FINANCIAL INFORMATION MEMORANDUM

Angul-Sukinda Road New Rail Line Project

August 2013

Angul-Sukinda Railway Limited
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Prepared By

FEEDBACK INFRA PRIVATE LIMITED

FEEDBACK INFRA
Making Infrastructure Happen

Angul-Sukinda Railway Ltd.

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Contents

1. INTRODUCTION

Indian Railways is one of the largest and busiest rail networks in the world, transporting over 22 million passengers and more than 2.6 million tonnes of freight daily. It is an important mode of public transportation in the country. It is a multi-gauge network consisting of Broad, Metre and Narrow gauges.

Government of India (GoI) conceived an investment plan for rail sector to eliminate capacity bottlenecks on Golden Quadrilateral[1] and Diagonals to provide strategic rail communication links to ports, construction of mega bridges for improving communication to the hinterland and development of multi-modal transport corridors. To implement the said plan GoI launched a scheme in the name of **National Rail Vikas Yojna (NRVY)** on 26th December, 2002 comprising the following investment planning components:

- Strengthening of Golden Quadrilateral and Diagonals connecting the 4 metro cities i.e. Delhi, Mumbai, Chennai and Kolkata
- Providing Rail based port-connectivity and development of corridors to hinterland including multi-modal corridors for movement of containers
- Construction of 4 mega bridges at Patna and Munger on river Ganga, at Bogibeel on river Brahmaputra and at Nirmali on river Kosi

To implement the above mentioned plans, Ministry of Railways (MoR) incorporated **Rail Vikas Nigam Limited (RVNL)**, a Special Purpose Vehicle (SPV) on January 24, 2003. It is a wholly owned Government company under the provisions of Section 617 of Companies Act, 1956 and in terms of legal status of RVNL is a Railway Administration under Railways Act, 1989.

RVNL is created for the following purpose and mandate:

- RVNL is a PSU, the equity of which may be given to other PSUs, Banks, Financial Institutions or other strategic partners
- To develop various projects, as covered under the above mentioned investment plans of NRVY, to enable non-budgetary funding, mobilize financial resources and execute those projects. The projects are offered to railways for train operation and maintenance under the specific financial arrangement
- RVNL is an umbrella Special Purpose Vehicle (SPV), which undertakes project development, resource mobilization and can undertake the projects directly or by creation of Project Specific SPVs or any other financing structure, which is found suitable for a particular project. These projects could be undertaken directly or as per Memorandum (MoU), signed between MoR and RVNL on October, 2003, the projects could be undertaken by the project specific SPVs

1 Golden Quadrilateral and Diagonals are the rail links between the four metropolitan areas in India i.e. Mumbai, Chennai, Delhi and Kolkata

- RVNL is to take up capacity augmentation projects on the Golden Quadrilateral and other bankable projects covered under National Rail Vikas Yojana. This programme included capacity augmentation projects on Golden Quadrilateral and its diagonals, last mile port connectivity and corridors to hinterland.

In order to achieve the objectives, RVNL creates project specific SPVs for implementation of these projects. The following are the projects being planned / executed under SPV route by RVNL.

- Haridaspur – Paradip Railway Line (Odisha)
- Bharuch – Samni – Dahej Gauge Conversion (Gujarat)
- Surat – Hazira New Line (Gujarat)
- Obulavaripalle – Krishnapatnam New Line (Andhra Pradesh)
- Arisikeri Hassan – Mangalore Gauge Conversion (Karnataka)
- Gandhidham – Palanpur Gauge Conversion (Gujarat)
- Angul – Sukinda new Line (Odisha)

Angul – Sukinda Railway Limited (ASRL), a SPV, has been incorporated by RVNL for developing, financing, construction, operation and maintenance of an 104.24 km broad gauge single railway line between Angul and Sukinda in Odisha to establish direct link between iron-ore rich areas of Odisha viz. Joda-Barbil to steel and sponge iron industries in Angul region and between coal mining region in Talcher to industries in Jakhapura, Joda-Barbil and areas in Kendujhar district (hereinafter referred as "the **Projec**t") . In the long term, the Project is also expected to reduce distance between industrial areas such as Rourkela and Dhamra/Paradip ports.

A concession agreement (CA) has been signed between Ministry of Railways and ASRL on May 14, 2010.

The total cost of the Project is estimated at about **Rs.1,337.90 crores.** The Hard Cost (Rs 1202.7 crore) of the project has been estimated by RVNL, the executing agency of the project, based on prevailing rates for similar works in the peripheries, while the Pre-Operative expenses and Interest During Construction (IDC) at Rs 135.2 crore has been calculated by M/s. Feedback Infra Private Limited (external consultants). The Total Project Cost is proposed to be funded with a Debt Equity of **68.6:31.4** viz. debt of **Rs.917.90 crores** and equity of **Rs.420 crores**. Existing three share holders of ASRL have so far contributed **Rs.135.56 crore** towards their share of equities. These share holders have been issued partly paid shares of the company. The company management is making cash calls from the share holders depending upon the progress of the project.

ASRL has appointed M/s Feedback Infra Private Limited to prepare Financial Information Memorandum for the Project. Feedback Infra with a team of railway experts has also carried out market and traffic study for the project.

2. THE COMPANY

Angul Sunkinda Railway Limited (ASRL) has been incorporated by RVNL for the purpose of setting up the Project.

2.1. General Particulars of ASRL

Name of the Company	**Angul Sukinda Railway Limited**
Date of Incorporation	February 20, 2009
Constitution	Public Limited Company
Sector	Infrastructure-Railway
Registered Office	7622/4706 , Press Chhak, Gajapati nagar, Post –Sainik School , Bhubaneswar-751005
Project Description	To setup 104.24 Km broad gauge single railway line in Odisha

2.2. Activities of ASRL

According to Memorandum & Article of Association, ASRL is responsible for the following:

- To carryout maintenance and manage on the business of development, establishment, financing, construction, operations, maintenance of railway projects and facilities and in particular for the development, establishment, financing, construction, operations, maintenance and management of the Project linkage.
- To carry on further business of the Project and implementing additional railway lines in the vicinity of the Project
- Raising the necessary finances for the Project
- Completion of Civil Works , installation of equipment and facilities for the Project, testing and commissioning and subsequent operations, maintenance of the railway line for a period as specified in the Concession Agreement.
- Collect all specified revenues generated by the Project and also undertake such other activities as may be considered necessary to implement the Project successfully and in accordance with the Concession Agreement

2.3. Board of Directors

As on July 24, 2013, the Board of Directors of ASRL comprises of seven directors as follows:

Table 2-1: Board of Directors of ASRL

S. No.	Name of Director	Designation
1	Mr. Pradeep Kumar	Chairman (Nominee of Ministry of Railways)
2	Mr. Dilip Kumar Samantray	Managing Director
3	Mr. Vinay Kumar Singh	Director (Nominee of RVNL)
4	Mr. Arun Kumar	Director (Nominee of RVNL)
5	Mr. Hare Krushna Sahu	Director (Nominee of RVNL)
6	Mr. Anil Ahuja	Director (Nominee of Bhushan Steel Limited)
7	Mr. Kapil Rawat	Director (Nominee of Jindal Steel & Power Limited)

2.4. Capital Structure & Shareholding Pattern

The capital structure of ASRL as on March 31, 2013 is as under:

Table 2-2: Capital Structure of ASRL (Provisional)

Share Capital	Particulars	Rs. In Crores
Authorized Capital	4,20,000,000 equity shares of Rs. 10 each	420.00
Subscribed & Paid up Capital	Equity Shares fully paid 50,000 at Rs.10 per equity share and partly paid up shares 29,39,50,000 at Rs. 3.02, and 840,00,000 at Rs. 1.19 per shares (Previous year 50,000 Equity Shares of Rs. 10 each)	98.82

The shareholding pattern for ASRL as on March 31, 2013 is as under

Table 2-3: Shareholding Pattern of ASRL

Name of shareholder	% of the shareholding
Rail Vikas Nigam Limited	45
Jindal Steel and Power Limited	25
Bhusan Steel Ltd.**	20
Equity Gap	**10**

**The allotted partly paid shares of Bhusan Steel Ltd. have since been forfeited due to cash calls defaulting on their part.

Current Status on equity Gap: Consequent to the exit of M/s Bhusan Steel Ltd, who had consented to subscribe 20% of the equity share of the SPV, Govt of Odisha has agreed in principle to subscribe maximum up to 26% of the equity shares, in a phased manner. The decision of the Govt. of Odisha has since been communicated vide their letter 8th July 2013 (ANNEXURE – IX: EQUITY PARTICIPATION ASSURANCE- GOVERNMENT OF ODISHA). The state government has also informed that Rs.42 cores (10%of the equity amount) will be released in the current financial year (2013-14). IDCO, a PSU under Government of Odisha has also given its consent to subscribe 1 % of equity share capital. Further in a letter dated 26th July 2013, CMD, Odisha Mining Corporation (OMC), a State Government PSU has conveyed in-principle approval of their Board of Directors (BoD) to the proposal from ASRL for OMC to contribute Rs. 63.00 Crore towards equity participation in ASRL (ANNEXURE – X: EQUITY PARTICIPATION ASSURANCE- ODISHA MINING CORPORATION). In the above circumstances, the envisaged equity requirement of the project is adequately taken care of.

2.5. Present arrangement with Banks and Financial Institutions

The current account of ASRL is with AXIS bank, Bhubaneswar. ASRL has currently no exposure to banks or Financial Institutions.

2.6. Existing operations and past Financials

ASRL has been formed for the purpose of implementation of the Project and as of now, there are no existing operations of the company. The financials of the company for the past two years as are follows.

Table 2-4: Financials of ASRL (Rs. In crores)

Particulars	2013 (Provisional)	2012	2011	2010
Income	1.07	0.11	-	-
Net Profit	0.17	0.007	-	-
Shareholders funds (including share application money pending allotment)	98.82	69.55	45.05	31.55
Current Liabilities	2.01	1.48	0.11	6.96
Non Current Assets (including capital work in progress)	84.92	70.36	29.13	28.92
Current Assets	15.91	0.67	16.03	9.59

Source: Unaudited financial results for year 2012-13 & audited financial results for respective years, ASRL

3. PROMOTER PROFILE

Rail Vikas Nigam Limited (RVNL) has been incorporated by Ministry of Railways. It is created with the objective of raising non-budgetary resources for rail capacity projects and implements them on fast track basis. It has established itself as a major developer of fixed rail infrastructure projects. The model followed by RVNL is to form a SPV for connectivity/strengthening of Golden Quadrilateral, with partnership from the stakeholders like ports, the users of line and the respective state governments.

As on March, 2013 RVNL has formed five SPVs which are mentioned below:

1. **Kutch Railway Company limited**: This SPV has completed gauge conversion work between Gandhidham, Samakhiali and Palanpur, and cut short the rail transportation between Gujarat ports and the Northern hinterland. The length of the project is 301 Kms. The project cost is around Rs. 453 crores. This is the first operational SPV of RVNL, which commenced operations in the year 2007 .

Status: As per Annual Report of RVNL FY 12, the turnover and the Profit Before Tax of the Company for the year 2011-12 has increased to Rs. 380 crore (provisional) and Rs. 94 crore (provisional) respectively from Rs. 300 crore and Rs. 60 crore (respectively) in the previous year.

2. **Krishnapatnam Railway Company Limited**: This SPV provides freight traffic movement between Obulavaripalle in Kadapa district to Krishnapatnam port in Nellore district in Andhra Pradesh. The length of the project is 113 kms. The project cost is estimated to be around Rs. 1000 crores. It shall cater to significant volumes of freight traffic which shall be generated by iron ore export traffic of Hospet-Bellary region, import of coke/coal to support Jindal Steel Vijaynagar Limited's (JSVL) increasing steel manufacturing capacity and other planned projects in power, cement and steel sector

Status: It has commissioned the part line (23 kms) connecting Venkatachalam Railway Station with Krishnapatnam port. This has facilitated evacuation of traffic from/to the Krishnapatnam port through railways. Currently, an average of 8 loaded trains per day has been moving on this section and a rapid increase of rail traffic is anticipated and doubling of the section from Venkatachalam to Krishnapatnam, funded by KRCL at an estimated cost of Rs. 87 crore, is under execution.

3. **Bharuch Dahej Railway Company Limited**: The SPV provides freight traffic connectivity from Bharuch to Dahej. The length of the project is 68 kms. The project cost is estimated to be around Rs. 285 crores. It shall cater to significant volumes of freight traffic which shall be generated by existing and future industries at Dahej. It shall also be an important feeder route to the Western Dedicated Freight Corridor currently under construction.

Status: The first goods train was run on the section on 01.12.2011. The volume of traffic has recently been increasing and 210 trains have been loaded on the project section during the period March 2012 to May 2012

Haridaspur Paradip Railway Company Limited (HPRCL): The SPV has been incorporated by RVNL for developing, financing, construction, operations and maintenance of an 82 km broad gauge single railway line between Haridaspur and Paradip stations in Odisha to establish a direct link between the iron-ore rich areas of Odisha viz. Barbil region to Paradip port. The project cost is estimated to be around Rs.1185.99 crores.

Status : Currently the project is under progress and contract for important bridges on Luna & Mahanadi Rivers is under execution. The process of award tender for balance work for Roadbed, Minor Bridges, Buildings, etc is presently under process.

Angul Sukinda Railway Limited (ASRL). The project matter is discussed at length, subsequently.

RVNL is presently executing/executed 89 projects broadly classified under two heads as mentioned below:

1. Strengthening of Golden Quadrilateral and Diagonals
2. Provision of Port Connectivity and corridors to hinterland

The status of 89 projects is as under (detailed list of projects is provided in ANNEXURE – I: RVNL PROJECT STATUS):

1. Projects completed upto March 31st, 2013: **26**
2. Projects with Work in Progress: **19**
3. Projects under development stage: **37**
4. Projects recently sanctioned: **2**
5. Projects yet to be sanctioned: **5**

3.1. Board of Directors

As on March 31, 2013, the Board of Directors of RVNL comprises of five directors.

Table 3-1: Board of Directors of RVNL

S. No.	Name of Director	Designation
1	Mr. S.C. Agnihotri	Chairman & Managing Director
2	Mr. Mukul Jain	Director (Operations)
3	Mr. AK. Ganju	Director (Finance)
4	Mr. Vijay Anand	Director (Projects)
5	Mr. Gita Mishra	Director (Personal)

The brief profile of the directors of RVNL is as follows:

S.C. Agnihotri: Mr. Satish Agnihotri (Chairman & Managing Director) is an officer of 1984 batch of Indian Railway Service of Engineers. He has done M.E.(Structures) and B.E.(Civil) from IIT, Roorkee. Before joining as Chairman & Managing Director, he worked as Director (Projects) in RVNL. He also headed the Metro Project Directorate of Ministry of Railways dealing with upcoming metro line in metropolitan cities. As Executive Director (Corporate Coordination) & OSD/Chairman Railway Board, he was engaged in substantive decision making in the Ministry of Railways.

Mukul Jain: Mr. Mukul Jain (Directors-Operations) is an officer of 1981 batch of Indian Railway Traffic Service (IRTS). He has done M.E. (Logistics & Supply Chain Management) from Massachusetts Institute of Technology-Boston and Zaragoza Logistics Center-Spain and B. Tech (Mechanical) from IIT. Delhi). Prior to joining RVNL, Mr. Jain was the Executive Director in Container Corporation of India Ltd. (CONCOR), a PSU of Government of India. He had.

A.K. Ganju: Mr. Ashok K Ganju (Director-Finance) is an officer of 1981 batch of Indian Railways Accounts Service. He has done M.A. (Sociology) from and B.A. (Hons) from Delhi University.. Prior to joining as Director (Finance), he had worked as Executive Director (Finance). Mr. Ganju had also worked in various capacities in the Railways in the Division, Workshop, Production Unit, EDP Centre, Traffic Accounts and Construction Offices etc.

Vijay Anand: Mr. Vijay Anand (Director-Projects) is an officer of 1981 batch of Indian Railway Service of Engineers and a graduate in Civil Engineering from Punjab Engineering College, Punjab University, Chandigarh. Prior to joining RVNL, he has held various responsible positions in Indian Railways and Delhi Metro Rail Corporation in maintenance and construction of Railway and Metro assets.

Ms. Gita Mishra: Ms. Gita Mishra (Director-Personnel) an officer of 1982 batch of Indian Railway Personnel Service and is a graduate from Lady Shri Ram College, Delhi University and also holds an Advance Diploma in Russian Language from Delhi University. Before joining Rail Vikas Nigam Limited as Director (Personnel), she was working as Executive Director Establishment (Non Gazetted)/ Railway Board, Ministry of Railways, New Delhi.

3.2. Capital Structure & Shareholding pattern

The capital structure of RVNL as on 31st March, 2013 is as under:

Table 3-2: Capital Structure of RVNL

Share Capital	Particulars	Rs. In crores
Authorized Capital	3,00,00,00,000 Equity shares of `10 each	3000.00
Paid up Capital	2,08,50,20,100 Equity shares of `10 each fully paid up	2085.02

All the shares of RVNL as on March 31st, 2013 are held by Government of India.

3.3. Financials of RVNL

Particulars (in Rs Crore)	2013	2012
Total Revenue	2204.96	1654.29
Profit Before Depreciation and Tax	171.36	122.80
Profit After Tax	135.55	98.38
Total Non-Current Assets (A)	875.11	744.33
Total Current Assets (B)	10531.93	8336.45
Total Current Liability (C)	847.21	720.63
Net Current Assets (D = B-C)	9684.72	7651.82
Non Current Liabilities (E)	8142.22	6048.37
NET WORTH (F)	2417.61	2311.79
Represented By:		
Paid up Share Capital	2085.01	2085.01
Share Application Money	-	-
Reserves & Surplus	332.59	226.77
Ratios		
Current Ratio (= B / C)	12.43	11.57
Debt to Equity Ratio (= E / F)	3.37	2.62

Source: Provisional audit statements for year 2012-13, RVNL

4. PROJECT DESCRIPTION

4.1. Project Background

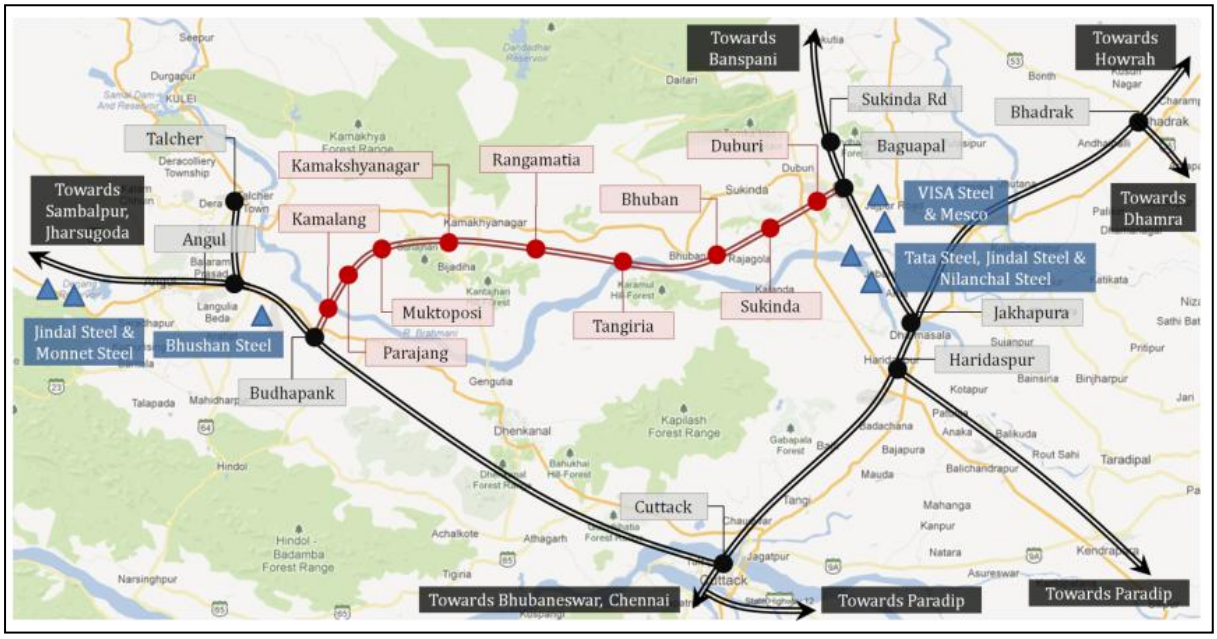
Angul Sukinda Railway Limited (ASRL) has been incorporated for construction and maintenance of 104.24 km broad gauge single railway line between Budhapankh station (Angul) and Baguapal Station (Sukinda) in Odisha. Proposed rail line provides a shorter connectivity and would facilitate faster goods movement. This line will be connected to Banspani-Dubri line, which is currently being used by steel plants in Sukinda region for inbound iron ore movement from Banspani and Barbil region. Major beneficiaries of the this proposed line would be steel plants in Angul region (transporting iron ore from Banspani and Chromate from Sukinda), coal based thermal power plant in Sukinda (transporting thermal coal from Talchar coal fields, presently most of the power plant are captive) and steel & power plants in Lapanga and Rengali area of Sambalpur district (transporting iron ore from Banspani and coal from Talcher).

The proposed alignment will also establish a direct link between coal producing areas i.e. the Talcher Coalfields and the coal consuming area of Daitari Industrial Complex near Sukinda Road Railway Station. This will avoid the existing congested and circuitous route of the Talcher – Rajatgarh – Kapilas Road – Jakhapur and will provide an alternative and shorter route for the coal traffic. Dispatch of finished products of the steel plants of Daitari Industrial Complex to destinations in Mumbai and Delhi area via Talcher – Sambalpur – Jharsuguda will also be cheaper via the proposed alignment in comparison with the route via Kharagpur.

This rail line may also facilitate the transportation of iron ore, coal, bauxite from nearby quarries to the upcoming industries in Jharsugoda Industrial Cluster and to nearby Thermal Power Plants. The project line starts at Budhapank Station near Angul and terminates at Baguapal Station near Sukinda.

The map of the proposed railway line is under

Figure 1: Alignment Map of Angul Sukinda Railway Line



A concession agreement (CA) for the project has been executed between Ministry of Railways and ASRL on 14th May, 2010. The major users of the proposed project viz. Jindal Steel and Power Limited, Bhushan Steel Limited have also entered into shareholders Agreement with RVNL and ASRL on 27th May, 2009.

