

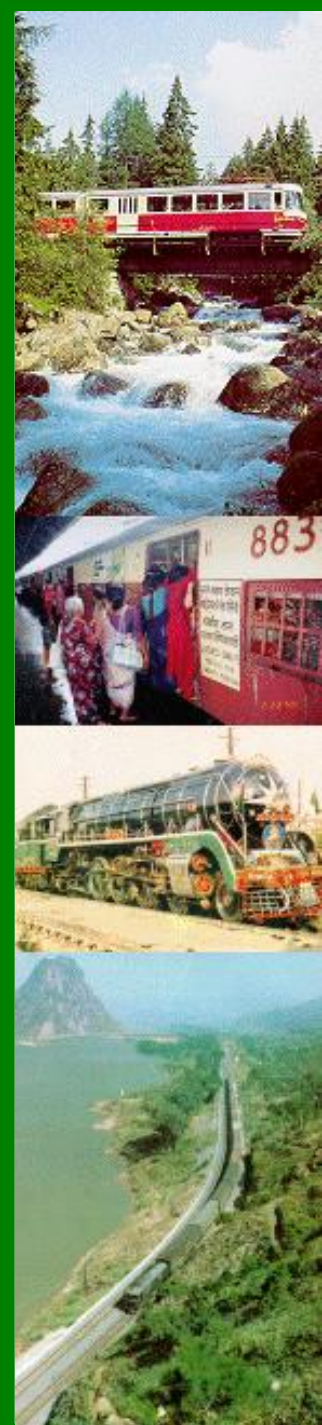


# RAILWAY RESTRUCTURING EXPERIENCES

Louis S. Thompson  
Railways Adviser  
The World Bank  
New Delhi, India  
February 18, 2000



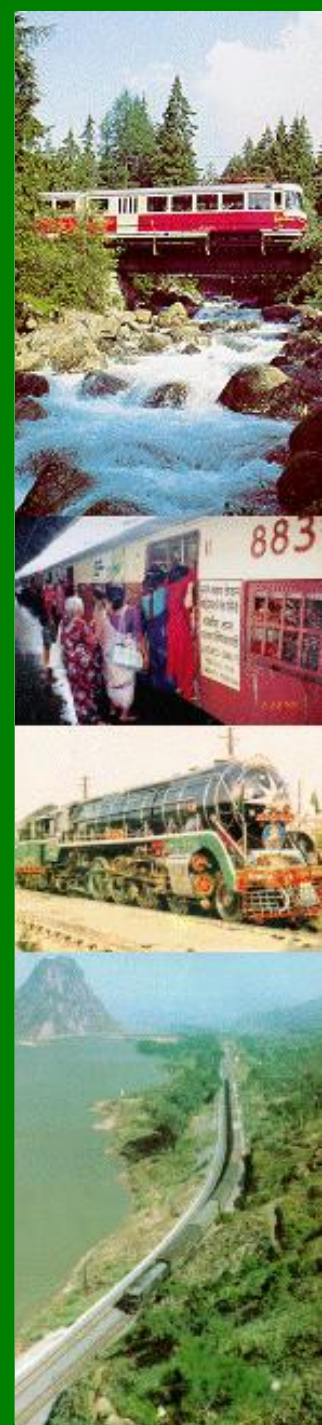
The World Bank





# A Perspective

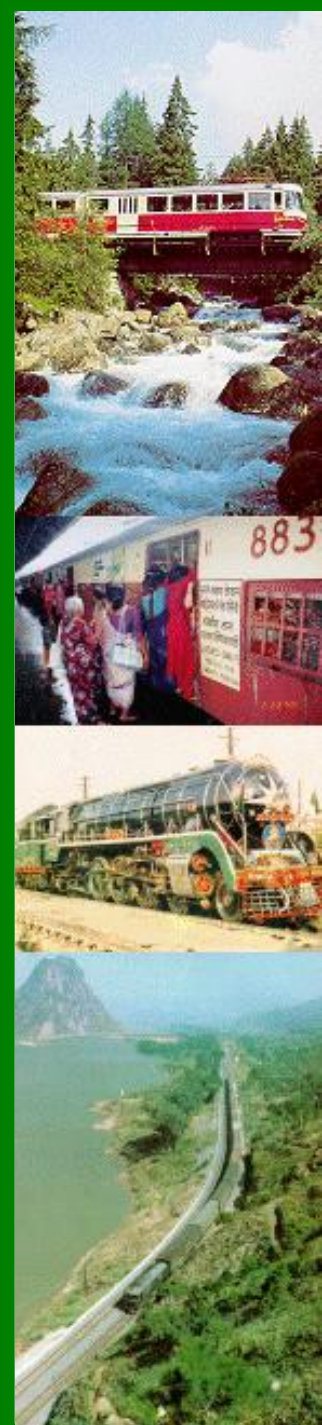
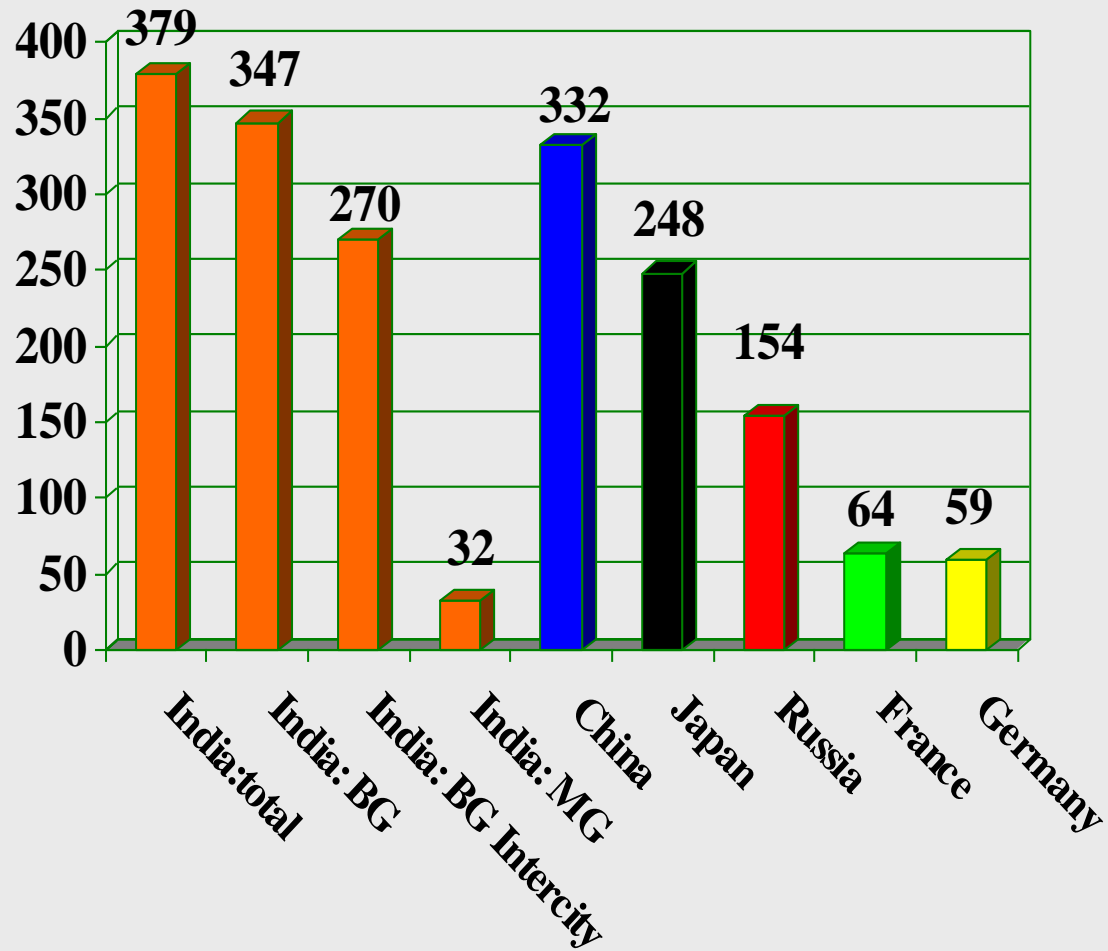
- The World Bank and Indian Railways (IR):
  - at least 21 loans, over \$2.2 billion
  - changing relationship - last “general” loan more than 15 years ago
  - recent focus: business segments (CONCOR and MUTP)
- IR’s accomplishments: a record of distinction
- The coming challenge: change or shrivel
- What other countries are doing
- Case study: change in China
- Ideas for India





