turnouts). There are also operational strategies which will increase the average length of trains and also improve utilization of capacity before line duplication becomes necessary.

4. EDFC3 will be electrified with 2 x 25 kV AC, 50 Hz power delivered by an overhead catenary system, and capable of operating at a maximum train speed of 100 km/h. It will be designed for an initial maximum axle-load of 25 metric tons on the track infrastructure and 32.5 tons for supporting structures (so that later increases in axle-loads may be adopted). It will have absolute block signaling, track vacancy detection system, inter-locked level-crossing gates, telecommunications system, and train radio and a SCADA control systems. All the crossing stations have been planned with single loop; as the traffic grows, there may be need for additional loop lines to be implemented in a phased manner. At opening virtually all traffic using EDFC as a whole will originate or end on feeder lines managed by IR's Zonal Railways. In time it is anticipated that new logistics centers/freight terminals may be built alongside the new lines.

5. The route alignment of the Ludhiana-Khurja section will run mostly parallel to the existing IR track; however, the alignment will detour near big cities and towns. It has been divided into two slices for Construction of Civil and Track works contracts as shown in Table 7.

Table 8: Characteristics of the EDFC3 sections

Slice	Total length (km)	Characteristics
1	175	Parallel length: 162 km Detour length: 13 km
2	226	Parallel length: 115 km Detour length: 111 km
Total	**401**	

6. On the parallel track section, existing level crossings that have relatively high traffic will be replaced by *Road Over Bridges* or *Under Bridges* (ROBs/RUBs) spanning new and existing tracks. The remaining level crossings will be improved by interlocking them with the train signaling system and by providing electrically operated booms. Audio-visual warning systems will ensure safety of pedestrians and vehicles. Some of these level crossings would be replaced over time by ROBs/RUBs. The alignment will be fenced at critical locations. On the detour sections there will be no level crossings.

7. ***Signaling***. An absolute block system will utilize trackside signals. *Automatic Train Protection (ATP)* will be provided as part of the signaling system[17]. A new communication system will be installed for this project with optical fiber cables laid on either side of the track. A Global System for Mobile Communications – Railways (GSM-R) digital mobile communication system will also be adopted. Infrared hot box detectors (which sense overheating of axle bearings) will be installed to minimize rolling stock failures on track and to improve safety. Automatic train identification equipment will be installed at selected stations. Appropriate measures will be adopted for energy conservation.

8. ***Packaging of Contracts.*** Construction will be under Design & Build contracts, with two civil works contracts (each consisting of sub-grade, bridges and track), and two system contracts (one corresponding to each Civil Works contract) for the entire 401 km section.

9. ***Performance and Design Specification***. The Design & Build contracts will be awarded on the basis of Performance Specifications (PS), which will permit bidders reasonable freedom to carry out detailed design. The PS specify broad physical and technical parameters, so that the bids received are for a comparable product, but allow bidders freedom to propose proven and cost effective technologies and innovative designs, and to use what they consider the most efficient and cost-effective construction methods. The PS will comply with existing operational standards of IR and meet the requirements of interoperability over connecting lines, as well as other segments of DFC to be built in the future.

10. ***General Consultant/Owner's Engineer***. DFCCIL has engaged a General Consultant/Owner's Engineer (GC/OE) for preliminary design and procurement. The General Consultant will draft the PS for DFCCIL to review and include in the draft bid documents. The PS is based on preliminary designs and investigations carried out by DFCCIL through a Consultant, and take into consideration the following:

- Alignment design (including centerline, longitudinal section and quantity of earth work in cutting and filling)/staked alignment.)
- Land plans
- Preliminary geotechnical investigation of bridges.
- Preliminary General Arrangement Drawing (GAD) for bridges.
- Preliminary GAD and Schematic Plan for junction arrangements.
- Schematic plan for rail flyovers.
- Preliminary sample GAD for modification of existing ROBs/RUBs.
- Details of utilities to be relocated or modified.
- Abstract Cost for the stretch.

[17] At present, this is not a part of the estimated project cost.

11. ***Other Investments***. IR has approved projects for upgrading general-purpose lines that intersect with the Eastern freight corridor. These line upgrading investments will be completed before the dedicated freight corridor projects. IR plans to also procure about 10,000 25 ton axle load freight wagons and 178 high-powered electric locomotives and associated maintenance facilities. The upgrading of connecting lines and procurement of freight wagons and electric locomotives are being funded by IR outside the project.

C. Institutional Support Component

12. The Institutional support component will focus on supporting three priority areas of operational, commercial and environmental management:

- ***Operational:*** Design of system to optimize interfaces at the interchange of trains between IR and EDFC line at connection points, including train holding yard requirements;
- ***Commercial:*** A freight logistics centers market-testing program to promote private investment in freight logistics centers/terminals (along either or both of) Eastern and Western Corridors plus development of a contractual model and seed capital for implementation of a pilot project; and
- ***Environmental:*** Design and implementation of pilot project for an energy optimization program on the DFC network.

13. ***Optimization of train interchange***. Indian Railways currently has standard Operating Rules for handover of the responsibility for trains between the divisions and zones of IR. In principle, these procedures will apply at the outset as between the divisions of zones feeding onto/from DFC lines and DFCCIL itself. However, the interface between IR and DFFCIL poses a greater challenge for four reasons:

- DFCCIL is a separate management entity whereas zones and divisions of IR are integral units of the Indian Railways under the direction of the Indian Railways Board and the commercial interests of the parties may not always coincide;
- one of the benefits sought from investment in DFC lines is greater transit reliability and this might be lost if there are significant delays at handover points or congestion on main lines due to insufficient sidings to stage trains;
- the train control systems used by DFCCIL may well be more technologically advanced than those being used by an adjacent division of a zonal railway;
- DFCCIL intends to work towards creation of a timetables system in which freight trains are operated according to a schedules train plan, whereas IR freight trains are run on an 'on-demand' basis, rather than despatched via dedicated freight train paths; thus the interface needs to be properly managed to avoid unpredictable fluctuations in arriving train numbers that might leave to queuing to get onto or off the DFC system.

14. A more rigorous plan is therefore required for continuing operations and this sub-component of EDFC3 will consist of a study to

i. to investigate, define and quantify the nature of the challenge and the locations where the interfaces are likely to be under most stress due to traffic interactions;
ii. identify optimal procedures for managing the interfaces including, if necessary, recommended amendment or augmentation of IR Operating Rules to apply to DFC situations;

iii. recommend, on a location-specific basis, any storage sidings and lines necessary to avoid congestion on running lines and facilities required to hold and couple (or uncouple) two trains to make (or divide) a longer long-haul train consist;.
iv. identify the most effective pattern of modern heavy haul high horse power loco operation in terms of base depots and loco changing points (if needed); the interchange points might also need to develop some other amenities/facilities.

15. ***Freight logistics***. Under its Concession Agreement with the GOI one of DFCCIL's obligations (clause 6.1.e) is to facilitate development of connectivities to new industries, logistics parks etc. alongside the DFC network which would enable marketing for additional traffic, and in this regard, inter alia:

i. encourage, develop, promote and support the provision of rail freight terminals and freight logistics centers to increase traffic on the Network;
ii. utilise land granted by MOR to DFCCIL for rail freight terminals and freight logistics centers or other commercial return.

16. The Commercial and Marketing Strategies Study financed under EDFC1 that is planned to commence in June 2015 will review, analyze and recommend commercial and marketing strategies for IR's freight services in particular with regard to heavy haul freight business, but dealing with a range of different railway users. Part of the Study will consider better integration of railways into supply-chains, and associated logistics capabilities, including the need for freight terminals/logistics centers on the DFC routes themselves.

17. This component of EDFC3 project is to help DFCCIL discharge its responsibilities under the Concession Agreement with regard to promoting freight logistics capabilities enabled by the new infrastructure, at the same time using the outputs of the Commercial and Marketing Strategies study to guide DFCCIL towards the most promising markets.

18. However, this sub- component of EDFC3 is not planned as a study but as a pilot project to create an early logistics center on the network. At this stage it is anticipated it will consist of the following main stages (which will also require the assent of MOR, from whom it leases DFC land, under the terms of the Concession Agreement):

i. Based on DFCCIL's ongoing contacts with freight shippers and early outputs of the Commercial and Marketing Strategies Study, DFCCIL will identify a potential list of companies interested in investing in particular freight logistics centers concepts and by a market testing process will seek to identify the necessary and sufficient conditions to attract private sector investment;
ii. identification of suitable land parcel(s) close to DFC, either available land or to be acquired (some state governments are offering land);
iii. DFFCIL will prepare a model sub-lease agreement for use in the pilot and potentially for other similar projects;
iv. DFCCIL will commit to invest seed capital part of which shall be funded by EDFC3 to the preparation of a suitable site for a pilot project and the connectivity of its sidings to DFC running lines;
v. DFFCIL will use a transparent and competitive process for development of the logistics parks.

19. ***Environmental***. This component will be based on the recommendations of the Energy Optimization Study being carried out as part of EDFC2, to assess the feasibility of a Driver Advisory System (DAS) that will advise the locomotive driver on actions to optimize energy usage. This could be accomplished by switching on/off the auxiliaries of the locomotive vehicle at a given point of time during extended halts, powering down the locomotive and optimizing running speeds, thus saving energy.

20. Following the Study in EDFC2, this pilot project is to be funded from EDFC3 and will demonstrate on one of DFCCIL's operational sections the potential for energy savings in IR train operations, and also serve as a demonstration for scaling up energy efficiency initiatives across DFC with associated reduction in GHG emissions from its operations.

Annex 3: Implementation Arrangements

A. Project Administration Mechanism

1. Construction of EDFC3 as for the whole Eastern DFC Program will be administered by DFCCIL's Construction Unit which is headed by the Director Project Planning (DPP). DFCCIL's Managing Director reports to the DFCCIL Board comprising the Chairman, five full time functional Directors (including the MD), four independent directors, and two government nominees. At the operating level, each field unit is headed by a Chief Project Manager (CPM) reporting to DPP. There are seven field units for the Eastern Corridor (of which five units will implement the construction of the IBRD funded project in three phases). Each section of the Eastern Corridor is the responsibility of a Chief Project Manager (CPM); for the Kanpur-Mughal Sarai section the two CPMs and their staff will work from their offices already established in Allahabad. During the construction phase, DFCCIL will ensure overall staff strength of around 930, with 30 staff in each field office. Key personnel will all be trained in the World Bank's Procurement, Financial Management, Social and Environmental guidelines.

2. For contract management of design-build contracts, the General Consultant (GC) will assist DFCCIL initially during contract design and evaluation, and will be replaced by Project Management Consultants (PMC) during contract execution. Each field unit under the project will be supported by a Team Leader and two Resident Engineers provided by the PMC. The engineering head of the PMC will be based at the Project office in Ambala, where a design cell will also be set up for checking of designs submitted by the contractors.

3. The SEMU established within DFCCIL will be responsible for the implementation of all social and environmental safeguards. A Procurement Cell, adequately staffed and trained in Bank procurement, has been established. In addition, support will be given by the General Consultant (GC) and a Legal Advisor during the bid process. The PMC will coordinate contract management activities once the main contracts have been awarded. Quality and Safety Audit Consultants (QSAC) will carry out quarterly reviews and submit reports to DFCCIL management.

4. DFCCIL will provide quarterly progress reports to the World Bank. The reports will provide the following information:

- Physical and financial progress of works.
- Status of various procurements and audits, land acquisition and utility shifting, RAP and EMP implementation.
- Status of various statutory clearances.
- Key issues faced during implementation and status of compliance with agreed actions during implementation support missions and any other reviews.

Legal Agreements

5. In addition to agreements for the loan and project, the project involves on two agreements:

a) Concession Agreement between MoR/IR and DFCCIL.

b) Track Access Agreement (TAA) between DFCCIL and IR.

6. The relationship between MOR and DFCCIL is set out in a Concession Agreement, signed in February 2014, based on three principles that were stipulated by GOI in its early adoption of the DFC program.

- DFCCIL should be commercially independent and at 'arm's length' from IR.
- DFCCIL should be market-focused.
- While not operating commercial freight train services, offer non-discriminatory access to 'qualified operators' (the responsibility for qualification remaining with MOR).

