



# ESCAP

## *“Traincost”*

### Point-to-Point Railway Traffic Costing Model

#### Part A

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Joint UNESCAP – UIC seminar on:

## Facilitation and Costing of Railway Services along the Trans-Asian Railway

Bangkok

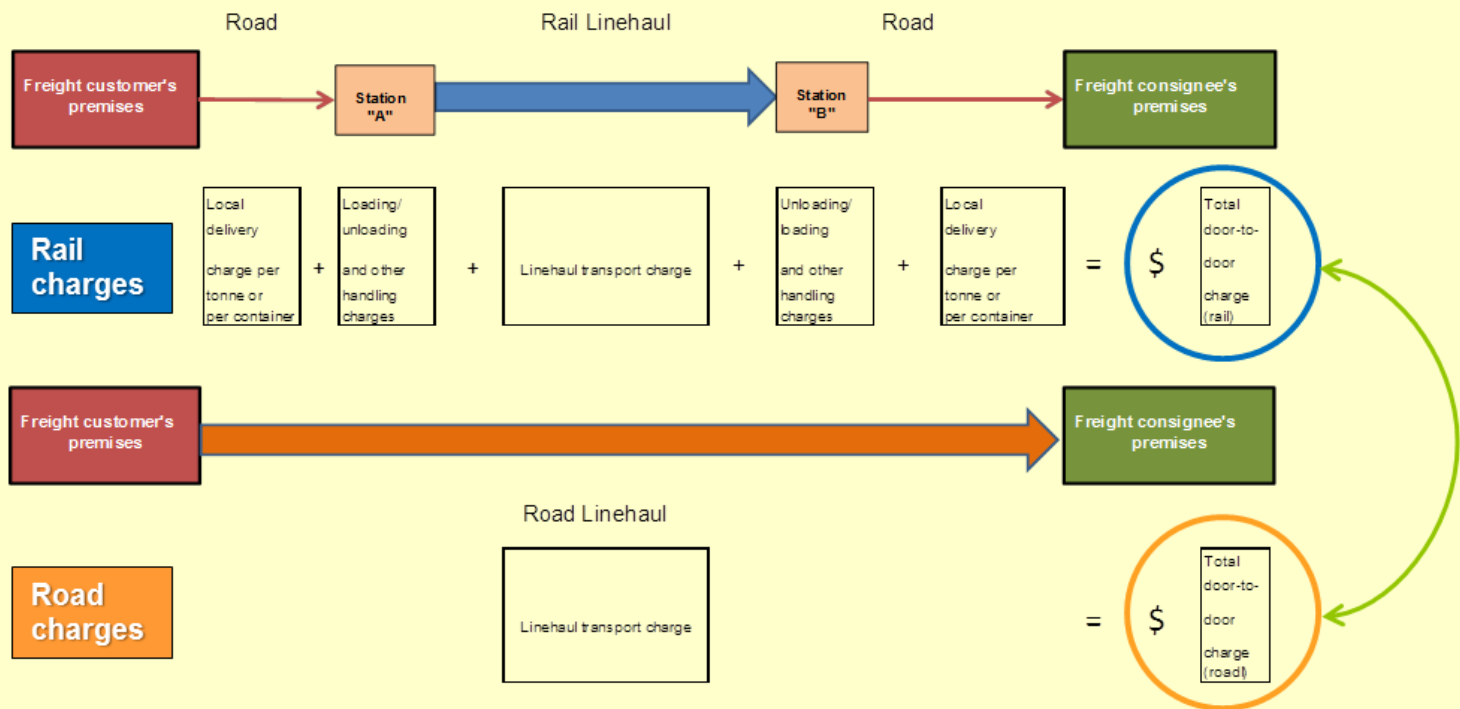
9-11 December 2015

## **PART A: Traffic costing in railway planning environment**

1. Relationship between railway costs and prices
2. Preparation of railway marketing and corporate plans
3. Railway capital investment appraisal

# Relationship between railway costs and prices

- Most railways of region operate in competitive environment
- In competitive transport markets, competition determines level of **railway prices**



# Relationship between railway costs and prices

- Example of comparative rail and road container haulage charges, Chennai-Bengaluru (2014)

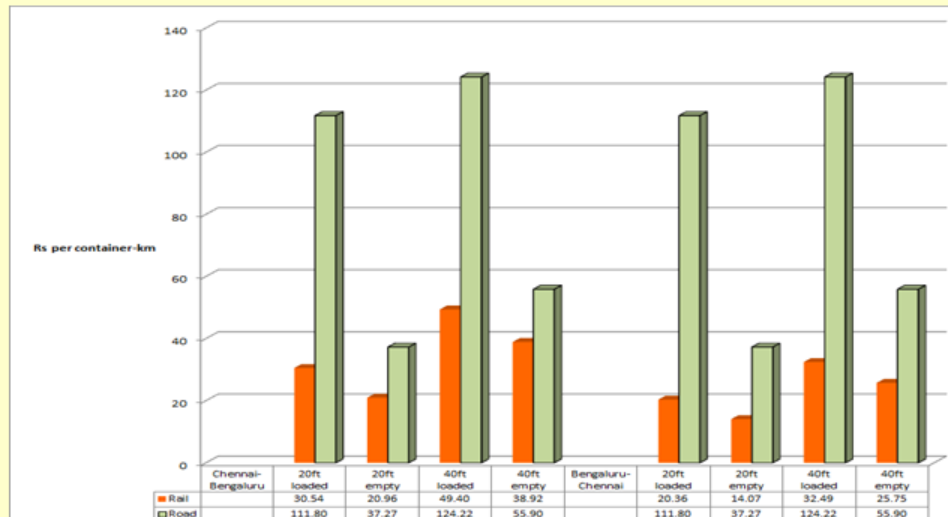
Comparative haulage charges - container traffic Chennai-Whitefield-Chennai