4.2. Scope of the Project

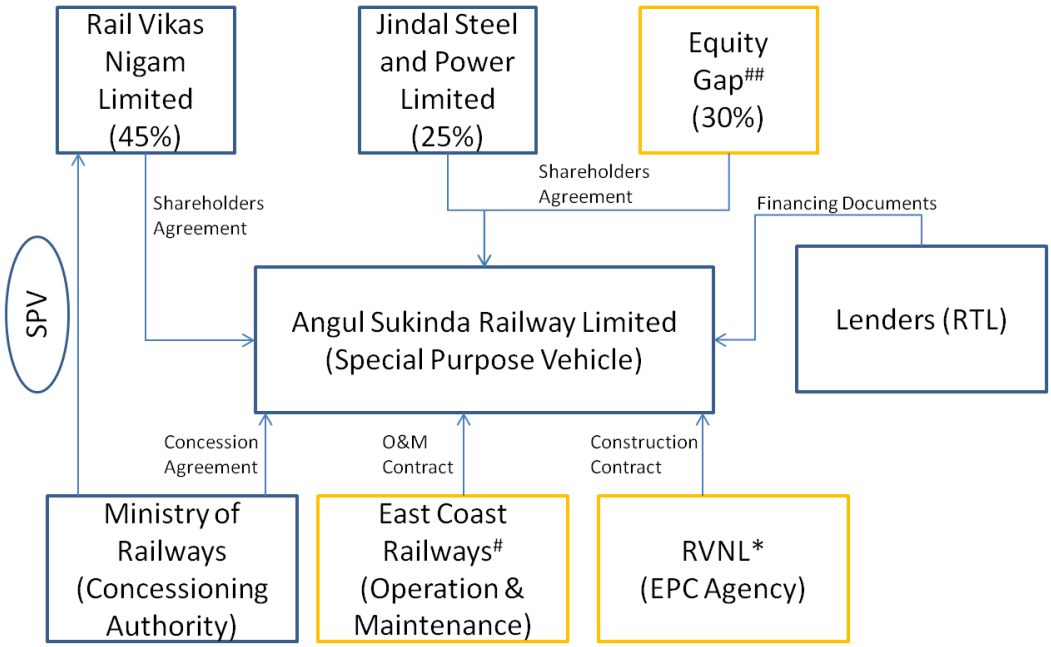
As per Concession Agreement, the Concessionaire is authorized to develop, finance, design, engineer, procure, construct and operate and maintain the broad guage rail link connectivity between Talcher Road in Angul District at km. 0.000 and Baghuapal in Jajpur district at km 93.165 and to exercise and /or enjoy the rights, powers, benefits, privileges, authorizations and entitlements as set out in the Concession Agreement during the Concession Period.

4.3. Location of the project

The location of the project is between Budhapank Station near Angul and Baguapal Station near Sukinda. The major stations in this route to be constructed during the project are Kamlang, Parjang, Muktaposi, Kamakhyanagar, Rangamati, Tengaria, Bhuban, Sukinda and Duburi. The districts through which the railway line passes through are Angul, Dhenkanal and Jajpur.

4.4. Project Structure

The relationship among the Project's various key parties are set out hereunder:



Current Equity Gap position as explained in section 2.4
#O&M Contract is yet to be signed with East Coast Railway
****Construction agreement is yet to be signed with RVNL***

The structure as shown above details out the role and relationships between different parties involved in the project. MoR is the Concessioning authority and RVNL is the major shareholder while the other being Jindal Steel and Power Limited. There is an equity gap of 30% as on July, 2013 due the forfeiture action on the partly paid equity shares of Bhusan Steel ltd for non-subscribing of due Cash call money .
RVNL also performs the role of EPC contractor and ECoR is responsible for Operation and Maintenance of the project. The construction agreement with RVNL expected to be signed shortly while O&M agreements with East Coast Railway are expected before commencement of Goods traffic.

According to 'Master Circular-Exposure Norms for Financial Institutions' of RBI, 'rail system' has been classified as infrastructure facility and any credit facility extended to an infrastructure facility is considered as lending to infrastructure project.

4.5. Project Agreements

I. Concession Agreement

The Concession Agreement ("CA") between Ministry of Railways and ASRL was signed on 14th May 2010. The key terms and conditions of the CA are summarized below.

a) **Concession Period**: The concession period would be determined with reference to attainment of the NPV payback benchmark at the rate of return of 14%. The concession period shall be 30 years of operation or till the time NPV payback equal to the equity investment is reached, whichever is earlier. (*Clause 4.6.1*)

As per the above mentioned formula for estimation of concession period, the concession period with a maximum limit of 30 years of operation may get shortened, therefore it may be suggested to keep a provision of cash sweep of entire cash surplus from the operation of the project line over and above Rs. 50 crores at any point during the currency of the loan shall be utilized towards repayment of the outstanding debt with no repayment penalty. The cash surplus shall be adjusted with the last installment of the outstanding loan.

b) **Construction Period**: The construction period means the period beginning from the date of signing of this agreement and ending on commissioning (*Clause 1.1*) The construction period is assumed to be 5 years

c) **Rights of Concessioning Authority**: The concession authority/MoR shall be entitled to the following:
   a. MoR shall be entitled to run on the Project Railway[2], BG passenger services without paying any access charges to ASRL, provided however that, any new passenger service on the Project Railway shall be commenced only with prior written consent of ASRL
   b. The right to collect traffic from non-container traffic originating, terminating and moving on the Project railway, and haulage charges from container operations.
   c. Without in any way adversely affecting the movement of traffic on the Project Railway or otherwise adversely affecting the functioning of the Project Railway, the Concessioning Authority can connect other rail lines which are constructed in accordance with the normal expansion plans of MoR; to the Project Railway, at any point along its length
   d. The right to modify, suspend or revoke the rights of the concessionaire under National Emergency during the period of National Emergency, limited for the period of such National Emergency (*Clause 4.4*)

d) **Rights of ASRL**: The concession hereby entitles ASRL, inter-alia, to the following:
   a. To exercise all the rights and authority vested in the Concession under this Agreement;
   b. To have the exclusive right and authority during the Concession Period to implement the Project
   c. The right to Commercial Exploitation[3]
   d. The right to develop Additional facilities[4] in the Project Area;

2 Project Railway means broad gauge rail link connectivity between Budhapankh at km 0.00 and Baghupal at km 104.24

3 Commercial Exploitation means the right of the Concessionaire to put the Project Assets to commercial use, as permitted under Applicable laws and rules framed by MoR, which shall, however , specifically exclude the rights of ASRL, to lay or permit optical fibre alongside the project railway

e. The right to quote special tariff rates for freight moving within the Project Railway i.e. where the origin and destination both are on the Project Railway in terms of the policy instructions issued by MoR from time to time
f. The right to receive from MoR, its share in accordance with the rules of inter-railway apportionment of earnings, of the tariff collected from the freight traffic originating, terminating and moving on the project railway, including haulage charges and maintenance costs, in accordance with the Project related Agreements (*Clause 4.2 Concession Agreement*). The due share of ASRL in the freight traffic earnings shall be apportioned and paid to it by MOR as per the rules of inter-Railway Financial adjustment after defraying the operation & maintenance cost in accordance with the related agreements.(clause 4.4b)
g. The apportionment of freight traffic earnings will be made at 100% of the revenue normally accruable to ASRL for the first four years from COD, and thereafter , at the rate of 80% of revenue in case of non-originating traffic and 90% of the revenue in case of originating traffic.(clause 4.4b)

e) **Transfer of Assets to MoR**: upon Expiry, the Project Assets shall be handed over by ASRL to MoR in accordance with the provisions of Article 8. (*Clause 5.1*).
f) **ASRL's Event of Default**: ASRL shall be deemed to have committed an Event of Default if any of the following occurs, unless such event has arisen on account of Force Majeure Event or Concessioning Authority Event of Default;
   a. Unlawful repudiation of this Agreement by ASRL;
   b. Appointment of a liquidator provisional or otherwise for winding up of ASRL, unless such appointment has been set-aside within 90 days
   c. Failure to comply with the lawful directives given by Central Government having the statutory rights to issue such directives with respect of the Project Railway
   d. Breakdown of any of the Project Related Agreement (the Concession Agreement, Shareholders agreement between RVNL, JSPL, BSL and ASRL, Lease Agreement, Agreement for construction to be entered into by ARSL and RVNL, Agreement for Operations and Maintenance to be entered into by ARSL and East Coast Railway) on account of ARSL default, rendering the Concession Agreement inoperable
   e. Abandonment of the construction of the Project Railway
   f. A breach of any of its obligations under a material provision of the Concession Agreement
   g. Failure on the part of ARSL to perform its obligations under any of the Financing Documents(collectively the documents evidencing Lenders' commitment to finance the Project) that led to recall of the financial assistance by the Lenders
   h. Non-payment by ASRL a material amount defined as amount equal to lease charges payable for one year (*Clause 7.1*)

4 Additional Facilities means the facilities which ASRL may provide or procure for the benefit of the users of the Project Railway and which are in addition to the facilities planned in project estimate prepared and sanctioned by RVNL, and includes additional stations and freight handling facilities.

g) **Concessioning Authority Event of Default**: Concessioning Authority shall be deemed to have committed an Event of Default if any of the following occurs, unless such event has arisen on account of Force Majeure event or ASRL Event of Default;
   a. Unlawful repudiation of this Agreement by MoR including expropriation of Project Assets by any Government Authority
   b. Breakdown of any of the project related Agreements on account of MoR's default, rendering this agreement inoperable
   c. Failure to pay ASRL the payment of its share of revenue, for the haulage of freight on the project Railway within a period of 20 days
   d. A material breach of its obligations under the provisions of this agreement by MoR (*Clause 7.2)*

h) **Lenders Step in Rights**: Notwithstanding anything to the contrary in the Concession Agreement, the parties hereby agree that (i) upon the lenders recalling and demanding the debt outstanding under the Financing Documents (following an event of default under the Financing Documents) or (ii) upon a termination Notice being issued by MoR, the lenders shall, without prejudice to any other remedy available to them, have the option to propose to MoR the substitution of the Concessionaire by another suitable Concessionaire . Any such proposal shall contain in sufficient detail all the relevant information about the Proposed Concessionaire and the terms & conditions of the substitution (*Clause 7.4)*

i) **Transfer payment on normal transfer:** Upon normal transfer, ASRL shall be entitled to receive and MOR shall pay to ASRL an amount equal to Book Value. The existing assets leased to ASRL by MOR shall revert back to MOR and MOR shall pay to ASRL an amount equal to cost of land, which was financed by ASRL at the time acquisition of land without any interest.(clause 8.1)

j) **Transfer payment on termination on Account of Concessining Authority's Event of default**: ASRL shall be entitled to receive and MoR shall pay the following transfer payment:
   a. 130% of DRV[5] if the default occurs within 15 years of COD
   b. 120% of DRV if the default occurs after 15 years but within 25 years of COD
   c. 110% of DRV if the default occurs after 25 years of COD (*Clause 8.2*)

k) **Transfer payment on termination on Account of Concessionaire's Event of Default**: ASRL shall be entitled to receive and MoR shall pay 50% of Book value as Transfer Payment (*Clause 8.3*)

l) **Leased Assets**: In consideration of the premises aforesaid, and of the rennet reserved and of the covenants and agreements on the part of the Lessee to be observed and performed, the Lessor. Does hereby lease unto the Lessee all the Existing Assets and the land to be newly acquired together with all rights, easements and appurtenances thereto , to have and to hold, for the duration of the Concession period (*Schedule 1 Clause 2*)

[5] "DRV" means Depreciated replacement Value of New Assets and Additional facilities and is the aggregate cost of replacing each asset on termination date minus aggregate depreciation on Straight Line Method, where depreciation on Straight Line Method for each asset means the number of years the asset has been in use divided by the codal life of the asset multiplied by the cost of replacement of asset on Termination Date. The asset life shall be computed as per the provisions in the codes and manuals of MoR. The cost of replacement of each asset shall be determined by the then prevailing accepted rate for the relevant assets of MoR

m) **Terms of Lease**: The term of the lease shall be co-terminus with the Concession period, unless extended for a further period by the mutual agreement of the Parties (*Schedule 1 Clause 3)*

n) **Lease rent**: The Lessee shall pay to the Lessor, an annual lease rental in respect of the Leased Assets. This lease rental shall be payable in advance in one single installment first week of January (*Schedule 1 Clause 4*)

II. Construction Agreement

Currently the draft Construction Agreement is in final stage and is expected to be signed between ASRL and RVNL, shortly.

III. Operations & Maintenance Agreement

O&M Agreement shall be signed between ASRL and East Coast Railway (ECoR) before the completion of construction work of the project and before the COD of the project

5. PROJECT COST

5.1. Project Agreements

The TPC has been estimated around Rs. 1337.9 crores, based on the hard cost estimates provided by RVNL. The same is based on internal assessment/ prevailing rate of contracts awarded in the vicinity of the project area. The detailed breakup of the same is provided in the table below.

5-1: Project Cost Details

Particulars	Amount in crores	% of TPC
Hard Cost Item		
Land	79.42	5.94%
Civil Works	789.54	59.01%
S&T Engineering	43.96	3.29%
Electrical Engineering & OHE	109.68	8.20%
Gross Total	**1022.60**	76.43%
Contingency @ 3%	30.68	2.29%
Sub Total 'A'	**1053.27**	78.73%
D&G charges @8.75% on 'A'	92.16	6.89%
Sub Total 'B'	**1145.43**	85.61%
RVNL Charges @5% on 'B'	57.27	4.28%
Total Hard Cost	**1202.70**	89.89%
Soft Cost (Consultants' Estimation)		
Preliminary & Pre-Operative Expenses	6.00	0.45%
Interest During Construction	129.20	9.66%
Financial Charges		
Debt Service Reserve		
Total Soft Cost	**135.20**	10.11%
Grand Total	**1337.90**	100.00%

a) **Land**: The total land required for the project is 1679.06 acres, out of which, Government land is 222.50 acres, forest land is 251.06 acres and private land is 1205.50 acres. The total cost of the land acquisition as estimated by RVNL is Rs.79.40 crores. The land acquisition work is done by East cost Railway through Odisha State Govt agency. Rs. 64.05 crores has been spent to end of 30.06.2013 towards cost of land . Details of land acquired as on 30th June, 2013 is as follows.

Status of Private Land				
Name of District	Requirement of Land		Possession Taken	
	Village (Nos)	Area (Acres)	Village (Nos)	Area (Acres)
Angul	7	122.055	3	11.420
Dhenkanal	49	804.326	31	286.905
Jajpur	13	279.120	4	32.680
Total	69	1205.501	38	331.005

The state government has assured that all the required private land for the project will be acquired by September 2013 (Please refer to Annexure XI).

Status of Government Land						
Name of District	Requirement of Land		Alienation Sanctioned		Possession Taken	
	Village (Nos)	Area (Acres)	Village (Nos)	Area (Acres)	Village (Nos)	Area (Acres)
Angul	5	3.940	2	1.060	0	0
Dhenkanal	44	154.025	24	13.425	0	0
Jajpur	11	64.540	6	15.020	6	15.020
Total	60	222.505	32	29.505	6	15.020

Current status: The state government has decided for revision of the cost of government land at par with the bench mark price of private land, based on the representation of Railways against the supposedly higher rate for govt. land. The government has also allowed the arrangement of taking over of government land, pending completion of paper formalities.

Status of Forest Land				
Name of District	Requirement of Land		Diversion proposal filed (Nos. of village)	
	Village (Nos)	Area (Acres)	Village (Nos)	Area (Acres)
Dhenkanal	33	125.430	33	125.430
Jajpur	13	125.630	13	125.630
Total	46	251.060	46	251.060

Current Status: ASRL has engaged a Forest Consultant firm to assist in the process of forest diversion and environment clearance work. Work is progressing on forest diversion work by way of state govt. identifying the substitute degraded forest in lieu of the affected forest land and also in the digital survey (DGPS) work. The stage-I forest clearance proposal is planned to be presented to Government of India before the end of this year.

b) **Civil Works**: The civil works include excavation, earthwork, buildings mainly consists of station and quarters etc. As per the estimates 9 stations have been proposed excluding Budhapankh and Baghupal. Apart from this, civil works also include rail & fastenings, sleeper & fastenings, costs for platforms, various offices for the railways, passenger amenity works etc. The total cost of the civil works including land cost has been estimated at Rs. 868.96 crores.

Details of civil contracts awarded: At present only one contract for Major Bridge No.12 on River Brahmani and two other bridges on Rengali Canal is in progress. There is 30% physical progress

in this bridge work. Another tender for Earth Work & minor Bridge works for a stretch of 25km has been floated by RVNL and it will be opened in August, 2013. The other works tenders for remaining stretch will be called as per progress of acquisition of land.

c) **Signalling & Telecommunications**: The signalling and telecommunication works mainly consists of installation of solid state interlocking, DC track circuits, LC gate, Telecom facility, modification in existing route relay interlocking with MACL (Multiple Aspect Colour Light) signalling motor operated points with DC track circuits. The detailed description of S&T works include:

S. No	Description	Details
1	Interlocking	Std-III : 09 (New Stations) Std-III :02 (Existing Stations)
2	Operating of Points	Motor Operation : 09 (New Stations) + 02 (Existing Stations)
3	Signals LED	Colour Light : 09 (New Stations) + 02 (Existing Stations)
4	Block Working	TLBT with SSDAC : 10 Block Sections
5	Communication OFC and 6 Quad Cable	1) OFC for Control, administrative purposes and 6 quad cables for emergency, communication and block working : 09+02 stations 2) Radio Patching : Between Talcher and Kamakhyanagar
6	Electric Traction	Overhead equipment, traction, sub-stations, SCADA, switching Stations and feeding post

The total cost of Signalling & Telecommunications has been estimated at Rs. 43.96 crores.

d) **Electrical Engineering & OHE**: The electrical engineering works mainly constitute Traction Distribution Works, Over Head Equipment for running trains, traction sub stations, etc. The detailed description of electrical engineering & OHE include:

e)

S. No	Description	Details
1	Traction Sub-Station	02 Nos.
2	Sectioning & Paralleling Post (SP)	03 Nos.
3	Sub-Sectioning & Paralleling Post (SSP)	06 Nos.
4	OHE & PSI Depth with Tower Car at Sukinda and Kamakhyanagar	02 Nos.
5	11 Kv Sub-Stations at all stations	08 Nos.

The Electrical Engineering and OHE cost has been estimated at Rs. 109.68 crores

f) **Preliminary and Pre-Operative expenses**: Preliminary expenses include expenses incurred for the company formation and other expenses related to feasibility study & detailed project report. These expenses are estimated at Rs. 6.00 crores

g) **Interest During Construction (IDC)**: Interest During Construction has been estimated at Rs. 129.20 crores (about 9.4% of the Total Project Cost) based on the schedule drawdown of the

finance facilities. It is assumed that the debt drawdown will commence from year 2015. The rate of interest has been assumed at 11% p.a

h) **Contingency**: An amount of Rs. 31.58 crores has been provided for as contingency at the rate of 3% of capital cost based on standard norms being followed in railways.

6. MEANS OF FINANCE

6.1. Means of Finance

Taking into account the overall funding requirement and the project cash flows the cost of the Project is proposed to be funded by a combination of equity from shareholders and Rupee Term Loan (RTL) in the Debt to Equity ratio of 68.6:31.4 as shown below:

6-1: Funding Structure (Rs. Crores) (to be revised)

Particulars	2013	2014	2015	2016	2017	Total
Project Cost	90.8	130.0	327.0	459.9	330.2	1337.9
Means of Finance						
Equity	90.8	130.0	199.2	-	-	420.0
RTL	-	-	127.8	459.9	330.2	917.9
Total	90.8	130.0	327.0	459.9	330.2	1337.9

Note: The project is an Infrastructure project and the proposed DER of 68.6:31.4 is well within the acceptable ratio

6.2. Equity from Shareholders

Based on the proposed capital structure, the equity contribution works out to Rs. 420 crores. It is to be mentioned that the shareholders have already brought in Rs.135.56 crores as share application money in the company, out of which, they have spent Rs.104.40 Crores (approx.) as on June 30, 2013. Currently there is an equity gap of 30% resulted due to forfeiture action taken against BSL failing to subscribe due cash calls money of allotted Equity share. The company has suitably addressed the equity gap as brought out (at *paragraph 2.4 of chapter 2*) . The company proposes to spend the equity already brought in by the shareholders before the first debt drawl.

6.3. Rupee Term Loan from Banks

ASRL proposes to approach Banks and Financial Institutions to raise Rs. 918 crores of RTL at the following brief terms:

Name of Borrower	**Angul Sukinda Railway Limited**
Purpose	Setting up of broad gauge single railway line of 104.24 kms
Nature of Borrowing	Rupee Term Loan
Loan Amount	Rs. 918.00 crores
Rate of Interest	11% p.a
Upfront Fee	Will be confirmed during debt syndication stage
Moratorium Period	A moratorium period of 12 months is proposed from COD i.e. April, 2018
Repayment	Step up repayment in 40 quarterly installments commencing from April, 2018

Repayment Start Date	April 1st, 2019
Repayment End Date	March 31st, 2029
Security	a) First *pari-pasu* charge on all the present and future fixed assets including movable assets of the Borrower excluding those assets which have been leased by Ministry of Railways (MoR) to the borrower as per the Concession Agreement between MoR and ASRL b) First *pari-pasu* charge on all the tangible movable machinery and plant of the Borrower together with spares, tools, accessories and other movables, both present and future c) A charge on the Escrow account having Debt Service Reserve Account and each of the other accounts required to be created by the Company under any project document or contract d) Assignment of the rights, title, benefits, claims, demands and interests whatsoever of the Borrower by way of first charge in, to under all Contracts
Trust & Retention Account / Escrow Account	Trust & Retention account /Escrow Account of the project/ASRL will be maintained with a bank (to be decided by the participating lenders) to collect all revenues/inflows generated for the ASRL. The company will upfront execute an agreement to assign to the lenders their future revenue/inflows during the currency of the loans.

An indicative detailed term sheet for the proposed RTL is enclosed in ANNEXURE – II: DETAILED TERM SHEET

7. MARKET ASSESSMENT & TRAFFIC ANALYSIS

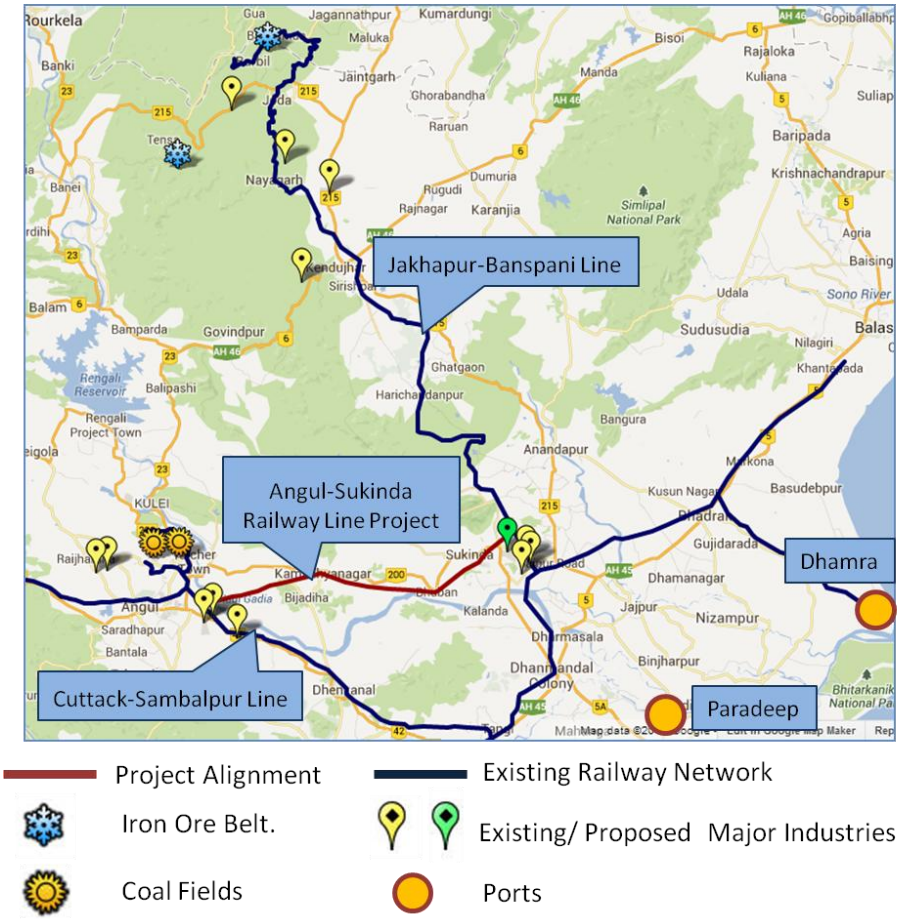
The Project section links Jakhapura-Banspani line with Cuttack-Angul-Sambalpur line. The Project is expected to cater to iron ore traffic from Joda-Barbil region and coal traffic from Talcher region to consumer industries in the hinterland.