7. ***Outline of the Concession Agreement.*** The Concession Agreement sets out, *inter alia*, the agreed project and concession objectives, the rights and obligations of the parties in achieving those objectives, and an enabling framework to incentivize the parties to provide and use the corridors efficiently and effectively. In addition to clauses that provide the usual legal safeguards for various parties, the Concession Agreement also reflects the government's specific objectives for this project by:

- Creating management autonomy and independence of DFCCIL and giving market focus to DFCCIL activities with regard to construction and maintenance.
- Seeking to promote non-discriminatory access to the corridors.

8. Access to all qualified operators is envisaged on a non-discriminatory basis. The only rail freight train operators authorized to use the corridors at opening will be the existing Zonal Railways. MOR undertakes that as soon as practicable after completion, if DFCCIL is performing its maintenance and operational obligations under the Concession Agreement, and if it is consistent with the policies of the GOI, MOR will publish qualifications and criteria which must be met by any train operator to qualify to as an authorized rail user.

9. ***Track Access Agreement.*** The track access agreement will govern the track access charges paid by IR for use of the Corridor[18]. The pro forma Agreement, which is appended to the Concession Agreement, also sets out performance targets and conditions of use. Track Access Charges (TAC) payable by the Ministry of Railways (MoR) to the Dedicated Freight Corridor Corporation Limited (DFCCIL) are to be negotiated between the parties so as to: (a) provide revenue adequate for DFCCIL to be a commercially sustainable company earning a reasonable return (revenue adequacy principle); and (b) incentivize the company to handle increments to traffic, maintain agreed performance standards and seek efficiency improvements (incentive principle).

Financial Management, Disbursement and Procurement

Corporate Governance

10. A Corporate Governance Financial Assessment (CGFA) of DFCCIL, the project implementing entity, was carried out at the time of the preparation of EDFC1 and updated during EDFC2. DFCCIL agreed on an action plan to meet the Corporate Governance Guidelines of the *Department of Public Enterprises (DPE)*. DFCCIL had made progress in meeting the DPE norms and taken several steps to meet the requirements of the model code. However, presently there are some corporate governance components that do not meet the DPE guidelines. The status of implementation of DPE's Model Code of Corporate Governance and further action to be taken to strengthen corporate governance is summarized in Table 9.

[18] The *Track Access Agreement* is an Annex of the Concession Agreement

Table 9: Status of Implementation of DPE Code of Corporate Governance in DFCCIL and Updated Action Plan

Model Code	Current Status in DFCCIL/Agreed Action Plan
a) **Board of Directors** shall have an optimum combination of functional, nominee and independent directors. • The number of functional directors (including CMD/MD) should not exceed 50 percent of the actual strength of the board. • The number of nominee directors shall be restricted to a maximum of two. • In case of CPSEs not listed in the stock exchanges, at least one third of the board members shall be independent directors.	The sanctioned strength of the Board is 12 comprising of: a Chairman, 5 functional directors including a Managing Director, 2 part-time official directors and 4 part-time non-official directors. In the present Board, all four positions of independent directors are vacant reducing the Board's strength to 8. ***Action Plan: DFCCIL to follow up with MoR to expedite selection and appointment of independent and other directors expeditiously. MoR/DFCCIL to ensure that, in future, these positions do not remain vacant for considerable period of time.***
b) **Qualified and independent Audit Committee** shall be set up giving the terms of reference. • The audit committee shall have minimum 3 directors as members. 2/3 of the members of audit committee shall be independent directors. The chairman of the audit committee shall be an independent director. • All members of the audit committee shall have knowledge of financial matters of the company and at least one member shall have good knowledge of accounting and related financial management expertise. • Detailed and elaborate role has been prescribed for audit committees, including review of financial performance, reporting and disclosures; internal control mechanisms (including internal audit); compliance with audit observations (internal as well as statutory); whistle blower mechanism etc. • Audit committees shall meet at least 4 times in a year and not more than 4 months shall elapse between two meetings.	An Audit Committee of the Board (ACB) comprising of minimum three directors with majority being part-time non-official directors (independent directors) with the chairperson being an independent director has been mandated. Due to vacancies in the position of independent directors, the composition of the present ACB is not in line with DPE guidelines i. e. the ACB does not have majority of independent directors and the chairperson is not an independent director. The scope and coverage of the audit committee has been updated in line with the Companies Act, 2013 and DPE guidelines and approved by the Board in June 2014. During FY 2013-14 and 2014-15, the ACB met 4 times each. ***Action Plan: DFCCIL to reconstitute the ACB as soon as the positions of independent directors are filled up.***
c) **Risk management** strategies and their oversight shall be one of the main responsibilities of the board and management. • The board shall ensure the integration and alignment of the risk management system with corporate and operational objectives and also that risk management is undertaken as a part of normal business practice and not as a separate task at set times. • The company shall lay down procedures to inform board members about the risk assessment and minimization procedures. • These procedures shall be periodically reviewed to ensure that executive management control risks through a properly defined framework. Procedures will be laid down for internal risk management as well. • Disclosure on risks and concerns shall from part of the Director's report.	Entity Risk Management Framework (RMF) has been finalized and approved by ACB, and DFCCIL has issued circular for its implementation. The RMF provides for creation of 3 posts of DGM/RM to be designated as Risk Management Coordinators (RMCO). DFCCIL plans to fill one post of DGM/RM and creation of the remaining 2 posts shall be decided depending upon workload and requirement in future after due assessment post implementation. The position of full-time General Manager (Risk Management) continues to remain vacant and the process to fill this position has been initiated. Presently, there is no dedicated staff for this vital function and a plan to recruit the approved positions has been developed. A Risk Management Committee of the Board has been set up with one independent director and two functional directors, but the Committee has yet to hold meetings. ***Action Plan: DFCCIL to select and appoint General Manager (Risk Management) and adequately staff this***

Model Code	Current Status in DFCCIL/Agreed Action Plan
	vital function in a time bound plan. In the interim, DFCCIL is appointing a consulting firm to spearhead the implementation of the RMF and provide hand holding support till regular staff is on board. The Annual Report of DFCCIL contains a Corporate Governance Report and a certificate of compliance with DPE Guidelines from a Company Secretary and a Management Discussion and Analysis Report.

Project Financial Management and Disbursement

11. As in EDFC 1 and EDFC 2, the financial management arrangements under EDFC 3 will be predicated on DFCCIL's own systems supplemented with the Bank's reporting requirements. The major elements of the FM accountability framework agreed with DFCCIL are discussed below. The residual risk rating is *moderate* since the systems and process enhancements are under implementation and are yet to be fully tested.

12. ***FM Capacity.*** Overall responsibility for implementing and maintaining adequate FM arrangements will vest with DFCCIL's Finance Department under a full-time Director (Finance) supported by a Group General Manager (Finance), General Manager (IT and Finance) looking after ERP implementation; and General Manager (Risk Management) looking after entity-wide risk management and audit (the latter position is presently vacant). The FM function at the field units is headed by a Deputy Chief Project Manager/Project Manager (Finance) reporting to the Chief Project Manager (CPM) and supported by an Assistant Project Manager (Finance) and Assistant Manager (Finance). DFCCIL will designate one or more field office as the nodal office, the Project Implementation Unit (PIU) that will carry out the FM functions for the contract/s under its jurisdiction. The PIUs will be staffed adequately.

13. According to DFCCIL's staffing status, 57 positions out of the targeted 90 positions in FM are currently filled. Staffing is being progressively strengthened through a mix of regular appointments and deputation according to a recruitment plan. As and when staff is recruited, they are sent for training in financial management at the railways and other designated institutes to cover project FM, procurement and contract management requirements, and to handle the large scale Design-Build contracts.

14. ***Funds Flow, Budgeting and Counterpart Funding***. The IBRD loan will flow directly to DFCCIL, while counterpart funds will be provided for and drawn from the budget of MoR and provided to DFCCIL. MoR will make adequate provision for timely release of counterpart funds to DFCCIL. Funds for each phase of EDFC will be separately tracked and accounted for and their utilization will be reported separately.

15. ***Accounting***. This is presently carried out at DFCCIL's head office in accordance with the provisions of the Companies Act and prescribed accounting standards, using an off-the-shelf accounting package (TALLY) outsourced to a firm of accountants. Accounting will be migrated to ERP once it is rolled out expected by October 1, 2015. DFCCIL will capture project expenditure in a manner to facilitate: (i) segregation of IBRD project expenditures from other DFCCIL expenditures; (ii) separation of expenditures under each phase of EDFC.

16. ***Implementation of Finance Module in ERP:*** DFCCIL is implementing SAP-ERP which includes a Finance Module that is in an advanced stage of implementation. Majority of the finance workflows has been finalized and configured and will now be tested. At the corporate office, financial transactions are being made on ERP and opening balances have been incorporated.

DFCCIL plans to issue instructions for mandatory input of financial transactions in ERP, test the system and migrate completely by October 1, 2015. ERP will be integrated with other modules including Human Resource and Project Management and will provide functionality for accounting expenditure separately for each phase of EDFC Project and preparation of IFR.

17. ***Internal Controls including Internal Audit***. Budgeting, Accounting, Financial Reporting, Internal Controls and Internal Audit and Works Manuals are being further updated, finalized and implemented. According to the system for verification and payment of contract obligations, bills under EDFC contracts will be raised by the contractor, reviewed and certified by the PMC or Independent Engineer (to be appointed) and then verified by Engineering and Finance Sections at the office of the CPM where after it will be sent to CPM for approval. Payments will be made from the CPM office for which funds are provided by the central office based on a documented system of monthly requisition by field offices and funds transfer by head office. Payments to contractors are largely through electronic mode. The entire work flow, which is presently manual, is being configured in SAP-ERP

18. DFCCIL has outsourced its internal audit function to a firm of Chartered Accountants, under terms of reference approved by the Audit Committee of the Board, and coordinated by the General Manager (Risk Management) - this position is presently vacant. Internal audit is being strengthened by updating the internal audit manual and expanding the scope of internal audit to cover contract management and project implementation. The audit has been completed up to March 2015 and the report is being finalized. Internal audit reports are placed before the Audit Committee. Also, DFCCIL has further strengthened the terms of reference and scope for internal audit and is in the process of selecting and appointing a new audit firm. The Bank financed project will be subject to internal audit and the internal audit reports will be available to the World Bank for review during implementation support missions. Going forward, DFCCIL intends moving towards Risk based Internal Audit.

19. ***Financial Reporting***. DFCCIL will report details of project expenditure incurred and planned through quarterly Interim Un-audited Financial Reports (IFR) based on format agreed with the Bank. There will be a separate IFR for each phase of EDFC. DFCCIL will also prepare annual project financial statements (similar to the format of the IFR), which will be audited and submitted to the Bank.

20. ***External Audit***. The statutory auditor (private audit firm) of DFCCIL is appointed by the Comptroller and Auditor General of India (C&AG). Following completion of the statutory audit, the C&AG conducts a supplementary audit and additionally may also conduct a proprietary audit. Statutory audits of DFCCIL are on schedule and have been completed up to financial year 2013-14.

21. In addition to the annual entity audit report and financial statements, DFCCIL will submit to the Bank a separate project audit report, along with the audited Project Financial Statements (PFS) by December 31 each year during the currency of the project. The project audit will be conducted by an independent firm of Chartered Accountants (which may include the statutory auditors appointed on the advice of C&AG), acceptable to the Bank, under terms of reference agreed with the Bank. The annual audited PFS would separately identify each component under the project, its progress and the funding sources. The following audit reports will be monitored by the World Bank.

Table 10-Audit Reports Compliance Systems

Agency	Audit Report	Audited by	Due Date
DFCCIL	Annual Entity audit report as required under the Companies Act, 1956	Statutory Auditors recommended by the C&AG.	December 31
DFCCIL	Annual audit report on the Project financial statements	An independent firm of Chartered Accountants acceptable to the Bank under agreed ToR.	December 31

22. ***Disbursement.*** IBRD loan disbursement methods under EDFC3 would include Advance, Reimbursement, Direct Payment and Special Commitment. Advance would be Variable, based on a three-months rolling forecast. Supporting documents for disbursement applications would be IFRs submitted at least quarterly. Supporting documentation for Direct Payment would be the records evidencing eligible expenditure, including receipts, invoices, completion reports etc. The original documentation will be retained by DFCCIL and made available to the Bank during project implementation support missions. Expenditure on land acquisition and resettlement and rehabilitation is ineligible for reimbursement under the project. Retroactive financing would be available to DFFCIL in accordance with Bank procedures as provided in the Loan Agreement. Expenditure under retroactive financing will be claimed from the Bank through separate standalone IFR. The categories of expenditure, related amounts and percentages to be financed under EDFC3 are summarized in table 10.

