Logistics for Metals & Minerals in India

05-February-2019

Saurabh Sood

Agenda
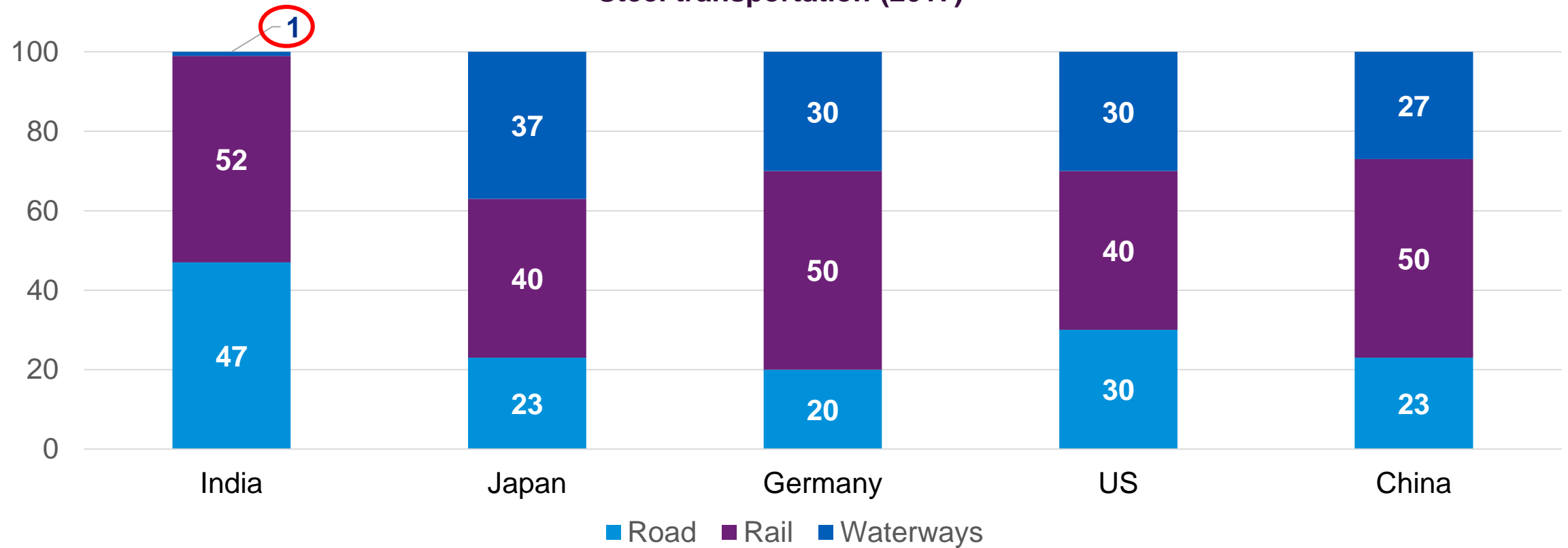
	Topic
1	Movement of steel – modal share
2	Steel transportation – Current & Potential Scenarios
3	Thermal Coal – Coastal Shipping potential
4	Promoting Inland Waterways in India
5	Iron-Ore Slurry Pipeline – Case Study