An initial traffic and bankability study for the project was carried out by PriceWaterhouseCoopers in the year 2006. In order to update the traffic forecast for the Angul-Sukinda rail link in light of the development of changed economic scenario, M/s Feedback Infra (P) Limited, with a team comprising of experts in railway sector, has been appointed as traffic consultant to assess the traffic volume.

7.1. The Alignment

The proposed rail link is between Budhapankha station and Baghuapal station in the state of Odisha.

The map below represents the proposed project section



7.2. Commodities identified as primary Cargo

Following are the major traffic drivers near the proposed new line between Budhapank and Sukinda Road Stations. A detailed analysis of the same has been done in the subsequent sections to determine the impact, direct or indirect, on traffic of the project line.

A preliminary location analysis of the project catchment area reveals that there are, primarily, four major activity regions along with two ports that may have an impact on the project stretch traffic. These include:

- Talcher coal fields and surrounding activity
- Banspani-Barbil Iron Ore mines and surrounding activity
- Steel Plants in proximity to Sukinda
- Power & Steel Plants in and around Angul
- Dhamra and Paradeep Ports

The above activity regions, together, comprise the following traffic movements:

- Coal Movement:
    - Talcher to Sambalpur/Jharsuguda
    - Talcher to Sukinda
    - Talcher to Banspani-Barbil
    - Talcher to Dhamra
- Iron Ore Movement:
    - Banspani-Barbil to Sambalpur/Jharsuguda
    - Banspani-Barbil to Angul/Talcher
    - Banspani-Barbil to Sukinda
- Finished Iron & Steel Products:
    - Angul to Eastern India
    - Sukinda to Northern, Central and Western India
    - Angul to Paradeep Port
    - Angul to Dhamra Port

- Sukinda to Dhamra Port
- Banspani-Barbil to Dhamra Port

7.3. Hinterland & Cargo clusters

For assessment of potential traffic for the project line, the Consultants have adopted a *'location & distance'* centric approach towards traffic calculation. The process, broadly, comprises of assessing the potential traffic for the project stretch based upon a detailed location and distance analysis of existing and upcoming traffic drivers in the region. It also includes a comparative analysis with other rail lines in the region, expected to be in direct competition with the project line. This helps the Consultants to establish the effective catchment of the rail line and eventually lead to a realistic assessment of traffic.

Traffic on the project line will, primarily, comprise of input resources and outputs of various Iron & Steel and Thermal Power Plants in the region. RTCs have been granted to about 24 plants, in the region, by the Zonal Railway (details annexed to the report). All such plants having influence on the project stretch have been analyzed based on their annual capacity, traffic movement and current status of the plant. Analysis was also done to establish the most feasible route for commodity movement for each of these plants. This finally led to identification of traffic streams that are likely to get diverted, from other competing routes in the region, to the project line. As a result of this, traffic to or from the following plants is likely to use the subject rail line for movement of commodities:

7-1: Possible Traffic Generators for the Project Line

S. No	Name of the plant	Location of the Plant	Annual Capacity (MTPA)
1.	BRG Iron & Steel	Meramandali	0.60
2.	Jindal Steel & Power	Kerejanga	6.0
3.	Bhushan Steel and Strips	Meramandali	4.7
4.	VISA Steel	Jakhapura	1.5
5.	Jindal Stainless	Jakhapura	1.75
6.	Patnaik Steels and Alloys Pvt. Ltd.	Nayagarh	0.27
7.	Maithan Ispat Ltd.	Jakhapura	0.2
8.	Tata Steel Ltd.	Kalinganagar	3.0
9.	MGM Steels Limited	Meramandali	0.3
10.	Monnet Ispat & Energy Ltd.	Kerejanga	1.0
11.	Odisha Sponge Iron Ltd	Porjanpur	0.35
12.	Sree Metaliks Limited	Kerejanga	0.25
13.	Mahanadi Coal Fields	Talcher	39.2

Source: Traffic Consultant Research & Interactions with East Coast Railways

7.3.1. Individual Traffic Streams

BRG Iron & Steel

BRG Iron & Steel Co. Pvt. Ltd. has multiple integrated units in Dhenkanal, Odisha near Meramandali. The current capacity of the plant is 0.60 MT and manufactures sponge iron, ferro manganese, silico manganese & stainless steel slabs. Currently there are no plans for expansion of the plant.

The plant sources its Coal from Talcher Coal Fields, and iron-ore from Barbil, Joda mine fields. The current traffic stream of the Plant is as follows:

Table 7-2: Origin-Destination based Traffic Movement of BRG Iron and Steel

S. No.	Commodity	Origin	Destination	In/Out	Traffic (FY 2012) in Million Tonnes
1	Iron Ore	Barbil	Meramandali	In	0.21
2	Iron Ore	Joda	Meramandali	In	0.21
3	Iron Ore	Keonjhar	Meramandali	In	0.21
4	Coal	MCL, Talcher	Meramandali	In	1.12
5	Chrome Ore	Dhenkanal	Meramandali	In	0.16
6	Chrome Ore	Jajpur Road	Meramandali	In	0.16
7	Manganese Ore	Koenjhar	Meramandali	In	0.10
8	Manganese Ore	Sambalpur	Meramandali	In	0.10
9	Coke	Paradeep	Meramandali	In	0.09
10	Coke	DHN	Meramandali	In	0.09
11	Limestone	Dhenkanal	Meramandali	In	0.02
12	Limestone	Rajgangpur	Meramandali	In	0.02
13	Dolomite	Odisha	Meramandali	In	0.02
14	Dolomite	Rajasthan	Meramandali	In	0.02
15	Scrap	All Over India	Meramandali	In	0.07
16	Steel Billets	Meramandali	Haryana	Out	0.03
17	Steel Billets	Meramandali	Punjab	Out	0.03
18	Steel Billets	Meramandali	Delhi	Out	0.03
19	Steel Billets	Meramandali	UP	Out	0.03
20	Steel Billets	Meramandali	Gujarat	Out	0.03
21	Sponge Iron	Meramandali	TATA	Out	0.05
22	Sponge Iron	Meramandali	North India	Out	0.05
23	Ferro Chrome	Meramandali	North India	Out	0.08
24	Ferro Manganese	Meramandali	North India	Out	0.08
25	Mild Steel	Meramandali	Koenjhar	Out	0.09
26	Mild Steel	Meramandali	Sambalpur	Out	0.09
27	Pig Iron	Meramandali	North India	Out	0.01
28	Pig Iron	Meramandali	Jharkhand	Out	0.01
29	Pig Iron	Meramandali	Bihar	Out	0.01
30	Pig Iron	Meramandali	West Bengal	Out	0.01

Source: Traffic Consultant Research & Analysis

Traffic consultants have analyzed the above Origin and Destination pairs and found that a part of this traffic is likely to move on the project stretch. The same is detailed in the table below:

Table 7-3: Origin-Destination based Divertible traffic of BRG Iron & Steel on Project Stretch

S. No.	Commodity	Origin	Destination	In/Out	Traffic (FY 2020) in Million Tonnes
1	Iron Ore	Barbil	Meramandali	In	0.21
2	Iron Ore	Joda	Meramandali	In	0.21
3	Iron Ore	Keonjhar	Meramandali	In	0.21
Total Traffic in Million Tonnes					**0.63**

Jindal Steel & Power Ltd.

Jindal Steel and Power Limited (JSPL) is setting up a 6 MTPA integrated steel plant with captive power plant of capacity 1142 MW at Kerejanga (District Angul) in Odisha. The project would be executed in three phases. In phase 1, the steel plant will commence operation with 1.5 MTPA steel production capacity followed by capacity addition of 4.5 MTPA in phase 2. The company also has plans to add another 3 MTPA steel production capacity in phase 3. The company further has plans to subsequently increase the capacity from 9 MT to 12.5 MTPA in due course. Following is the phase-wise plan of JSPL at Kerejanga:

- Phase 1 – Commencement of operation from 2013-14 with production capacity of 1.5 mtpa.
- Phase 2 – Commencement of operation from 2014-15 with capacity addition of 4.5 mtpa.
- Phase 3 – Commencement of operation from 2019-20 with capacity addition of 3 mtpa.

The plant, when commissioned, would require substantial amount of raw material including Iron Ore, Coal, Coke, Limestone, etc. The finished steel products are expected to be transported for domestic consumption to destination in Eastern, Southern, Western, Northern and Central India
The rail-relevant traffic streams (along with the expected capacity for each stream) for the said industry are as follows:

Table 7-4: Origin-Destination based Traffic Streams for Jindal Steel & Power Ltd

Commodity	Origin	Destination	In/Out	Expected capacity in Million Tonnes		
				2017	2021	2036
Iron Ore Fines	Deojhar	Kerejanga	In	7.06	10.59	14.71
Iron Ore Lumps	Deojhar	Kerejanga	In	3.75	5.63	7.82
Imported Coking Coal	Paradip Port	Kerejanga	In	2.20	3.30	4.58
Imported Coking Coal	VSKP	Kerejanga	In	2.20	3.30	4.58
Non Coking Coal	Bilaspur	Kerejanga	In	0.41	0.62	0.85
Non Coking Coal	Jharsuguda	Kerejanga	In	0.41	0.62	0.85
Non Coking Coal for coal washery	Paradip Port	Kerejanga	In	5.13	7.69	10.68

Non Coking Coal for coal washery	VSKP	Kerejanga	In	5.13	7.69	10.68
Non Coking Coal for coal washery	Bilaspur	Kerejanga	In	5.13	7.69	10.68
Non Coking Coal for coal washery	Jharsuguda	Kerejanga	In	5.13	7.69	10.68
Raw Dolomite & Dolomite Fine	Rajasthan	Kerejanga	In	0.68	1.03	1.43
Lime Stone and Lime stone fines	Rajasthan	Kerejanga	In	1.34	2.00	2.78
Lime Stone and Lime stone fines	Jamshedpur	Kerejanga	In	1.34	2.00	2.78
Quartzite	Rajasthan	Kerejanga	In	0.26	0.39	0.54
Misc, Flux & Ferro alloy	Rajasthan	Kerejanga	In	0.11	0.17	0.23
Steel	Kerejanga	Various Destinations	Out	6.00	9.00	12.50

Source: Traffic Consultant Research & Analysis

From the above traffic, the amount of traffic that is expected to get routed to the subject project line is as follows:

Table 7-5: Origin-Destination based Divertible traffic on the project line for Jindal Steel & Power Ltd.

Commodity	Origin	Destination	In/Out	2017	2021	2036
Iron Ore Fines	Deojhar	Kerejanga	In	7.06	10.59	14.71
Iron Ore Lumps	Deojhar	Kerejanga	In	3.75	5.63	7.82
Steel	Kerejanga	Various Destinations	Out	1.20	1.80	2.50
Total Traffic in Million Tonnes				**12.01**	**18.02**	**25.03**

Source: Traffic Consultant Research & Analysis

Bhushan Steel and Strips

BSSL Meramandali Plant (1.5 MT) is based on the Directly Reduced Iron (DRI) - Electric Arc Furnace (EAF), Blast Furnace –Ladle Furnace & RH-OB - continuous casting – rolling mill route with waste heat recovery based captive power plant (CPP). Plant is situated about 5 km from Meramanadali Railway Stations (on Angul – Cuttack broad gauze main railway line). The National Highway no. 42 touches northern side of plant. The plant is 18 km from Angul and 42 km from Dhenkanal. Nearest Railway station is Meramandali on East coast railway and nearest port is Paradip, which is more than 215 km away. Plant has fully functional rail siding.

BSSL is contemplating to modify and expand the existing 1.5 MT integrated steel plant to 4.7 MT level which is expected to be completed by this year (2013). With this additional 3 million tones augmented capacity, BSSL would touch total steelmaking capacity of 4.7 million tones. The plant has ambitious plans to expand its capacity to 7.0 MT in future years

Bhushan steel would be the major beneficiary of upcoming line with its inbound traffic (coal and iron ore) using the proposed line.

The rail-relevant traffic streams (along with the projected traffic for each stream) for the said industry are as follows:

Table 7-6: Origin-Destination based Traffic Streams for Bhushan Steel & Strips Ltd.

Commodity	Origin	Destination	In/Out	Traffic in Million Tonnes	
				2012	2017
Coal	Talcher	Meramandali	In	3.30	3.30
Steam Coal	Talcher	Meramandali	In	2.05	2.05
I/Ore	Banspani	Meramandali	In	2.84	6.06
I/Ore (BF Grade)	Banspani	Meramandali	In	0.27	0.58
I/Ore (Finer)	Banspani	Meramandali	In	0.85	1.82
Lime Stone	Satna	Meramandali	In	0.33	0.71
Lime Stone	Paradeep	Meramandali	In	0.33	0.71
Coking Coal for BF	Paradeep	Meramandali	In		0.96
Coking Coal for BF	Haldia	Meramandali	In		0.96
Coal for CDI - BF	Paradeep	Meramandali	In	1.23	1.23
Dolomite - SP	Bhardawar	Meramandali	In	0.13	0.15
Semi Finished	Meramandali	Howrah	Out	0.41	0.88
Finished Products	Meramandali	New Delhi	Out	0.37	0.79
Finished Products	Meramandali	Chandigarh	Out	0.37	0.79
Finished Products	Meramandali	Mumbai	Out	0.57	1.23
Finished Products	Meramandali	Chennai	Out	0.36	0.76
Finished Products	Meramandali	Haldia	Out	0.06	0.13
Finished Products	Meramandali	Paradip	Out	0.06	0.13

Source: Traffic Consultant Research & Analysis

From the above traffic, the amount of traffic that is expected to get routed to the project line is as follows:

Table 7-7: Origin-Destination based Divertible traffic on the project line for Bhushan Steel & Strips

Commodity	Origin	Destination	In/Out	2018	2021
Iron Ore	**Banspani**	**Meramandali**	In	6.06	8.22
I/Ore (BF Grade)	**Banspani**	**Meramandali**	In	0.58	0.79
Iron Ore Fines	**Banspani**	**Meramandali**	In	1.82	2.47
Coking Coal for BF	**Haldia**	**Meramandali**	In	0.96	3.41
Finished Products	**Meramandali**	**Haldia**	Out	0.13	0.19
Total Traffic in Million Tonnes				**9.55**	**15.08**

Source: Traffic Consultant Research & Analysis

VISA Steel

VISA Steel Limited is a subsidiary of VISA Infrastructure Limited. VISA Steel is operating a 0.5 MTPA Special Steel Plant and 75 MW Power Plant at Kalinganagar. The current operations include 400,000 TPA Coke Oven plant (8 Batteries of 11 Ovens each with Stamp Charging facility), 225,000 TPA Pig Iron plant (250 Cu.m. Blast Furnace), 300,000 TPA Sponge Iron plant (2 x 500 TPA DRI Kilns), 50,000 TPA Ferro Chrome plant (2 x 16.5 MVA Submerged Arc Furnace), 75 MW Power plant (3 x 25 MW TG), 0.5 Million TPA Special Steel plant (70 T EAF with VD, LRF & Continuous Caster) and 0.5 million

TPA Bar & Wire Rod Mill. The company plans to set up a 0.5 MTPA Iron Ore Sinter Plant, 300 TPD Lime Plant and 1 x 150 MW Captive Power Plant. An additional 0.5 MTPA Special and Stainless Steel Plant with 425,000 TPA Pig Iron Plant, 300,000 TPA Sponge Iron Plant will also be set-up to raise capacity to 1 MTPA.

VISA Steel is operating a 75 MW captive Power Plant and have plans to eventually expand its power generating capacity (totaling to 375 MW at Kalingnagar plant) along with commencement of production at the Coal Block at Patrapada in Talcher.

The location at Kalinganagar offers logistic advantages with

- Talcher coalfields situated 110 km away,
- Daitari iron ore mines located 30 km away,
- the Keonjhar and Barbil mines 100-150 km away,
- the Sukinda Valley having nearly 99% of India's chrome reserves just 35 km away,
- both Dhamra & Paradip ports 120 km away, and
- Jakhapura Railway Station 2 km away

Presently all iron ore requirement is fulfilled by Joda Barbil Area and ore is transported by road. Coking Coal is transported from Paradip, Vizag and Dhamra port.

A subsidiary of VISA Steel (with a shareholding of 65%, the balance 35% being held by Baosteel - one of the largest Steel and Stainless Steel manufacturers in China) is setting up 4x16.5 MVA Submerged Arc Furnaces for production of 100,000 TPA Ferro Chrome at Kalinganagar. The Company will add value to the locally available Chrome Ore and Chrome Concentrates into Ferro Chrome. A significant quality of ferro chrome produced at this plant will be exported to China and the balance to Japan, S. Korea, Taiwan, Europe & USA etc.
The rail-relevant traffic streams (along with the projected capacity for each stream) for the said industry are as follows:

Table 7-8: Origin-Destination based Traffic Streams for VISA Steel Ltd.

Commodity	Origin	Destination	In/Out	Total Traffic in Million Tonnes	
				2012	2018
Iron Ore	Barbil/Daitari	Kalinga Nagar	In	0.48	1.16
DRI Grade Iron Ore	Joda	Kalinga Nagar	In	0.48	1.74
Coking Coal	Paradeep	Kalinga Nagar	In	0.54	1.31
Non-Coking Coal	Talcher	Kalinga Nagar	In	0.48	1.74
Lime Stone	Biramitrapur	Kalinga Nagar	In	0.04	0.09
Dolomite	Biramitrapur	Kalinga Nagar	In	0.04	0.10
Steel Billets	Kalinga Nagar	Various Destinations	Out	0.50	1.21
Coke	Kalinga Nagar	Rourkela	Out	0.01	0.07
Coke	Kalinga Nagar	Jamshedpur	Out	0.01	0.07
Coke	Kalinga Nagar	Kharagpur	Out	0.01	0.07
Coke	Kalinga Nagar	Other destinations	Out	0.01	0.07

Source: Traffic Consultant Research & Analysis

From the above traffic, the amount of traffic that is expected to get routed to the project line is as follows:

Table 7-9: Origin-Destination based Divertible traffic on the project line for VISA Steel Ltd.

Commodity	Origin	Destination	In/Out	2012	2018
Non-Coking Coal	Talcher	Kalinga Nagar	In	1.74	2.32
Steel Billets	Kalinga Nagar	Various Destinations	Out	0.24	0.32
Total Traffic in Million Tonnes				**1.98**	**2.65**

Source: Traffic Consultant Research & Analysis

Jindal Stainless Limited

Jindal Stainless Limited, has its manufacturing facility located at Kalinganagar. The plant has current production capacity of 1.6 Million tones. All iron ore requirement is fulfilled by Banspani area and coke is imported via Paradip port. The plant comprises of 250,000 tons per annum of Ferro Alloy's facilities and 1 MTPA of stainless steel making facilities with state-of-the-art technology. This complex with captive power generation is scalable up to 3.2 million tons per annum of stainless steel making, which will make it the world's largest stainless steel facility at single site.

The plant is well connected by the Road (connectivity through NH-5) & Railway (Dubri-Banspani rail line) and networks and is located within 150 kms from the mines and shipping port.

The rail-relevant traffic streams (along with the projected traffic for each stream) for the said industry are as follows:

Table 7-10: Origin-Destination based Traffic Streams for Jindal Stainless Ltd.

Commodity	Origin	Destination	In/Out	Total Traffic in Million Tonnes	
				2012	2018
Coke	Paradeep	Kalinga Nagar	In	0.80	0.80
Iron Ore	Banspani	Kalinga Nagar	In	1.80	1.80
Lime/Dolomite	Satna	Kalinga Nagar	In	0.93	0.93
Lime/Dolomite	Birmitrapur	Kalinga Nagar	In	0.19	0.19
DRI	Koenjhar, Joda	Kalinga Nagar	In	0.16	0.16
Cast stainless	Kalinga Nagar	Domestic Market	Out	0.29	0.29
Cast stainless	Kalinga Nagar	Paradeep	Out	0.29	0.29
Hot/cold Rolled products	Kalinga Nagar	Paradeep	Out	0.46	0.46
Hot/cold Rolled products	Kalinga Nagar	Domestic Market	Out	0.46	0.46
Cold Pigs	Kalinga Nagar	Kolkata	Out	0.04	0.04

Cold Pigs	Kalinga Nagar	North	Out	0.04	0.04
Ferro Chrome, Coke Breeze	Kalinga Nagar	Hissar	Out	0.18	0.18

Source: Traffic Consultant Research & Analysis

From the above traffic, the traffic likely to move on the project stretch is as follows:

Table 7-11: Origin-Destination based Divertible traffic on the project line for Jindal Stainless Ltd.

Commodity	Origin	Destination	In/Out	2017	2022
Cast stainless	Kalinga Nagar	Domestic Market	Out	0.14	0.14
Hot/cold Rolled products	Kalinga Nagar	Domestic Market	Out	0.23	0.23
Total Traffic in Million Tonnes				**0.37**	**0.37**

Source: Traffic Consultant Research & Analysis

Patnaik Steels and Alloys Pvt. Ltd.

Patnaik Steels & Alloys Ltd. has a fully Integrated Steel Manufacturing Plant at Purunapani in Keonjhar. The plant comprises of (i) DRI Unit (ii) The Steel Melting Furnace (iii) Continuous Billet Casting Plant and (iv) Captive Power Plant.

The annual capacity of the plant is 0.30 MTPA. The plant has Rail transport Clearance for the siding but is yet to take action on the same. There are no future expansion plans of the plant for the next 5 years.