# Passenger-Km Comparisons

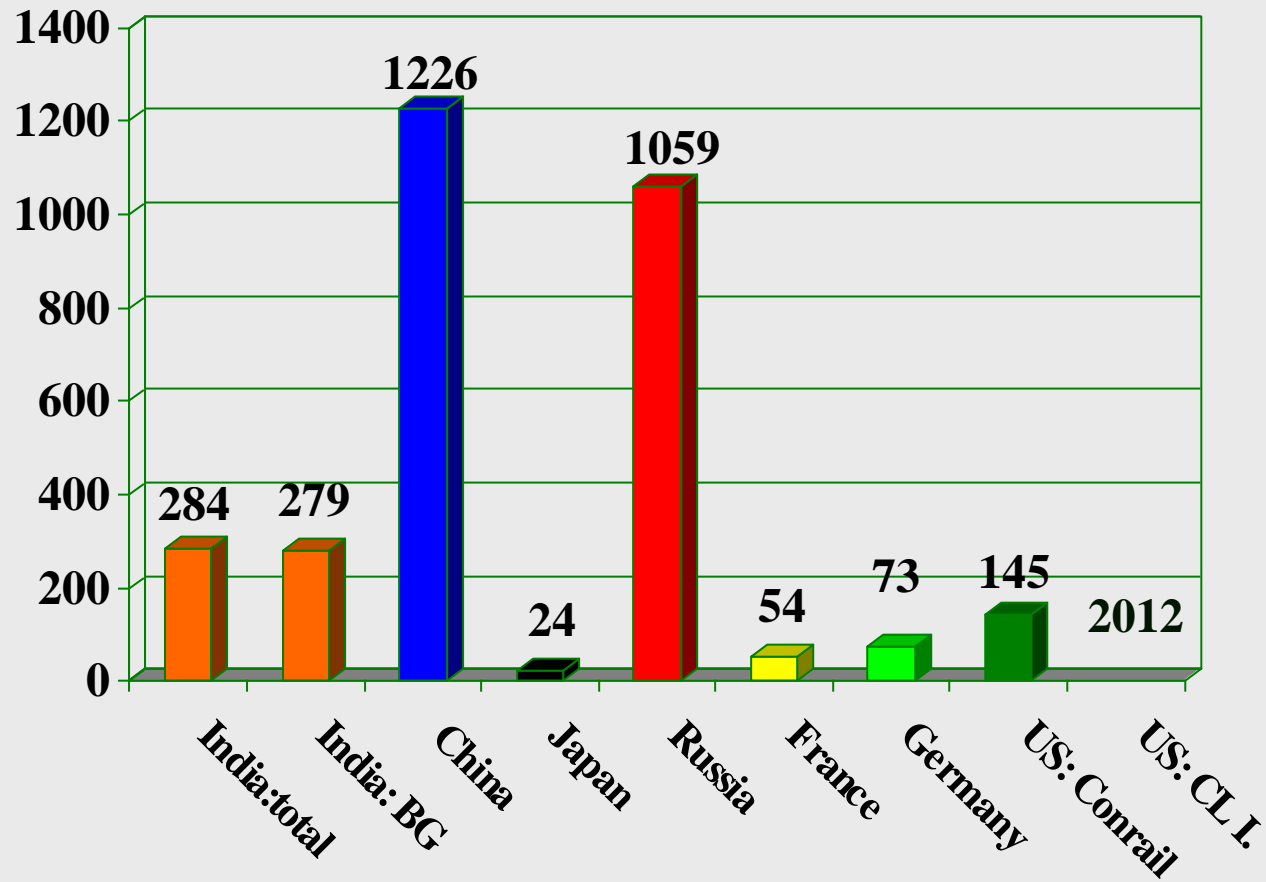
(billions of P-Km in 1997 or 1998)





# Ton-Km Comparisons

(billions of T-Km in 1997 or 1998)

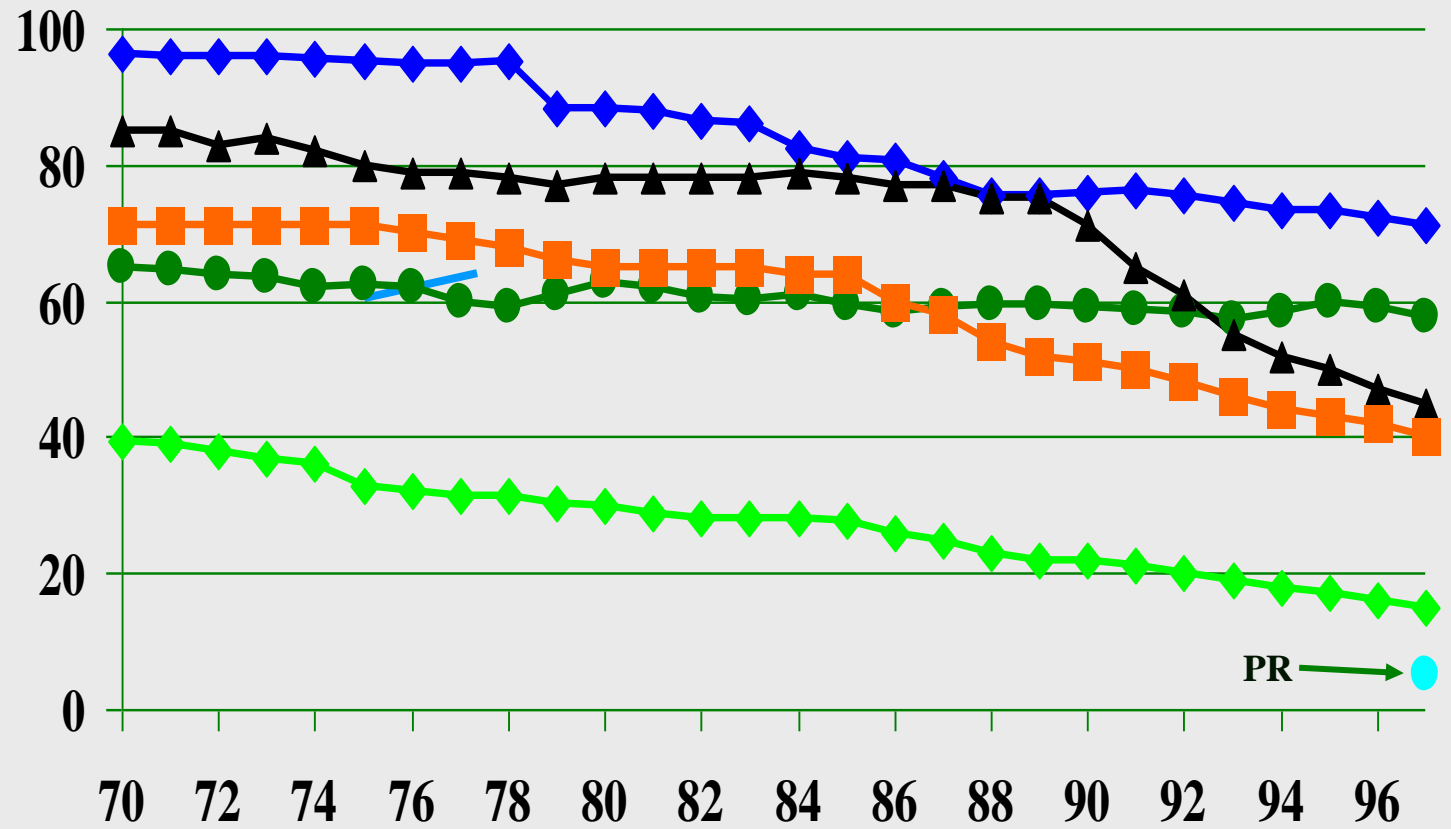




# IR's Freight Role is Shrinking:

Rail versus Truck Freight Market Share (% ton-km)

◆ China ● US ◆ EU ▲ Poland ■ India ● Pakistan



Note: other modes excluded. This considers only the rail share of rail plus truck traffic.