Table 11- Disbursement Category, Amount Allotted and Disbursement Percentage

Category	Amount Allotted ($USD million)	Percentage of Expenditures to be financed (inclusive of Taxes)
Goods and works (other than those for signals, telecommunications and/or electrical works), non-consulting services, consultants' services and Training for Component 1 of the Project	509	67% for World Bank financed contracts.
Goods, works for signals, telecommunications and all electrical works under Component 1 of the Project	121.4	50% for World Bank financed contracts
Goods, consultants' services and training under component 2	18	100%

23. ***Disclosure Policy***. In compliance with the project's disclosure policy, DFCCIL will disclose the annual audited project financial statements, along with the auditor's report, as well as the quarterly IFRs, on its website along with other relevant project documents. Under the *Access to Information Policy* of the World Bank, the annual project audit report and the audited financial statements will be disclosed on the Bank's website.

24. ***FM Risk Assessment***: The residual risk rating is assessed as *moderate* based on the completion of agreed actions and those in progress. DFCCIL is a relatively new and developing entity and the actions agreed are dynamic and can change during implementation depending upon progress made, and will be continuously reviewed to keep them contemporary.

25. ***Action Plan***. Table 11 provides a status of the action plan agreed by DFCCIL during EDFC1 and 2 and updated during EDFC3 preparation.

Table 12: Financial Management updated Action Plan under EDFC 3

(Continuing arrangements as for EDFC1 and EDFC2)

Area of Action	Actions required for implementation	Action/s completed	Action/s to be completed
Internal Audit			
Internal audit arrangements to be in line with expanding requirements and good industry practices.	Define internal audit organization and reporting structure after comparing with peers and identify dedicated resource for internal audit function.	The Internal Audit function is now under a General Manager (Risk Management) supported by a DGM, an Assistant Manager and a Consultant. Internal Audit is outsourced to a firm of Chartered Accountants.	Position of General Manager (Risk Management) to be filled up. In the interim, appoint consultant which will be replaced after recruitment and training of regular staff.
Appropriate internal audit structure and independence.	Expand internal audit TOR to cover entire organization, risk management.	A revised TOR was approved by the Audit Committee in July 2012 and by the Board and internal audit is being conducted in accordance with this TOR. Audit is completed up to December 2014. Internal audit TOR is being further strengthened.	Going forward and post-implementation of risk management framework, DFCCIL will consider introducing Risk Based Internal Audit.
Appropriate internal audit Manual.	Update internal audit manual through carrying out audit by major audit firm under broad TOR.	Internal audit manual has been updated.	Internal audit manual will be further updated.
Strengthen Human Resource Management			
Put in place proper HRM structure and plan for recruiting and retaining staff.	Develop structure, policies and procedures taking into account expected growth in activities of DFCCIL.	A General Manager (HR) has been appointed. HR Manual has been updated and finalized. A duty list has been prepared for each staff. According to DFCCIL's staffing program, against sanctioned FM staff strength of 90, 57 positions have been filled. Recruitment of the remaining FM positions is ongoing.	DFCCIL will continue its plan of recruiting FM staff and strengthening the function.
Customized business solutions/ ERP			
Implement ERP for integrated solutions to meet requirements of management and stakeholders in a timely and efficient manner. **Other reporting for MIS.** Review organization wide reporting requirements and develop suitable forms and instructions for their preparation and distribution.	Appoint Prime Consultant; prepare implementation plan for implementation of enterprise IT solution.	ERP is being implemented under supervision of GM (IT). Systems Integrator. ERP implementation is in progress but roll out of Finance module and migration of accounting to ERP is continuously slipping.	DFCCIL to migrate to the Finance Module of ERP by October 1, 2015

Area of Action	Actions required for implementation	Action/s completed	Action/s to be completed
Financial Management Manuals			
Update manuals for a more formalized and systems oriented financial accountability and corporate governance environment covering budgeting, accounting, internal controls, financial reporting in view of the proposed significant growth in the activities.	Initiate action for preparing/ updating manuals: (a) Budgeting (b) Accounting (c) Internal Controls (d) Financial Reporting.	Budget Manual, Accounting Manual, Financial Reporting Manual, Works Manual and Internal Controls & Internal Audit Manual have been updated and finalized.	These manuals are being further updated.

Procurement

26. Procurement for the project will be carried out in accordance with the World Bank's "Guidelines: Procurement under IBRD Loans and IDA Credits" dated January 2011 Revised July 2014 (Procurement Guidelines); and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated January 2011 Revised July 2014(Consultant Guidelines) and the provisions stipulated in the Loan Agreement (LA).

27. ***Contracting Strategy and assessment of DFCCIL Procurement.*** Contracts for the works component will be processed in four packages, comprising of two civil & track work contracts and two separate System Contracts (Signaling and OHE).

28. The two civil works contract packages will cover the section from Khurja- Pilakhni and Pilakhni -Sahnewal with a total length of 401 km. Invitations for pre-qualification were published on March 2014 and applications were received in July 2014 for one of the civil works and track contract packages. The two systems contracts (signaling and electrification) will be bid subsequently in two packages under a Design-Build Lump Sum contract following a similar procedure. The bidding and contracting documents that were used for EDFC2 will be used as model for EDFC3 and will be customized to suit its specific requirements. The contract packaging for the civil and systems contracts is given in the procurement plan.

29. An assessment of DFCCIL's capacity to implement project procurement was conducted at the time of preparation of EDFC1and EDFC 2 by the Bank. An updated capacity assessment of the agency was conducted for EDFC3. The main findings are:

- DFCCIL Procurement cell, created for the implementation of EDFC1, has gained experience in procurement under EDFC1&2 and has substantial capacity to handle the procurement under EDFC 3. However, limitation in dedicated procurement staff may create a bottleneck for multiple contracts under the EDFC1/ EDFC2 and EDFC 3 will necessitate having a strong procurement team.
- Bidding documents have been developed under EDFC1&2 that can be adopted for the recommended contracting strategy.
- The procurement of small value consultant contracts is handled by other units where there is limited capacity in procurement following Bank procedures.

30. To strengthen procurement, the following measures have been agreed upon:

- ***Procurement staff*.** Two procurement experts will be available at all times to oversee on going procurement activities, review output of GC, and address any contract implementation issues. All procurement staff will get adequate training on procurement. The procurement unit will have the stronger quality assurance role of all procurements handled by other units.
- ***Procurement Plan*.** DFCCIL has prepared a procurement plan for the works and consultant services to be procured under the project. The procurement plan will be submitted to the Bank for no objection using the Banks Procurement Plan Management System (SEPA).
- ***General Consultant (GC)*.** GC has been employed under EDFC2 to provide support during bidding, bid evaluation, and contract award phase. The TOR of the GC covers essential areas where DFCCIL currently lacks adequate capacity, including preparation of contracting strategy, bidding documents, and handling of technical issues throughout the bidding process.
- ***Project Management Consultant (PMC)*.** DFCCIL will employ the PMC under terms of reference agreed with the World Bank. The PMC will be responsible for detailed reviews of design drawings prepared by the Contractor, and advising DFCCIL on all issues in the management of the contract. Exceptions to DFCCIL's delegation of decision-making authority to the PMC will be listed specifically in the contract upon completion or provisional completion of the works by the Contractor. The PMC will have no authority to amend or terminate the Design-Build contracts.
- ***Operating Procedures*.** DFCCIL's current operating procedures which have been utilized for EDFC3 and have been detailed in the PIM. Additional or modified internal decision-making processes may be developed, as necessary, to complement current procedures. The working arrangement between DFCCIL and its consultants will be streamlined to ensure that preparation of procurement documents and evaluation reports are completed in time in accordance with the procurement plan.

31. ***Procurement Risk Assessment.*** The overall procurement risk is rated *Moderate*. The risks associated with Procurement and the mitigation measures were identified in the assessment of DFCCIL Procurement capacity update and are summarized in Table 13.

Table 13: Summary Risk Assessment

Description of risk	Risk Rating[a]	Mitigation measures	Residual Risk Rating[a]
Limited number of qualified contractors. The works and systems contracts are specialized with very large value and may not attract sufficient competition resulting in high bid prices or failed bids.	M	The civil works and systems contracts have been divided into two lots to ensure that the size of the contracts corresponds with the capacity of contractors in the market. The qualification requirements will be reviewed and optimized to the extent possible to maximize competition.	M
Quality of procurement process in selection of small value consultants	M	The procurement cell will play an active quality assurance role and	M

may result in delays and lack of competition.		the tender evaluation committee members will be provided with adequate training in procurement	
Average	M		M

H=High; M=Moderate and L=Low

32. ***Procurement Implementation Arrangements***. Procurement activities will be carried out by DFCCIL Procurement Cell. DFCCIL's General Consultant (GC) would continue providing services throughout the bidding process until the bid evaluation report and the contract award recommendations have been completed and 'no objection' is given by the Bank. DFCCIL's Legal Advisor would provide legal advice in counseling DFCCIL during the bid clarification process, the contract award period and the implementation of the construction contracts. DFCCIL would select and recruit the Project Management Consultant (PMC) within three months of award of the first civil works contract.

33. A bidding process would be launched for civil & Track works and Systems contract after pre-qualification, under the structured two-stage process described in the Bank' s SBD for the Procurement of Plant Design, Supply and Installation. DFCCIL would conduct individual clarification meetings with the bidders concerning their technical proposal and bring to their attention any amendments required. DFCCIL will issue any amendments to all bidders. DFCCIL would issue a Memorandum of Understanding to each bidder, documenting decisions made regarding the amendments and changes to be made to the first stage technical proposals. The Second Stage bids would be invited from bidders, whose technical proposals in the First Stage have been found to be substantially responsive, including, as applicable, the decisions documented in the Memorandum of Understanding.

34. ***Provisions for National Competitive Bidding (NCB).*** For procurement subject to NCB, DFCCIL would prepare standard bidding documents that include the NCB provisions agreed from time to time between the Bank and GOI.

35. ***Domestic Preference***. In accordance with clause 2.55 and Appendix 2 of the guidelines, domestic preference will not apply to the civil works contracts and the systems contract to be awarded on a Design-Build Lump Sum basis.

36. Training needs for the DFCCIL staff, including procurement, contract administration and IT, will be assessed and conducted periodically as required.

37. ***Procurement Plan***. DFCCIL has developed an initial Procurement Plan (PP) for the first 18 months covering the entire project scope. It is consistent with the *Project Implementation Plan* and provides information on procurement packages, methods and the applicable requirements for Bank review. This will be available in DFCCIL's project database and on the Bank's external website and the Bank's Procurement Plan Management System (SEPA). The PP will be updated semi-annually in agreement with the Bank.

38. ***Post Reviews***. In addition to the prior reviews of specific procurement transactions to be carried out by the Bank in accordance with the Procurement Plan and Annex 1 of the Procurement Guidelines, post reviews will be carried on at least 20 percent of the contracts which are subject to post review in the Procurement Plan.