Movement of Steel
Modal Share

Steel transportation (2017)
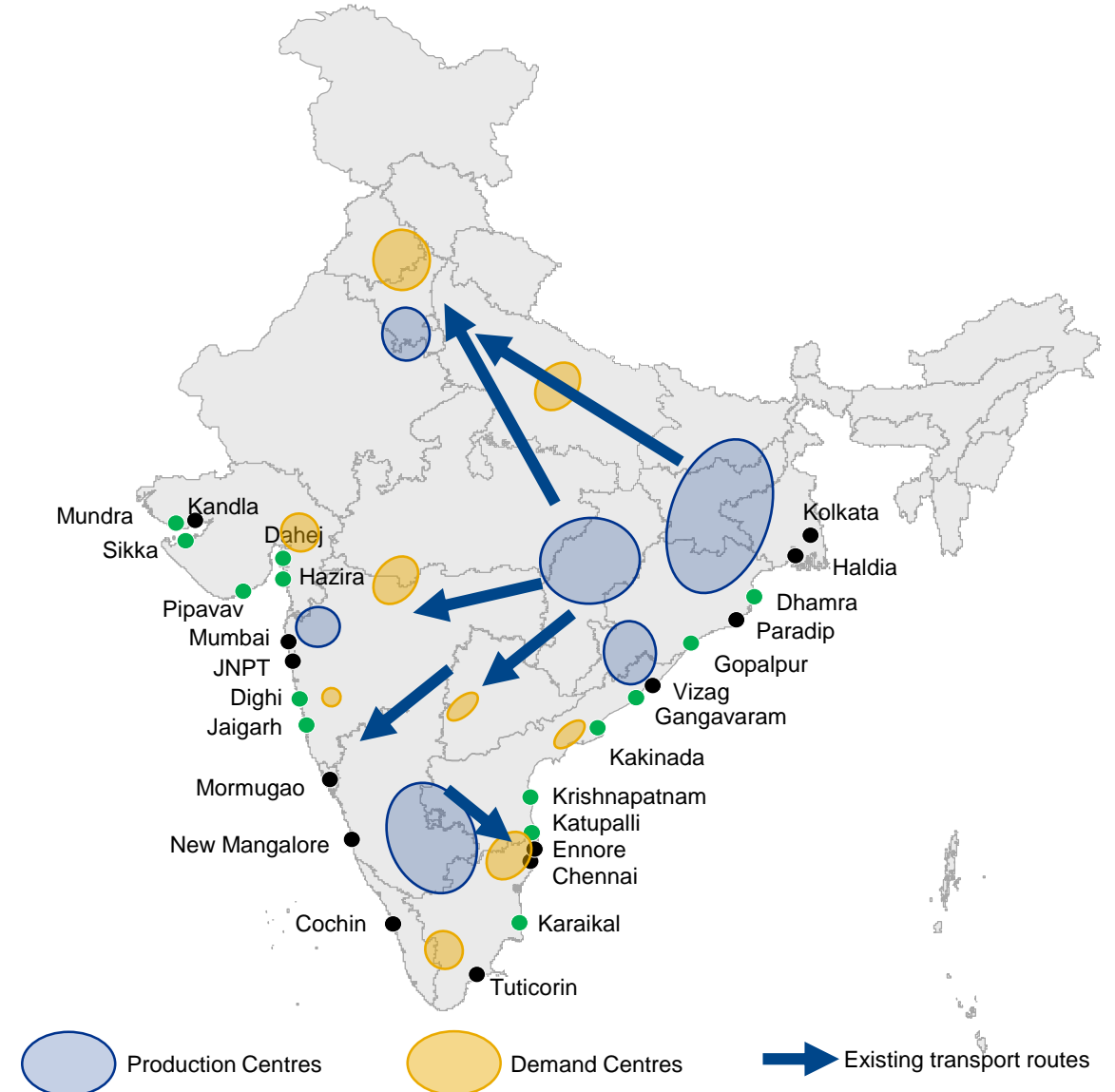
Source: Secondary Research