The World Bank

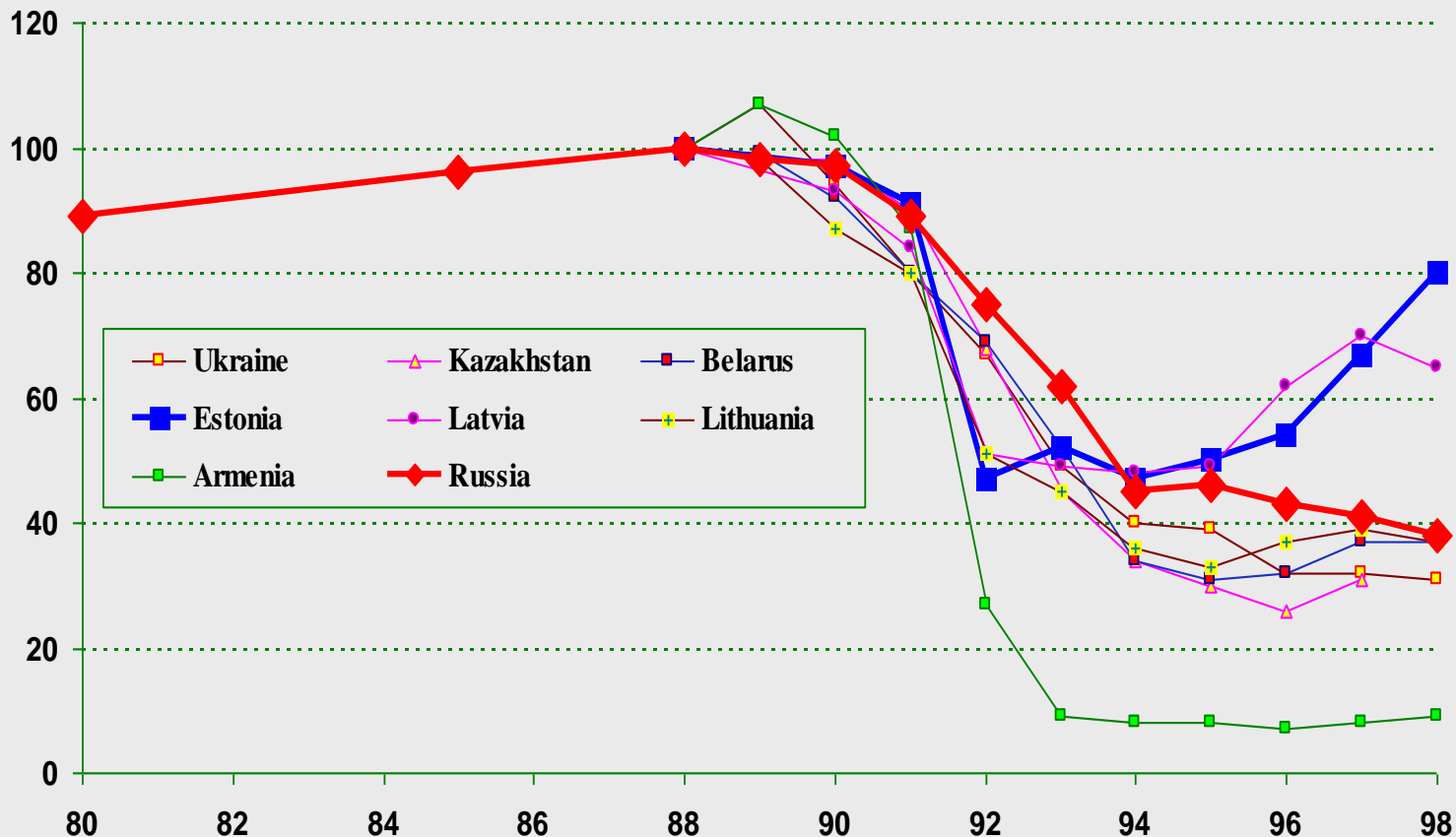




# A Real, Worst Case Scenario

## Freight Trends in the CIS and Baltic Countries

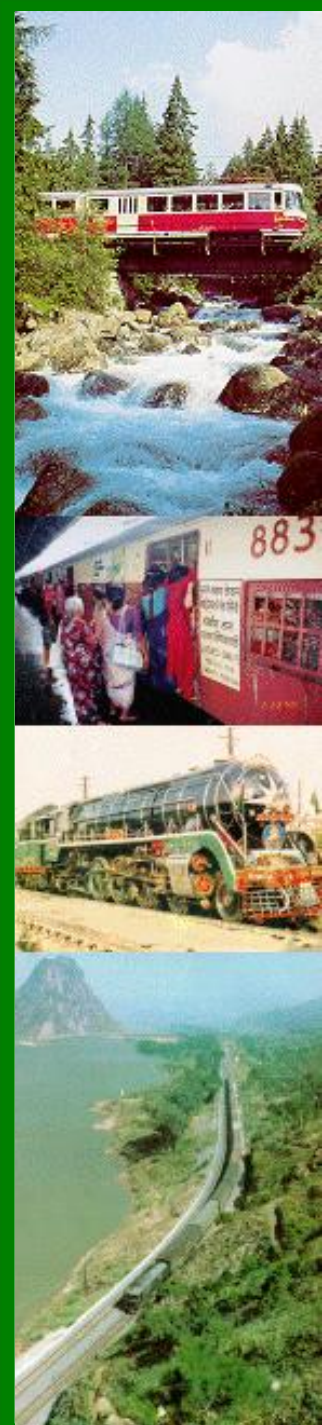
(Ton-Kilometer Index: 1988=100)





# What Others Are Doing

- The railway as enterprise, government as policy maker/regulator (MOT versus MOR)
- Choices in structure (integral, dominant/incremental user, separation of functions or LOBs): **market** determines structure
- Separation of market from social roles
- Moving the public/private boundary -- concessioning and privatization are major elements in restructuring programs in some
- Intra modal versus inter modal competition
- **All** are changing: **mixes** emerging

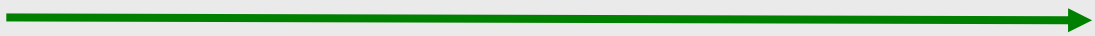




# Directions of Railway Change

## Private Involvement

Structural Change ↓



	Public Ownership	Concessions	Private Ownership
<b>Integral</b>	China (today), India freight and passenger	Argentina and Brazil freight, suburban and Metro, Guangshen, most BOT's	Canadian National, New Zealand, Ferronor (Chile)
<b>Dominant integral, separated incremental</b>	Amtrak, VIA, Japan freight	Mexico Freight, Mexico City suburban passenger, CONCOR	US freight, 3 Japanese passenger railways
<b>Functional Separation</b>	Basic EU Model, France, Chile passenger	Some Swedish suburban, FEPASA (Chile)	UK passenger and freight, proposed Polish and Romanian freight

Mixtures are possible!