Route	Container size/ load condition	Road		Rail		Ratio rail/road	Inverse ratio	Indicated modal shares	
		Rs.per container	Rs per container-km	Rs per container	Rs.per container-km			rail	road
Harbour of Madras - Whitefield	20ft loaded	36,000	111.80	10,200	30.54	0.27	3.66	78.5%	21.5%
	20ft empty	12,000	37.27	7,000	20.96	0.56	1.78	64.0%	36.0%
	40ft loaded	40,000	124.22	16,500	49.40	0.40	2.51	71.5%	28.5%
	40ft empty	18,000	55.90	13,000	38.92	0.70	1.44	59.0%	41.0%
Whitefield - Harbour of Madras	20ft loaded	36,000	111.80	6,800	20.36	0.18	5.49	84.6%	15.4%
	20ft empty	12,000	37.27	4,700	14.07	0.38	2.65	72.6%	27.4%
	40ft loaded	40,000	124.22	10,850	32.49	0.26	3.82	79.3%	20.7%
	40ft empty	18,000	55.90	8,600	25.75	0.46	2.17	68.5%	31.5%

Sources: Rail charges - CONCOR website October 2014; Road charges, Freight Forwarder, Bengaluru October 2014

Assumptions:

- (1) Like for like comparison (haulage to/from Whitefield ICD by road vs. rail), on basis that road would have to call at Whitefield for customs inspection
- (2) Road rates apply irrespective of direction of travel



## Relationship between railway costs and prices

- By contrast, railway O&M (Operating and Maintenance) costs are determined by the level of resources: human, physical and capital assigned to individual routes and services
- The level of these resources can, and will to some extent, be varied in line with traffic volume - “to some extent” because railways are characterized by a high level of fixed costs, i.e. costs which do not vary with traffic volume
  - principal fixed cost items: fixed infrastructure (track, bridges, other structures) maintenance, station staffing and train control costs, but sometimes even train crew costs, are fixed
- Fixed % of infrastructure O&M costs about 80% for low traffic railways and 50-60% for high traffic railways
- Track inspection, fencing and vegetation control are fixed items of infrastructure maintenance. Re-railing, ballast renewal are main variable items of infra maintenance
  - for ADB Multimodal project, 80% of Sri Lankan Railway infrastructure costs considered to be fixed
  - for Chennai-Bengaluru Industrial Corridor (CBIC) project, 50% of Indian Railways infrastructure costs considered to be fixed

# Relationship between railway costs and prices

- Monitoring profitability of individual railway traffics
  - Desire to improve profitability of railways necessarily requires assessment of profit (or financial contribution) at a disaggregated level, i.e. at level of individual OD traffics or trains, routes and traffic segments
  - Profit for individual traffic segments can be assessed as the difference between unit revenue (revenue per net tonne-km or per passenger-km) and unit operating cost (O&M cost per net tonne-km or per passenger-km)



# Preparation of railway marketing and corporate plans

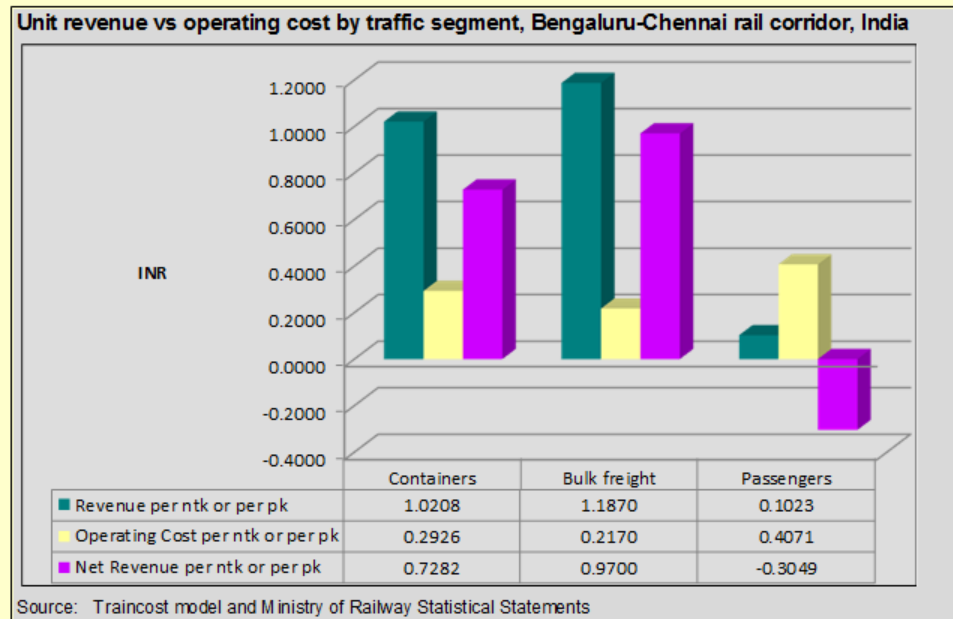
- Marketing plan provides foundation for other functional department plans and for corporate plan



- Essential element of Marketing Plan is SWOT analysis at the market, or traffic, segment level
  - Assessment of financial contribution by individual traffic and market segment is an input for SWOT analysis

# Preparation of railway marketing and corporate plans

- Assessment of traffic financial contributions



- Example: Analysis of container, bulk freight and passenger traffic on the Bengaluru-Chennai

预览已结束，完整报告链接和二维码如下：

[https://www.yunbaogao.cn/report/index/report?reportId=5\\_3704](https://www.yunbaogao.cn/report/index/report?reportId=5_3704)