Steel transportation
Current Scenario

- ~60% of total steel production in east coast states

- Many production and/or consumption centers located near coast / waterways

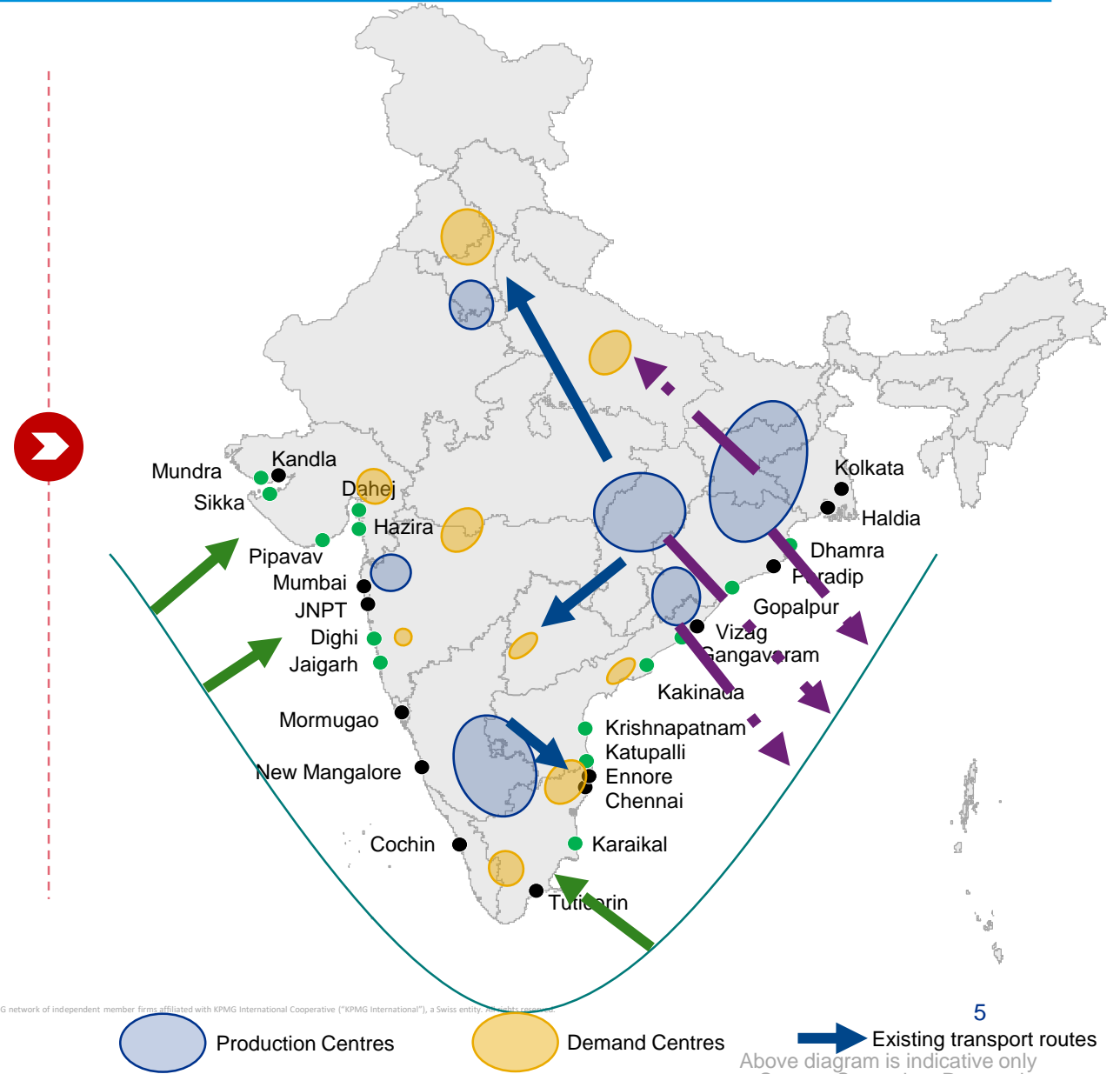**Opportunity for Coastal Movement & Inland Waterways**

Mundra
Kandla
Sikka
Dahej
Hazira
Pipavav
Mumbai
JNPT
Dighi
Jaigarh
Mormugao
New Mangalore
Cochin

Kolkata
Haldia
Dhamra
Paradip
Gopalpur
Vizag
Gangavaram
Kakinada
Krishnapatnam
Katupalli
Ennore
Chennai
Karaikal
Tuticorin

Production Centres   Demand Centres   Existing transport routes

Above diagram is indicative only
Source: KPMG analysis

Steel Transportation
Potential Scenario

To enhance transportation between production & demand centers, the Government is promoting