# The Deutsche Bahn Structure



**DB AG Holding Company**

**DB Cargo**

**DB Reise & Touristik AG  
(Intercity Passenger)**

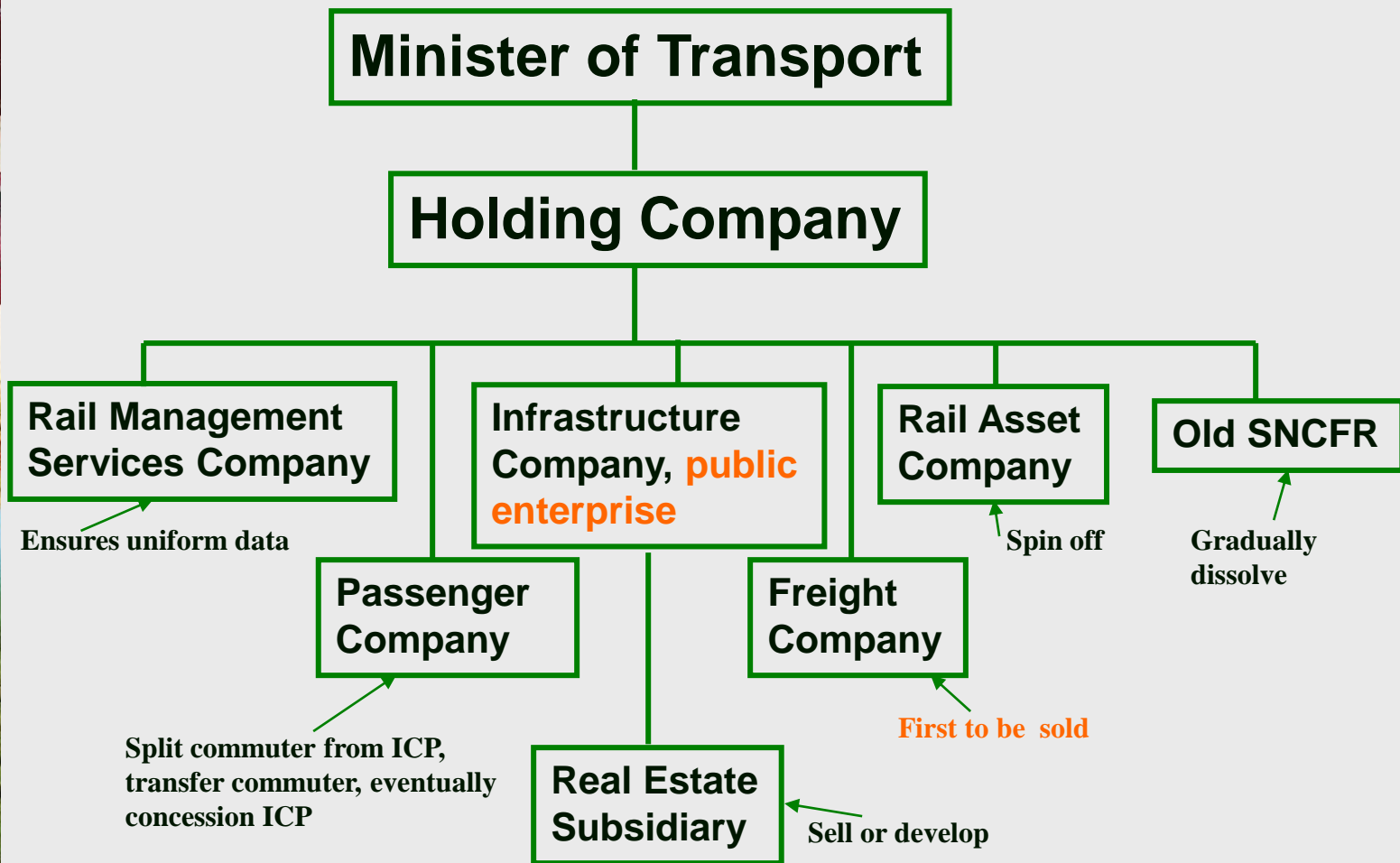
**DB Regio AG  
(Local Passengers)**

**DB Netz  
(Infrastructure)**

**DB Stations and Service AG**



# Romania: The New Railway System With Focus on Transition





# Railway Concessioning

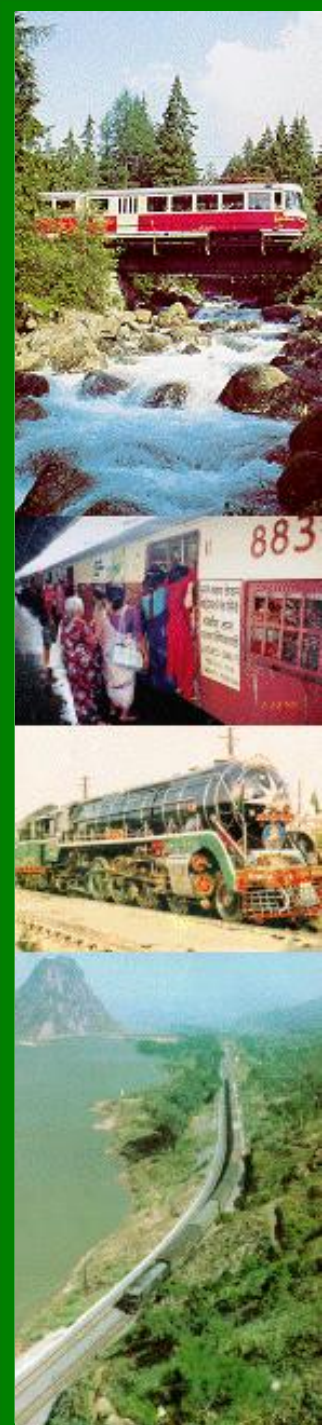
- Began in Argentina in 1991
- Now 13 countries with concessions -- freight 32), inter city passenger (2), suburban passenger (8) and Metros (4)
- A concession is NOT a sale of assets: it is, instead, a transfer of control for a period (30 yrs)
- Concessions can be either payment **to** government for use of assets or payment **by** government for subsidy and capital program
- Experience to date has been highly positive





# The Chinese Restructuring: Ministry of Railways of China (MOR) in Perspective

- A separate Ministry of the Chinese Government (MOR is NOT a part of an MOT)
- A very large undertaking:
  - 3.3 million employees (2 times IR)
  - 58,000 km of line, +16% since 1980. IR has 43,083 Km BG, 15,805 Km MG and 3,600 km NG (and minimal growth since 1980)
- Regionally managed (14 “Administrations”).
- Freight dominated, not passenger
- Freight and passenger traffic still growing, but MOR has NO suburban traffic
- All 1435 mm gauge (“standard”)



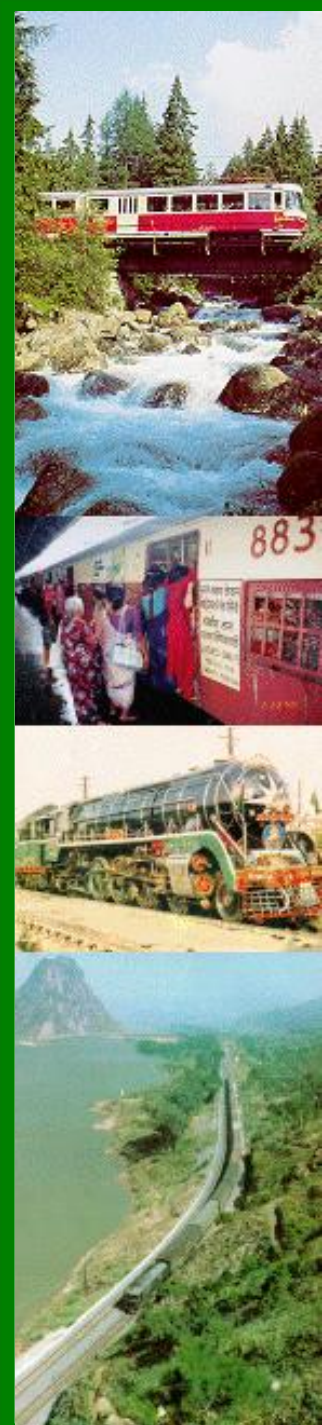
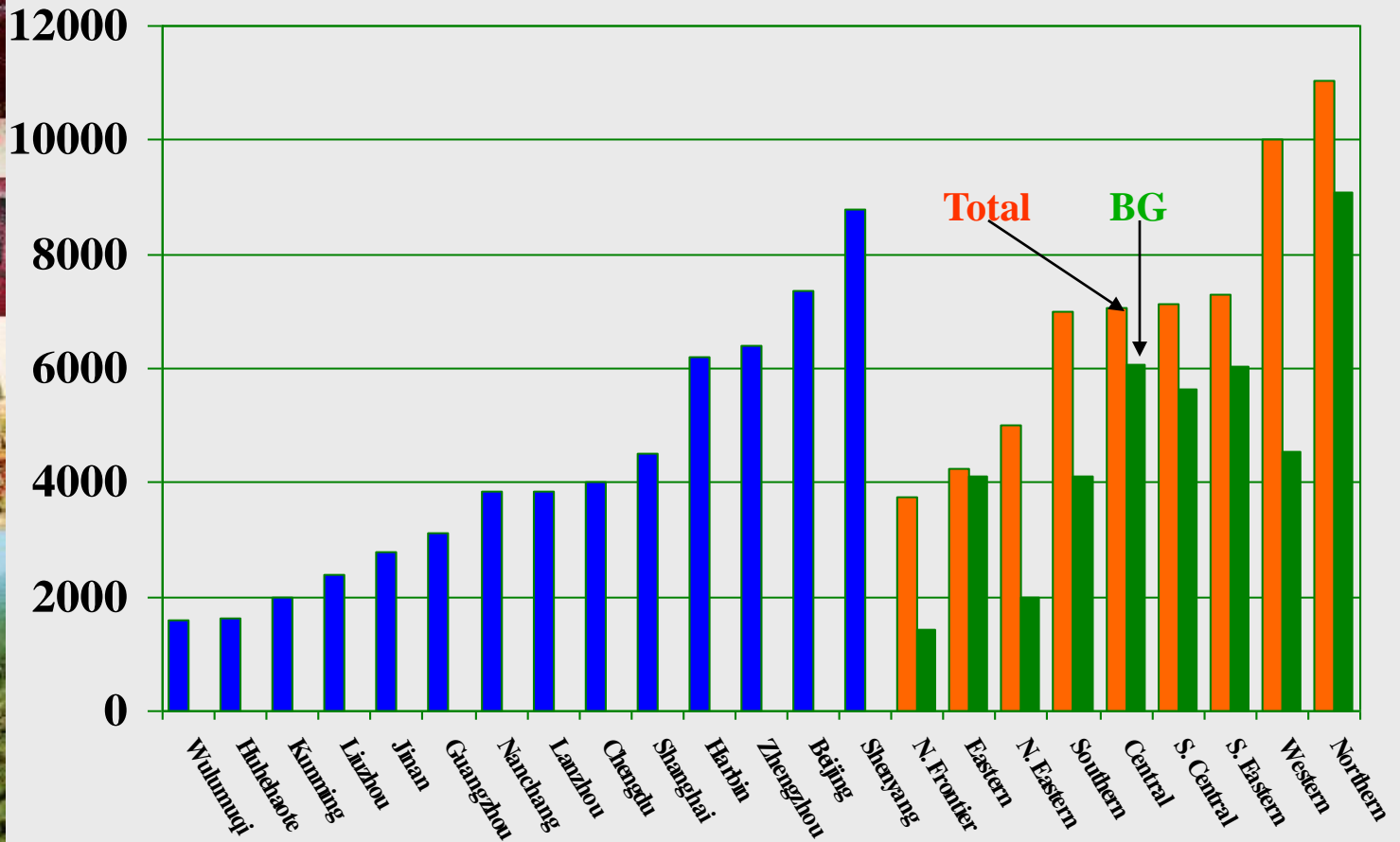