39. ***NCB Conditions***: The following Conditions will be applicable using NCB.

a) Only the model bidding documents for NCB agreed with the GOI Task Force (and as amended for time to time), shall be used for bidding

b) Invitations to bid shall be advertised in at least one widely circulated national daily newspaper **(or on a widely used website or electronic portal with free national and international access along with an abridged version of the said advertisement published in a widely circulated national daily inter-alia giving the website/electronic portal details from which the details of the invitation to bid can be downloaded),** at least 30 days prior to the deadline for the submission of bids

c) No special preference will be accorded to any bidder either for price or for other terms and conditions when competing with foreign bidders, state-owned enterprises, small-scale enterprises or enterprises from any given State

d) Except with the prior concurrence of the Bank, there shall be no negotiation of price with the bidders, even with the lowest evaluated bidder

e) Extension of bid validity shall not be allowed **with reference to Contracts subject to Bank prior review** without the prior concurrence of the Bank (i) for the first request for extension if it is longer than four weeks; and (ii) for all subsequent requests for extension irrespective of the period (such concurrence will be considered by Bank only in cases of Force Majeure and circumstances beyond the control of the Purchaser/ Employer)

f) Re-bidding shall not be carried out with reference to Contracts subject to Bank prior review without the prior concurrence of the Bank

g) The system of rejecting bids outside a pre-determined margin or "bracket" of prices shall not be used in the project

h) Rate contracts entered into by Directorate General of Supplies and Disposals will not be acceptable as a substitute for NCB procedures **unless agreed with the Bank on case to case basis**. Such contracts will be acceptable however for any procurement under the Shopping procedures

i) Two or three envelope system will not be used **(except when using e-Procurement system assessed and agreed by the Bank)**

Procurement Plan for EDFC3 Project Dated *[February 2015]*

a) Works and Goods

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**
1. WORKS										
	CIVIL STRUCTURE AND TRACK WORKS - Pilakhni -Sahnewal Lot 301(175 KM)	258	1	ICB	Prior	Mar-14	Jul-15	Mar-16	May-16	Dec-19
	CIVIL STRUCTURE AND TRACK WORKS - Khurja- Pilakhni - Lot 303 (226 KM)	302	1	ICB	Prior	Apr-15	Dec-15	Jun-16	Jul-16	Dec-19
	Power, Overhead Electrification along with Signal and Telecom works (System Works) Pilakhni - Sahnewal Lot 304 (175 KM)	74	1	ICB	Prior	Apr-15	Dec-15	Jun-16	Jul-16	Dec-19
	Power, Overhead Electrification along with Signal and Telecom works (System Works) Khurja- Pilakhni - Lot 305 (226 KM)	85	1	ICB	Prior	Jun-15	Feb-16	Dec-16	Jan-17	Dec-19
	Total 1. for works	**719**								
2. GOODS										
Total 2. for goods										
Legend:										
ICB =	International Competitive Bidding (in accordance with section 2 of the Guidelines) For works contracts valued at or more than US$40 Million For goods contracts valued at or more than US$3,000,000									
NCB =	National Competitive Bidding (in accordance with section 3.3 of the Guidelines) For works contracts valued less than US$100,000 – 40,000,000 For goods contracts valued less than US$100,000 – 3,000,000									
Provisions for NCB=	For procurement subject to NCB, the bidding documents to be used for this purpose would include the NCB provisions agreed from time to time between the Bank the GOI. These currently applicable provisions are displayed on the website of the Bank's South Asia Region and the Project Implementation Manual. DFCC would prepare standard bidding documents for NCB, subject to the Bank's review and clearance.									
DC=	Direct Contracting (in accordance with section 3.6 of the Guidelines)									
SH =	Shopping (in accordance with section 3.5 of the Guidelines) For works contracts valued at or less than US$100,000 For goods contracts valued at or less than US$100,000									
Prior review	For Works contracts: All ICB contracts. All NCB contracts of US$5.0 million equivalent or more including the first contract regardless of value of contract. For Goods contracts: All ICB contracts. All NCB contracts of US$500,000 equivalent or more including the first contract regardless of value of contract.									
Domestic Preference	Will not apply									

b) Consultants' Services

Package No.	Description of Assignment/ Location	Estimated Cost (US$)/m	Selection Method	Review by Bank Prior / Post	Adverti-sement for EOI Date	Contract Award Date	Start Date	Completion Date
A	B	C	D	E	F	H	I	J
3. CONSULTANTS' SERVICES								
1	Quality and safety monitoring consultant Pilakhni- Sahnewal	3.87	QCBS	Prior	Apr 2015	Apr 2016	Apr 2016	Dec 2019
2	Quality and safety monitoring consultant Khurja- Pilakhni	3.87	QCBS	Prior	July 2015	July 2016	July 2016	Dec 2019
3	PMC for construction supervision and contract management services Pilakhni- Sahnewal	12.90	QCBS	Prior	Mar 2015	Apr 2016	Apr 2016	Dec 2021
4	PMC for construction supervision and contract management services Khurja- Pilakhni	12.90	QCBS	Prior	July 2015	July 2016	July 2016	Dec 2021
5	SESMRC Consultancy Pilakhni – Sahnewal & Khurja - Dadri	0.24	QCBS	Post	Apr 2015	May 2016	May 2016	Dec 2019
6.	SESMRC Consultancy Khurja - Pilakhni	0.16	QCBS	Post	Nov 2015	Mar 2017	Mar 2017	Dec 2019
7.	Technical Study for Train Interchange between DFCCIL and IR	1.00	QCBS	Prior	Nov 2015	Mar 2017	Mar 2017	Mar 2018
8.	Freight Logistic Pilot Project	11.00	QCBS	Prior	Nov 2015	Mar 2017	Mar 2017	Mar 2019
9.	Energy Optimization Pilot Project	3.00	QCBS	Prior	Nov 2016	Mar 2018	Mar 2018	Mar 2020
10.	PMC for TA Component in DFCCIL	1.00	QCBS	Prior	Apr 2015	Feb 2016	Feb 2017	Dec 2019
	Total	49.95						
Legend								
QCBS =	Quality and Cost-based Selection (in accordance with sections 2.1 - 2.31 of the Consultant's Guidelines)							
QBS=	Quality Based Selection (in accordance with section 3.2 of the Consultant's Guidelines)							
CQ=	Consultants Qualifications (in accordance with section 3.7 of the Consultant's Guidelines)							
LCS =	Least-Cost Selection (in accordance with section 3.6 of the Consultant's Guidelines)							
SSS=	Single source Selection (in accordance with section 3.8-3.11 of the Consultant's Guidelines)							
IC =	Individual Consultant (in accordance with section V of the Consultant's Guidelines)							
Other methods	**QCBS/QBS** **(i) International short-list** **(ii) Shortlist may include national consultants only**	**For all cases > US$800,000** **For all cases < US$800,000**						

	CQS/LCS/FBS	**Up to 200,000**	
	SSS	**As per 3.8 through 3.11 of the Guidelines**	
	Individuals	**As per para Section V of Guidelines**	
Prior Review	For firms: All contracts equal to US$**200,000** or more. All SSS contracts. For individual consultants: All contracts equal to US$**100,000** equivalent or more. All SSS contracts.		

Environmental Management and Safeguards

40. ***Impact of the project and safeguards policies.*** The project involves major construction activities such as earthen embankments for the rail track, a number of major and minor bridges, rail flyovers and ancillary buildings. These activities are expected to cause environmental impacts involving cutting of trees, increase in noise and vibration level at sensitive locations, impact on community and cultural resources, and land acquisition and involuntary resettlement. Considering the above, EDFC3 is categorized as 'Category A' and triggers four safeguards policies- Environmental Assessment (OP/BP 4.01), Forest (OP/CP 4.36), Physical Cultural Resources (OP/BP 4.11) and Involuntary Resettlement (OP/BP 4.12).

41. ***Environmental Management and compliance with Safeguards policies***. In compliance to these policies and also the *Environmental Management Framework* developed during the preparation of EDFC1, the project has carried out an *Environmental Assessment (EA)* for the 175 km long Pilakhni- Sahnewal Section (Lot 301) section that is planned to be implemented in the first year of EDFC 3 and prepared an *Environmental Management Plan (EMP)* to mitigate the anticipated impacts of the project. The EA for the 226km long Khurja – Pilakhni Section (Lot 303), that will be implemented in the third year of the project, is being carried out and will be finalized prior to the initiation of procurement process for this section of EDFC 3. Based on detailed analysis carried out in EDFC1, the project has also integrated the *Silicosis Reduction Strategies (SRS)* and *Green House Gas Emission Reduction Strategies* (GHG strategies).

42. The scope of EA for the Pilakhni to Sahnewal section is summarized below:

(i) The environmental profile of the project area was developed through field investigations that led to detailed environmental strip maps of the proposed alignment of the corridor.

(ii) Base line environmental features such air, water quality, flora / fauna, etc., in the project area have been developed for two critical seasons (winter and summer).

(iii) Noise and vibration impacts at various sensitive receptors have been developed for areas along the project alignment.

(iv) Potential environmental impacts for all the environmental parameters have been assessed.

(v) 'Project' and 'No Project' scenarios and alternative alignment options have been investigated.

(vi) Impacts on cultural properties have been assessed with the aid of a detailed inventory.

(vii) impacts of cutting 18,148 trees have been assessed and measures for mitigation proposed

(viii) Impacts on cross drainage in the project area have been assessed.

43. The potential environmental impacts identified in the EA include: (i) conversion of 175 Ha Protected Forest[19] on Railway Land; (ii) cutting of about 28617 trees along the 175 km of the alignment; (iii) about 180,000 m^3 of earthwork in cutting, 730,000 m^3 of earthwork for the

[19] ''Protected Forest' is an area or mass of land notified under Section 29 of India Forest Act, 1927 or the State Forest Acts having limited degree of protection. In Protected Forests all activities are permitted unless prohibited.

embankment and 100,000 m^3 of quarry material; (iv) increased noise and vibration levels at 13 sensitive receptors; (v) impacts on 34 physical and cultural properties; and (vi) health and safety issues during construction.

44. As part of the EA process, a three level *Stakeholder Consultations* were carried out with the project villages, local NGOs and other stake holder agencies in the project area. The consultations were carried out in the early stages of the project planning in 2009 -10 and twice during the EA phase. The key inputs from these consultations were focused on access to villages, noise / vibration and drainage impacts. These aspects were considered in the design of mitigation measures and the detour options. Draft outputs of the EA were also disclosed to the communities during the second round of consultations and also through the DFCCIL web site.

45. The EMP prepared for the project includes the following specific mitigation measures:

(i) Compensatory afforestation to compensate with the loss of protected forest land and the loss of trees in compliance with the *Forest Conservation Act* of Government of India.

(ii) Avenue plantation at 10 trees per km along the alignment, with a detailed plan for the implementation of avenue plantation programs.

(iii) A rehabilitation plan for the borrow areas utilized for project earthwork

(iv) Noise barriers in 13 critical locations and specific mitigation measures for the management of increased noise levels in other sensitive locations.

(v) Cultural property rehabilitation plan for all affected 34 properties.

(vi) Specific construction safety and environmental management measures, such as construction site management, camp site management, and occupational health and safety measures to be implemented by the contractors.

46. The project affects about 34 physical and cultural properties along the alignment. Some of these could be affected physically or access to such properties could be affected. All areas of cultural and religious importance have been identified as part of the EA and specific measures have been listed. These measures will be planned and implemented in consultation with, and the close involvement of, local communities and other relevant stakeholders.

47. The EA was disclosed by DFCCIL on its web site (http://www.dfccil.gov.in/upload/Draft%20Final%20%20Environmental%20Assessment%20%20Pilkhani-Sahnewal.pdf) on January 22, 2015 and at the World Bank info-shop on January 27, 2015. The executive summary of the EA, along with the EMP in local language (Hindi) was also disclosed at the local villages and districts as well as on the DFCCIL website.

48. A separate analysis of measures required to mitigate the potential impacts of silicosis on construction workers was carried out in EDFC1, and specific measures were integrated in to the bid documents of the project, for implementation by the contractor. These measures, including the EMP, will be integrated in the bid documents of EDFC 3.

49. Similar to EDFC1, construction of 7 ROBs and other activities will be undertaken by DFCCIL without Bank financing. These are physically linked to the project and will comply with the requirements of project EMF.

50. Cumulative Impact Analysis (CIA): The project is also carrying out an analysis of cumulative impacts of all the three sections of the Eastern Corridor (Ludhiana – Khurja – Kanpur – Mughalsarai) on the Valued Environmental Components (VECs) of the project area. The CIA is

analyzing the impacts of the project on the feeder lines and road network connecting EDFC, induced developments and land use changes and socio-economic impacts of the corridor. The mitigation and management measures of the CIA will be appropriately implemented by DFC and pursued with respective stake holder agencies, for appropriate follow up actions. As part of this study, Scoping Report on Cumulative Impact Assessment, has been disclosed at DFCCIL web site and Infoshop on April 15, 2015. Based on the scoping study 'Cumulative Impact Assessment of EDFC' will be finalized and the draft and the final CIA reports will be disclosed both locally (including the executive summary in Hindi) and in the Infoshop.

51. An analysis of the potential to reduce GHG emissions was carried out in EDFC 1, which estimated that the eastern corridor will reduce about 13.19 million tons of GHG emissions by 2041-42, a reduction of 55 percent of GHG emissions from 23.29 million tons. The analysis focused on impacts due to the (i) movement of freight by road (ii) impacts due to traffic congestion (iii) impacts of support infrastructure of DFC (iv) freight movement through DFC corridor and (v) impacts during construction phase due to vehicle movement and equipment operation. The project has also carried out the Climate Screening Analysis to understand the impacts of climate change on the project components and their design.