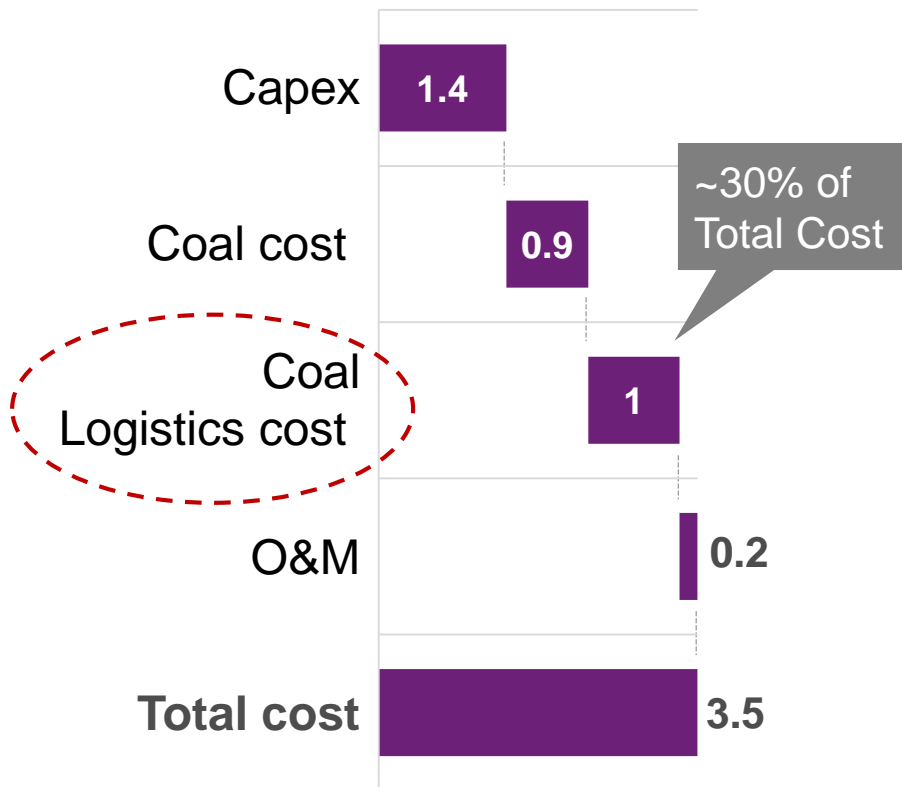I.   Coastal shipping

II. Inland Waterways

III. Planning port-led development of steel clusters

under the **Sagarmala Programme**

Mundra
Kandla
Sikka
Dahej
Hazira
Pipavav
Mumbai
JNPT
Dighi
Jaigarh
Mormugao
New Mangalore
Cochin

Kolkata
Haldia
Dhamra
Paradip
Gopalpur
Vizag
Gangavaram
Kakinada
Krishnapatnam
Katupalli
Ennore
Chennai
Karaikal
Tuticorin

Production Centres   Demand Centres   Existing transport routes

Above diagram is indicative only
Source: Secondary Research

Thermal Coal
Movement by Coastal Shipping

Power Generation Cost Break-up

Capex — 1.4

Coal cost — 0.9

~30% of Total Cost

Coal Logistics cost — 1

O&M — 0.2

Total cost — 3.5

- Coastal movement from Origin (Talcher – Ib Valley region) to Destination (Coastal TPPs in southern states) may reduce TLC

- Location of coal mine & power plant determines feasibility of coastal movement

- Coal linkages may be finalized after evaluating both rail & coastal modes

- Need to prioritize rail connectivity projects to ports and rake availability

Source: Sagarmala National Perspective Plan

Key Initiatives being taken by Ministry of Shipping to promote Coastal Shipping

Policy Initiatives

- Priority berthing for coastal vessels at ports
- Discounts of minimum 40% to vessels carrying coastal cargo at Major Ports