# MOR's 14 Administrations

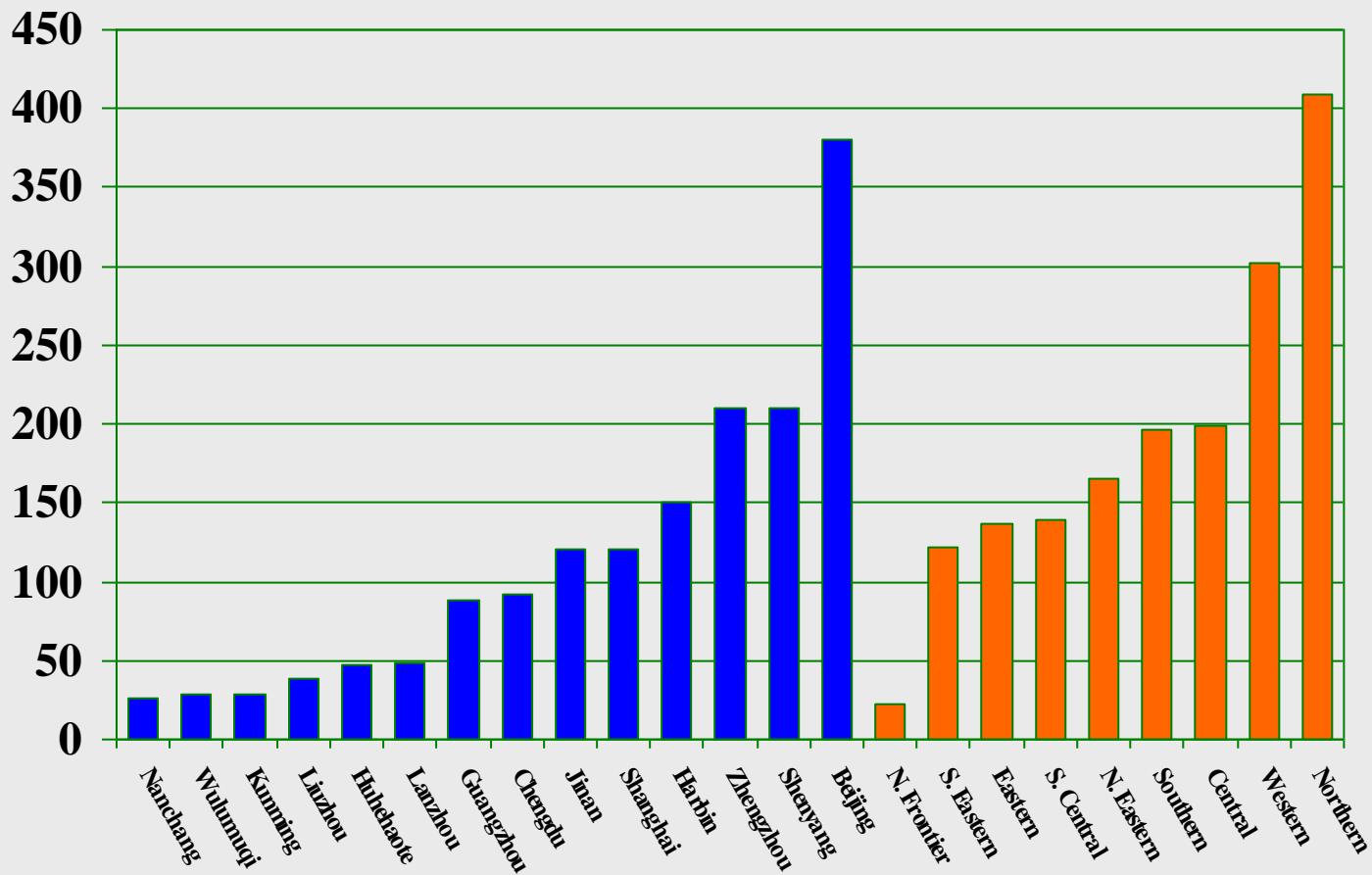




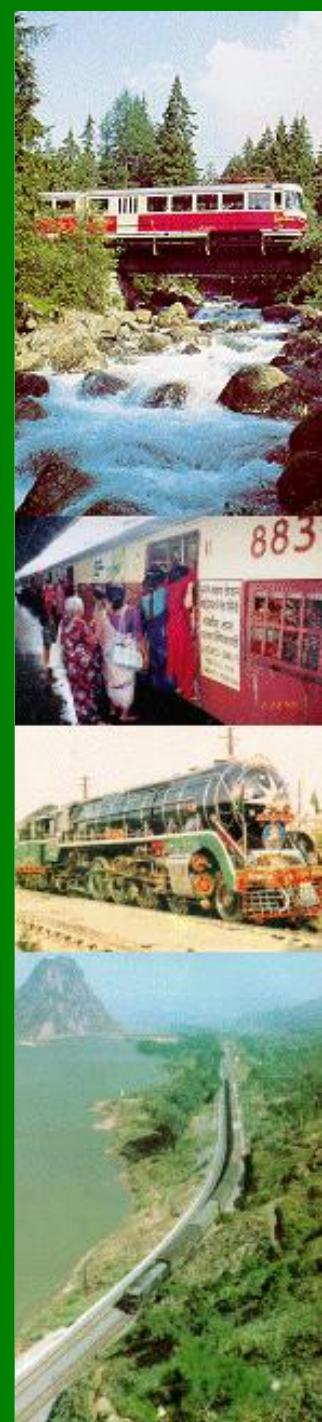
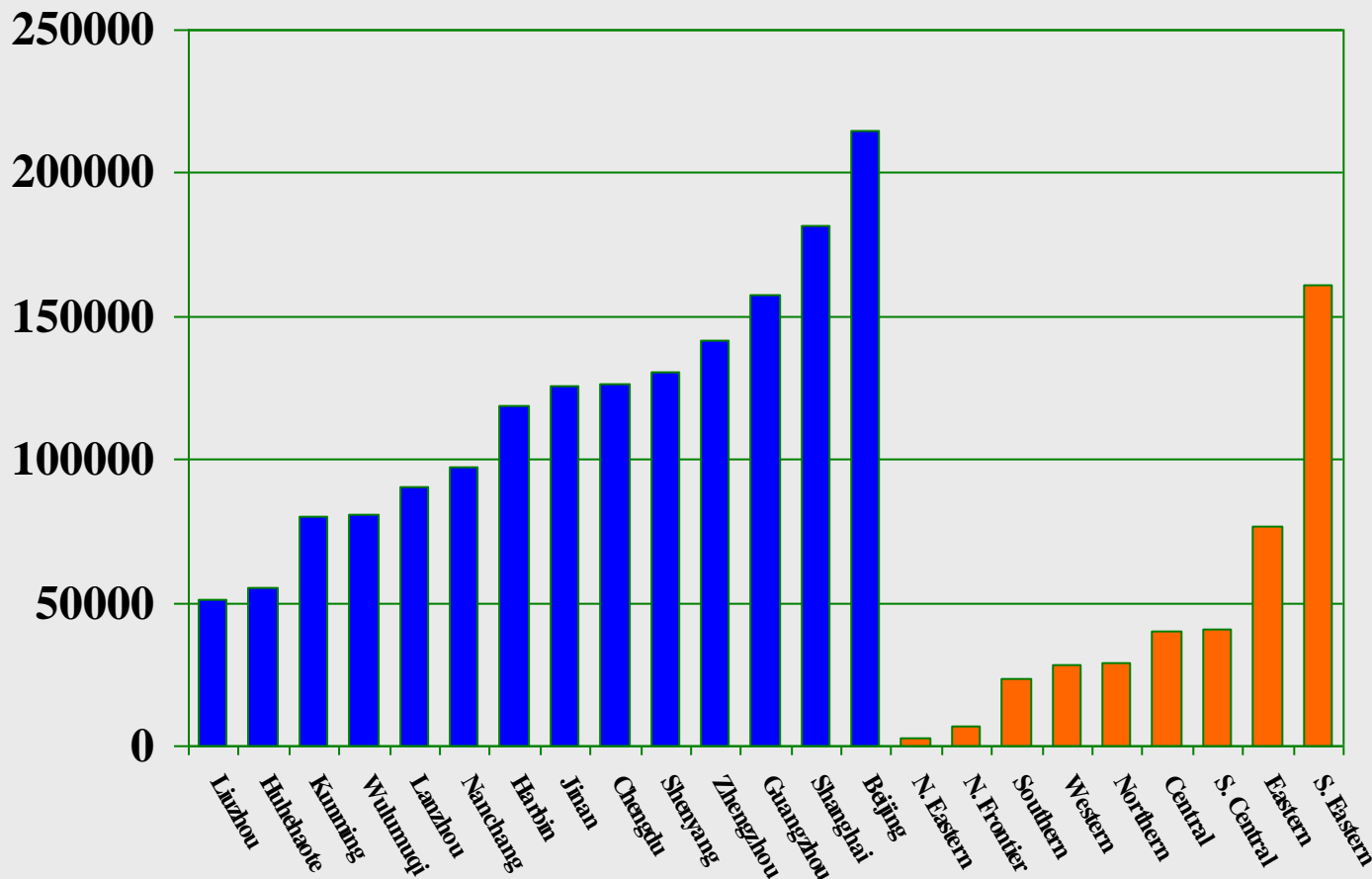
# Km of Line: MOR Administrations Compared with IR Zones