The traffic streams of the plant are as follows:

Table 7-12: Origin-Destination based Traffic Stream for Patnaik Steel and Alloys

Commodity	Origin	Destination	In/Out	2012 (Traffic in MT)
Coal	Talcher	Nayagarh	In	1.00
Iron Ore	Raigarh	Nayagarh	In	0.50
Iron Ore	Raipur	Nayagarh	In	0.50
Plates	Nayagarh	North India	Out	0.15
Plates	Nayagarh	Western India	Out	0.15

Source: Traffic Consultant Research & Analysis

From above analysis divertable traffic from the plant on the project stretch is as follows:

Table 7-13: Origin-Destination based Divertible Traffic on Project Stretch from Patnaik Steel

Commodity	Origin	Destination	In/Out	2021 (in MT)
Coal (MT)	Talcher	Nayagarh	In	1.0

Source: Traffic Consultant Research & Analysis

Maithan Ispat Ltd.

The plant is located in Jakhapura location and produce DRI grade iron. The annual capacity of the plant is 0.27 MTPA. There are no expansion plans for the plant in next five years. The traffic stream of the plant is as follows:

Table 7-14: Origin-Destination based Traffic Stream for Maithan Ispat

Commodity	Origin	Destination	In/Out	2012 (Traffic in MT)
Iron Ore	Barbil	Jakhapura	In	0.36
Coal for DRI	Talcher	Jakhapura	In	0.30
Coal for BF	Talcher	Jakhapura	In	0.08
Coal for BF	Paradeep	Jakhapura	In	0.08
Finished Products, Billets Rolled Products	Jakhapura	Kolkata	Out	0.03
Finished Products, Billets Rolled Products	Jakhapura	Hyderabad	Out	0.03
Finished Products, Billets Rolled Products	Jakhapura	Chennai	Out	0.03
Finished Products, Billets Rolled Products	Jakhapura	Mumbai	Out	0.03
Finished Products, Billets Rolled Products	Jakhapura	Raipur	Out	0.03
Finished Products, Billets Rolled Products	Jakhapura	Delhi	Out	0.03
Finished Products, Billets Rolled Products	Jakhapura	Paradeep	Out	0.03

Source: Traffic Consultant Research & Analysis

From above analysis divertible traffic from the plant on the project stretch is as follows:

Table 7-15: Origin-Destination based Divertible Traffic on project stretch from Maithan Ispat

Commodity	Origin	Destination	In/Out	2020 (in MT)
Coal for DRI	Talcher	Jakhapura	In	0.30
Coal for BF	Talcher	Jakhapura	In	0.08
Total Traffic in Million Tonnes				**0.38**

Source: Traffic Consultant Research & Analysis

Tata Steel Ltd.

Tata Steel is setting up a 6 MTPA integrated steel plant at Kalinganagar Industrial Complex at Duburi, in the Jajpur district. The Steel Works will be established in two modules of 3 MTPA of steel each and when completed, will have a capacity of 6 MTPA. The first phase will have 3 MTPA capacity and will be completed in 2014, while the second phase is expected to be completed in 2020.

The traffic stream for the plant is as follows:

Table 7-16: Origin-Destination based Traffic Stream for TATA steel

Commodity	Origin	Destination	In/Out	2015 (MT)	2026 (MT)
Iron Ore	Banspani	Kalinganagar	In	2.63	5.25
Iron Ore	Nayagarh	Kalinganagar	In	2.63	5.25
Thermal Coal	Dhamra	Kalinganagar	In	0.53	1.05
Thermal Coal	Domestic Coal Mines	Kalinganagar	In	0.53	1.05
Coal	Dhamra	Kalinganagar	In	1.18	2.35
Coal	Barkakhana	Kalinganagar	In	1.18	2.35
Limestone	Dhamra	Kalinganagar	In	1.10	2.20
Steel (Coil, HR, CR)	Kalinganagar	Dhamra	Out	0.40	0.80
Steel (Coil, HR, CR)	Kalinganagar	NGP	Out	0.40	0.80
Steel (Coil, HR, CR)	Kalinganagar	GZB	Out	0.40	0.80
Steel (Coil, HR, CR)	Kalinganagar	Bangalore	Out	0.40	0.80
Steel (Coil, HR, CR)	Kalinganagar	Kolkata	Out	0.40	0.80
Slag	Kalinganagar	Central India	Out	1.00	2.00

Source: Traffic Consultant Research & Analysis

From above analysis divertible traffic from the plant on the project stretch is as follows:

Table 7-17: Origin-Destination based Potential Divertible traffic on project stretch from TATA Steel

Commodity	Origin	Destination	In/Out	2018 (MT)
Slag	Kalinganagar	Cement Plants in Central India	Out	0.20

Source: Traffic Consultant Research & Analysis

Tata is currently sourcing its Coal for Barkakhana where they have their own captive mines. If in near future plant intends to source its coal from Talcher Coal Fields, then it will be a potential traffic which will move on the project stretch. Thus, consultants have taken the Coal traffic in their optimistic scenario, which is as follow:

Commodity	Origin	Destination	In/Out	2015	2026
Thermal Coal	Domestic Coal Mines	Kalinganagar	In	0.53	1.05
Coal	Barkakhana	Kalinganagar	In	1.18	2.35
Total Traffic in Million Tonnes				1.71	3.40

Source: Traffic Consultant Research & Analysis

MGM Steels Limited

The Company signed a MoU with Government of Odisha in the year 2006 for establishment of an integrated steel plant in Dhenkanal district having a capacity of 0.25 million tonnes per annum. The plant is under construction and will start production in next few years. Thus the traffic of plant is a potential stream on the project stretch.

The traffic streams of the plant are as follows:

Table 7-18: Origin-Destination based Traffic Stream for MGM Steel

Commodity	Origin	Destination	In/Out	2026 in MT
Coal	Talcher	Meramandali	In	0.25
Coal	Paradeep	Meramandali	In	0.25
Iron Ore	Nayagarh	Meramandali	In	0.54
Steel Billets	Meramandali	Odisha Multiple Locations	Out	0.12
Steel Billets	Meramandali	Paradeep	Out	0.12
Pig Iron	Meramandali	Odisha Multiple Locations	Out	0.06

Source: Traffic Consultant Research & Analysis

From above analysis divertible traffic from the plant on the project stretch is as follows:

Table 7-19: Origin-Destination based Potential Divertible traffic on project stretch from MGM Steel

Commodity	Origin	Destination	In/Out	2026 in MT
Iron Ore	**Nayagarh**	**Meramandali**	In	0.54

Source: Traffic Consultant Research & Analysis

Monnet Ispat & Energy Ltd.

Monnet Ispat has signed a MoU with Odisha Government to set up a steel and power plant in Kerejanga, Near Angul, Odisha. The power plant of the company is under construction while steel plant is yet to take off. The steel plant with capacity of 1 MTPA is expected to come up in next few years. The plant has the potential traffic to move on the project stretch.

The traffic streams for the plant will be as follows:

Table 7-20: Origin-Destination based Traffic Stream for Monnet Ispat

Commodity	Origin	Destination	In/Out	2021 (MT)
Iron Ore	Joda	Kerijanga	In	0.69
Iron Ore	Banspani	Kerijanga	In	0.69
Iron Ore	Barbil	Kerijanga	In	0.69
Iron Ore	Barajamda	Kerijanga	In	0.69
Dolomite	Mandla	Kerijanga	In	0.90
Coke	Paradeep	Kerijanga	In	0.36
Coal	Kerijanga	Bhupdeopur	Out	0.73

Coal	Kerijanga	Raipur	Out	0.73
Coal	Kerijanga	Mandirhasaud	Out	0.73
Finished Products, Billets Rolled Products	Kerijanga	All over India	Out	1.00

Source: Traffic Consultant Research & Analysis

From above analysis divertible traffic from the plant on the project stretch is as follows:

Table 7-21: Origin-Destination based Potential Divertible traffic on project stretch from Monnet Ispat

Commodity	Origin	Destination	In/Out	2021 (MT)
Iron Ore	Barbil	Kerijanga	In	0.69
Iron Ore	Barajamda	Kerijanga	In	0.69
Total Traffic in Million Tonnes				1.37

Source: Traffic Consultant Research & Analysis

Odisha Sponge Iron Ltd

The production facilities are located at village Palaspanga, District Keonjhar, Odisha, which is about 245 kms from Bhubaneswar and 21 km from Keonjhar Town. The plant has the following production facilities at the plant

- Sponge Iron- 2,50,000 TPY,
- Billet -1,00,000 TPY, and
- Captive Power Plant of 36 MW.

The plant produces DRI grade iron and has the total capacity of 0.35 MT. Currently, the plant is not operational due to some internal issues. There are no future expansion plans for the plant in next few years. Once operational the plant will have potential traffic streams that will move on the project stretch.

The traffic stream for the plant is as follow:

Table 7-22: Origin-Destination based Traffic Stream for Odisha Sponge Iron Ltd

Commodity	Origin	Destination	In/Out	2021 (MT)
Non Coking Coal	Talcher	Porjanpur	IN	0.13
Non Coking Coal	Paradip Port	Porjanpur	IN	0.32
Billets & Rolled Products	Porjanpur	Various Destinations	Out	0.40
Iron Ore	Porjanpur	Bamra	Out	1.10
Sponge Iron	Porjanpur	Various Destinations	Out	0.08

Source: Traffic Consultant Research & Analysis

From above analysis divertible traffic from the plant on the project stretch is as follows:

Table 7-23: Origin-Destination based Potential Divertible traffic on project stretch from Odisha Sponge Iron Ltd

Commodity	Origin	Destination	In/Out	2021 (MT)
Non Coking Coal	Talcher	Porjanpur	IN	0.13

Source: Traffic Consultant Research & Analysis

Sree Metaliks Limited

Sree Metaliks comprises of a large integrated Steel Complexes at Angul with a production base for Sponge Iron. The plant has total capacity of 0.25 MT. The plant has no expansion plans in the near future. The traffic stream for the plant is as follows:

Table 7-24: Origin-Destination based Traffic stream for Sree Metallicks

Commodity	Origin	Destination	In/Out	2026 (MT)
Iron Ore	Joda	Kerijanga	In	0.09
Iron Ore	Barbil	Kerijanga	In	0.09
Iron Ore	Daitari	Kerijanga	In	0.09
Iron Ore	Tensa	Kerijanga	In	0.09
Coal	Brajrajnagar	Kerijanga	In	0.12
Coal	Paradeep	Kerijanga	In	0.12
Coal	Dhanbad	Kerijanga	In	0.12
Iron Ore Fines	Kerijanga	Paradeep	Out	0.07
Iron Ore Fines	Kerijanga	Haldia	Out	0.07
Finished Products, Billets Rolled Products	Kerijanga	Tata	Out	0.03
Finished Products, Billets Rolled Products	Kerijanga	Bangalore	Out	0.03
Finished Products, Billets Rolled Products	Kerijanga	Raipur	Out	0.03
Finished Products, Billets Rolled Products	Kerijanga	Vizag	Out	0.03
Finished Products, Billets Rolled Products	Kerijanga	Mandi Govindgarh	Out	0.03

Source: Traffic Consultant Research & Analysis

From above analysis divertible traffic from the plant on the project stretch is as follows:

Table 7-25: Origin-Destination based Potential Divertible traffic on project stretch from Sree Metallicks

Commodity	Origin	Destination	In/Out	2026 (MT)
Iron Ore	Joda	Kerijanga	In	0.09
Iron Ore	Barbil	Kerijanga	In	0.09
Iron Ore	Daitari	Kerijanga	In	0.09
Iron Ore	Tensa	Kerijanga	In	0.09

Source: Traffic Consultant Research & Analysis

Mahanadi Coal Fields (MCL)

Presently, there is an outward movement of about 28 rakes per day from MCL. The company plans to upgrade the rail loading capacity to 60 rakes per day by installing silos. Out of the 28 outward rakes, approximately 14 are being transported to Paradip (11) and Dhamra (2~3) Ports for coastal shipping to various parts of India. Some of the important coastal shipping destinations are Mundra and Tuticorin. The difference in movement to both the ports is primarily because unlike Paradip

Port, Dhamra Port does not have the facility to work with the bottom discharge BOBRN wagons that result in faster unloading of wagons.

Table 7-26: Origin-Destination wise Existing Rake movement from MCL

Commodity	Origin	Destination	In/ Out	Traffic (2012) in No of Rakes	Traffic (2013) in No of Rakes
Coal	Talcher	Dhamra	Out	3	3
Coal	Talcher	Paradeep	Out	11	11
Coal	Talcher	other	Out	14	14
Total				**28**	**28**

Table 7-27: Origin-Destination wise Existing Traffic from MCL

Company	Commodity	Origin	Destination	In/ Out	Traffic (2012) in Million Tonnes	Traffic (2013) in Million Tonnes
Mahanadi Coal Fields	Coal	Talcher	Dhamra	Out	4.2	4.2
Mahanadi Coal Fields	Coal	Talcher	Paradeep	Out	15.4	15.4
Mahanadi Coal Fields	Coal	Talcher	other	Out	19.6	19.6
Total Traffic in Million Tonnes					**39.2**	**39.2**

Paradip port is currently handling 23 MT coal and has proposal to expand its coal handling capacity to approximately 30MT per year. The table below presents the traffic projections of Paradip Port.

Table 7-28: Expected Traffic Projection as on March 2012 of Paradip Port (in Million Tonnes)

Year (FY)	POL	Iron Ore	Coal	Container	Other Cargoes	Total
2008	1.74	12.95	18.08	0.05	9.62	42.44
2009	3.24	14.27	20.16	0.03	8.71	46.41
2010	6	15.55	24.97	0.3	9.48	56.3
2011	10.7	17	23	0.3	11	62
2012	13	22	23	0.5	11.5	70
2017	30	25	30	1	14	100

Dhamra port is also developing the facility for handling of BOBRN wagons. The facility is expected to complete in next 2~3 years. With time, as the coastal shipping of coal increases and advent of handling facilities at Dhamra, the traffic is expected to be equitably distributed to both the Ports.

7.4. Connectivity

The traffic consultants have carried out a detailed analysis of this directional movement of various commodities and the following observations are noteworthy:

- Coal Movement:
  - Talcher to Sambalpur/Jharsuguda: This comprises movement of coal to:
    - Bhushan Ltd (Lapanga)
    - SMC Power Generation Ltd (Brundamal)
    - Aryan Ispat & Power Ltd (Lapanga)
    - Viraj Steel & Energy (Rengali)
    - Shyam DRI Power (Rengali)

    Considering that this movement is in the opposite direction to the project stretch, these plants will not influence the traffic on the project stretch.

  - Talcher to Sukinda: Coal movement from Talcher to Sukinda is for Maithan Ispat (Jakhapura), Jindal Stainless Ltd (Jakhapura), VISA Industries (Jakhapura) and Tata Steel (Kalinganagar). The consultants expect significant portion of this traffic to move on the project line.
  - Talcher to Banspani-Barbil: Talcher to Banspani movement feeds to the coal requirement of various Iron & Steel Plants located in the Iron Ore belt. These include Uttam Galva Steels (Porjanpur), Odisha Sponge Iron Ltd (Porjanpur), Patnaik Steels & Alloys Ltd (Nayagarh). The shortest route for this movement is Talcher-Sukinda-Banspani and, therefore, this traffic is expected to move on the project stretch.
  - Talcher to Dhamra: Movement of Coal from Mahanadi Coal Fields, Talcher for power houses in Southern and Western India via coastal shipping takes place through Dhamra port and Paradip Port. Presently this traffic is moving to Paradip and Dhamra port via via Rajatgarh, Cuttack, however the rail link from Talcher to Dhamra port via the proposed project line will be shorter by 32 Kms. Thus, this coal traffic from Talcher for Dhamra port is expected to move on the project line.
- Iron Ore Movement:
  - Banspani-Barbil to Sambalpur/Jharsuguda: This comprises of Iron Ore movement to Steel Plant located in and around Jharsuguda (identified above). The present movement of this Iron-Ore is from Banspani to Lapanga/Rengali is via Bondamunda and Jharsuguda. The consultants expect this movement pattern to continue in future as well. This traffic, therefore, is not expected to have any impact on the project stretch.
  - Banspani-Barbil to Angul/Talcher: Banspani to Angul movement feeds to the Iron Ore requirement of Steel Plants located in and around Angul. These include:
    - Bhushan Steel & Strips (Meramandali)
    - BRG Iron & Steel (Meramandali)
    - Monnet Ispat & Energy (Kerejanga)
    - Sree Metaliks (Kerejanga)
    - MGM Steels (Meramandali)

- Jindal Steel & Power (Kerejanga)

As previously discussed, this OD pair will involve traffic movement via the project stretch (Banspani-Sukinda-Angul) and, therefore, will have a direct impact on project traffic.

- Banspani-Barbil to Sukinda: This comprises of movement of Iron Ore to steel plants in and around Sukinda (as identified above). Considering that the movement is outside the immediate catchment of the project line, it is unlikely that this will have any impact on the project traffic.

- Finished Iron & Steel Products:
  - Angul to Paradeep Port, Sukinda to Dhamra Port & Banspani to Dhamra Port: All the three OD pairs comprise of movement that is not in alignment with the project line. The consultants, therefore, do not expect them to influence the project stretch traffic.
  - Angul to Dhamra Port: This comprises of export of finished iron & steel products originating at various steel plants in Angul region (as identified previously). Considering that the most feasible route for this movement is Angul-Sukinda-Dhamra Port, the consultants expect significant portion of this traffic to move on the project line.

Besides the above, traffic in the region also comprises of movement of commodities like Dolomite, Limestone and other minerals to and from various locations, as identified above. There are also three other steel and power plants located in close proximity of Cuttack that influence traffic in the region. However, this traffic is not expected to move on the project stretch. These plants include:

- SCAW Industries (Dhenkanal)
- Arti Steels (Ghantikhal Nidhipur)
- Maheshwary Ispat (Rajathgarh)

7.5. Impact of Competing Facility

Proposed Angul Sukinda new railway line connects Banspani-Daitari line (which caters to export iron ore traffic from Joda-Barbil region and Import traffic from Dhamra and Paradip Ports) with Cuttack-Sambalpur line (which caters to coal traffic from Talcher region destinaed to various parts of the country by coastal shipping via Paradip Port)

Due to severe capacity constraints on Chennai-Visakhapatnam-Cuttack-Kolkata line (especially on Barang-Cuttack section) coal traffic currentaly takite Dhenkanal-Cuttack-Paradip may shift to Angul-Sukinda and Haridaspur-Paradip lines (both lines under construction). However, ongoing improvements on Cuttack-Barang section might ease the capacity constraints currently faced by coal traffic from Angul.

Apart from coal traffic destined to Paradip port, Angul Sukinda line becomes the shortest route for iron ore traffic from J0da-Barbil region and coal traffic from Talcher region. Hence no competing facility can affect the estimated traffic on the Project line.

7.6. Infrastructure Capacity Analysis

7.6.1. Coal Traffic

According to Ministry of Coal, the state of Odisha has coal reserves of 71,447 Million Tons which includes 25,547 MT of proved reserves, 36,465 Tons of indicated reserves. The state's coal reserves are divided mainly between two regions namely IB valley and Talcher coalfields. According to Geological Survey of India, Talcher coalfields account from more than 60% of Odisha's coal reserves.

Apart from catering to primary hinterland consumers in Sukinda and Joda-Barbil region, proposed project will cater to the demand from various thermal power plants being developed across the country (through coastal shipping from Paradip and Dhamra ports)

7.6.2. Iron ore Traffic

According Odisha mining department, the state accounts for 32% Iron ore, 24% coal, 59% Bauxite and 98% Chromite of India's total deposits. Odisha's iron ore is known for high quality iron content.

Due to various initiatives taken by State Government, many national and international steel making companies have shown interest to setup manufacturing plants in Angul-Sukinda region. Proposed Angul-Sukinda railway line will cater to incoming traffic (Iron ore) apart from Outgoing traffic (finished goods) destinaed to various parts of India, especially the Eastern region which includes Bihar, West Bengal, Jharkhand and North-Eastern states.

7.6.3. Dhamra Port

Proposed Project line is expected to cater to coal traffic destined to various parts of the country via Coastal shipping from Dhamra port. Dhamra port is a 50:50 Joint Venture between Larsen & Toubro and TAT steel. Known as one of the deep draft ports in the country, the port started commercial operations in May 2011. Currently the port has two fully mechanized berths of 350 meters each along with backup facilities for handling imports of coking coal, steam/thermal coal, limestone and export of iron ore. The company also constructed a 62 kilometers rail link from Dhamra to Bhadrak to provide evacuation by railway mode.

The master plan of the Port envisages 15 berths, capable of handling more than 100 Million Tons per annum of dry bulk, liquid bulk, break bulk, containerized and general cargo, making Dhamra one of the largest ports in the country. Proposed Angul Sukinda project line is expected to cater the growing coal demand (thermal coal meant for coastal shipping and imported coking for steel industries) through Dhamra port

7.6.4. Paradip Port

Paradip port is one of the major ports under Central government catering mainly to mineral and industrial traffic. The port's hinterland extends to the states of Odisha, Jharkhand, Chhattisgarh, West Bengal, Madhya Pradesh and Bihar. Currently the port is undertaking various capacity expansion projects in order to accommodate larger vessels and to cater to increasing demand from consumers. Major ongoing/proposed infrastructure projects of the port include:

1. Deepening of existing entrance and approach Channel to handle 1,25,000 DWT vessels
2. Development of Deep draught Iron Ore berth on BOT basis of 10 MTPA Capacity
3. Development of Deep Draught Coal Berth on BOT basis of 10 MTPA Capacity
4. Development of Multipurpose berth to handle clean cargo including Containers on BOT basis with 5MTPA capacity
5. Mechanization of general cargo berths

8. PROJECT TIMELINES & PRESENT STATUS

The main mile store and the corresponding critical dates for implementation of the project are summarized below

Timeliness for the proposed projects (as fixed by ASRL)

Particulars	Timeliness
Acquisition of Private Land	December -2013
Acquisition of Forest land	March - 2014
Commencement of Civil Works	January - 2014
Commencement of Electrical & S&T works	April - 2015
Completion of all Works	March – 2017
Commencement of operation	March - 2017

8.1. Current Status of the project

The status of the project as on 30th June 2013 is as follows

8.1.1. Land Acquisition Status

Status of Private Land				
Name of District	Requirement of Land		Possession Taken	
	Village (Nos)	Area (Acres)	Village (Nos)	Area (Acres)
Angul	7	122.055	3	11.420
Dhenkanal	49	804.326	31	286.905
Jajpur	13	279.120	4	32.680
Total	69	1205.501	38	331.005

The state government has assured that all the required private land for the project will be acquired by September 2013.

Status of Government Land						
Name of District	Requirement of Land		Alienation Sanctioned		Possession Taken	
	Village (Nos)	Area (Acres)	Village (Nos)	Area (Acres)	Village (Nos)	Area (Acres)
Angul	5	3.940	2	1.060	0	0
Dhenkanal	44	154.025	24	13.425	0	0
Jajpur	11	64.540	6	15.020	6	15.020
Total	60	222.505	32	29.505	6	15.020

The state government has decided for revision of the cost of government land at par with the bench mark price of private land, based on the representation of Railways against the supposedly higher rate for govt. land. The government has also allowed the arrangement of taking over of Govt. land, pending completion of paper formalities. Therefore the work can start on government land immediately.