52. ***Energy Optimization Measures:*** As part of the TA component of EDFC 2, DFC has initiated a study that helps identifying 'Energy Optimization Measures' during the operation phase of the DFC. The recommendations of this study will be piloted in EDFC 3, for their viability and scaled up appropriately.

53. Supervision of environment safeguards. In addition to intensive implementation support jointly by a Lead Environmental Specialist (based in DC) and Delhi-based Bank Environment Specialist, DFCCIL will also carry out internal monitoring through the Social and Environmental Management Unit (SEMU) based at Headquarters and field staff. The SESMRC will also carry out third party monitoring of safeguards implementation and provide quarterly progress reports. These consultants will also undertake annual quality audit of environment and social safeguards management, based on which necessary corrective measures will be taken.

Social Management Including Safeguards

54. ***Impact Minimization Measures***. EDFC3 will require land acquisition along the existing route for 20 meter ROW and for 40 meters ROW for crossovers and bypasses. Minimum land acquisition and disturbance to existing features has been a prime objective of the design. Socially sensitive stretches have been avoided through selection of alternative links, and provision of bypass around human settlements. Along the existing tracks, changes were made in the designs as far as feasible thereby reducing corridor of impact to 13 meters at Saharanpur, Yamunanagar Rajpura and Sirhind. Other impact minimizing measures taken included (i) ruling out service roads in built-up stretches; (ii) providing retaining wall/fencing for DFC tracks with three meters passage between habitations and retaining walls; and (iii) re-modelling of yards and reducing distance between yards and DFC tracks.

55. ***Social Impact Assessment***. The EDFC3 corridor is divided into two stretches: (i) Pilakhni-Sahnewal (175 kilometers with detours over 13 kilometers) and Khurja-Pilakhni (226 kilometers with detours over 111 kilometers). DFCCIL has carried out an SIA and prepared RAP through stakeholder consultations for the Pilakhni-Sahnewal section in conformity with OP 4.12. A total of 1157 hectares (ha) of land is required for EDFC3 over 401 km, of which 1097.5 ha land is privately owned and 59.5 ha land is government owned. The RAP for Pilakhni-Sahnewal shows that a total of 3051 people are affected with 324 losing their residential/commercial structures. Of

them, about 80% PAFs will lose less than 0.15 ha of land; 63% affected farmers will become landless, marginal or small farmers. A total of 324 private residential/commercial properties and eight community property structures are affected. About 90 percent of structure owners, who will lose over 25% of built-up area, will be treated as displaced and will receive the full range of R&R benefits. Traditional occupiers living on 'abadi deh' lands are recognized as title holders and will receive compensation for their occupied land.

56. ***Resettlement Instruments***. DFCCIL has prepared and disclosed a Resettlement Action Plan (RAP) reviewed by the Bank for Pilakhni-Sahnewal section. The finalization of alignment for the remaining 226 km between Khurja and Pilakhni was delayed due to changes in detours. DFCCIL has updated the RPF agreed for EDFC1 setting out guidelines for carrying out SIA and preparing RAP for this remaining Khurja-Pilakhni section. MOR/ DFCCIL have approved and disclosed an entitlement matrix and resettlement policy framework setting out guidelines for carrying out SIA and for preparing RAP for Khurja – Pilakhni section. The SIA has been commissioned for Khurja-Pilakhni (226 km) and a preliminary draft RAP has been prepared, which the Bank has reviewed and returned to the DFCCIL for finalization and disclosure incorporating SIA findings and Bank review comments.

57. ***Land Acquisition***. The LA process for EDFC3 will be carried out in accordance with the RAA (2008) with providing R&R assistance as per the entitlement matrix agreed with the Bank and in compliance with applicable provisions of the *Right to Fair Compensation and Transparency in Land Acquisition and Resettlement and Rehabilitation Act* of 2013 (RFCT-LARRA). RFCT-LARRA exempts LA procedure undertaken under RAA, 2008 from its purview, however, applies to determining land compensation under RAA effective from January 1, 2015. The RFCT-LARRA prescribes calculation of compensation at one-to-two times of the government recognized land rates in urban areas and at two-to-four times that in rural areas. The RPF prepared for EDFC1 in 2011 has been updated reflecting the requirements of RAA, 2008 and RFCT-LARRA, 2013 and the Bank safeguard policies. The RFCT-LARRA provisions regarding land compensation have limited implications for the Pilakhni-Sahnewal section where land acquisition has been 90 percent completed. The Ministry of Railways has issued order clarifying the application of RFCT-LARR for EDFC projects w.e.f. January 1, 2015.

58. ***Resettlement Management Lessons***. Resettlement planning for EDFC3 has benefited from the implementation experience of EDFC1 and EDFC2. The EDFC3 corridor path was altered in view of the farmers' disagreement with the originally planned alignment based on similar experience of EDFC1. The adaptive approach to safeguards management established for EDFC1 and EDFC2 has been maintained to allow course correction in resettlement policy and practice through independent monitoring and evaluation arrangements. Some of the good practices of EDFC1 and EDFC2 continued for EDFC3 include: (i) holding wide community consultations; (ii) hiring land survey and LA facilitation consultants for demarcating impacts and for preparing land plans; (iii) regular updating of land records ensuring transfer of land titles after LA compensation payment,; (iv) resolution of compensation related grievances through arbitration; (v) provision of land compensation to traditional occupiers settled on village lands (abadi deh); and (vi) holding regular monitoring and inter-agency coordination meetings with the state governments.

59. In response to the resettlement quality audit of January 2013, DFCCIL has taken specific measures to improve implementation quality. These include: (i) expanding the scope of jurisdiction of the district grievance mechanisms enabling them to address complaints relating to type and magnitude of land affected, and compensation awarded; (ii) ensuring payment of compensation at replacement value through arbitration; (iii) giving financial assistance to those losing livelihoods, or/ and those rendered marginal or landless farmers. A few actions agreed with DFCCIL during

EDFC2 that require follow up action include: (iv) imparting job skill training to the poor, eligible, and affected youth as a part of livelihood skill building plan; and (vi) improving implementation capacity at field and SEMU levels with hiring social scientist and additional field staff and undertake safeguards capacity building.

60. ***Income Restoration***. The RPF/ RAP provide for financial assistance to the affected families losing their livelihoods. Given that the affected farmers have limited skills in non-farm activities, they will require livelihood skill training support in addition to financial assistance. DFCCIL has experimented with providing job skill training to a limited number of affected youth along Eastern and Western Corridors. It has committed to prepare and implement a Skill Building Plan as a part of RAP implementation in order to strengthen income generation amongst the poor, eligible and affected youth as agreed with the Bank during EDFC2 preparation. This income generating initiative will focus on financial literacy, skill building and entrepreneurship development for the affected people, in collaboration with potential partners. DFCCIL has earmarked budget to support the initiative in the RAP for EDFC2 and EDFC3.

61. ***Gender and Social Inclusion***. The RPF and RAP are socially inclusive and gender sensitive. Key gender and social inclusion elements incorporated in the RPF/ RAP include: (a) collection of vulnerability data in a gender segregated manner during SIA so as to provide special R&R benefits to the affected women; (b) extending one time resettlement assistance to all affected families including physically challenged and women headed families; (c) non-discrimination in enumeration of PAPs for R&R benefits amongst men and women; (d) income generation activities and livelihood skill training for the affected youth with special attention to women as beneficiaries; (e) employment opportunities or annuity or one-time cash assistance in lieu thereof to affected families including those living Below Poverty Line; (f) rehabilitation assistance to displaced artisans, small traders and self-employed persons. . The RPF/RAP recognize that vulnerability is a function of economic, social and gender-based inequalities and emphasize attention to poverty and gender. The guiding principle in offering vulnerability allowance shall be to target "vulnerable families that cannot be provided with immediate sources of income", including aged and disabled persons irrespective of their sex, if they are poor. There shall be no discrimination based on age, sex, caste or faith in offering LA compensation and R&R assistance, consistent with the Articles 16-18 of Chapter-III (Fundamental Rights) of the Indian Constitution.

62. ***Monitoring and Evaluation*** (M&E). Regular performance monitoring of RAP implementation will be carried out by the internal oversight mechanisms of DFCCIL, in which SEMU and the CPM office will have key roles. SEMU and the CPM office will be assisted by PMC and the facilitating NGOs. DFCCIL will hire SESMRC for third party monitoring and quality audit of LA and R&R measures. SESMRC will provide quarterly progress reports (QPR) and yearly Safeguard Review Reports for necessary follow up and any remedial action that may be required. The procurement process for hiring SESMRC has been started.

63. ***Independent Grievance Redress Mechanism***. The GRM for EDFC3 will remain the same as for EDFC1/2. The Competent Authority for LA will be the first level for hearing and resolving objections relating to land acquisition. Independent Arbitrators will hear and redress grievances demanding higher compensation. The district level GRC will be the second level GRM, chaired by the District Collector or her/his nominees, and comprising representatives from civil society and the district local body. DFCCIL has issued detailed guidelines, including on the scope of GRM's hearing of complaints relating to land use type, impact area, eligibility, and structure and land valuation. DFCCIL shall appoint Additional Revenue Division Commissioners as Arbitrators to resolve land compensation award related complaints. At the corporate level, the Director, DFCCIL (Project Planning) will chair the GRM and will have representatives from IR, DFCCIL,

and the civil society. An Ombudsman has already been appointed to address unresolved grievances. DFCCIL shall establish a LA and R&R monitoring committee to monitor the LA process with resolving LA related grievances expeditiously.

64. ***Grievance Redress Service of the World Bank***: Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit www.worldbank.org/grs. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

65. ***Citizen Engagement Strategy including Consultations and Disclosure***. The key elements of DFCCIL's citizen engagement strategy include: (i) consultations with the affected people during project planning and implementation, (ii) information disclosure and dissemination, (iii) grievance redress mechanisms, and (iv) people's feedback on R&R implementation through third party monitoring. A total of 71 community consultations covering 138 villages were held for preparing the RAP for Pilakhni-Sahnewal section during December 2012 to April 2013. Key issues discussed during the consultations include: (a) likely damage to structures due to faster freight trains, (b) jobs for land losers; (b) payment of compensation at latest rates; (c) need to replace damaged assets such as water pipelines; (d) difficulties with updating land records; (e) livelihood assistance for those losing most of their land; (f) loss of religious properties; and (g) provision for underpasses, (h) provision of resettlement plots for the displaced by the village assembly (Gram Sabha), etc. DFCCIL is carrying out follow up consultations with the help of field staff and consultants hired to carry out SIA for Khurja-Pilakhni section. About 20 consultations have been held during February-March 2015, and 100 follow up consultations are planned to be held as a part of preparing RAP for Khurja-Pilakhni section. DFCCIL will continue to hold community consultations as a part of the land acquisition process with the help of field staff and NGOs hired to provide implementation support at the field level. The RAP (Pilakhni-Sahnewal) and draft RPF for EDFC3 has been disclosed on the DFCCIL website and at the World Bank Info-shop on January 27, 2015. The RAP summary has been translated to Hindi and disclosed locally. MoR/DFCCIL has approved and disclosed the RPF with updated Entitlement Matrix. The list of PAPs eligible for different R&R benefits will be disclosed at the village and panchayat levels. DFCCIL will disseminate project information brochures amongst the PAPs in villages explaining their entitlements and contact details of GRM.

66. ***Social Safeguards Risks***. The key social safeguards risks identified in the resettlement audit, quarterly independent quality reports submitted by SESMRC and the Bank implementation support mission Aide Memoires include: (i) delays in resettlement implementation due to (a) change in alignment over 111 detour stretches of the 226 km long Khurja- Pilakhni section requiring fresh land survey, SIA and RAP, (ii) farmers' dissatisfaction with low compensation offered in some villages at older circle rates in Uttar Pradesh; (iii) slow legal process affecting early resolution of court litigations related to LA, (iv) recent changes in the legal framework for LA and R&R applicable to land compensation payment for EDFC3 after January 1, 2015, (v) income restoration of land losers; (vi) delays in payment of R&R assistance; (vii) challenges in

coordinating LA process with the concerned revenue officers of the state government; (viii) poor public awareness regarding GRM established at district and DFC levels; (ix) inadequate field capacity for managing LA and R&R and absence of social scientist in the SEMU; (x) disputes regarding eligibility for compensation and R&R benefits; (xi) loss of access to local roads in affected villages adjacent to the existing railway tracks and loss of access to agricultural fields in bypass stretches and (xii) impacts on affected squatter wage laborer residents without land, marginal farmers and vulnerable groups.