# Inter-city Passengers Originating (000,000): Comparison of MOR Administrations with IR Zones



# Freight Tons Originating (000,000): Comparison of MOR Administrations with IR Zones



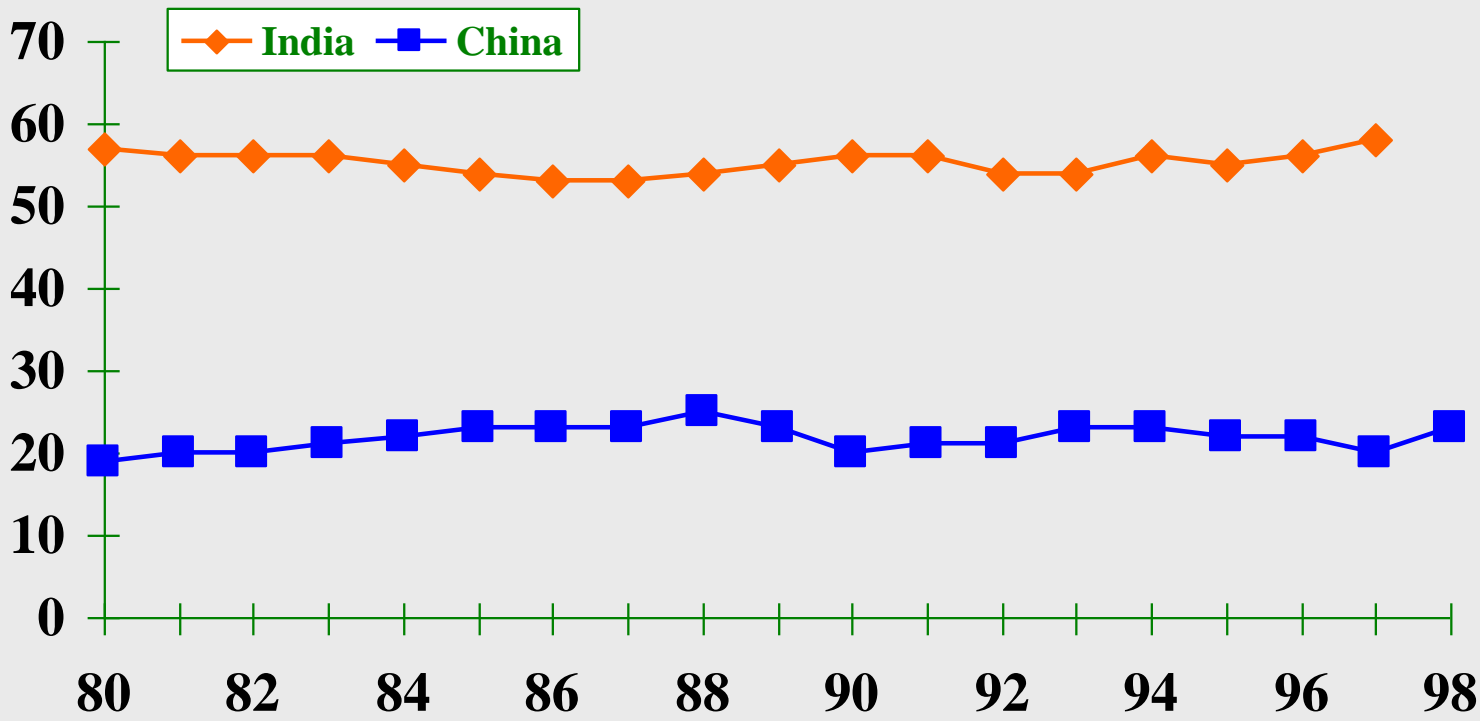




# MOR's Freight Orientation:

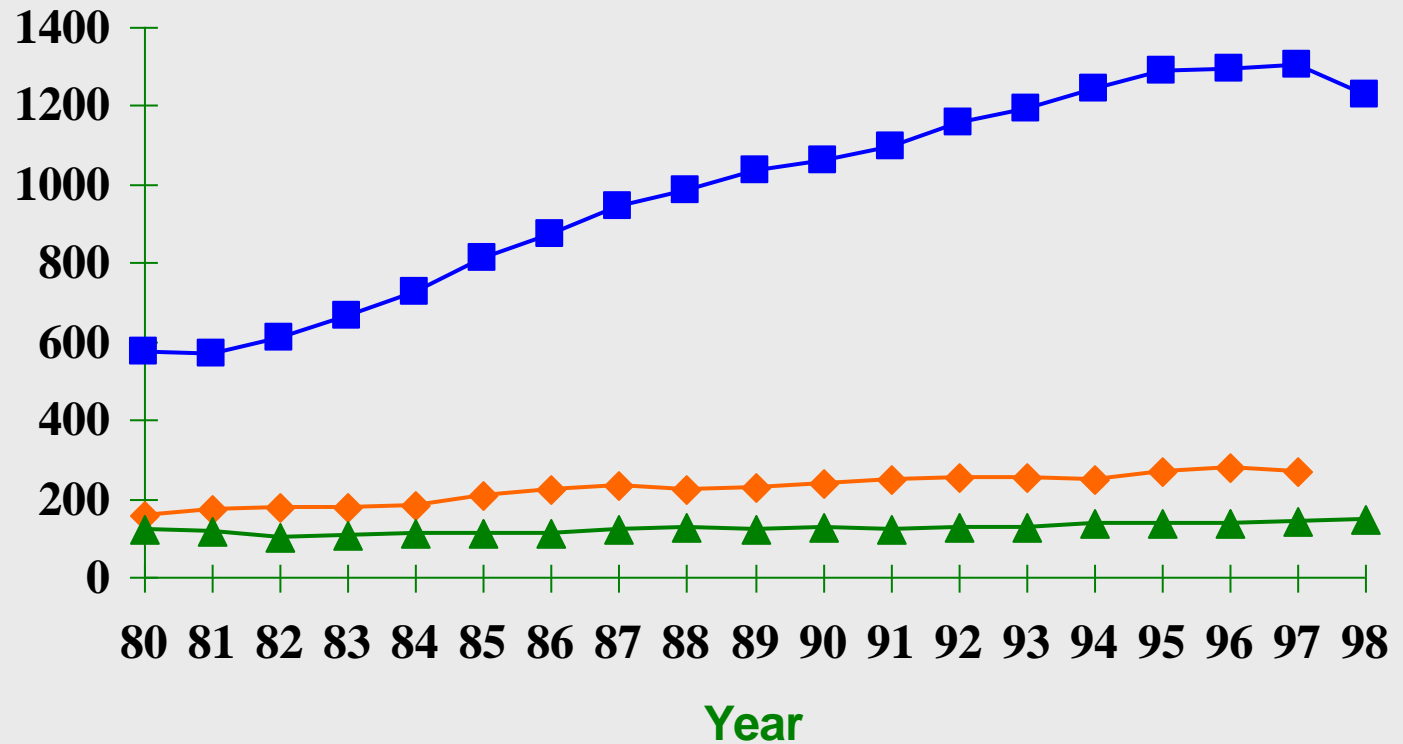
## Percent Passenger Traffic

P-km/(P-km+T-km) in %



# Freight Traffic

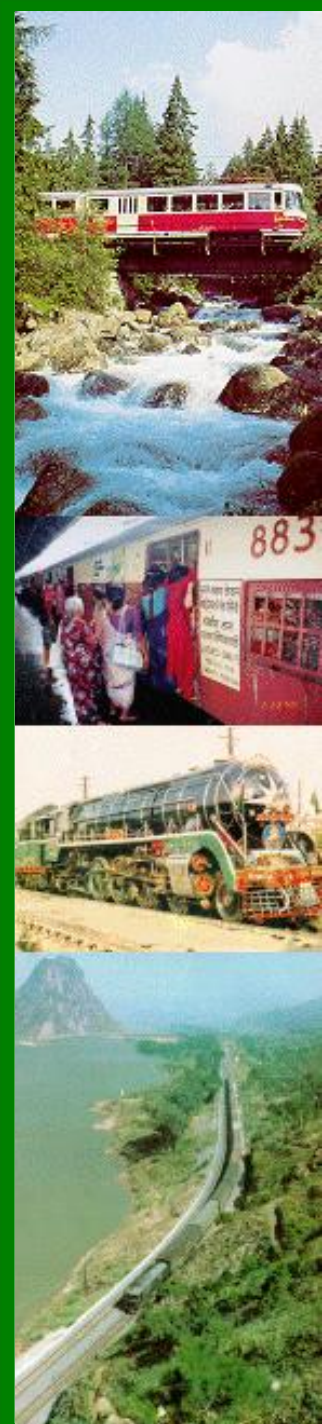
(billions of ton-km)