Status of Forest Land				
Name of District	Requirement of Land		Diversion proposal filed (Nos. of village)	
	Village (Nos)	Area (Acres)	Village (Nos)	Area (Acres)
Dhenkanal	33	125.430	33	125.430
Jajpur	13	125.630	13	125.630
Total	46	251.060	46	251.060

ASRL has engaged a Forest Consultant firm to assist in the process of forest diversion and environment clearance work. Work is progressing on forest diversion work by way of state govt. identifying the substitute degraded forest in lieu of the affected forest land and also in the digital survey (DGPS) work. The stage –I forest clearance proposal is planned to be presented to Government of India before the end of this year.

8.1.2. Civil construction

- The construction of the project has already been started by RVNL by awarding civil contracts for Bridge work. The construction of Major bridge on river Brahmani , the longest bridge of the project, is in progress having physical progress of 30%. Similarly work of bridges (2 nos) on Rengali canal has also been taken up.

- The tender for roadbed and minor bridge work for a stretch of 25 kms is expected to be awarded by the end of year 2013.

- The contract for track linking, Signalling and OHE will be awarded after achievement of 40 % physical progress of civil works.

8.2. Permission and approvals

ASRL has initiated the process of arranging the necessary permission/approvals required for the smooth implementation of the project. The process for obtaining environmental clearance from the MoE&F, Govt of India is also in progress.

The project is planned to be completed by the year 2017. Proposed construction plan for the project is as follows

8-1: Proposed Construction Plan for Angul Sukinda Railway Line

	Construction Cost (Rs. Crores)					
Department	**up to 2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**Total**
Civil	84.75	130.00	320.00	340.00	147.25	1022.00
S&T				18.50	33.20	51.70
Elect				62.00	67.00	129.00
Total	**84.75**	**130.00**	**320.00**	**420.50**	**247.45**	**1202.70**

The Project has been identified as an important infrastructure Project for the state of Odisha and is now featuring in the review of the Project Monitoring Group of union cabinet secretariat. With expertise of RVNL in rail link construction and association of State Govt as equity partners, the Project is expected to be completed within the targeted period.

9. PROFITABILITY PROJECTIONS

The detailed assumption sheet for the profitability projections is given in ANNEXURE – IV: MAJOR ASSUMPTIONS. A brief of the same is given below:

Revenue Assumptions

a. Traffic

The traffic estimation as provided by traffic consultant is given below.

S. No.	Commodity	Traffic in MT							
		2018	2023	2025	2028	2033	2038	2043	2047
1	Coal	7.96	14.01	14.70	19.01	21.81	23.64	23.64	23.64
2	Iron Ore	19.27	26.68	27.98	30.59	31.96	38.69	38.69	38.69
3	Steel	1.90	2.74	2.88	3.25	3.25	4.11	4.11	4.11
	Total	**29.13**	**43.43**	**45.56**	**52.84**	**57.01**	**66.43**	**66.43**	**66.43**

The traffic through proposed line is provided by traffic consultant for years 2018, 2023, 2025, 2028, 2033, 2038, 2043 and 2047. The traffic projections for remaining years are estimated through linear extrapolation of the traffic numbers as provided in the table above. Based on the traffic estimation for different years, the number of rakes is also estimated which are given in the table below.

b. Freight Rates

The traffic revenue is calculated based on the freight rates as effective from April 1, 2013. The freight rates are given in ANNEXURE – VI: FREIGHT RATES .The commodities are classified into different classes based on which freight rates could be identified for that particular lead.

According to Goods Tariff No.46 Pt. I (Vol. II), the corresponding classes for commodities travelling through ASRL line is given in the table below.

S. No	Commodities	Class
1	Iron Ore	180
2	Thermal Coal	150
3	Coking Coal	150
4	Steel	180

I. Traffic Scenarios

Based on the individual traffic streams discussed in the previous section, the consultants have done a detailed traffic analysis to assess the current traffic on the project line by taking into consideration various factors. The factors being likelihood of the traffic using the project section, distance advantage on using the project section, current status of the plant etc.

Consultants have prepared three scenarios of traffic considering all the factors which will affect the project line. The three scenarios are described as below:

a. Pessimistic Scenario

The scenario is prepared by taking the traffic of the plants on the current capacities. Future Capacities of the plants wherever available is taken as per their plans while where no expansion plan was available the capacity of the plants is kept constant for the project. Traffic of the plants that are not operational as per our survey is not considered. The capacity of the plants and the phasing are as below:

Table 9-1: Assumed Capacities of Plant in Pessimistic Scenario

Capacity (MTPA)	2012	2018	2026	2036
Bhushan Steel and Strips	2.2	2.2	4.7	4.7
Jindal Steel & Power	-	6.0	9.0	9.0
Jindal Stainless	1.75	1.75	1.75	1.75
VISA Steel	0.5	1.5	1.5	1.5
BRG Iron & Steel	0.6	0.6	0.6	0.6
Uttam Gulva Steels Ltd	Plant yet to start construction			
Mahanadi Coal Fields				
Odisha Sponge Iron Ltd	Production Closed			
Patnaik Steels and Alloys Pvt. Ltd.	0.27	0.27	0.27	0.27
Maithan Ispat Ltd.	0.2	0.2	0.2	0.2
Tata Steel Ltd.	3.0	3.0	3.0	6.0
MGM Steels Limited	No information			
Monnet Ispat & Energy Ltd.	Plant yet to start construction			
Sree Metaliks Limited	No information			

9-2: Traffic for Mahanadi Coal fields in Pessimistic Scenario

Commodity	Origin	Destination	In/Out	2012	2018	2024	2030	2036	2042
Coal in MT	Talcher	Dhamra	Out	4.2	5.6	9.8	11.2	12.6	14.0
No of Rakes	Talcher	Dhamra	Out	3	4	7	8	9	10

b. Realistic Scenario

The scenario is prepared by taking the traffic of the plants on the current and future capacities. Future capacities of the plants wherever available is taken as per their plans while where no expansion plan was available the capacity of the plants is assumed as given in table below. Traffic of the plants that are not currently operational are assumed to become operational in a phased manner. The capacity of the plants and the phasing are as below:

Table 9-3: Assumed Capacities of Plant in Realistic Scenario

Capacity (MTPA)	2012	2018	2026	2036
Bhushan Steel and Strips	2.2	4.7	7.0	7.0
Jindal Steel & Power	-	6.0	9.0	12.5
Jindel Stainless	1.75	1.75	2.5	2.5
VISA Steel	0.5	1.5	1.5	2.0
BRG Iron & Steel	0.6	0.6	0.6	1.0
Odisha Sponge Iron Ltd	-	-	0.35	0.35
Patnaik Steels and Alloys Pvt. Ltd.	0.27	0.27	0.27	0.5
Maithan Ispat Ltd.	0.2	0.2	0.2	0.5
Tata Steel Ltd.	3.0	3.0	6.0	6.0
MGM Steels Limited	-	-	0.3	0.3
Monnet Ispat & Energy Ltd.	-	-	1.0	1.0
Sree Metaliks Limited	-	-	0.25	0.25

9-4: Traffic for Mahanadi Coal fields in Realistic Scenario

Commodity	Origin	Destination	In/Out	2012	2018	2024	2030	2036	2042
Coal in MT	Talcher	Dhamra	Out	4.2	7.0	9.8	12.6	14.0	14.0
No of Rakes	Talcher	Dhamra	Out	3	5	7	9	10	10

c. Optimistic Scenario

The scenario is prepared by taking the traffic of the plants on the current and future capacities. It has been assumed that the plants will expand in the future based on the trend of their current expansion plans. It has also been assumed that the existing expansion plants will materialize on time. Moreover, the plants that are not currently operational due to internal issues will become operational in a phased manner in near future. The assumed capacity of the plants and the assumed phasing are provided in the table below:

Table 9-5: Assumed Capacities of Plant in Optimistic Scenario

Capacity (MTPA)	2012	2018	2035	2040
Bhushan Steel and Strips	2.2	4.7	7.0	9.0
Jindal Steel & Power	-	6.0	9.0	12.5
Jindel Stainless	1.75	1.75	2.5	4.0
VISA Steel	0.5	1.5	2.0	3.0
BRG Iron & Steel	0.6	0.6	1.0	1.0
Odisha Sponge Iron Ltd	-	0.35	0.35	0.35
Patnaik Steels and Alloys Pvt. Ltd.	0.3	0.3	0.5	0.5
Maithan Ispat Ltd.	0.2	0.2	0.5	0.5
Tata Steel Ltd.	3.0	6.0	6.0	6.0

MGM Steels Limited	-	0.3	0.3	0.3
Monnet Ispat & Energy Ltd.	-	1.0	1.0	1.0
Sree Metaliks Limited	-	0.25	0.25	0.25

9-6: Traffic for Mahanadi Coal fields in Optimistic Scenario

Commodity	Origin	Destination	In/Out	2012	2018	2024	2030	2036	2042
Coal in MT	Talcher	Dhamra	Out	4.2	8.4	12.6	14.0	16.8	16.8
No of Rakes	Talcher	Dhamra	Out	3	6	9	10	12	12

II. Company Wise Traffic

a. Pessimistic Scenario

The resultant total potential traffic for the region in pessimistic scenario is provided in the table below:

Table 9-7: Total Traffic of the Region in Pessimistic Scenario

Company		Traffic in MT							
	2012	2018	2023	2025	2028	2033	2038	2043	2047
BRG Iron & Steel	3.2	3.2	3.2	3.1	3.2	3.2	3.2	3.2	3.2
Jindal Steel & Power	-	46.3	69.4	69.3	69.4	69.4	69.4	69.4	69.4
Bhushan Steel and Strips	13.5	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2
VISA Steel	2.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
Jindal Stainless	-	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Mahanadi Coal Fields	39.2	47.6	51.8	54.6	67.2	74.2	84.0	84.0	84.0
Odisha Sponge Iron Ltd	-	-	-	-	-	-	-	-	-
Patnaik Steels and Alloys Pvt. Ltd.	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Maithan Ispat Ltd.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Tata Steel Ltd.	-	12.8	12.8	12.8	12.8	25.5	25.5	25.5	25.5
MGM Steels Limited	-	-	-	-	-	-	-	-	-
Monnet Ispat & Energy Ltd.	-	-	-	-	-	-	-	-	-
Sree Metaliks Limited	-	-	-	-	-	-	-	-	-
Total	**61.8**	**149.6**	**176.9**	**179.7**	**192.3**	**212.0**	**221.8**	**221.8**	**221.8**

Table 9-8: Commodity wise traffic in Pessimistic Scenario

S. No.	Commodity		Traffic in MT							
		2012	2018	2023	2025	2028	2033	2038	2043	2047
1	Coal	49.6	92.1	109.2	111.9	124.6	134.9	144.7	144.7	144.7
2	Iron Ore	6.9	31.4	36.8	36.8	36.8	42.0	42.0	42.0	42.0
3	Minerals	1.6	8.6	10.5	10.5	10.5	11.6	11.6	11.6	11.6
4	Steel	3.7	17.5	20.5	20.5	20.5	23.5	23.5	23.5	23.5
Total		**61.8**	**149.6**	**176.9**	**179.7**	**192.3**	**212.0**	**221.8**	**221.8**	**221.8**

b. Realistic Scenario

The resultant total potential traffic for the region in realistic scenario is provided in the table below:

Table 9-9: Total Traffic of the Region in Realistic Scenario

Company	Traffic in MT								
	2012	2018	2023	2025	2028	2033	2038	2043	2047
BRG Iron & Steel	3.2	3.2	3.2	3.2	3.2	3.2	5.3	5.3	5.3
Jindal Steel & Power	-	46.3	69.4	69.4	69.4	69.4	96.4	96.4	96.4
Bhushan Steel and Strips	13.5	23.2	23.2	23.2	36.8	36.8	36.8	36.8	36.8
VISA Steel	2.6	7.6	7.6	7.6	10.2	10.2	15.3	15.3	15.3
Jindal Stainless	-	5.6	5.6	5.6	8.0	8.0	8.0	8.0	8.0
Mahanadi Coal Fields	39.2	49.0	54.6	54.6	67.2	75.6	84.0	84.0	84.0
Odisha Sponge Iron Ltd	-	-	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Patnaik Steels and Alloys Pvt. Ltd.	2.3	2.3	2.3	2.3	2.3	2.3	3.8	3.8	3.8
Maithan Ispat Ltd.	1.0	1.0	1.0	1.0	2.5	2.5	2.5	2.5	2.5
Tata Steel Ltd.	-	12.8	12.8	12.8	25.5	25.5	25.5	25.5	25.5
MGM Steels Limited	-	-	-	-	1.3	1.3	1.3	1.3	1.3
Monnet Ispat & Energy Ltd.	-	-	7.2	7.2	7.2	7.2	7.2	7.2	7.2
Sree Metaliks Limited	-	-	-	-	1.0	1.0	1.0	1.0	1.0
Total	**61.8**	**151.0**	**188.9**	**188.9**	**236.6**	**245.0**	**289.2**	**289.2**	**289.2**

Table 9-10: Commodity wise traffic in Realistic Scenario

S. No.	Commodity		Traffic in MT							
		2012	2018	2023	2025	2028	2033	2038	2043	2047
1	Coal	49.6	93.5	115.0	115.0	138.8	147.2	174.4	174.4	174.4
2	Iron Ore	6.9	31.4	40.6	40.6	52.3	52.3	61.6	61.6	61.6
3	Minerals	1.6	8.6	11.4	11.4	16.4	16.4	19.2	19.2	19.2
4	Steel	3.7	17.5	22.0	22.0	29.1	29.1	34.0	34.0	34.0
	Total	**61.8**	**151.0**	**188.9**	**188.9**	**236.6**	**245.0**	**289.2**	**289.2**	**289.2**

c. Optimistic Scenario

The resultant total potential traffic for the region in optimistic scenario is provided in the table below:

Table 9-11: Total Traffic of the Region in optimistic scenario

Company	Traffic in MT								
	2012	2018	2023	2025	2028	2033	2038	2043	2047
BRG Iron & Steel	3.2	3.2	3.2	3.2	5.3	5.3	5.3	5.3	5.3
Jindal Steel & Power	-	46.3	69.4	69.4	69.4	96.4	96.4	96.4	96.4
Bhushan Steel and Strips	13.5	23.2	36.8	36.8	36.8	45.4	45.4	45.4	45.4
VISA Steel	2.6	7.6	7.6	7.6	10.2	10.2	15.3	15.3	15.3
Jindal Stainless	-	5.6	5.6	5.6	8.0	8.0	12.9	12.9	12.9
Mahanadi Coal Fields	39.2	50.4	56.0	57.4	70.0	77.0	86.8	86.8	86.8
Odisha Sponge Iron Ltd	-	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Patnaik Steels and Alloys Pvt. Ltd.	2.3	2.3	2.3	2.3	3.8	3.8	3.8	3.8	3.8
Maithan Ispat Ltd.	1.0	1.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Tata Steel Ltd.	-	12.8	25.5	25.5	25.5	25.5	25.5	25.5	25.5
MGM Steels Limited	-	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Monnet Ispat & Energy Ltd.	-	-	7.2	7.2	7.2	7.2	7.2	7.2	7.2
Sree Metaliks Limited	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	61.8	**156.8**	**220.5**	**221.9**	**243.1**	**285.7**	**305.4**	**305.4**	**305.4**

Table 9-12: Commodity Wise traffic in Optimistic Scenario

S. No.	Commodity		Traffic in MT							
		2012	2018	2023	2025	2028	2033	2038	2043	2047
1	Coal	49.6	96.2	126.2	127.6	143.2	167.1	179.8	179.8	179.8
2	Iron Ore	6.9	33.5	50.5	50.5	53.4	63.0	66.6	66.6	66.6
3	Minerals	1.6	8.6	15.8	15.8	16.9	20.5	21.7	21.7	21.7
4	Steel	3.7	18.4	28.0	28.0	29.7	35.2	37.3	37.3	37.3
Total		**61.8**	**156.8**	**220.5**	**221.9**	**243.1**	**285.7**	**305.4**	**305.4**	**305.4**

III. Commodity Wise Railable Traffic

On the basis of the analysis of individual traffic streams, as provided in the previous section, the total railable traffic under various scenarios is provided in this section.

a. Pessimistic Scenario

The total railable traffic in pessimistic scenario is provided in the table below:

Table 9-13: Commodity wise Railable Traffic on the project stretch in Pessimistic Scenario

S. No.	Commodity	Traffic in MT							
		2018	2023	2025	2028	2033	2038	2043	2047
1	Coal	6.56	11.08	13.88	15.28	16.68	18.08	18.08	6.56
2	Iron Ore	19.27	25.31	25.31	25.31	25.31	25.31	25.31	19.27
3	Steel	1.90	2.74	2.74	2.74	2.94	2.94	2.94	1.90
Total		**27.73**	**39.13**	**41.93**	**43.33**	**44.93**	**46.33**	**46.33**	**27.73**

b. Realistic Scenario

The total railable traffic in realistic scenario is provided in the table below:

Table 9-14: Commodity wise Railable Traffic on the project stretch in Realistic Scenario

S. No.	Commodity	Traffic in MT							
		20181	2023	2025	2028	2033	2038	2043	2047
1	Coal	7.96	14.01	14.70	19.01	21.81	23.64	23.64	23.64
2	Iron Ore	19.27	26.68	27.98	30.59	31.96	38.69	38.69	38.69
3	Steel	1.90	2.74	2.88	3.25	3.25	4.11	4.11	4.11
Total		**29.13**	**43.43**	**45.56**	**52.84**	**57.01**	**66.43**	**66.43**	**66.43**

The traffic expected to be generated on the project line is approximately 29.13 MT in the first year of operations 2017-18 and 66.43 MT for the target year 2046-47, which will be beyond the capacity of the project line. There will be requirement of double line in the year 2024-25 where traffic is approximately 45.56 MT and will exceed the capacity of single line (considering 50% empty returns of rakes). Thus for financial analysis, traffic has been capped at 45.56 MT for analytical purposes.

c. Optimistic Scenario

The total railable traffic in optimistic scenario is provided in the table below:

Table 9-15: Commodity wise Railable Traffic on the project stretch in Optimistic Scenario

S. No.	Commodity	Traffic in MT							
		2018	2023	2025	2028	2033	2038	2043	2047
1	Coal	9.49	18.43	19.83	22.47	24.85	27.41	27.41	27.41
2	Iron Ore	19.27	30.59	30.59	31.01	41.97	41.97	41.97	41.97
3	Steel	1.90	3.01	3.01	3.25	4.00	4.48	4.48	4.48
Total		**30.67**	**52.02**	**53.42**	**56.73**	**70.82**	**73.86**	**73.86**	**73.86**

IV. O&M Cost

This section briefs the procedure used for calculation of O&M cost and the calculated O&M cost for the project corridor.

Table 9-16: Project Details for calculation of O&M cost by Fixed Cost & Variable Cost method

S. No.	Characteristics	Detail
1	Length of Section	104.24 Km
2	Equated Track Km	184.24
3	Single / Double line	Single line
4	Mode of Traction	Electric
5	Number of Stations	9
6	Length of Bridges	3161.9 M
7	Wagon Days	380063
8	GTKM (in '000 for year 2017-18) (Diesel)	4480632
9	NTKM (in '000 for year 2017-18)	3039612
10	Engine Hours (for year 2017-18)	50880.56

Further, it may be noted that relevant cost items for various faucets of cost have been adopted from relevant statements of East Coast Railway. In the 'fixed cost', staff cost has not been taken into account. Staff cost has been taken separately. Loco hire charges and wagon hire charges have been taken from Railway Board's circular. All the performance parameters have been adopted from Annual Statistical Statement 2011-12, General Manager's Annual Narrative Report.

The basis of the cost components for each department are provided in ANNEXURE – V: WORKINGS OF O&M COST – FCVC Method.

a. Cost Components

Total O&M cost comprises of following components:

a) Fixed Cost
   - Engineering Dept.
   - S&T Dept
   - Electrical Dept
   - Traffic Dept
   - Staff Cost

b) Variable Cost
   - Cost of Running Repairs of Wagons
   - Loco Hire Charges
   - Wagon Hire Charges
   - Lube Costs
   - Fuel Costs
   - Cost of Crew

c) Indirect Cost
   - Cost for Compensation Claims

- Documentation Cost

b. Staff Cost

The number of Railway staff along with their total cost has been projected for operations of the project line in the year 2017-18 and the same is presented in the table below:

Table 9-17: Staff Strength

	STAFF Reqd. In (2017-18)	Group C	Group D	Total Staff Cost (In Rs.)
Engineering				
Permanent Way	69	6	63	14574936.00
Works	30	5	25	6811660.00
Bridges	30	5	25	6811660.00
S & T				
Signal	17	5	12	4290076.00
Telecom	17	5	12	4290076.00
Operating	58	29	29	17007340.00
Commercial	8	4	4	2345840.00
Mechanical	0			
Electrical (Genl.)	21	6	15	5264472.00
Traction	42	12	30	10528944.00
General Services	23	3	20	5056836.00
TOTAL (in Rs.)	315	80	235	76981840.00
Staff Cost Rate as per ASS-2011-12 (in Rs.)		***392492.00***	***193968.00***	
[For Group C & D - Others]	For Running Staff		For Others	76981840.00
GRAND TOTAL (Rs. In Lakh)			Rs. in Lakh	769.82
Escalated to 2013-14 from 2011-12 -Factor	**25.29%**		**Rs. in Lakh**	**964.51**

Based on the estimated number of additional staff for the project and using average staff cost on East Coast Railway for 2011-12 (from Annual Statistical Statement – 2011-12, Statement 40 II, Column 24 (b)), total staff cost has been arrived at. Total staff cost has been escalated by 25.29% to arrive at the cost in 2013-14.

c. Total O&M Cost

Total O&M cost has been estimated as the sum of Fixed Cost, Variable Cost and Indirect Cost. O&M costs estimated for the project line is presented below for year 2017-18.