Enhancing Ease of Doing Business

- Improve Major Port's efficiency
- Reduction in vessel Turn Around Time (TAT); Faster documentation for trade
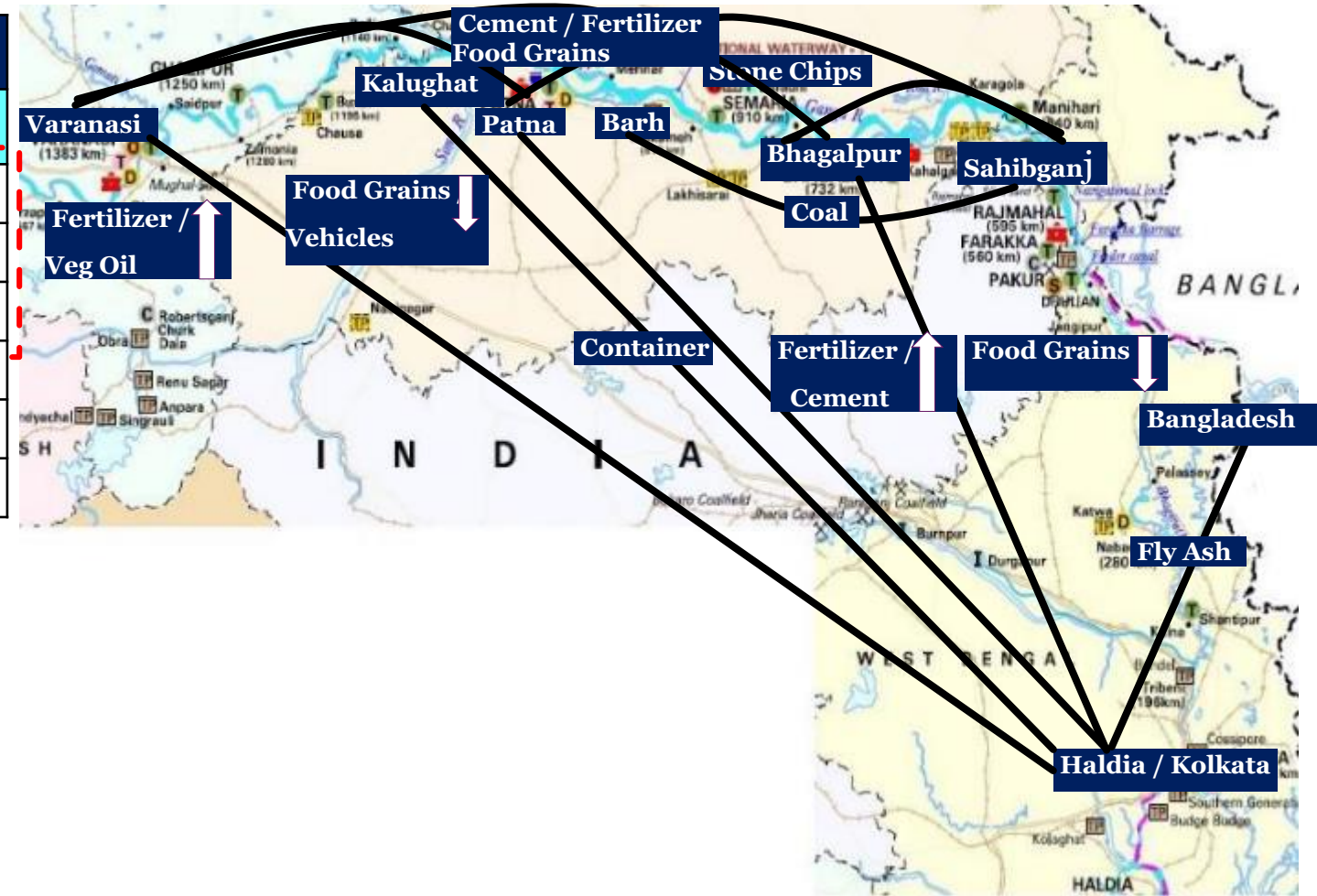
Coastal Berth Scheme

- Grant-in-aid assistance to develop berths and associated infrastructure for exclusive use of coastal shipping only