◆ India ■ China ▲ Conrail



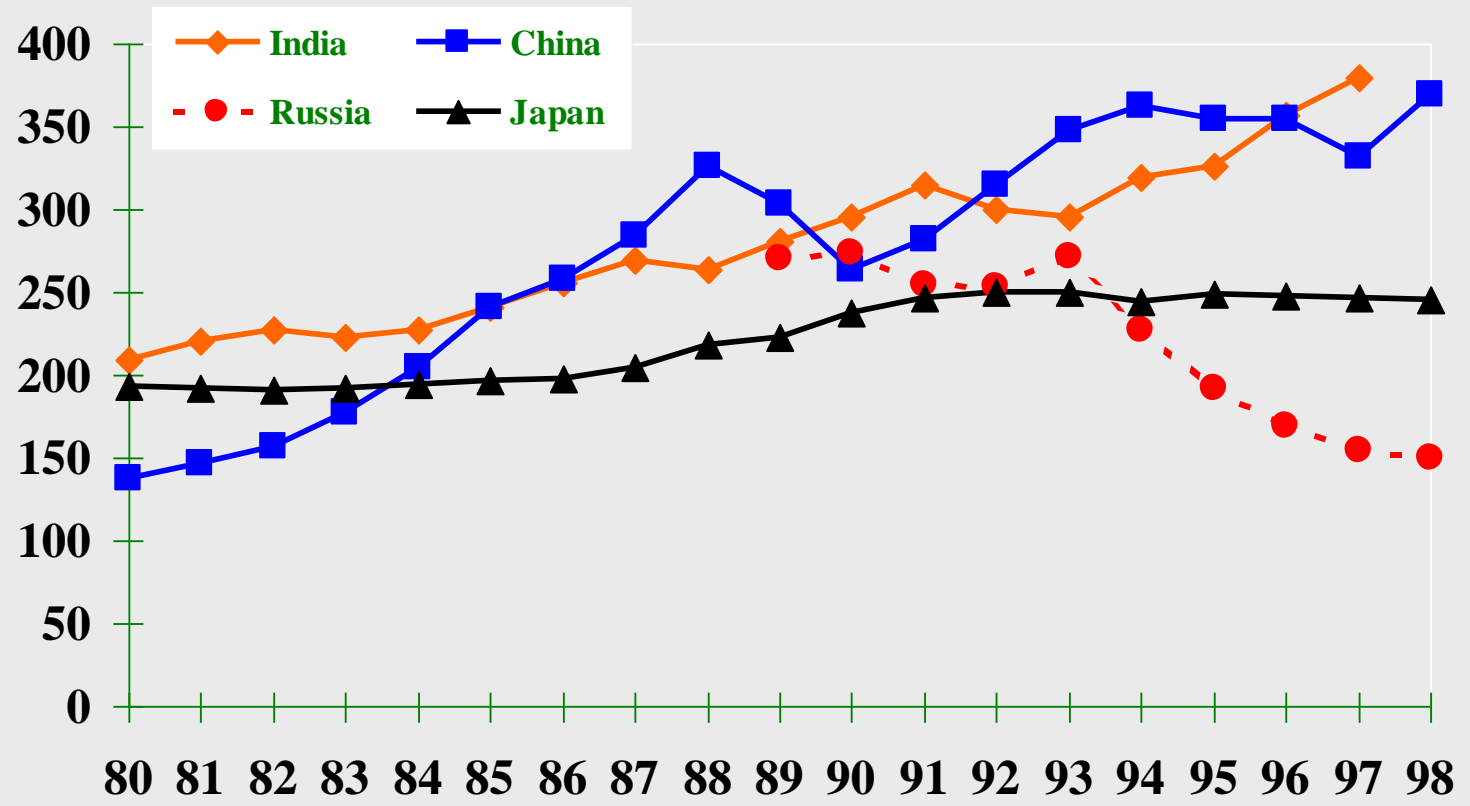
The World Bank





# Passenger Traffic

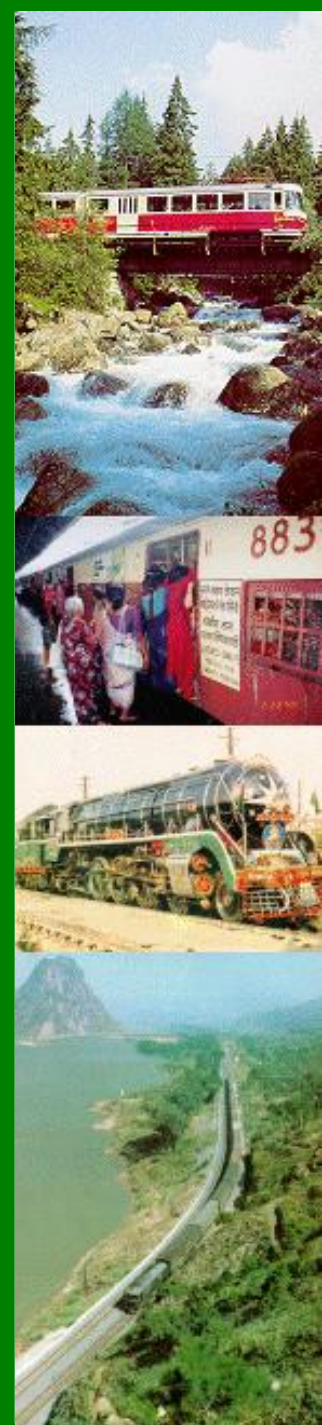
(000,000 p-km)





# MOR's Problems

- Confusion of government and enterprise roles
- Geographic organization causes
  - fragmentation of traffic and decisions (but ~90 percent of freight moves inter Administration)
  - bureaucratic decisions (revenue distribution, wagon allocation) made at the center
  - 14+ points of management
  - no competition in rail transport (>70% of freight)
- Organization for production, not market
  - no LOB's, no costing information
  - “command and control” mentality
  - no price mechanism (flat tariff structure)
- Imposed social role (e.g. schools, hospitals)
- Non-core distractions (e.g. factories, restaurants, turtle farms)

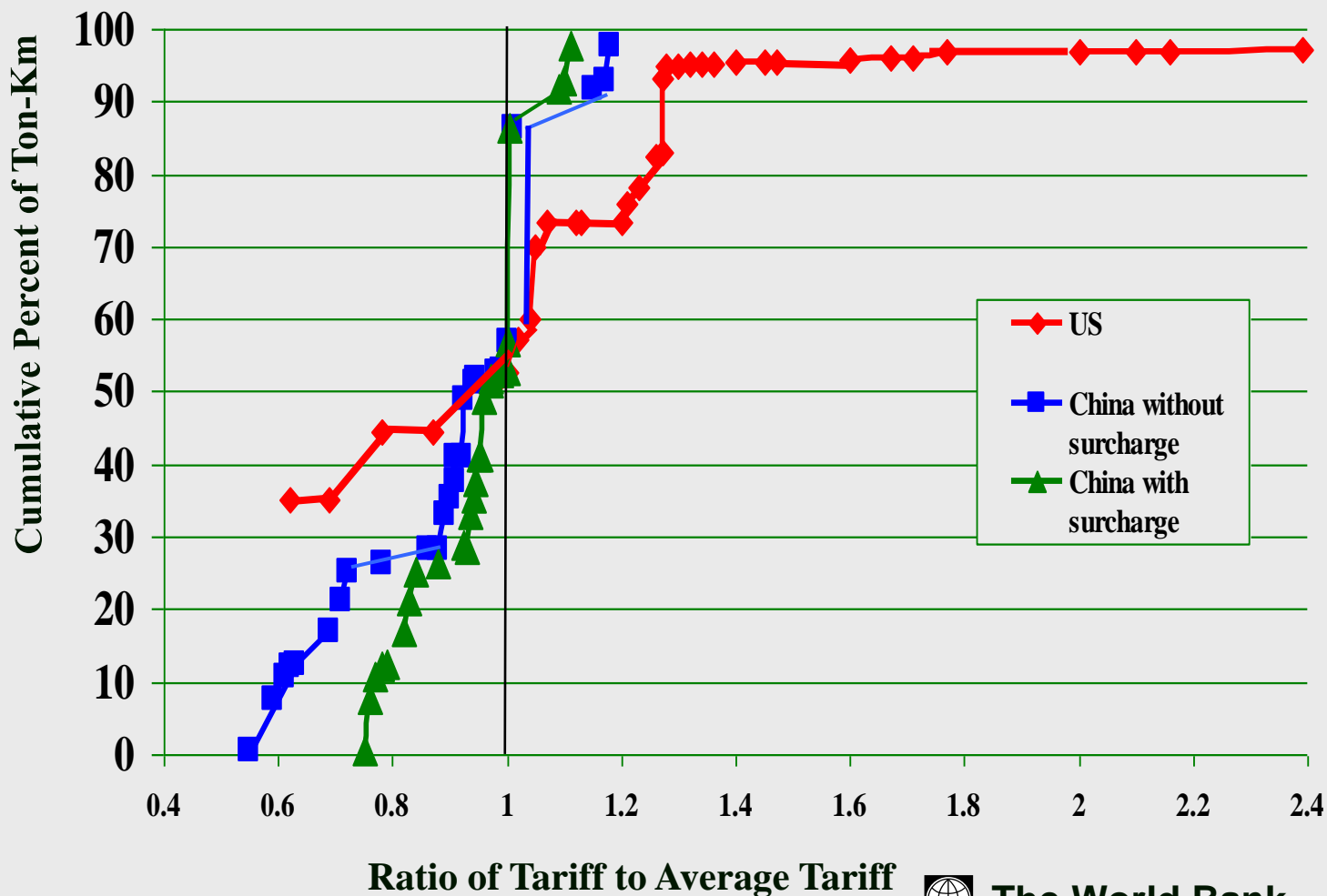


# 1997 Freight Rate Distribution In China and in the US: Ramsey's Antithesis



(Cumulative Percent Of Ton-Km vs. Ratio of Tariff to Average Tariff)

Note: The surcharge is a flat fee per ton-km to pay for construction



# MOR's Program of Restructuring: Guidelines



- Separate government from enterprise and reduce government (MOR from 1500 to 700)
- Restructure enterprise(s), and try to reduce the number of layers of management -- supported by modern information technology
- Adopt commercial approach



# MOR's Restructuring Program: Committed Actions



- Make non-core activities (manufacturing) “independent”
- Transfer social activities to government (usually local)
- Separate passenger businesses, (PTE's) from the remainder of the railway in each Administration (freight and infrastructure remain integral for now). Separation to be accounting at first, then institutional
- Install traffic costing models to clarify results
- Make passenger services “profitable” or consider discontinuance -- GM's have **personal contract** to do so
- Uneconomic branch lines separated and either:
  - given to local agencies or agents
  - discontinued or PSO supported
  - possibly privatized or concessioned



# MOR's Restructuring Program: Future Decisions



- Restructure PTE's as appropriate across Administration lines -- could entail mergers and/or creation of competition
- Accounting separation of **Freight** TE's. Institutional separation to be decided later
- FTE institutional separation (called "up/down"), if it occurs, could then lead to cross boundary mergers and/or competition
- Specialized companies (container, oversize, dangerous) may also be formed
- Other "separations" such as rolling stock also to be studied
- Probable outcome: slowly evolving mixture with each service organized to fit **its** market