67. ***New Land Acquisition Legislation***. The enactment of RFCT-LARRA, which requires payment of higher compensation and rehabilitation packages for land acquired under RAA, 2008 with effect from January 1, 2015 could pose new challenges. The MoR has issued order to this effect dispelling confusion regarding application of RFCT-LARRA.

68. The key steps to mitigate the above risks are:

- Dissemination the updated *Entitlement Matrix* as per RFCT-LARRA with clear implementation guidelines
- Providing in RPF and guidelines for providing compensation at replacement value and R&R assistance to various PAP categories as per their entitlements compliant with the RFCT-LARRA.
- Commitment to prepare and implement Livelihood Skill Building Plan focusing on job skill training, financial literacy and entrepreneurship development as income generation support measures as per the RAP.
- Hiring NGOs to assist in verifying R&R eligibility through community consultations and assisting with R&R benefit distribution.
- Holding regular meetings with the state governments for effective coordination with competent authorities and Arbitrators to resolve compensation issues.
- Wider community consultations and dissemination of entitlements/ GRM through NGOs and using other technology platforms.
- Expanding DFCCIL staff capacity at SEMU and in the field with deploying additional community mobilizers and with implementing a safeguards capacity building action plan.
- Establishing a LA and R&R monitoring committee at the DFCCIL level with a representative from the MoR for monitoring LA process with resolving LA related grievances expeditiously
- Resolving eligibility disputes through proactive efforts by field level GRM and NGOs.
- Provision of minimum 3-meter wide service roads along railway tracks at habitations.
- Livelihood training assistance to the eligible affected families as per the entitlements matrix.
- Third Party R&R Monitoring and Quality Review through independent consultants.
- Award of contract and site hand over with clear linkage to progress in LA and R&R.
- Follow up stakeholder consultations by NGOs during implementation.
- Undertaking impact evaluations during the implementation phase.

The above measures notwithstanding, DFCCIL could face discontent in some villages regarding compensation and R&R packages offered as per RAA earlier, and offered now as per RFCT-LARRA and will need to deal with these risks on a case to case basis through a proactive grievance redress process. The SESMRC will help to identify and address these risks through timely engagement with the affected people through NGOs and field staff.

69. ***Safeguard Policy Linkages***. The safeguard policies of the Bank will apply to all components of the project that result in involuntary resettlement, regardless of the source of financing. It also applies to other activities resulting in involuntary resettlement, that in the judgment of the Bank, these activities are: (a) significantly or directly related to the Project; (b) necessary to achieve the project objectives as set forth in the project document; and (c) carried out or planned to be carried out contemporaneously with the project. This will apply to critical ROBs identified by MOR in PIM to be constructed through MOR and/or State Government funding without Bank financing concurrent to this Project. In case of any other activities fulfilling the above criteria, the Bank safeguard policies will apply. However, this safeguard provision does not apply to the Western Dedicated Freight Corridor (WDFC) financed by JICA as this is not directly or significantly related to the Bank financed corridor and it is already in implementation. Also, the Western DFC with a separate route alignment is spread in a different geographical zone and does not meet the safeguard policy linkage criteria outlined above.

70. ***Capacity Building for LA and R&R.*** The World Bank will assist MoR and DFCCIL to create capacity and augment skills for efficient management of LA and R&R. This will include inter alia, organizing training and knowledge-sharing workshops, developing toolkits, exposure to international best practices for LA and R&R management training.

71. ***Monitoring and Evaluation***. The Monitoring and Evaluation (M&E) framework for the project is defined by the Results Framework established during the preparation of EDFC1. A functional MIS system integrator vendor is in place. In addition, a 'before and after' Impact Study would be initiated subsequent to opening of the first stage of the Eastern DFC. Major elements of data for the impact assessment will include railway operations, agricultural production, and transport and power sector performance. It would establish the pre-commissioning benchmarks and establish an appraisal methodology to capture a wider and longer-term range of attributes and outcomes of the project (including new passenger train services on existing lines). Terms of Reference for the impact assessment have already been agreed between the Bank and DFCCIL as part of EDFC1. The logic framework and terms of reference for the Impact Study are described in the PAD for EDFC1.

Annex 4: Implementation Support Plan

1. ***Strategy and Approach*** - The Implementation Support Plan (ISP) describes the support required for implementation of risk mitigation measures in order to insure all major risks are addressed. The design of the project contains safeguards against each of these risks. The ISP is designed to review and ensure that those safeguards are effective and to reinforce them where necessary. It will also support institutional strengthening of DFCCIL and assist both DFCCIL and IR to develop the capabilities, both technical and operational, to best utilize heavy-haul freight capability. The financing for and scope of the Institutional Support component of the Program as a whole was approved within EDFC1 and will be implemented and monitored progressively through the implementation of the Program (EDFC1-EDFC3).

2. The ISP will be undertaken by World Bank staff and is based on three major principles: (i) continual high level policy dialogue with MOR and DFCCIL on institutional development; (ii) frequent local level and field based supervision of project activities including frequent consultation with project beneficiaries and (iii) consistent review of fiduciary procedures and controls within DFCCIL.

3. ISP as described below, will be a live document and will be reviewed regularly and revised as and when required during the implementation, at least on a half yearly basis.

4. ***Implementation Support Plan***. Most of the Bank team members will be based in the India country office including two co-task team leaders, which would facilitate timely, efficient and effective implementation support to the client. International expertise will be drawn from the Task Team Leader based in Washington DC and other specialized consultants as and when required in various activities. Formal Implementation Support Missions and field visits will be carried out semiannually. In addition, the implementation progress of the project will also be reviewed through thematic implementation support missions and during the joint portfolio review meetings by the Government of India and the Bank.

5. ***Technical Support for Component A***. The Bank Task Team will include: (a) Country based and International Railway Specialists and (b) International Heavy Haul Experts.

6. ***Technical Support for Component B***. The Bank's task team will include Institutional Development Specialist(s) including international consultants with expertise in the technical, commercial and environmental aspects of this component. The specialists will follow up periodically with the DFCCIL's counterpart on the main activities envisaged under this component and will also monitor the progress to support DFCCIL-wide staff training in Heavy Haul Rail Freight Systems.

7. ***Technical*** .The Bank will provide required technical support through sector specialist and institutional, project finance and governance specialists to DFCCIL in finalizing technical aspects of the engineering and bidding documents and formulating medium and long term strategy related to improved planning, financing, and governance aspects. The implementation support will be provided through at least two implementation support missions in a year and through continuous exchange of correspondence and regular communication. Frequent use of telecommunication including video conferencing, preferably once every two months, will be availed of to maintain a close coordination among the Bank team and the project staff.

8. ***Procurement*** - ***Procurement*** - An update of the capacity assessment of the agency was conducted and it was found that DFCCIL's Procurement Cell has gained experience in procurement under EDFC1& 2and this will significantly facilitate the procurement process.

9. Procurement will be carried out by DFCCIL Procurement Cell. DFCCIL's General Consultant (GC) would continue providing services throughout the bidding process until the bid evaluation report and the contract award recommendations have been completed and Bank's 'no objection' given. DFCCIL's legal advisor will also review documents and process. DFCCIL will also put in place additional arrangements for continuous and sustained quality assurance and risk mitigation during the bidding and implementation process. Consultants will be employed using available funds under EDFC1 to the extent possible.

10. Implementation support will include: (a) reviewing procurement documents and providing timely no objection; (b) providing detailed guidance on the Bank's Procurement Guidelines to DFCCIL's staff; (c) monitoring procurement progress against the detailed Procurement Plan; and (d) identifying the capacity building/training need for DFCCIL's staff on procurement processing and providing training if required. The support will be provided through regular interactions, regular half-yearly implementation support missions and thematic implementation support missions, if required.

11. ***Financial Management***. A *Corporate Governance and Financial Management assessment (CGFA)* for DFCCIL was conducted during preparation of EDFC1, which has been updated for EDFC2 and further updated for EDFC3. The activities in the action plan agreed during preparation of EDFC1 for addressing gaps in CGFA is in various stages of implementation. The final Project Financial Management arrangements will be documented in an updated Project Implementation Manual. DFCCIL is still growing and maturing as a company and staff and systems will be tested against the large-scale construction activities associated with the EDFC program and will be strengthened as necessary.

12. Implementation support will review the project's financial management system, including but not limited to, accounting, reporting and internal controls. The broader integrity risks as regards to the financial management aspects will also be addressed as part of the GAAP implementation (from EDFC1). The support will be provided through regular interactions, regular half-yearly implementation support missions and thematic implementation support missions, if required.

13. ***Environmental and Social Safeguards***

14. The Bank safeguards specialists in the team will supervise various activities to ensure full compliance with the Bank's operational policies / procedures and the agreed framework related to environment and social safeguards aspects. The implementation support will be provided through regular interactions, regular half-yearly implementation support missions and thematic review missions, if required and in full cooperation with the technical members of the Bank team.

15. The SEMU of DFFCIL will play a coordinating role with hiring NGOs for field level implementation support and Social and Environment Safeguards Monitoring and Review Consultant (SESMRC) for third party monitoring and quality audit. The Chief Project Managers (CPM) will continue to operate as Chief Resettlement Officers, assisted by a number of Assistant Project Managers (Social). A multi-stage Grievance Redress Mechanism will handle PAP grievances: (i) at the level of APM (Social), (ii) at the district level, (iii) and at the DFCCIL level. The Competent Authority appointed for carrying out LA will hear and resolve preliminary objections/grievances, whereas Additional Revenue Commissioners appointed as Arbitrators will hear PAP claims seeking higher compensation. DFCCIL has appointed an Ombudsman to hear any outstanding grievances with regard to the RAP implementation, and is in the process of hiring NGOs, SESMRC and appointing District-GRCs for EDFC3. The Bank safeguards team will support the planning and execution of safeguards management capacity building measures by

SEMU for its members and for the field staff including customized training programs, and external training and exposure visits for learning from global best practices.

16. In order to support DFCCIL in the effective implementation and good governance under the project, the task team will undertake enhanced supervision in the areas of implementation of corporate governance and institutional strengthening activities and closely monitor the procurement process and contract management under the project. This support will be primarily provided by the Governance specialist with adequate assistance from FM specialist, Procurement Specialist and other team members. The main focus of resource estimate is summarized below:

Time	Key elements	Skills Needed	Resource Estimate
First 12 months	**Quality of implementation:** Ensure that preparation of environmental screening reports, EAs/EMPs, RAPs for the second-year activities has the required quality; implementation of resettlement action plans complies with World bank safeguard policies; information is disclosed on the project website; quality assurance plans in civil works contracts are in place.	Procurement, financial management, environment, social development and railway sector specialists	8 Staff weeks
	Governance and accountability: Ensure that project management systems (financial management, contract administration) are in place; integrated performance audit is launched; Random review of check-list of red flags provided with bid evaluation reports.	Transport economist, Governance Specialist	4 staff weeks
	Institutional development: Review of terms of reference for consultants selected to implement activities in the institutional development component.	Institutional Development Specialist	8 staff weeks
12-48 months	**Quality of implementation:** Review quality of works, compliance with fiduciary and safeguards policies; quality assurance plans in civil works contracts are in place; Ensure that preparation of environmental screening reports, EAs/EMPs, RAPs for subsequent year activities has the required quality; Review monitoring indicators, implementation performance and achievement of objectives;	Procurement, financial management, environment, social development, and railway sector specialists	12 staff weeks/year
	Governance and accountability: Implementation of resettlement action plans complies with World bank safeguard policies; information is disclosed on the project website; integrated performance audit is carried out;	Governance Specialist	4 staff weeks/year
	Institutional development: Review implementation of institutional component; quality of advisory services provided as part of the institutional development component.	Institutional Development Specialist	12 staff weeks/year

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
Technical Specialist	56	20	Country office based/HQ based/ International Specialist
Institutional Development Specialist	56	20	Country office based/ International Specialist
Procurement Specialist	56	20	Country Office Based
Social/ Environment Specialists	56	20	Country Office Based/HQ Based
FM Specialist	56	10	Country Office Based
Governance Specialist	20	10	Country Office Based
Task Team Leader and Co-Task Team Leaders	60	12	Country Office Based/ HQ Based