Table 9-18: Details of O&M Costs for 2017-18

Sl. No.	Cost Items	Costs in Rs. Million for 2017-18
	Fixed Costs	
1	Engineering Dept.	31.31
2	Signal & Telecom Dept	5.82
3	Electrical Dept	20.45

4	Traffic Dept	3.28
5	Staff Costs	96.45
	Sub-Total Fixed Cost	**157.30**
	Variable Costs	-
6	Cost of Running Repairs of Wagons	26.35
7	Loco Hire charges	61.63
8	Wagon Hire Charges	455.30
9	Lub. Costs	0.13
10	Fuel Costs - Electric	196.23
11	Cost of Crew	122.10
	Sub-Total Variable Cost	**861.73**
	Indirect Costs	
12	Cost For Compensation Claims	0.46
13	Documentation Cost	0.32
	Sub-Total Variable & Indirect Costs	862.52
	Total Costs	**1019.816**

d. Summary of O&M Cost

Summary of O&M Cost is provided in the table below:

Table 9-19: Summary of O&M Cost (in Rs. Million)

Year	2018	2023	2025	2028	2033	2038	2043	2047
O&M Cost	1,019.82	1,443.63	1,506.41	1,506.41	1,506.41	1,506.41	1,506.41	1,506.41

V. Funding

The cost of debt has been assumed at 11%. The funding pattern for the project that emerges is as follows:

Table 9-20: Landed Project Cost

Construction Phasing	C1	C2	C3	C4	C5	Total
Construction cost	848	1,300	3,200	4,205	2,475	12,027
Preliminary and pre-operative expenses	60					60
Total	908	1,300	3,200	4,205	2,475	12,087
IDC	-	-	70	393	828	1,292
Total Landed Cost (in Million)	**908**	**1,300**	**3,270**	**4,599**	**3,303**	**13,379**

No escalation in cost has been considered for the analytical purposes. The Preliminary & pre-operative expenses have been assumed at 0.5% of the capital cost. The interest during construction cost comes to Rs. 1,292 Million.

Table 9-21: Financing Schedule

Financing Schedule\FY	2013	2014	2015	2016	2017

Equity	908	1,300	1,992	-	-
Debt	-	-	1,278	4,599	3,303
Total	**908**	**1,300**	**3,270**	**4,599**	**3,303**

The landed cost of the project comes to Rs. 13,379 Million.

For the amortization of debt, following assumptions have been used:

- The principle debt details are as follows:
  - Moratorium for principle repayment post construction: 1 years
  - Debt repayment tenure post moratorium: 10 years
  - Interest rate: 11%

VI. Key Indicators of Financial Analysis

Based on the above stated inputs, the exercise of financial analysis has been carried out for the proposed project. The indicators estimated in the process are:

a. Post-Tax Project Internal Rate of Return (P-IRR)

IRR indicates the return a project will generate over a period of time. It is that rate of discount, which makes the Net Present Value equal to zero. Internal Rate of Return on Project is the return on the total project cash flows.

b. Post-Tax Equity Internal Rate of Return (E-IRR)

IRR indicates the return a project will generate over a period of time. It is that rate of discount, which makes the Net Present Value equal to zero. Internal Rate of Return on Equity (E-IRR) is the return that accrues on the equity investment. The return for viability depends upon the expectation from the investment and accounts for taxes, interest, loan repayment, etc.

c. Debt Service Coverage Ratio (DSCR)

DSCR is the amount of cash flow available to meet annual interest and principal payments on debt, including sinking fund payments. DSCR = Net Operating Income / Total Debt Service

d. Results

The financial analysis has been carried out using the inputs as already explained above. The outputs for the financial indicators are shown in the table below:

Table 9-22: Key financial indicators

Key Financial Indicators	
Pre-tax IRR	21%
Post-Tax IRR	18.1%
Equity IRR	23.2%
Minimum DSCR	1.46
Average DSCR	2.52

9.1. Sensitivity Analysis

Project Cost vs IRR

	Project IRR	Equity IRR	M-DSCR	A-DSCR
-50%	28.9%	31.5%	5.64	10.76
-40%	25.7%	29.5%	3.45	6.45
-30%	23.3%	27.6%	2.54	4.64
-20%	21.3%	26.0%	2.03	3.63
-10%	19.5%	24.6%	1.69	2.97
0%	**18.1%**	**23.2%**	**1.46**	**2.52**
10%	16.8%	21.8%	1.28	2.19
20%	15.7%	20.4%	1.14	1.94
30%	14.7%	19.1%	1.03	1.75
40%	13.9%	17.9%	0.94	1.59
50%	13.1%	16.7%	0.87	1.46

Revenue vs IRR

	Project IRR	Equity IRR	M-DSCR	A-DSCR
-50%	6.9%	5.8%	0.53	0.92
-40%	9.8%	10.2%	0.75	1.25
-30%	12.2%	14.0%	0.93	1.57
-20%	14.3%	17.4%	1.10	1.89
-10%	16.3%	20.4%	1.28	2.21
0%	**18.1%**	**23.2%**	**1.46**	**2.52**
10%	19.7%	25.7%	1.62	2.83
20%	21.3%	28.0%	1.77	3.14
30%	22.7%	30.1%	1.92	3.45

10. RISK & SWOT ANALYSIS

10.1. Risk Analysis: Allocation & Mitigation

Any infrastructure project, normally, undergoes three standard stages in its entire duration. These are:

- Project Development Stage
- Project Construction Stage
- Project Operations Stage

The kind of risks that a project may get exposed to during each of these stages differ significantly from each other and, therefore, the approach towards their planning and mitigation has to be accordingly appropriate. The following table enumerates the various risk and mitigation strategies, thereof, for the Angul – Sukinda new line project.

Table 10-1: Project Risk & Mitigation Strategies

Type of RIsk	Allocated to	Mitigation Measures
Project Cost & Time over run	Construction Agreement is expected to be signed with RVNL	RVNL has executed projects like Gandhidham-Palanpur Gauge conversion Project of Kutch Railway Company Limited, a part line of the Krishnapatnam Port Connectivity project of Krishnapatnam Railway Company Limited, etc. the experience of which is expected to enable it to complete the Project within the estimated time and cost. Further a contingency of 3% of the hard cost in order to take care of any time and cost over run
O&M Cost overrun	O&M Agreement is expected to be signed with East Coast railway	ECoR is a zone of Indian Railways which is one of the largest rail networks in the world. ECoR has extensive expertise in managing rail operations and is already acting as an O&M entity for number of projects and has the expertise to handle current Project. Various facets of O&M cost have been adopted from relevant statements of East Coast Railway provided in Annual Statistics Statement of Indian Railways. Hence occurrence of O&M cost overrun is extremely minimal
Management Risk	ASRL RVNL ECoR	ASRL is a SPV with RVNL, a public undertaking of Indian Railway, Odisha Govt. (since consent has been received) and Jindal Steel & Power Ltd as stake holders. Further ASRL has a Railway professional person as Managing Director backed by other expert personnel in the BOD of ASRL.

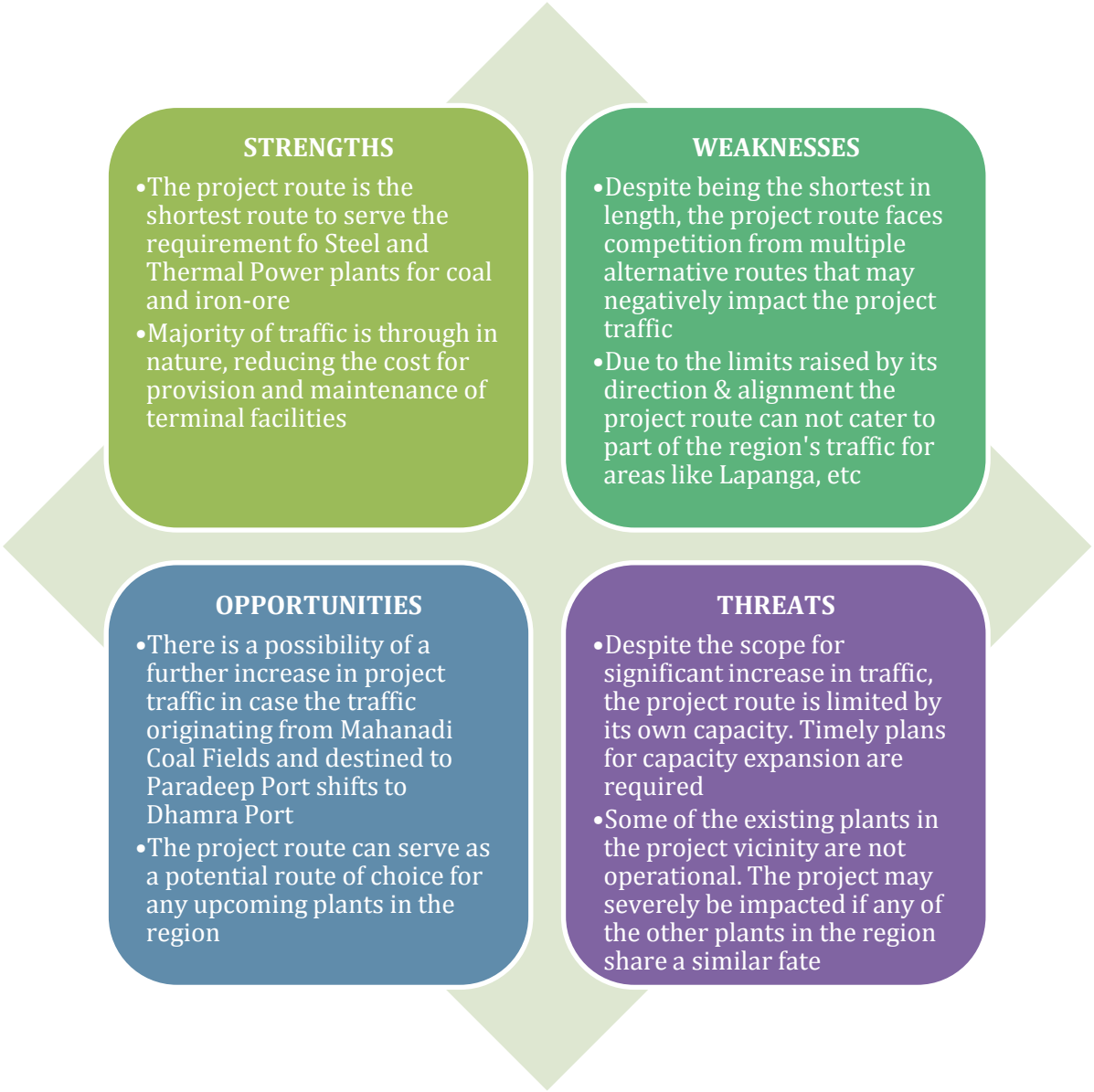
		RVNL, responsible for executing the project work has got immense expertise and experience in railway infrastructure works. Besides RVNL has the largest share in the SPV and therefore will take all steps to ensure that the project is completed in most economical & minimal period. The State Govt. now being the stakeholder will extend all possible help in land acquisition & forest and environmental clearance of the project. East Coast Railway has the distinction of having one of the lowest Operating Ratio, the index of overall performance of a Zonal railway and they will be responsible for operation and maintenance of the project line. Besides Angul-Sukinda line is a mid section connectivity line for a East Coast Railway network, the later will ensure better operating performances over the new line as that would add up to East Coast Railway's revenue.
Technology Risk	Will be confirmed prior to the signing of Construction Agreement with RVNL	
Traffic Risk	ASRL	Three different scenarios are considered for traffic projections (Optimistic, Pessimistic & Realistic) in order to understand potential traffic risk. Moreover, this being mid-section line, the major risk of generated traffic is not applicable on this line. Moreover, once it is operational it will become the shortest route between Iron Ore rich Joda-Barbil and Steel industries in Angul region; Between Talcher coal fields and consumer industries in Sukinda, Joda-Barbil & Consumers in Eastern India
Competitors Risk	ASRL	Once operational, Angul Sukinda line will become the shortest route between Iron Ore rich Joda-Barbil and Steel industries in Agul region; Between Talcher coal fields and consumer industries in Skinda, Joda-Barbil/Consumers in Eastern India No significant competition is expected for the current Project from any of the existing or proposed Infrastructure projects
Capacity Constraints	NA	Both Paradip and Dhamra ports have plans to increase the total handling capacity to 100 Million Tons. Mahanadi Coal Fields is also planning to increase production capacity.

		Hence capacity constraints risk is minimal Dhamra port is planning to increase the capacity to 100 million tons
Force Majeure Risk	Insurer	Adequate insurance cover shall be obtained for insurable Force Majeure risks
Funding Risk	Shareholders	Current sponsors of ASRL include RVNL and JSPL (Apart from confirmed assurance from Odisha Government and Odisha Mining Corporation). RVNL has expertise in construction of similar projects across the country. The company has already formed four Special Purpose Vehicles to implement similar projects With production capacity of 4.5 Million Tons (3 mn Tons steel and 1.5 mn Tons of Hot Briquetted Iron), JSPL is one of the largest steel manufacturers in the country. The company has a revenue of USD 3.64bn and cash profit of USD 0.84 bn The state of Odisha is known for its mineral resources. With development of infrastructure and connectivity, the state is expected to receive large scale investments in mineral based industries Established in year 1956, Odisha Mining Corporation is a state owned PSU of Government of Odisha. The company is engaged in mining of Chrome, Iron Ore and manganese Ore catering to mineral based industries such as steel, sponge iron, pig iron, Ferro-manganese, Ferro-chrome, etc. OMC is 100% debt-free company and has a turnover of RS. 1658.14 crores and net profit of Rs.896.10 crores (FY-13, provisional)
Concessionaire Event of Default	ASRL	

10.2. SWOT Analysis

As part of the bankability study for the Angul-Sukinda Rd rail line, the consultants have identified various strengths and weaknesses of the project that, depending upon the turn of events, will serve, both, as opportunities as well as threats to the project. The figure below presents a summary of the SWOT analysis carried out for the project. This analysis is critical, not only to the scope of the current study, but will also be relevant in case of future decisions, as and when they need to be made.

Figure 2: Summary of SWOT Analysis



11. CONCLUSIONS

It is evident from the financial appraisal of the project, that the project is viable as well as bankable.

Since the Angul Sukinda Rail Project is already sanctioned work and the SPV for the project is already operating, this report reaffirms the high returns of the project which had already been brought out in the previous bankability study conducted by RVNL.

Moreover, the project is able to withstand cost and revenue variations of up to 20%. The only major point to be kept in mind while implementing the project is that no further cost / time overruns are allowed to happen on the project else the plans of various steel plants in the region may go haywire and same shall have serious implications on the viability of the project.

11.1. Recommendations

With respect to implementation of the project, the consultants recommend the following:

- The project influence region is mineral rich; hence the steel and power plants planned in the region have high probability of materializing. The traffic assessed under the realistic scenario for the project is as provided below:

S. No.	Commodity	Traffic in MT							
		2018	**2023**	**2025**	**2028**	**2033**	**2038**	**2043**	**2047**
1	Coal	7.96	14.01	14.70	19.01	21.81	23.64	23.64	23.64
2	Iron Ore	19.27	26.68	27.98	30.59	31.96	38.69	38.69	38.69
3	Steel	1.90	2.74	2.88	3.25	3.25	4.11	4.11	4.11
Total		**29.13**	**43.43**	**45.56**	**52.84**	**57.01**	**66.43**	**66.43**	**66.43**

  Keeping in view the quantum of traffic assessed and the line capacity of the single line, we have capped the traffic after FY 2024-25 at 45.56 MT for the purposes of financial analysis. The actual assessed traffic is much higher in the future years, thereby mitigating the traffic risk to an extent.

- The project has impressive returns and is able to withstand cost and revenue variations of up to 20%. Hence, the investors for the project will not have any difficulty in getting the anticipated returns on the project.
- Since the line capacity is getting breached post 2025-26, we recommend that planning for the doubling of the project may be initiated as early as possible so as to initiate the doubling project by 2019-20 and complete it before the single line capacity gets exhausted.

ANNEXURE – I: RVNL PROJECT STATUS

I. Completed Projects

1	Abu Road - Sarotra Road patch – doubling
2	Aligarh - Ghaziabad 3rd line doubling
3	Arasikere-Hassan-Mangalore gauge
4	Barauni - Tilrath Bypass doubling
5	Bharuch - Samni - Dahej Gauge Conversion
6	Bhildi - Samdari Gauge Conversion
7	Bhubaneswar - Kottavalasa Elect
8	Cuddalore - Salem Gauge Conversion
9	Daitari - Banspani new line
10	Delhi - Rewari Gauge Conversion
11	Diva - Kalyan 5th & 6th line
12	Gandhidham - Palanpur Gauge Conversion
13	Gooty - Renigunta patch doubling
14	Gurup - Saktigarh Extn of 3rd line
15	Hospet - Guntakal doubling
16	Kharagpur (Nimpura) – Bhubaneswar
17	Pakni - Mohol doubling
18	Pakni - Solapur doubling
19	Panskura - Haldia PH 1 doubling
20	Panvel - Jasai JNPT doubling
21	Pattabiram - Triuvallur 4th line &
22	Pullampet - Balapalle PH I of Gooty -
23	Talchar-Cuttack-Paradeep doubling with 2nd bridge on Rivers Birupa and Mahanadi
24	Thanjavur - Villupuram Gauge Conversion
25	Tomka -Banaspani – RE
26	Vallaparpadm - Idapally New line

II. Projects under Implementation

1	Angul - Sukinda new line
2	Attipattu - Korukkupet 3rd line doubling
3	Baranagar -Barrackpore & Dakshineswar - Construction of Metro Railway Line
4	Barauni - New Loco Shed to home 100 Electric Locos
5	Barkhera- Budni 3rd line
6	Bhagat ki Kothi - Luni – doubling
7	Bhopal - Bina 3rd line doubling
8	Bilaspur - Urkura 3rd line doubling

9	Bina - Kota doubling with re
10	Budni - Itarsi 3rd line
11	Buramara - Chakulia - New line with upgrading of Rupsa - Buramara
12	Construction of Multi-Functional Complexs(mfcs)
13	Cuddapah - Bangalore New line
14	Cuttack - Barang doubling
15	Dalli - Rajhara – Raoghat
16	Dankuni - Furfura New line
17	Dankuni - setting up of Electric loco Assembly and Ancillary unit of CLW
18	Daund - Gulbarga doubling
19	Dighi port - New line
20	Dimapur - Kohima - New line
21	Dum Dum airport - New Garia via Raerhat
22	Goelkera - Manoharpur 3rd line doubling
23	Guntur - Tenali doubling with electrification
24	Habibganj - Barkhera 3rd line
25	Haridaspur - Paradeep new line
26	Hospet - Tinaighat - Vasco-da-Gama – doubling
27	IOCL siding at Salawas (deposit work)
28	Jakhpura- Haridaspur 3rd line doubling
29	Jaroli (Banaspani) - Jakhpura – doubling
30	Joka - Binoy Badal Dinesh Bagh via Majerhat
32	Kharagpur Workshop - setting up of Centre of Excellence for Wagon Prototyping
33	Khurda road - Barang 3rd line doubling
34	Lucknow- Pilibhit via Sitapur, Lakhimpur GC
35	Nabadwipghat - Nabadwipdham - New line
36	Naupara(EX.) – Baranagar
37	Neora - Daniwan & Barbigha - Shekhpur - New line
38	New Delhi - Tilak Bridge 5th & 6th line
39	Obulavaripalle - Krishnapattnam New line
40	Palwal - Bhuteswar 3rd line doubling
41	Panskura - Haldia PH II doubling
42	Panskura - Kharagpur 3rd line doubling
43	Pune - Guntakal RLY Elect.
44	Raichur - Guntakal doubling
45	Rail connectivity to Vizhinjam intl. Seaport ltd.(VISL)
46	Raipur - Titlagarh – doubling
47	Rajatgarh - Barang doubling
48	Rajgoda - Tamluk (JN. CABIN) doubling
49	Renigunta - Guntakal Elect
50	Rewas Port - New line
51	Rishikesh - Karnaprayag New line
52	Road Over Bridge at Bardhman(yard) - 4 lanes

53	Salka road - Annuppur doubling
54	Sambalpur - Titlagarh – doubling
55	Sarotra road - Karjoda Patch – doubling
56	Surat - Hajira New line
57	Surenderanagar - Viramgam – doubling
58	Tamluk JN. cabin - Basulya Sutahata doubling
59	Tikiapara - Santragachi doubling
60	Tiruvallur - Arakkonam 4th line
61	Titlagarh (Excl.) - Raipur – RE
62	Vijaywada - Gudivada - Bhimavaram - Narasapur, Gudiva da - Machilipatnam & Bhimavaram - Nidadavolu doubling with RE
63	Villupuram - Dindigul doubling
64	Yelahanka - Dharmavaram - Gooty – RE

ANNEXURE – II: DETAILED TERM SHEET

<table>
<tr><td>Borrower</td><td>Angul Sukinda Railway Limited</td></tr>
<tr><td>Promoter</td><td>RVNL</td></tr>
<tr><td>Co-Promoter</td><td>Jindal Steel Private Limited
Government of Odisha (Under Process)
Odisha Mining Corporation (Under Process)</td></tr>
<tr><td>Arranger</td><td></td></tr>
<tr><td>Facility</td><td>Rupee Term Loan</td></tr>
<tr><td>Facility Amount</td><td>Rs. 918.00 Crores</td></tr>
<tr><td>Purpose</td><td>To part finance the Project envisaging setting up an 104.24 km broad gauge single railway line between Budhapankh station (Angul) and Baguapal Station (Sukinda) to provide direct link between iron ore rich Joda-Barbil region, Talcher coal production region and consuming industries in the hinterland</td></tr>
<tr><td>Availability Period</td><td>Upto 3 months after COD</td></tr>
<tr><td>Concession Agreement</td><td>The Concession Agreement was signed between Ministry of Railways and ASRL on 14th May 2010 for implementing the project</td></tr>
<tr><td>Project cost</td><td>Rs.1337.90 crores</td></tr>
<tr><td>Commercial Operation Date (COD)</td><td>April 2018</td></tr>
<tr><td>Moratorium Period</td><td>A moratorium of 12 months is proposed from COD i.e. April 2018.</td></tr>
<tr><td>Rate of Interest</td><td>11% p.a</td></tr>
<tr><td>Repayment</td><td>Step up repayment in 40 quarterly installments commencing from April 2019 as shown below
<table>
<tr><th>Year</th><th>Amount (Rs. Crores)</th><th>% of Debt</th></tr>
<tr><td>Mar-19</td><td>91.8</td><td>10.00%</td></tr>
<tr><td>Mar-20</td><td>91.8</td><td>10.00%</td></tr>
<tr><td>Mar-21</td><td>91.8</td><td>10.00%</td></tr>
<tr><td>Mar-22</td><td>91.8</td><td>10.00%</td></tr>
<tr><td>Mar-23</td><td>91.8</td><td>10.00%</td></tr>
<tr><td>Mar-24</td><td>91.8</td><td>10.00%</td></tr>
<tr><td>Mar-25</td><td>91.8</td><td>10.00%</td></tr>
<tr><td>Mar-26</td><td>91.8</td><td>10.00%</td></tr>
<tr><td>Mar-27</td><td>91.8</td><td>10.00%</td></tr>
<tr><td>Mar-28</td><td>91.8</td><td>10.00%</td></tr>
</table></td></tr>
<tr><td>Door to Door Tenor</td><td>14 years taking 2015 as cutoff date</td></tr>
<tr><td>Upfront Fees</td><td>Will be confirmed during debt syndication stage</td></tr>
<tr><td>Drawdown Schedule</td><td>The disbursement shall be as per the draw down schedule submitted by the Borrower at the time of documentation</td></tr>
<tr><td>Commitment charges</td><td rowspan="3">Will be confirmed during debt syndication stage</td></tr>
<tr><td>Liquidated damages</td></tr>
<tr><td>Pre-Payment Charges</td></tr>
<tr><td>Primary Security</td><td>a) First pari-pasu charge on all the present and future fixed assets including movable assets of the Borrower excluding those assets which have been leased by Ministry of Railways (MoR) to the borrower as per the</td></tr>
</table>