Promoting Inland Waterways in India
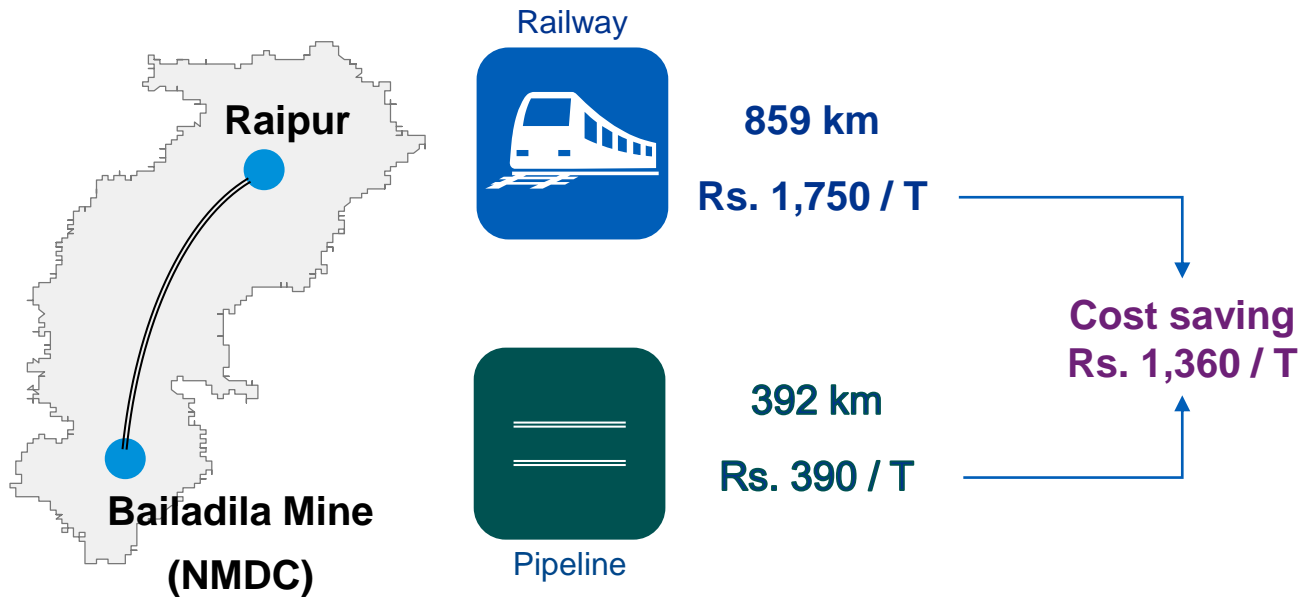## NW-1

Traffic Projection : In Million Tons				
Commodity	**2020**	**2025**	**2035**	**2045**
Coal	1.92	8.12	13.39	20.98
Construction Material	9.97	17.97	29.71	31.43
Minerals & Chemicals	1.61	2.26	2.35	2.4
Food & Food Stuff	2.26	2.38	2.46	2.48
Others	6.12	6.59	7.72	8.16
Total	**21.88**	**37.32**	**55.63**	**65.4**

Source: IWAI, KPMG Analysis

Iron-Ore Slurry Pipeline
Case Study

Map of Chhattisgarh showing Raipur and Bailadila Mine (NMDC)

Railway
859 km
Rs. 1,750 / T

Pipeline
392 km
Rs. 390 / T

Cost saving Rs. 1,360 / T

Benefits:

- ~50%-70% lower cost of transportation

- Environment friendly mode

- Lesser land required

- Reduced input costs can reduce final product cost

- Favorable cost economics

- Payback ~ 5 years

Source: KPMG analysis

Key action areas for improving modal mix for transporting minerals & metals

Increase modal share of waterways (coastal & inland waterways)

Encourage pipeline-based movement of iron ore & explore opportunity for coal

Increase rake availability at ports & demand/production centers and expedite railway port connectivity projects' completion

KPMG

Thank you

Saurabh Sood

Associate Director

Infrastructure, Government and Healthcare (IGH)

KPMG in India

saurabhsood@kpmg.com