Annex 5: Systematic Operational Risk-Rating Tool

1. The key risks for this project are essentially with respect to ensuring sustainability of the institutional capacity and environmental and social issues relating to land acquisition and delays in RAP implementation, limited experience in implementation and monitoring (as opposed to preparation, for which experience and capacity has been gained) of EA and EMPs, and difficulty in monitoring compliance with regard to environmental and social safeguards due to dispersed and linear nature of the project activities.
2. *Political & Governance (Low Risk):* The Political and Governance risk is Low. There is a stable government at the centre with an emphasis on development priorities and proactive policy measures. The proposed project is the third in a series of investment project financing projects building on some of the successful features of the earlier series, with full support from the incumbent government. As regards governance, there are adequate avenues available for effective legal recourses and legitimate cases are generally successful. The Right to Information Act (2005) has increased public and media scrutiny in the country; in parallel, the GOI has also stepped up its governance agenda – new legislation on an effective anti-corruption body[20], whistleblower protection[21] and land acquisition and resettlement[22] have recently been enacted by Parliament to promote transparency and good governance. Independent constitutional bodies such as the CAG and the CVC are increasingly using their constitutional powers to identify and bring to light systemic corruption.
3. *Macroeconomic (Low Risk):* The risk of emerging or continuing external and/or domestic imbalances is moderate, and consequent macroeconomic effects would only moderately affect the achievement of the PDO if they materialize. The macroeconomic framework is adequate and appropriate with latest projections of 5.6 percent in FY 2014-15, accelerating to 6.4 percent in 2015-16 and 7 percent in 2016-17 owing to gradual pickup of domestic investment and rising global demand. The forecasts assume that reforms are undertaken to ease supply-side constraints (particularly in energy and infrastructure) and to improve labour productivity, fiscal consolidation continues, and a credible monetary policy stance is maintained. The longer term growth potential remains high due to favourable demographics, relatively high savings, recent policies and efforts to improve skills and education, and domestic market integration. Monetary, exchange rate and fiscal policies are generally consistent with macroeconomic stability and growth objectives.
4. *Sector strategies and policies (Moderate Risk):* IR has been losing market share in goods transportation to the roads sector and even in the passenger segment. Due to losses in passenger operations, increasing pension liability and the requirement of investment, its finances are under strain. The new DFC lines once commissioned will automatically provide a big increase in much needed physical track capacity independent of wider sector issues and therefore substantial operational and market benefits. However, once the infrastructure is built, DFCCIL would need to meet the challenge of transforming itself into an Infrastructure Manager and marketing its capacity, dispatching and controlling the trains on its system; similarly, the MOR's Zonal Railways (who

[20] The Lokpal & Lokayuktas Act, 2013.

[21] The Whistleblower's Protection Act, 2011.

[22] The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 with a recent ordinance (passed in December 2014) making amendments to ease land acquisition for PPP and rural infrastructure projects.

will be the main provider of transport services on DFCCIL line) will need to harness operational and commercial innovation to fully exploit the potential benefits of DFC to rail operations and gain real market advantage. Taken together these challenges may pose a risk to the attainment of the higher traffic volumes sought in the PDO, but that risk is mitigated: (a) by the fact of high rail traffic volumes already experienced; (b) by the institutional support and technical assistance components envisaged; and (c) by the fact that IR's RFP for procurement of a new fleet of 12000 hp locomotives for DFC routes has already been issued and designs for higher speed and axle-load and box wagons have been finalized.

5. These collateral investments and the need to develop new freight marketing strategies will assume increasing importance as the scheduled opening dates of major sections draw closer. The Bank team will accordingly give an increasing attention to these aspects as EDFC3 is being prepared and this risk is consequently assessed as moderate.

6. *Technical design of the project (Low Risk):* DFCCIL now has experience of specification of route and standards for two major sections, and since the Design and Build Contracts allocate the final design functions to the contractor, the risk is considered low.

7. *Institutional Capacity for implementation and sustainability (Moderate Risk):* The Bank team believes that this risk is *moderate* as the institutional strengthening activities envisaged under EDFC1 are finally gathering steam and will enhance the staff and resource capabilities by the time EDFC3 implementation is initiated. Several operational procedures have already been streamlined, office procedures codified, manuals for Works, Financial Reporting, Accounting and Human Resources formulated and systems for better monitoring and redress of RTIA requests and public grievances respectively have been set up. The Bank team periodically monitors updates to DFCCIL's Enterprise Resource Plans, Human Resources Plan and Training Plan to try and ensure it will have sufficient qualified staff in all key areas. The company recognizes that it must accelerate the recruitment of more staff in key areas such as procurement, contract management, financial management, social and environment, and it is endeavoring to do so in a high-growth environment where it is becoming increasingly difficult to attract such specialists to public sector enterprises.

8. *Fiduciary (Moderate Risk):* Fiduciary risk is rated *moderate* as DFCCIL has made progress in completing many actions in the agreed Corporate Governance and Financial Accountability (CGFA) Action Plan while others are in progress. Internal audit has been strengthened and is current, financial manuals have been prepared/updated, development of Finance Module in ERP is in an advanced stage, there is a full time Director Finance and staffing capacity and numbers in the finance function is being continuously enhanced. A risk management framework has been developed and implemented and there is a functioning Audit Committee of the Board. There are no pending audit reports/issues and submission of IFRs is up to date. Going forward, efforts would need to be stepped up to complete actions under progress - filling vacancies of independent directors to further strengthen the Board; engaging consultants to spearhead implementation of risk management framework and recruitment of appropriate regular staff; and rolling out ERP Finance module across the entity in the next 2-3 months. Implementation of the CGFA Action Plan will strengthen governance and accountability in the organization. DFCCIL is a relatively new and developing entity and the actions agreed are dynamic and can change during implementation depending upon progress made, and will be continuously reviewed to keep them contemporary. A stronger team needs to be in place for procurement related activities as well and DFCCIL is taking steps to augment procurement capacity and related training.

9. *Environment and Social (Substantial Risk):* Environmental and Social risk is rated substantial because of potential risks and challenges associated with: (i) slow land acquisition (LA) process and delays in RAP implementation due to (a) change in alignment of detour stretches over 111 km

of the 226 km long Khurja- Pilakhni section requiring fresh land survey, social impact assessment (SIA) and preparation of RAP, (b) slow legal process affecting early resolution of court litigations related to LA, and (c) recent changes in the legal framework for LA and R&R applicable to land compensation payment for EDFC3 after January 1, 2015, (ii) external factors beyond DFCCIL's control affecting cooperation among the state revenue administration, local authorities and the affected people; (iii) limited experience in implementation and monitoring of Environmental Assessments (EA) and Environmental Management Plans (EMP); and (iv) difficulties associated with monitoring compliance with regard to environmental and social safeguards due to dispersed and linear nature of the project activities. A total of 1157 hectares (ha) of land is required for EDFC3 over 401 km, of which 1097.5 ha land is privately owned and 59.5 ha land is government owned. The LA process has already started and the compensation award process is in various stages. DFCCIL is preparing the RAP for EDFC3 in two phases. The RAP has been prepared for the 175 km long Pilakhni-Sahnewal section and LA award has been 90% completed and over 80% of the site taken into possession. The alignment for about 111km of detour stretches for the 226 km long Khurja-Pilakhni section was delayed and DFCCIL has commissioned a SIA and prepared a preliminary draft of RAP for the Khurja-Pilakhni section, which has been reviewed and returned for finalization incorporating SIA findings and Bank comments in line with the updated RPF.

10. Social and environment risks are proposed to be mitigated through: (i) approving and disseminating the updated Resettlement Policy Framework reflecting the changes in legal framework for LA and R&R and timely completion of RAP preparation for Khurja-Pilakhni section; (ii) safeguards capacity building measures by DFCCIL to enhance its safeguards management capacity in the field and at the level of the Social and Environmental Management Unit SEMU (established by DFCCIL during the preparation of EDFC1) with appointing Social and Environmental Specialists, deploying more field staff and safeguards training plan, (iii) implementation mechanisms established by DFCCIL for planning and implementing safeguards activities and experience they have gained in applying the Bank Safeguard Policies in the course of EDFC1 and EDFC2; (iv) the hiring of independent Social and Environmental Safeguards Review and Monitoring Consultants (SESMRC for safeguards implementation quality control as per the RPF and EA; (v) establishment of multi-stage grievance redress mechanism for receiving and resolving complaints and grievances with an Ombudsman established at the corporate level to deal with any unresolved grievances; (vi) DFCCIL's efforts to improve safeguards implementation quality following up on the safeguards quality review of 2013, inputs from SESMRC and Bank implementation support missions ; (vii) DFCCIL's agreement in EDFC2 to undertake livelihood skill training measures to improve employability of the affected youth; and (viii) on-site and classroom training on environmental management to DFCCIL staff though they still have limited experience in actually implementing EMPs during construction. The above measures notwithstanding, DFCCIL could face discontent in some villages regarding compensation and R&R packages offered as per RAA earlier, and offered now as per RFCT-LARRA and will need to deal with these risks on a case to case basis through a proactive grievance redress process. The SESMRC will help to identify and address these risks through timely engagement with the affected people through NGOs and field staff.

11. *Stakeholders (Low Risk):* Given that EDFC1 and EDFC2 have not encountered any public opposition, there are no grounds for expecting EDFC3 to provoke systematic political or public opposition. Further as DFCCIL has been adopting the latest compensation rates for project affected persons and the RAP has been streamlined to incorporate the recommendations of the resettlement audit, the risk related to stakeholders is assessed as Low.

Annex 6: Challenges and lessons of the EDFC Program

1. World Bank support for the Eastern Dedicated Freight Corridor (EDFC) was designed as a series of projects in which three EDFC sections would be delivered sequentially, but with overlapping construction schedules. As noted in the main text, EDFC1 was approved by the Bank in May 2011 and is under construction. EDFC2 was approved in April 2014 and is in procurement stage. This Project relates to the EDFC3 section (Ludhiana- Khurja).

2. As the largest and most complex new railway building project since India's independence, the EDFC program naturally confronts the country and its institutions with new challenges in many spheres from institutional structures for project delivery to commercial models for network operations. The program has adopted radically new ways of doing things in all these areas, reflecting the lessons of previous experiences in India's railway sector. Moreover, as the DFC program has progressed from EDFC1 to preparation of EDFC3, lessons have been learned in implementation by both the beneficiary and the Bank. This Annex summarizes the more notable elements and lessons both at strategic and implementation levels.

Institutional structure

3. At the outset, GOI determined that the normal capital works delivery structures of IR were not the best way to deliver and manage a new and technologically advanced heavy-haul railway transport network in India. In its original support of the project it mandated the creation of a Special Purpose Vehicle (SPV) to plan, build and operate new freight railway infrastructure. In other words, a structure that creates a vertical separation of transport operations from rail infrastructure and establishes a network management company to deliver and manage the network itself. The Ministry of Railways (MOR) was nominated to be the responsible ministry for the administration of the SPV and its majority shareholder on behalf of the State. The SPV was set up as DFCCIL, a company registered under the Companies Act of 1956. The equity is, at present, wholly owned by the MOR.

4. The government determined that the relationship between the MOR and the SPV be set out in the form of a Concession Agreement encapsulating three principles that would to some extent offer the opportunity to begin reduce the monopoly of IR in the provision of railway freight services in India:

   - DFCCIL should be commercially independent, at 'arm's length' from the IRB;
   - it should be market-focused; and
   - While not operating commercial freight train services itself, should offer non-discriminatory access to 'qualified operators'.

5. The Bank concurred with these principles. During the preparation of EDFC1, the Bank and MOR agreed that the Bank would develop a draft Incentives Framework that could help capture the principles of commercial responsibility and accountability sought for the Concession Company. These principles espoused in that framework formed a key input of the drafting brief that guided the development of the Concession Agreement signed between MOR

(on behalf of the Government) and DFCCIL in February 2014. It has supported these principles consistently during the period of its involvement in the EDFC program, and this has influenced preparations for the commercial operating phase (see below).

6. DFCCIL has now been operating for a number of years. One major institutional challenge has been creating a corporate culture 'at arm's length' from IR when, inevitably in the early stages, most of its staff were either seconded from IR or whose previous experience was gained in IR. The company's human resources strategy is to increase the proportion of its own independently employed staff but it is a slow process, given IR's previous near-monopoly of railway industry skills in India. It has also faced problems in keeping filled the positions of independent directors on its Board and the Bank is giving high priority to stressing the importance of filling these positions so that there is more independent scrutiny of its business strategies and processes.