	Concession Agreement between MoR and ASRL b) Fisrt *pari-pasu* charge on all the tangible movable machinery and plant of the Borrower together with spares, tools, accessories and other movables, both present and future c) A charge on the TRA account having Debt Service Reserve Account and each of the other accounts required to be created by the Company under any project document or contract d) Assignment of the rights, title, benefits, claims, demands and interests whatsoever of the Borrower by way of first charge in, to under all Contracts
Trust & retention Account / Escrow Account	Will be confirmed during debt syndication stage
Insurance	The borrower would take a comprehensive insurance consisting to the satisfaction of lenders. The borrower shall agree to assign all such insurance policies to the Lenders
Conditions Precedent to first disbursement	Will be confirmed during debt syndication stage
Financial Covenants	

Other Special Conditions

Special conditions of the project shall be confirmed during debt syndication stage

Normal Terms and Conditions

Normal Terms & Conditions of the project shall be confirmed during debt syndication stage

ANNEXURE – III: ORIGIN-DESTINATION OF PROJECT TRAFFIC

S. No.	Name of Generator	Commodity	Origin	Destination	Project Route Km	Foreign Route Km	Total Km	2018	2023	2025	2028	2033	2038	2043	2047
Inward															
1	Jindal Steel & Power	Steel	Kerejanga	Various Destinations	104.24	161.78	266.02	1.20	1.80	1.89	1.89	1.89	1.89	1.89	1.89
2	Odisha Sponge Iron Ltd	Non Coking Coal	Talcher	Porjanpur	104.24	220.99	325.23	0.00	0.13	0.14	0.14	0.14	0.14	0.14	0.14
3	Bhushan Steel and Strips	Finished Products, Billets Rolled Products	Meramandali	Haldia	104.24	359.96	464.20	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
4	VISA Steel	Non-Coking Coal	Talcher	Kalinga Nagar	104.24	273.96	378.20	0.00	1.74	1.83	1.83	1.83	1.83	1.83	1.83
5	Mahanadi Coal Fields	Coal	Talcher	Dhamra	104.24	140.22	244.46	7.00	9.80	10.28	10.28	10.28	10.28	10.28	10.28
6	Maithan Ispat Ltd.	Coal for DRI	Talcher	Jakhapura	104.24	44.76	149.00	0.00	0.30	0.31	0.31	0.31	0.31	0.31	0.31
	Maithan Ispat Ltd.	Coal for BF	Talcher	Jakhapura	104.24	44.76	149.00	0.00	0.08	0.08	0.08	0.08	0.08	0.08	0.08
7	Patnaik Steels and Alloys Pvt. Ltd.	Coal	Talcher	Nayagarh	104.24	239.22	343.46	0.00	1.00	1.05	1.05	1.05	1.05	1.05	1.05
Outward															
8	Jindal Steel & Power	Iron Ore Fines	Deojhar	Kerejanga	104.24	253.54	357.78	7.06	10.59	11.11	11.11	11.11	11.11	11.11	11.11
	Jindal Steel & Power	Iron Ore Lumps	Deojhar	Kerejanga	104.24	253.54	357.78	3.75	5.63	5.90	5.90	5.90	5.90	5.90	5.90
9	Bhushan Steel and Strips	I/Ore	Banspani	Meramandali	104.24	217.75	321.99	6.06	6.06	6.36	6.36	6.36	6.36	6.36	6.36
	Bhushan Steel and Strips	I/Ore (BF Grade)	Banspani	Meramandali	104.24	217.75	321.99	0.58	0.58	0.61	0.61	0.61	0.61	0.61	0.61
	Bhushan Steel and Strips	I/Ore (Finer)	Banspani	Meramandali	104.24	217.75	321.99	1.82	1.82	1.91	1.91	1.91	1.91	1.91	1.91
	Bhushan Steel and Strips	Coking Coal for BF	Haldia	Meramandali	104.24	359.96	464.20	0.96	0.96	1.01	1.01	1.01	1.01	1.01	1.01
10	VISA Steel	Steel Billets	Kalinga Nagar	Various Destinations	104.24	299.49	403.73	0.00	0.24	0.25	0.25	0.25	0.25	0.25	0.25
11	Jindel Stainless	Cast stainless	Kalinga Nagar	Domestic Market	104.24	299.49	403.73	0.14	0.14	0.15	0.15	0.15	0.15	0.15	0.15
	Jindel Stainless	Hot/cold Rolled products	Kalinga Nagar	Domestic Market	104.24	299.49	403.73	0.23	0.23	0.24	0.24	0.24	0.24	0.24	0.24
12	BRG Iron & Steel	Iron Ore	Barbil	Meramandali	104.24	305.83	410.07	0.00	0.21	0.22	0.22	0.22	0.22	0.22	0.22
	BRG Iron & Steel	Iron Ore	Joda	Meramandali	104.24	254.69	358.93	0.00	0.21	0.22	0.22	0.22	0.22	0.22	0.22
	BRG Iron & Steel	Iron Ore	Keonjhar	Meramandali	104.24	34.07	138.31	0.00	0.21	0.22	0.22	0.22	0.22	0.22	0.22
13	Monnet Ispat & Energy Ltd.	Iron Ore	Barbil	Kerijanga	104.24	345.93	450.17	0.00	0.69	0.72	0.72	0.72	0.72	0.72	0.72
	Monnet Ispat & Energy Ltd.	Iron Ore	Barajamda	Kerijanga	104.24	336.48	440.72	0.00	0.69	0.72	0.72	0.72	0.72	0.72	0.72
14	Tata Steel	Slag	Kalinganagar	Cement Plants in Central India	104.24	1174.00	1278.24	0.20	0.20	0.21	0.21	0.21	0.21	0.21	0.21

ANNEXURE – IV: MAJOR ASSUMPTIONS

Project Phasing					
Year	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
%age of cost incurred	7.0%	10.8%	26.6%	35.0%	20.6%
		17.9%	44.5%	79.4%	100.0%

Length of Line	104.242	km
Construction period	5	years
Base year	2012	
Start of construction (FY)	2013	
Completion of construction (FY)	2018	
Project Cost		
Construction Cost (Rs. Million)	**Capital Cost**	
Civil Engineering	8,690	
Electrical Engineering	1,097	
S&T Engineering	440	
Mechanical	0	
Gross Total	10,226	
Contigencies@3%	307	
Sub Total 'A'	10,533	
D&G Charges @8.75% on 'A'	922	
RVNL Charges @5% on 'A'	573	
Total Projected Cost	**12,027**	
Preliminary and pre-operative expenses	0.50%	
Cost escalation during construction	0.00%	
Means of Funding Assumptions		
Cost of Debt during Construction	11%	
Cost of Debt - Reset	11%	
Debt	68.6%	9,179 Mn
Equity	31.4%	4,200 Mn
Debt Terms		
Moratorium for principle repayment post construction (yr)	1	
Debt repayment duration post moratorium (yr)	10	
Total debt tenure (yearsr)	16	
Repayment start year	2019	
Repayment end year	2029	
Depreciation Assumptions		
CA Depreciation SLM	3.3%	p.a.
Tax Depreciation WDV	10%	p.a.
Revenue Related Assumptions		
Annual Escalation in Freight rates	0%	
Base year	2012	
Revenue accruing to SPV	100%	
Inflated Km Multiple	1.0	
O&M Related Assumptions		
Base year	2012	

Annual Escalation to bring 2008 unit cost to base yr (2010) cost	0.00%	
Annual Escalation on base year unit cost for successive years	0.00%	
Service tax payable on O&M expenses	0.00%	
Wagon Empties Calculation	Assumed	
Wagon Assumed Empties		
Engine Speed	21.5	kmph
Other Assumptions		
Terminal value of assets (civil + RS) at end of life - 30 years	10%	
Taxation Assumptions		
	Corporate	**MAT**
Base Tax Rate	30%	18.5%
Surcharge	5.00%	7.5%
Education Cess	3.00%	3.0%
Effective Rate	32.45%	20.48%
Section 80IA benefit available for	10 years in block of first 15 years of operation	
80IA benefit starts from year	2018	
Traffic Assumptions		
No. of Loco for loaded train (WDG 4)	1	
No. of Loco for empty train (WDG 4)	1	
Weight of Loco	126	Tonnes
Weight of Brake Van	23.5	Tonnes
Terminal Charges		
Terminal Charges Incorporation	None	

Commodity	Rs/tonne for loading rly	Rs/tonne for unloading rly	Rs/tonne for both
Coal	56	45	101
Iron Ore	45	45	90
Steel & Finished Products	45	45	90
Terminal Charges Incorporation	None		

ANNEXURE – V: WORKINGS OF O&M COST – FCVC Method

Sr No	Description of Item	A/c Head	Expenditure ECoR BG (in Rs) - Excl. PUs 1 to 16 & 34 for freight traffic	Basis of Apportionment	Value of App. Units		Expenditure in Rs.	
					ECoR	Proj.Sec	Per Unit	Total
1	2	3	4	5	6	7	8	9
	Engineering Dept.							
1	Contingent Expenses in Offices	04B-130	**1564812**	ETKM-BG	8510.60	184.28	183.8662	33882.67
2	Maintenance of P. Way & Works	04B-240	**308071475**	ETKM-BG	8510.60	184.28	36198.5612	6670631.16
3	Girder Bridges	04B-310	**92368526**	Length of Bridges	47597.67	1950.1	1940.6102	3784384.04
4	Other Bridges	04B-320	**41597908**	Length of Bridges	22485.63	557.5	1849.9774	1031362.42
5	RUB/ROB/FOB	04B-340	**4621353**	Length of Bridges	1110.35	654.3	4162.0687	2723241.56
6	Maintenance of office buildings	04B-410	**42546915**	No. of stations	270	9	157581.1667	1418230.50
7	Maintenance of Stations & Goods Sheds	04B-420	**102507644**	No. of stations	270	9	379657.9407	3416921.47
8	All other structures	04B-440	**4978449**	No. of stations	270	9	18438.7000	165948.30
9	Water Supply	04B-510	**63068324**	No. of stations	270	9	233586.3852	2102277.47
10	Sanitation	04B-520	**24937840**	No. of stations	270	9	92362.3704	831261.33
11	Service Roads & Other Misc.	04B-531	**21796138**	No. of stations	270	9	80726.4370	726537.93
12	Fencing & Level Crossing	04B-532	**14642099**	No. of stations	270	9	54229.9963	488069.97
13	Station Machinery other than water supply	04B-620	0	No. of stations	270	9	0.0000	0.00
14	Tree Plantation etc	04B-642 to 04B-644	**4487228**	No. of stations	270	9	16619.3630	149574.27
15	Misc Expenses	04B-651	**95105330**	ETKM-BG	8510.60	184.28	11174.9266	2059303.21

Sr No	Description of Item	A/c Head	Expenditure ECoR BG (in Rs) - Excl. PUs 1 to 16 & 34 for freight traffic	Basis of Apportionment	Value of App. Units		Expenditure in Rs.	
		to 04B-654						
16	Other Adjustments	04B-656	**0**	ETKM-BG	8510.60	184.28	0.0000	0.00
17	Other Misc Expenses	04B-657	**0**	ETKM-BG	8510.60	184.28	0.0000	0.00
18	Plant & Equipment incl Furniture	07E-210	**319145**	No. of stations	270	9	1182.0185	10638.17
19	Track & Other Equipment	07E-221 & 07E-222	**40482295**	ETKM-BG	8510.60	184.28	4756.6911	876557.81
20	Repairs of service motor cars & trolleys	07E-231	**8563129**	ETKM-BG	8510.60	184.28	1006.1722	185416.31
21	Other unclassified equipment	07E-233	**0**	No. of stations	270	9	0.0000	0.00
22	Other Misc Repairs	07E-234 to 07E-237	**0**	ETKM-BG	8510.60	184.28	0.0000	**0.00**
23	Credits from Materials released from revenue works (Civil Engg)	04B-911 & 04B-912	**-77929910**	ETKM-BG	8510.60	184.28	-9156.8056	-1687406.10
	Total							**24986832.48**
	Escalated to 2013-14 from 2011-12	**Factor**	**25.29%**					6319169.93
	GRAND TOTAL							**31306002.41**
	Signal & Telecom Dept				**ECoR**	**Proj.Sec.**	**Per Unit**	**Total**
1	Contingent Expenses (S&T)	07E-130	**2275499**	Signalling Units	195778.05	6525.94	11.6229	75849.97
2	Maintenance of Signals	07E-520 & 07E-530	**46847654**	Signalling Units	195778.05	6525.94	239.2896	1561588.47
3	Circuits of Signalling System & Line wire	07E-700	**28566494**	Signalling Units	195778.05	6525.94	145.9126	952216.47
4	Signalling Tools & Plant repair	07E-541	**3564888**	Signalling Units	195778.05	6525.94	18.2088	118829.60

Sr No	Description of Item	A/c Head	Expenditure ECoR BG (in Rs) - Excl. PUs 1 to 16 & 34 for freight traffic	Basis of Apportionment	Value of App. Units		Expenditure in Rs.	
5	Service motor car and trolleys	07E-542	**2570356**	Signalling Units	195778.05	6525.94	13.1289	85678.53
6	Electric clock & office equipment	07E-544	**32598**	No of stations	270	9	120.7333	1086.60
7	Workshop repair - S&T apparatus	07E-546	**0**	Signalling Units	195778.05	6525.94	0.0000	0.00
8	Over and Under charges on manufacture repair & oncost - Signalling apparatus	07E-547 & 07E-548	0	Signalling Units	195778.05	6525.94	0.0000	0.00
9	Misc Expenses	07E-551 & 07E-553	**39216**	No of stations	270	9	145.2444	1307.20
10	Telecom Microwave and wireless	07E-611 & 07E-613	**3764926**	Telecom units	98703.063	3290.10	38.1440	125497.53
11	Service motor car and trolleys	07E-614	**173378**	Telecom units	98703.063	3290.10	1.7566	5779.27
12	Railway telephone exchange	07E-620	**8843437**	Telecom units	98703.063	3290.10	89.5964	294781.23
13	Line communication system	07E-630	**14041391**	Telecom units	98703.063	3290.10	142.2589	468046.37
14	Workshop repair and overhaul - Tele apparatus	07E-640	**1490**	No of stations	270	9	5.5185	49.67
15	Administrative Telephone Channel	07E-730	**2540024**	Telecom units	98703.063	3290.10	25.7340	84667.47
16	VFT sets	07E-740	0	Telecom units	98703.063	3290.10	0.0000	0.00
17	Credit for material released from revenue works - S&T	07E-940	**0**	Signalling Units	195778.05	6525.94	0.0000	0.00
18	Operating Expenses - Signal	08F-710	**0**	Signalling Units	195778.05	6525.94	0.0000	0.00
19	Operating Expenses - Telecom	08F-720	**26026470**	Telecom units	98703.063	3290.10	263.6845	867549.00
	Total							**4642927.37**
	Escalated to 2013-14 from 2011-12	**Factor**	**25.29%**					1174196.33
	GRAND TOTAL							**5817123.70**

Sr No	Description of Item	A/c Head	Expenditure ECoR BG (in Rs) - Excl. PUs 1 to 16 & 34 for freight traffic	Basis of Apportionment	Value of App. Units		Expenditure in Rs.	
	Electrical Dept				**ECoR**	**Proj.Sec.**	**Per Unit**	**Total**
1	Contingent Expenses - Electrical	07E-160	**3408312**	No of stations	270	9	12623.3778	113610.40
2	Overhead Equipment for electric traction	07E-410	**46915740**	Electrified Track Kms	3299.82	184.28	14217.6664	2620015.98
3	Power Supply Equipment for Traction	07E-420	**11347523**	Electrified Track Kms	3299.82	184.28	3438.8309	633703.99
4	Power Supply Equipment for General Service	07E-430	**13036581**	No of stations	270	9	48283.6333	434552.70
5	Other Plant & Equipment - Elec. General Service	07E-480	**53842444**	No of stations	270	9	199416.4593	1794748.13
6	Misc. Expenses	07E-490	**0**	No of stations	270	9	0.0000	0.00
7	Supply of power to service buildings	08F-651	**321758072**	No of stations	270	9	1191696.56	10725269.07
8	Distribution of General Service	08F-630	**0**	No of stations	270	9	0.0000	0.00
	Total							**16321900.26**
	Escalated to 2013-14 from 2011-12	**Factor**	**25.29%**					4127808.58
	GRAND TOTAL							**20449708.84**
	Traffic Dept				**ECoR**	Proj.Sec.	Per Unit	Total
1	Sanitary Staff	09G-291	**20194086**	No of stations	270	9	74792.91	673136.20
2	Sanitary Stores	09G-293	**22644846**	No of stations	270	9	83869.80	754828.20
3	Clothing	09G-295	**7624044**	No of stations	270	9	28237.20	254134.80
4	Fire Light & General Stores	09G-297	**5956415**	No of stations	270	9	22060.80	198547.17
5	Contingency Expenses	09G-298	**17885620**	No of stations	270	9	66243.04	596187.33
6	Safety	09G-610,	**1257583**	No of stations	270	9	4657.71	41919.43

Sr No	Description of Item	A/c Head	Expenditure ECoR BG (in Rs) - Excl. PUs 1 to 16 & 34 for freight traffic	Basis of Apportionment	Value of App. Units		Expenditure in Rs.	
		620 & 630						
7	Office Establishment	09G-121 & 122	**0**	No of stations	270	9	0.00	0.00
8	Commercial Contingency	09G-123	**0**	No of stations	270	9	0.00	0.00
9	Traffic Dept Equipment	07E-810 & 830	**893264**	No of stations	270	9	3308.39	29775.47
10	Other Staff & Misc Expenses	09G-560	**198580**	No of stations	270	9	735.48	6619.33
11	Misc Charges	09G-760	**-2124**	No of stations	270	9	-7.87	-70.80
12	Traffic & Movement Inspection	09G-210	**91414**	No of stations	270	9	338.57	3047.13
13	Train Passing & Control	09G-250	**1647973**	No of stations	270	9	6103.60	54932.43
14	Other Joint Cost	09G-260	**61861**	No of stations	270	9	229.11	2062.03
	Total							**2615118.73**
	Escalated to 2013-14 from 2011-12	**Factor**	**25.29%**					661363.53
	GRAND TOTAL							**3276482.26**
	GRAND TOTAL							**60849317.21**

Variable Costs (Excl. Staff) for Operation & Maintenance of Angul - Sukinda Road New Line in East Coast Railway (104.24 RKm.)								
	Cost of Running Repair of Wagons						**For 2013-2014**	
Sr No	**Description of Item**	**A/c Head**	**Expenditure ECoR BG (in Rs) excl PUs 1 to 16 & 34 only for Freight Traffic**	**Basis of Apportionment**	**Value of App. Units**		**Expenditure (in Rs)**	
					ECoR	Proj.Sec.	Per Unit	Total
1	2	3	4	5	6	7	8	9
1	Running repairs in sick lines	06D-310	**100135891**	Wagon Days	6714905	380063	14.91	5667686.46
2	Running repairs in workshops for sick lines	06D-320	**13400**	Wagon Days	6714905	380063	0.00	758.44
3	POH	06D-330	**225945250**	Wagon Days	6714905	380063	33.65	12788489.94
4	Special repairs	06D-340	**10704236**	Wagon Days	6714905	380063	1.59	605859.23
5	Other Repairs	06D-360	**0**	Wagon Days	6714905	380063	0.00	0.00
6	Misc Expenses including adjusments	06D-370	**0**	Wagon Days	6714905	380063	0.00	0.00
7	Credits for released materials for revenue works	06D-913 & 914	**0**	Wagon Days	6714905	380063	0.00	0.00
8	Misc Expenses - Mechanical Dept	06D-611 to 614	**428916**	Wagon Days	6714905	380063	0.0639	24276.62
9	Direct Supervision - Rolling Stock	03A-600	**2113479**	Wagon Days	6714905	380063	0.31	119622.81
10	Direct Supervision - Furniture & Office Equipment & Service Motor Cars	07E-361 & 362	**58914**	Wagon Days	6714905	380063	0.009	3334.53
11	Plant & Equipment - Repairs &	07E-330,	**2204372**	Wagon Days	6714905	380063	0.33	124767.35

	Maintenance	340, 354, 366 to 369						
12	C&W Optg Expenses - Optg Staff: Rolling Stock & Equipment	08F-521, 522, 531, 532, 541, 542 to 545	**29832909**	Wagon Days	6714905	380063	4.44	1688541.17
13	C&W Optg Expenses - Supervisory & Office Staff	08F-510 & 515	**80576**	Wagon Days	6714905	380063	0.0120	4560.60
14	Hire of Vehicles	08F-914	**0**	Wagon Days	6714905	380063	0.00	0.00
	Total							**21027897.14**
	Escalated to 2013-14 from 2011-12	**Factor**	**25.29%**					**5317955.19**
	GRAND TOTAL							**26345852.33**
							Rs. in Lakh	**263.46**

Variable Costs (Excl. Staff) for Operation & Maintenance of Angul - Sukinda Road New Line in East Coast Railway (104.24 RKm.)								
							For 2013-2014	
					Lub & Other Stores			
Sr No	**Description of Item**	**A/c Head**	**Expenditure ECoR BG (in Rs) excl PUs 1 to 16 & 34 only for Freight Traffic**	**Basis of Apportionment**	**Value of App. Units**		**Expenditure (in Rs)**	
					ECoR	Proj.Sec.	Per Unit	Total
1	2	3	4	5	6	7	8	9
1	Lube Oil	07E-330	**1385272**	GTKMs	59747075000	4480632000	0.0000232	103886.16
2	Other Stores	08E-332	**0**	GTKMs	59747075000	4480632000	0.000000	0.00
	Total							103886.16
	Escalated to 2013-14 from 2011-12	**Factor**	**25.29%**					26272.81
	GRAND TOTAL							130158.97
							Rs. In Lakh	**1.30**
	Calculation of Cost of Fuel							
Sr No	Item		Value	Unit				
1	Average Specific Energy Consumption for ELECTRIC Locos		6.49	KWH. per 1000 GTKMs				
2	Average cost of Electricity per KWH.		5.386	in Rs				
3	GTKMs of the section		4480632.000	in '000'				
4	Cost of Energy	1*2	34.95514	in Rs per 1000 GTKMs				

5	Cost of Fuel for the section	3*4	156621118.85	in Rs				
	Total							**156621118.85**
	Escalated to 2013-14 from 2011-12	**Factor**	**25.29%**					39609480.96
	GRAND TOTAL							**196230599.81**
							Rs. In Lakh	**1962.31**

Variable Costs (Excl. Staff) for Operation & Maintenance of Angul - Sukinda Road New Line in East Coast Railway (104.24 RKm.)								
							For 2013-2014	
				Cost of Documentation				
Sr No	**Description of Item**	**A/c Head**	**Expenditure ECoR BG (in Rs) excl PUs 1 to 16 & 34 only for Freight Traffic**	**Basis of Apportionment**	**Value of App. Units**		**Expenditure (in Rs)**	
					ECoR	**Proj.Sec.**	**Per Unit**	**Total**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1	**Forms & Stationery**	**09G-294**	**1151427**	**No of wagons loaded on the system**	**1845201**	**413265.00**	**0.624012**	**257882.19**
	Total							**257882.19**
	Escalated to 2013-14 from 2011-12	**Factor**	**25.29%**					**65218.41**
	GRAND TOTAL							**323100.60**
							Rs. In Lakh	**3.23**
	Note: For No. of Loaded wagons in ECoR based on Statement - 7A of Statistical Dte./Rly. Bd. For 2011-12.							

Variable Costs (Excl. Staff) for Operation & Maintenance of Angul - Sukinda Road New Line in East Coast Railway (104.24 RKm.)								
							For 2013-2014	
					Cost of Crew			
Sl. No.	**Description of Item**	**A/c Head**	**Expenditure ECoR BG (in Rs) excl PUs 1 to 16 & 34 only for Freight Traffic**	**Basis of Apportionment**	**Value of App. Units**		**Expenditure (in Rs)**	
					E Co R	Proj.Sec.	Per Unit	Total
1	2	3	4	5	6	7	8	9
1	Running Staff - Loco Crew	08F-312	**863582115**	Thou GTKM (Electric)	59747075	4480632	14.4540	64762896.91
2	Running Staff - Guards	09G-510	**493615255**	Thou GTKM (All Traction)	94833385	4480632	5.2051	23322043.26
3	Other Operating Staff accompanying the trains	09G-520	**0**	Thou GTKM (All Traction)	94833385	4480632	0.0000	0.00
4	Contingent Expenses	08F-333	**48147807**	Thou GTKM (Electric)	59747075	4480632	0.8059	3610764.29
5	Misc Expenses	08F-341 to 344	**0**	Thou GTKM (Electric)	59747075	4480632	0.0000	0.00
6	Other Unclassified Expenses	08F-345	**11509543**	Thou GTKM (Electric)	59747075	4480632	0.1926	863138.93
7	Running Staff - Supervisory	08F-311	**65311042**	Thou GTKM (Electric)	59747075	4480632	1.0931	4897892.40
	Total							**97456735.80**
	Escalated to 2013-14 from 2011-12	**Factor**	**25.29%**					24646808.48
	GRAND TOTAL							**122103544.28**
							Rs. In Lakh	**1221.04**

Variable Costs (Excl. Staff) for Operation & Maintenance of Angul - Sukinda Road New Line in East Coast Railway (104.24 RKm.)								
							For 2013-2014	
				Cost of compensation Claims				
Sr No	**Description of Item**	**A/c Head**	**Expenditure ECoR BG (in Rs) excl PUs 1 to 16 & 34 only for Freight Traffic**	**Basis of Apportionment**	**Value of App. Units**		**Expenditure (in Rs)**	
					E Co R	Proj.Sec.	Per Unit	Total
1	2	3	4	5	6	7	8	9
1	Claims Settlement & Prevention Organisation	12K-210	**6929310**	Thou NTKMs	58967961	3039612	0.1175	357184.03
2	Compensation Claims & Misc Expenses	12K-230 & 240	**193450**	Thou NTKMs	58967961	3039612	0.0033	9971.74
3	Compensation Goods settled through book adjustment	12K-260	**0**	Thou NTKMs	58967961	3039612	0.0000	0.00
	Total							**367155.76**
	Escalated to 2013-14 from 2011-12	**Factor**	**25.29%**					92853.69
	GRAND TOTAL							**460009.46**
							Rs. In Lakh	**4.60**

Fixed staff Costs for Operation & Maintenance of Angul - Sukinda Road New Line					
		in East Coast Railway (104.24 RKm.)			
		STAFF REQD. IN	Group C	Group D	Total Staff Cost
		2017-18			(In Rs.)
Engineering					
Permanent Way		69	6	63	14574936.00
Works		30	5	25	6811660.00
Bridges		30	5	25	6811660.00
S & T					
Signal		17	5	12	4290076.00
Telecom		17	5	12	4290076.00
Operating		58	29	29	17007340.00
Commercial		8	4	4	2345840.00
Mechanical		0			
Electrical (Genl.)		21	6	15	5264472.00
Traction		42	12	30	10528944.00
General Services		23	3	20	5056836.00
		301			
TOTAL (in Rs.)		**315**	**80**	**235**	**76981840.00**
Staff Cost Rate as per ASS-2011-12 (in Rs.)			***392492.00***	***193968.00***	
[For Group C & D - Others]			For Running Staff	For Others	
					76981840.00
GRAND TOTAL (Rs. In Lakh)				**Rs. in Lakh**	**769.82**
Escalated to 2013-14 from 2011-12	**Factor**	**25.29%**		**Rs. in Lakh**	**964.51**

Variable Costs (Excl. Staff) for Operation & Maintenance of Angul - Sukinda Road New Line in East Coast Railway (104.24 RKm.)							
	Loco Hire Charges				**For 2013-2014**		
Year	Type of	**ENGINE Km.**	Speed of Good	Engine	Engine Hire	Total	**For Speed of Goods Tr.**
	Loco - Electric	**of Project**	Trains in Kmph of ECoR	Hrs.	Charge/Hr	Amount	**ASS 2011-12, Stat.-20,**
2017-18					(in Rs.)	(in Rs.)	**Col.-13 (Page-320)**
	Electric	1093932	21.5	50880.56	**966.75**	49188779.58	
Escalated to 2013-14 from 2011-12	**Factor**	**25.29%**				12439842.36	
Total						**61628621.94**	
Total					**Rs. In Lakh**	**616.29**	
	For Loco Hire Charges Pl. Ref.		**Rly. Bd. Letter No. F(C)/2003/27/1, Dtd.06.03.2012.**				
				Wagon Hire Charges	**For 2013-2014**		
Year	TOTAL No. of	Wagon	Rate of Wagon		Wagon Hire		
	Wagons/Day	Day	Hire		Charge		
2017-18			Charges (in 8-W)		Amount (in Rs.)		
			In Rs.				
	1041.27	380063.29	**956.137**		363392573.82		
Escalated to 2013-14 from 2011-12	**Factor**	**25.29%**			91901981.92		
Total					455294555.73		
				Rs. In Lakh	**4552.95**		
Note:							
Rs.387.10 is in terms of 4-Wheelers. To convert it in 8-Wheelers, Multiply the rate by 2.47, i.e. Rs.956.137 .							
For Wagon Hire Charge, Pl. Ref. Web Site of Indian Railways directorate/IRCA/functions.jsp							

ANNEXURE – VI: FREIGHT RATES

Freight Rate (Rupees Per Tonne) w.e.f. 01.04.2013															
Distance (Kms)	**Class LR4**	**Class LR3**	**Class LR2**	**Class LR1**	**Class 100**	**Class 110**	**Class 120**	**Class 130**	**Class 140**	**Class 150**	**Class 160**	**Class 170**	**Class 180**	**Class 190**	**Class 200**
1-100	63.5	74.1	84.7	95.3	105.9	116.5	127.1	137.7	148.3	158.9	169.4	180	190.6	201.2	211.8
101-125	75	87.5	100	112.5	125	137.5	150	162.5	175	187.5	200	212.5	225	237.5	250
126-150	87.1	101.6	116.2	130.7	145.2	159.7	174.2	188.8	203.3	217.8	232.3	246.8	261.4	275.9	290.4
151-175	97.7	114	130.2	146.5	162.8	179.1	195.4	211.6	227.9	244.2	260.5	276.8	293	309.3	325.6
176-200	109.2	127.4	145.6	163.8	182	200.2	218.4	236.6	254.8	273	291.2	309.4	327.6	345.8	364
201-225	119.9	139.9	159.8	179.8	199.8	219.8	239.8	259.7	279.7	299.7	319.7	339.7	359.6	379.6	399.6
226-250	131.3	153.2	175.1	197	218.9	240.8	262.7	284.6	306.5	328.4	350.2	372.1	394	415.9	437.8
251-275	142.8	166.6	190.4	214.2	238	261.8	285.6	309.4	333.2	357	380.8	404.6	428.4	452.2	476
276-300	154.2	179.9	205.6	231.3	257	282.7	308.4	334.1	359.8	385.5	411.2	436.9	462.6	488.3	514
301-325	164.9	192.4	219.8	247.3	274.8	302.3	329.8	357.2	384.7	412.2	439.7	467.2	494.6	522.1	549.6
326-350	176.1	205.5	234.8	264.2	293.5	322.9	352.2	381.6	410.9	440.3	469.6	499	528.3	557.7	587
351-375	187.1	218.3	249.5	280.7	311.9	343.1	374.3	405.5	436.7	467.9	499	530.2	561.4	592.6	623.8
376-400	198.6	231.7	264.8	297.9	331	364.1	397.2	430.3	463.4	496.5	529.6	562.7	595.8	628.9	662
401-425	209.9	244.9	279.9	314.9	349.9	384.9	419.9	454.9	489.9	524.9	559.8	594.8	629.8	664.8	699.8
426-450	221.3	258.2	295.1	332	368.9	405.8	442.7	479.6	516.5	553.4	590.2	627.1	664	700.9	737.8
451-475	232.4	271.2	309.9	348.7	387.4	426.1	464.9	503.6	542.4	581.1	619.8	658.6	697.3	736.1	774.8
476-500	244.1	284.8	325.4	366.1	406.8	447.5	488.2	528.8	569.5	610.2	650.9	691.6	732.2	772.9	813.6
501-550	267.1	311.6	356.2	400.7	445.2	489.7	534.2	578.8	623.3	667.8	712.3	756.8	801.4	845.9	890.4
551-600	289.9	338.2	386.6	434.9	483.2	531.5	579.8	628.2	676.5	724.8	773.1	821.4	869.8	918.1	966.4
601-650	312.5	364.6	416.7	468.8	520.9	573	625.1	677.2	729.3	781.4	833.4	885.5	937.6	989.7	1041.8
651-700	335.1	391	446.8	502.7	558.5	614.4	670.2	726.1	781.9	837.8	893.6	949.5	1005.3	1061.2	1117
701-750	357.8	417.4	477	536.7	596.3	655.9	715.6	775.2	834.8	894.5	954.1	1013.7	1073.3	1133	1192.6
751-800	380.1	443.5	506.8	570.2	633.5	696.9	760.2	823.6	886.9	950.3	1013.6	1077	1140.3	1203.7	1267

Source: Annexure to RC-06 of 2013, Traffic Commercial, Indian Railways

ANNEXURE – VII PROJECT P&L STATEMENT

							(Rs. Crores)
Year	**Revenue**	**O&M Cost**	**Book Depreciation**	**Interest**	**EBT**	**Tax**	**EAT**
2013							
2014							
2015							
2016							
2017							
2018	3,825.62	1,019.82	402.50	1,009.69	1,393.61	285.47	1,108.14
2019	4,199.40	1,104.58	402.50	959.20	1,733.11	355.01	1,378.10
2020	4,573.18	1,189.34	402.50	858.24	2,123.10	501.78	1,621.32
2021	4,946.96	1,274.11	402.50	757.27	2,513.08	660.07	1,853.01
2022	5,320.74	1,358.87	402.50	656.30	2,903.07	815.19	2,087.88
2023	5,694.52	1,443.63	402.50	555.33	3,293.05	674.55	2,618.50
2024	5,834.04	1,475.02	402.50	454.36	3,502.15	717.38	2,784.77
2025	5,973.55	1,506.41	402.50	353.39	3,711.25	760.22	2,951.03
2026	5,973.55	1,506.41	402.50	252.42	3,812.22	780.90	3,031.32
2027	5,973.55	1,506.41	402.50	151.45	3,913.18	801.58	3,111.60
2028	5,973.55	1,506.41	402.50	50.48	4,014.15	822.26	3,191.89
2029	5,973.55	1,506.41	402.50	-0.00	4,064.64	832.61	3,232.03
2030	5,973.55	1,506.41	402.50	-0.00	4,064.64	832.61	3,232.03
2031	5,973.55	1,506.41	402.50	-0.00	4,064.64	832.61	3,232.03
2032	5,973.55	1,506.41	402.50	-	4,064.64	832.61	3,232.03
2033	5,973.55	1,506.41	402.50	-	4,064.64	1,368.62	2,696.02
2034	5,973.55	1,506.41	402.50	-	4,064.64	1,376.69	2,687.94
2035	5,973.55	1,506.41	402.50	-	4,064.64	1,383.96	2,680.68
2036	5,973.55	1,506.41	402.50	-	4,064.64	1,390.50	2,674.14
2037	5,973.55	1,506.41	402.50	-	4,064.64	1,396.39	2,668.25
2038	5,973.55	1,506.41	402.50	-	4,064.64	1,401.69	2,662.95
2039	5,973.55	1,506.41	402.50	-	4,064.64	1,406.45	2,658.18
2040	5,973.55	1,506.41	402.50	-	4,064.64	1,410.74	2,653.89
2041	5,973.55	1,506.41	402.50	-	4,064.64	1,414.61	2,650.03
2042	5,973.55	1,506.41	402.50	-	4,064.64	1,418.08	2,646.56
2043	5,973.55	1,506.41	402.50	-	4,064.64	1,421.21	2,643.43
2044	5,973.55	1,506.41	402.50	-	4,064.64	1,424.03	2,640.61
2045	5,973.55	1,506.41	402.50	-	4,064.64	1,426.56	2,638.08
2046	5,973.55	1,506.41	402.50	-	4,064.64	1,428.84	2,635.80
2047	5,973.55	1,506.41	402.50	-	4,064.64	1,430.89	2,633.75

ANNEXURE – VIII: PROJECT CASH FLOW STATEMENT

(Rupees Millions)

Year	Capital Expenditure (incl Pre Ops, excl IDC)	EBT	Interest	Book Depreciation	Tax	Pre-tax Project IRR	Post tax Project IRR	Equity Share Capital	EAT	Book Depreciation	Principle Repayment	Equity IRR
						21%	**18.1%**					**23.18%**
2013	907.64					-907.64	-907.64	907.64		0.00	0.00	-907.64
2014	1300.00					-1300.00	-1300.00	1300.00		0.00	0.00	-1300.00
2015	3270.30					-3270.30	-3270.30	1992.36		0.00	0.00	-1992.36
2016	4598.50					-4598.50	-4598.50	0.00		0.00	0.00	0.00
2017	3302.56					-3302.56	-3302.56	0.00		0.00	0.00	0.00
2018		1393.61	1009.69	402.50	285.47	2805.80	2520.33		1108.14	402.50	0.00	1510.65
2019		1733.11	959.20	402.50	355.01	3094.82	2739.81		1378.10	402.50	917.90	862.70
2020		2123.10	858.24	402.50	501.78	3383.84	2882.06		1621.32	402.50	917.90	1105.93
2021		2513.08	757.27	402.50	660.07	3672.85	3012.78		1853.01	402.50	917.90	1337.62
2022		2903.07	656.30	402.50	815.19	3961.87	3146.68		2087.88	402.50	917.90	1572.48
2023		3293.05	555.33	402.50	674.55	4250.89	3576.33		2618.50	402.50	917.90	2103.10
2024		3502.15	454.36	402.50	717.38	4359.01	3641.63		2784.77	402.50	917.90	2269.37
2025		3711.25	353.39	402.50	760.22	4467.14	3706.92		2951.03	402.50	917.90	2435.63
2026		3812.22	252.42	402.50	780.90	4467.14	3686.24		3031.32	402.50	917.90	2515.92
2027		3913.18	151.45	402.50	801.58	4467.14	3665.56		3111.60	402.50	917.90	2596.21
2028		4014.15	50.48	402.50	822.26	4467.14	3644.88		3191.89	402.50	917.90	2676.49
2029		4064.64	0.00	402.50	832.61	4467.14	3634.53		3232.03	402.50	0.00	3634.53
2030		4064.64	0.00	402.50	832.61	4467.14	3634.53		3232.03	402.50	0.00	3634.53
2031		4064.64	0.00	402.50	832.61	4467.14	3634.53		3232.03	402.50	0.00	3634.53
2032		4064.64	0.00	402.50	832.61	4467.14	3634.53		3232.03	402.50	0.00	3634.53
2033		4064.64	0.00	402.50	1368.62	4467.14	3098.52		2696.02	402.50	0.00	3098.52
2034		4064.64	0.00	402.50	1376.69	4467.14	3090.45		2687.94	402.50	0.00	3090.45

2035		4064.64	0.00	402.50	1383.96	4467.14	3083.18		2680.68	402.50	0.00	3083.18
2036		4064.64	0.00	402.50	1390.50	4467.14	3076.64		2674.14	402.50	0.00	3076.64
2037		4064.64	0.00	402.50	1396.39	4467.14	3070.75		2668.25	402.50	0.00	3070.75
2038		4064.64	0.00	402.50	1401.69	4467.14	3065.45		2662.95	402.50	0.00	3065.45
2039		4064.64	0.00	402.50	1406.45	4467.14	3060.69		2658.18	402.50	0.00	3060.69
2040		4064.64	0.00	402.50	1410.74	4467.14	3056.40		2653.89	402.50	0.00	3056.40
2041		4064.64	0.00	402.50	1414.61	4467.14	3052.53		2650.03	402.50	0.00	3052.53
2042		4064.64	0.00	402.50	1418.08	4467.14	3049.06		2646.56	402.50	0.00	3049.06
2043		4064.64	0.00	402.50	1421.21	4467.14	3045.93		2643.43	402.50	0.00	3045.93
2044		4064.64	0.00	402.50	1424.03	4467.14	3043.11		2640.61	402.50	0.00	3043.11
2045		4064.64	0.00	402.50	1426.56	4467.14	3040.58		2638.08	402.50	0.00	3040.58
2046		4064.64	0.00	402.50	1428.84	4467.14	3038.30		2635.80	402.50	0.00	3038.30
2047		4064.64	0.00	402.50	1430.89	5805.04	4374.15		2633.75	402.50	0.00	3036.25

ANNEXURE – IX: EQUITY PARTICIPATION ASSURANCE- GOVERNMENT OF ODISHA

Government of Odisha
Commerce & Transport (Transport) Department

No. 5176 /T., Dated 08.07.13
Rly-AL-Misc-1/13 (Pt)

From
Shri S.Mahaptra,IRTS,
Commissioner Rail Coordination &
Special Secretary to Government.

To
The Managing Director,
Angul Sukinda Railway Ltd.
Bhubaneswar.

Sub: Financial participation of Government of Odisha in the Angul Sukinda Railway Ltd. in the SPV project.

Sir,

In inviting reference to your letter dated, 23.03.2013 on the above noted subject I am directed to say that Government after careful consideration of your proposal have agreed in principle for equity contribution up to the maximum of 26% in a phased manner subject to progress of the project. Moreover, Government has in principle agreed to contribute 10% of the equity amounting to Rs.42 crore (Rupees forty two crore) in the current financial year, subject to submission of 'Financial Information Memorandum' for approval of the Project.

Hence, you are requested to submit the Financial Information Memorandum for taking further action at this end.

Yours faithfully,

CRC & Special Secretary to Govt.

ANNEXURE – X: EQUITY PARTICIPATION ASSURANCE- ODISHA MINING CORPORATION

9963

No._____/OMC/Project/2013 July 26, 2013

To
The Managing Director
Angul-Sukinda Railway Limited
B-2, Rail Vihar
East Coast Railway
Bhubaneswar-751 023

Sub: Equity participation of OMC in Angul-Sukinda Railway Ltd

Ref: Your letter No.ASRL/BBS/Equityshare/54/13 dt.13.07.2013.

Sir,

With reference to the above, this is to inform you that Board of Directors of OMC Limited, in its 400th meeting held on 20.7.2013, has accorded in principle approval of your proposal for OMC to contribute Rs.63.00 Crore (Rupees Sixtythree Crore only) towards equity participation in the Angul-Sukinda Railway Ltd.

You are, therefore, requested to submit a detailed proposal in this regard for further necessary action at this end.

Yours faithfully,

Chairman-cum-MD

9964

Memo No._____/OMC/Project/2013 July 26, 2013

Copy to:

1) Shri S.Mohapatra, IRTS, CRC & Special Secretary to Govt. of Odisha, Commerce & Transport Department, Bhubaneswar for kind information.

2) Commissioner-cum-Secretary to Govt. of Odisha, Steel & Mines Department, Bhubaneswar for kind information.

3) Additional Chief Secretary to Government of Odisha, Finance Department, Bhubaneswar for kind information.

4) Chief Secretary to Government of Odisha, Bhubaneswar for kind information.

Chairman-cum-MD

ANNEXURE – XI: LAND ACQUISITION ASSURANCE- GOVERNMENT OF ODISHA

GOVERNMENT OF ODISHA
REVENUE & DISASTER MANAGEMENT DEPARTMENT
BHUBANESWAR

Lr.No. LA(A)52/13 (Ang) - 23585 Dtd.28.06.2013

From:

Dr. Taradatt,IAS
Principal Secretary to Govt.

To

Sri D.K.Samantray
M.D., Angul-Dubri-Sukinda
Rail Link Project
Rail Vihar, Chandrasekharpur
Bhubaneswar

Sir,

Your SMS dated 18.06.2013 regarding land acquisition problems of Angul-Dubri-Sukinda Rail line may be recalled. The position on the ground is as follows:

Angul:	Total land to be acquired	-	Ac.122.55
	Orders issued u/s 7 of LA Act	-	5 villages – Ac.32.890
	Land acquired in two villages	-	Ac.1.440

Though land losers are demanding higher amount of compensation (@ Rs.25.00 lakh per acre), notice is being issued u/s 12(2) to receive compensation by 30.6.2013 in respect of Acres 16.87 in Majhika village. The requisitioning authority has not deposited the amount of compensation in respect of Kholua village (Ac.9.91). In remaining two villages, namely Budhapank (Ac.64.540) and Ningarakata (Ac.24.625), preliminary estimates have been returned to Commerce & Transport Department to address the deficiencies.

The position in Dhenkanal is as follows:

- 4.(1) Notification issued for 49 villages.
- Orders u/s 7 passed for 45 villages (funds for the remaining 4 villages have not been received resulting in delay to pass orders u/s 7 for Ac. 161.92).
- Out of 45 villages(Ac.638.931), land in 19 villages(Ac.175.385) has already been acquired and handed over to East Coast Railway.
- The award in remaining areaVillages has been passed.
- Ac.109.390 in 12 villages is expected to be handed over shortly after completion of disbursement.
- In remaining 14 villages, the land (Ac.353.306) is likely to be handed over after payment of compensation by 30.9.2013.

As regards Jajpur district, possession of land handed over is – Ac.32.68. The requisition authority has been requested to take over possession of Ac.40.34

(75% payment of compensation has already been done). Payment of compensation in relation to the remaining land is at various stages. All possible steps are being taken to complete the task of land acquisition by end of September, 2013.

Yours faithfully,

29.6.13

Principal Secretary