7. Ultimately, the Board is unlikely to be as fully effective as it could be, nor the company be at 'arm's length' from Indian Railways, until a portion of its equity is divested to external shareholders. While it is difficult to envisage a successful divestment in this formative phase, with significant risks, and when the company is focused on the construction priorities, the Bank will continue to argue the case for examining a widening of ownership as the business and network actually take shape.

Public transparency

8. The preparation and implementation process has required DFCCIL to apply a series of governance strengthening measures sought by the Bank that have made this area another radical departure from previous railway projects in India. Lessons learned as the program has progressed have been built-in to their application in subsequent sections. Some of the achievements have included the following:

   - appointment of a project Public Information officer; since September 2011 there have been nearly 900 requests under the Right to Information Act and DFCCIL has attained a 90 percent rate of responsiveness;
   - appointment of a process and dedicated officer for public grievances; DFCCIL has created an online facility for public to register and track grievances operational; in its first full two years, 87 percent of grievances have been resolved;
   - creation of a Vigilance (Ombudsman) unit; the Chief Vigilance Officer (CVO) reports directly to MOR and the Central Vigilance Commission (an independent constitutional body) through a six monthly report on systemic deficiencies. Its staff of 8 administer complaint handling and whistleblower policies, apply a staff manual on vigilance (relating to fraud and corruption issues) published online; and conducts regular vigilance awareness camps.

9. These advances in the governance framework, particularly as they affect public transparency and dealings with affected persons, are a major step forward compared with traditional practices, have helped ensure that issues such as land resumption and resettlement has proceeded successfully and fairly without major impedance to the construction program. It is likely that such approaches will be maintained as standard DFCCIL policies beyond the period of Bank involvement and possibly extended to other major new railway projects in India.

Procurement

10. IR traditionally experienced high budget overruns and very long delays under its traditional 'time and materials' contracts. In these contracts the detailed design was carried out by IR and contractors were then paid according to the hours they used and materials consumed in meeting the contracts. As a result, every small change in design or specification, or unforeseen construction problem, tended to convert into a claim for payment of more time or more materials or both, compared to the original specification.

11. In supporting the DFC program the government required the program radically alter this contracting approach. With World Bank support, DFFCCIL adopted and implemented an approach that has changed the incentives of contractors towards cost containment and adherence to construction timetable. The new approach adopted by DFCCIL of seeking lump sum bids for 'Design and Build' contracts departs from traditional practice of IR capital works procurement. It has borne early benefits with the successful procurement of the major civil works contracts under EDFC1. Due to competitive bidding (and the impact of depreciation of the INR to the USD) the EDFC1 civil works bids yielded a cost savings of USD290 million. DFCCIL seeks to utilize the savings by bringing forward the construction of the important Khurja-Dadri section which would connect EDFC with WDFC and by increasing the bank's financing ratio. It is anticipated that the Bank will restructure EDFC1 to reflect this arrangement.

12. While procurement has so far produced good results, the process has taken longer than had been anticipated, reflecting both the scale of the project, a new two-stage tendering process, a new contract form and the need for the company continuously to strengthen the numbers of procurement staff and their training in the company's procurement needs and methods. While the additional capacity that DFC lines will provide is urgently needed, it remains more important to do the job properly than to do it quickly, which means successful procurement of each successive contract will still demand care and diligence, even as DFCCIL becomes more adept at the mechanics of the process. DFCCIL is therefore taking steps to augment procurement capacity and related training to put in place a stronger team for the increasing level of procurement related activities.

Construction

13. The new Design & Build contracts not only transferred more of the project construction risks to contractors, and hence create incentives to mitigate those risks, but also offered greater functional independence to contractors to optimize design processes to meet the required performance, and to utilize globally prevalent construction methods but with synergistic mix of human resources and equipment that recognize India's labor cost levels.

14. The physical progress with building EDFC1 is currently behind target, but progress is considerably faster than the traditional experience of IR projects. The contract form, based on physical milestone payments, is providing incentive to the contractor to improve its rate of delivery. On the client side, this is also DFCCIL's first major contract supervision and the company is finding a need to improve its own project supervision arrangements, particularly channels of communication and issue resolution as between contractors, supervisory consultants, and its own project managers.

15. The Bank has also strengthened its supervisory resources in terms of technical skills and resources to underpin a more thorough understanding of complexities in the field and the capability to respond earlier to developing issues. Attention by all parties to these issues has

seen progress in execution of the contract improve and a more 'hands-on' supervisory approach will be extended to EDFC2 and EDFC3 as well.

Project Management

16. Implementation capacity and processes in EDFC3 will reflect lessons from EDFC1/2. For example, DFCCIL is using a Human Resources Plan to match capacity to implementation needs. An internationally qualified consultant has been engaged to advise DFCCIL on technical specifications, and provide support on project management and quality control. The compliance mechanisms for Bank safeguard policies established under EDFC1 and EDFC2 will be extended to EDFC3 by the Social and Environment Management Unit (SEMU) with additional human resources planned to cover the workload. The institutional support component will include a pilot project to attract the private sector to build logistics centers/terminals alongside the DFC network to exploit its commercial capabilities.

17. There is slippage in timeline for transition of financial management including accounting to ERP. DFCCIL has agreed to an action plan which continues from EDFC1 and EDFC2, which is reflected in the EDFC3 requirements.

Resettlement Management

18. The EDFC program involved the Indian's railway industry's first encounter with a major application of the relevant World Bank resettlement policies and safeguards in the recent past. Implementation has required a lot of support from Bank staff including organizing capacity building events for project staff on safeguards, carrying out frequent field visits, and advising on specific implementation issues as they arise.

19. The large scale land acquisition required and an absence of any pre-existing institutional capacity and policy framework within DFCCIL, required the Bank to intensively engage with the DFCCIL and MOR regarding social safeguards management during the preparation of EDFC1, and follow this up with sustained policy engagement and field level interactions with the affected people. The implementation arrangements established during EDFC1 (including SEMU at DFCCIL, appointment of APM (Social) for every 100 km of line, deployment of NGOs and independent M&E consultants (SESMRC), multi-level GRMs, etc. helped to largely successfully undertake very large scale land acquisition for EDFC1 and EDFC2. The experience gained, issues identified and challenges encountered contributed positively to the resettlement planning for EDFC3.

20. To give an example, the EDFC3 corridor route has been readjusted in view of farmers' disagreement with the originally planned alignment in some villages based on similar challenges experienced during EDFC1. Resettlement planning for EDFC1 was affected due to farmers' agitation, requiring a change in the alignment at Tundla and updating RAP and RPF allowing land losers to opt for latest R&R packages offered by the state as an alternative to the package offered under Railways Amendment Act, 2008. An adaptive approach to safeguards management was adopted for EDFC1 to allow alignment adjustment in resettlement policy and practice through independent monitoring and evaluation arrangements. A resettlement quality review was carried out in 2013 to identify successes, failures and lessons learnt during EDFC1. Based on the safeguards audit, DFCCIL was advised to take remedial measures such as (i) providing additional guidelines in RAP/RPF for administering the Entitlements Matrix, (ii) resolving outstanding compensation issues through arbitration, GRM and with hiring independent land valuers; (iii) clarifying regarding provision of jobs for land losers; (iv) improving the functioning of district level GRM and their data management, (v) enhancing

implementation capacity and (vi) strengthening income restoration initiatives with skill training.

21. Based on this review of 2013, DFCCIL took several measures to improve the quality of its RAP implementation including: (i) strengthening community consultations, (ii) expanding the scope of district level GRMs; (iii) ensuring compensation payment at replacement value through arbitration and independent evaluation; and (iv) paying livelihood assistance to poor families losing their livelihoods. Some of the good practices of EDFC1 and EDFC2 continued for EDFC3 include: (i) holding wide community consultations; (ii) hiring land survey and LA facilitation consultants for demarcating impacts and for preparing land plans; (iii) regular updating of land records ensuring transfer of land titles after LA compensation payment; (iv) resolution of compensation-related grievances through arbitration; (v) provision of land compensation to traditional occupiers settled on village lands (abadi deh); and (vi) holding regular monitoring and inter-agency coordination meetings with the state governments. A key outcome of the Bank's safeguards supervision has been a robust documentation and information management system for effective day to day monitoring the LA and R&R process.

22. Some actions agreed with DFCCIL during EDFC2 remain to be implemented include job skill training to the poor, eligible, and affected youth, and improving implementation capacity at field and SEMU levels. As a positive step, DFCCIL has recently conducted a training on financial literacy for its field staff and the partner NGOs who will carry out follow-up training to raise financial literacy amongst the project affected people enabling them to make gainful investments using the LA compensation and the R&R assistances received. Annex 3 summarizes the residual safeguards challenges and mitigation measures.

Summing up- lessons so far

23. Two years ago risk assessments made during the preparation of EDFC2 drew attention to a number of risks mainly reflecting the procurement phases: (a) that DFCCIL was a relatively new agency with its experience in handling large and complex projects; (b) lacked standard bidding documents based on design build lump sum contracts for works except the documents prepared for EDFC1; (c) might experience limited competition resulting in higher bid prices; (d) lacked adequate quality assurance and monitoring system and (e) faced slow internal decision making process.

24. Since then DFCCIL has gained two crucial years of implementation experience: (a) it has performed well to date in progressing a complex procurement plan for the construction of both EDFC1 and EDFC2 projects; (b) the bidding documents for civil works in EDFC1 were readily adapted for EDFC2 for which contracts have also been awarded and will be used as the basis for EDFC3; and (c) the procurement of civil works for EDFC1 in practice demonstrated substantial competition among bidders and in practice yielded significant loan savings.

25. Risk focus is now shifting to (d) the quality and monitoring risks in the construction phases and, as noted above, physical progress with building EDFC1 is currently behind target even though considerably faster than the traditional experience of IR projects. Attention is being given to these issues by DFCCIL and the World Bank team as described above. There also remains the concern (e) that the time taken to get higher level decisions on many issues may be leading to delays, but the elevation of the project in government priorities is resulting in

increased scrutiny of company performance in meeting timetables and is expected to help expedite decision-making.

26. However, as the implementation phase progresses there will need to be increasing attention to commercial operations and the management of the DFC network.

Commercial operation of the DFC network

27. The commercial dimensions and potentialities of the DFC network are new to India and test many traditional ways of thinking and doing things. While there is a good technical understanding of heavy-haul rail freight technology by a relatively small number of experts, the commercial deployment of heavy-haul in India is very limited and its marketing potential to attract more freight to rail as yet unexploited. Competitive rail market concepts such as vertical separation of rail network management from transport operations, third party access regimes and access charging systems are entirely new to India.

28. For these reasons, the Bank has created a framework of institutional strengthening and support funded by EDFC loans. In 2015, major contracts funded by EDFC1/2 will be awarded to specialist advisers to assist DFCCIL and IR to:

(a) Develop long-term commercial and marketing strategies to optimize the use of DFC network, with deliverables relating, inter alia, to:

- international experiences and applicability to India;
- freight traffic profitability;
- heavy-haul seamless service/network coordination;
- market research and customer needs assessment;
- traffic service strategies;
- freight pricing strategy; and
- integrated heavy-haul commercial and marketing program.

(b) Develop the local technical and engineering expertise by establishing a Heavy Haul Institute, with deliverables relating, inter alia, to:

- international examples of heavy-haul training and R&D resources;
- feasibility and implementation plan for Heavy Haul Research Institute (HHRI);
- a heavy-haul R&D program geared to India's needs and circumstances; and
- cost estimates and funding plan.

(c) Assess alternative approaches to offering non-discriminatory access to qualified train operators, with deliverables relating, inter alia, to:

- track access charging on a non-discriminatory basis, covering methodology, institutional arrangements and process issues;
- licensing options for Authorized Rail Users, including regulatory requirements, institutional responsibilities, and application and determination process;
- safety dimensions of access arrangements (infrastructure and rolling stock on the DFCs);

- legal and regulatory issues, to ensure any access regime avoids conflicts of interest and has the necessary supporting regulatory framework.

29. Procurement of these key consultancy services, funded from EDFC1 and EDFC2, has been delayed as the company has been more focused on the procurement of the DFC network itself and given insufficient attention to the long-term commercial opportunities. However, the importance of this work has naturally increased as the construction program itself progresses. It is anticipated that two of the three consultancy contracts will have been awarded by June 2015 and the other by September 2015.