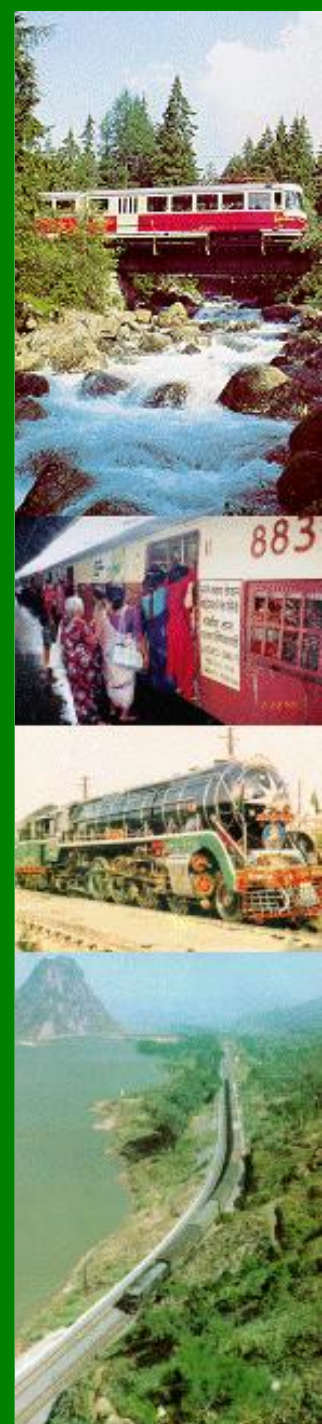




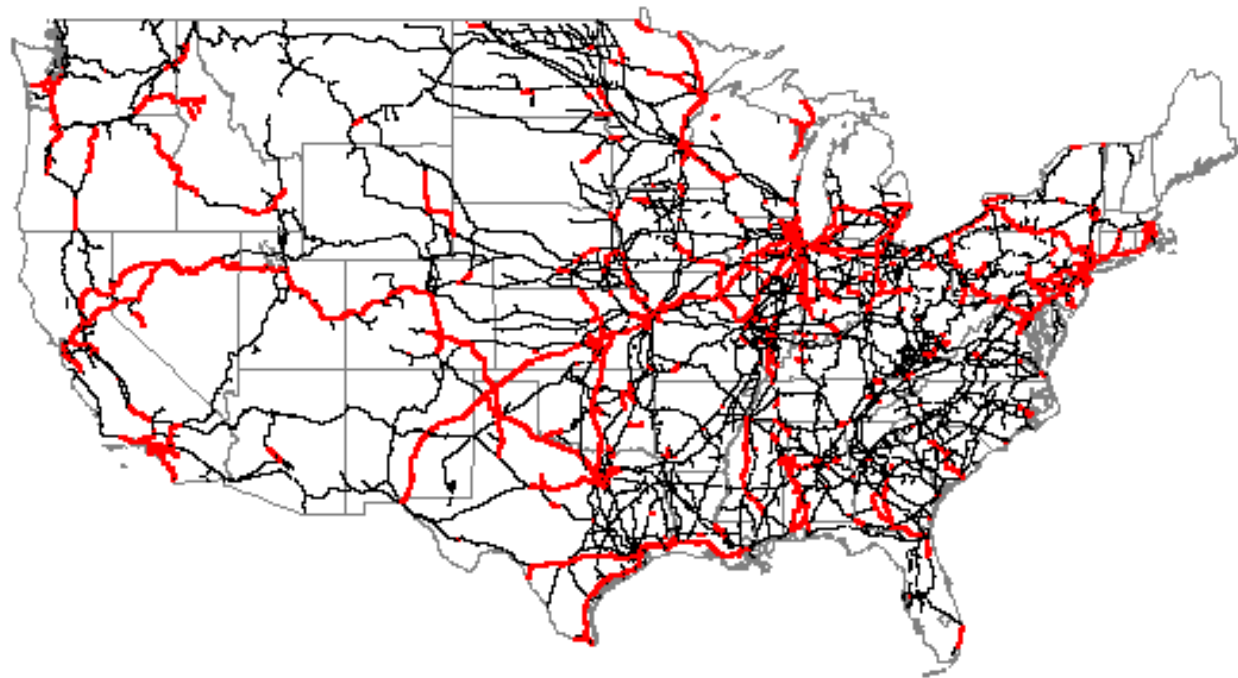
# MOR's Restructuring: Issues and Approaches



- **Separation of enterprise and government** -- establish an MOT, set up railways as enterprises, initially at Administration level
- **Commercial approach** -- Line Of Business (LOB) organizations at all levels -- freight, several passenger companies, related
- **Rail enterprise structure** -- choice of full separation (DB) versus freight integral and passenger separation (US freight/Amtrak) or fully integral models on Administration or national basis
- **Market structure organization** -- mergers of PTE's and possibly FTE's across Administration boundaries (infrastructure likely set up at Administration level, though other structures are possible)
- **Competition** -- could have parallel/competitive infrastructure, but more likely will be competitive trackage rights, if any competition desired
- **Private sector involvement** -- non-core and local lines may be sold (Guangshen), private equipment ownership probable, specialized operators possible, generalized privatization not on the horizon (if ever)
- **Transition** -- holding company as in DB or Romania
- **Overall** -- cautious, "experiment"-based approach, with many compromises and mixes (as always)



# Multiple Use US Freight Tracks (Excludes Amtrak)



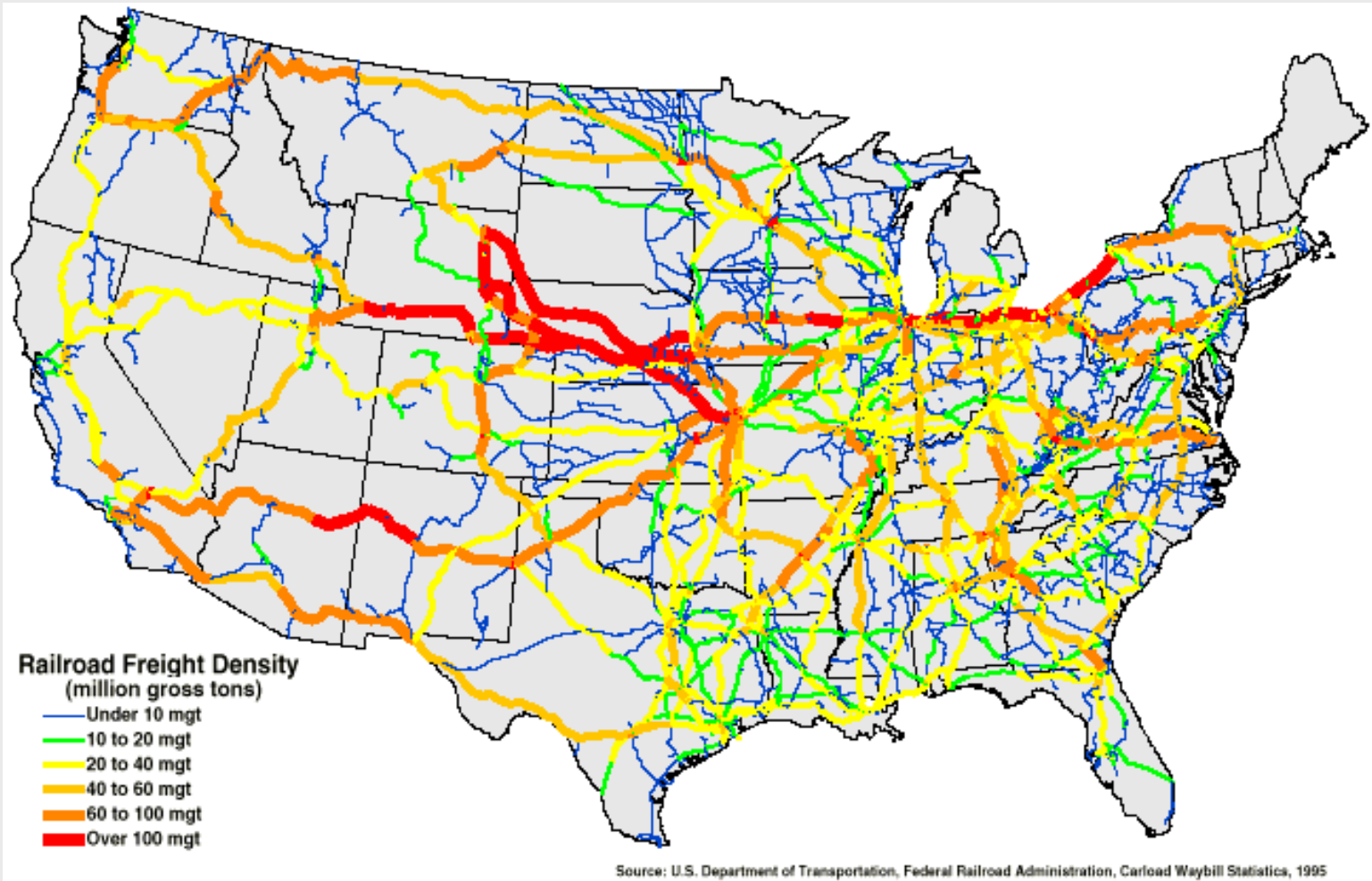


# MOR Restructuring; Primary Tools for Evaluating Options

- **TMIS** -- traffic, routing operating and revenue data
- **Traffic costing models** -- use basic data to estimate cost and “contribution” of traffic on shipment, commodity, line segment and area basis
- **PC-based network models** -- for traffic flow analysis
- **PC-based capacity and scheduling models** -- to permit analysis of potential for enterprise structures
- **PC-based financial planning models** -- to permit rapid analysis of cost and revenue scenarios



# Analytical Tools: Freight Line Traffic Density



# Restructuring IR: Initial Observations

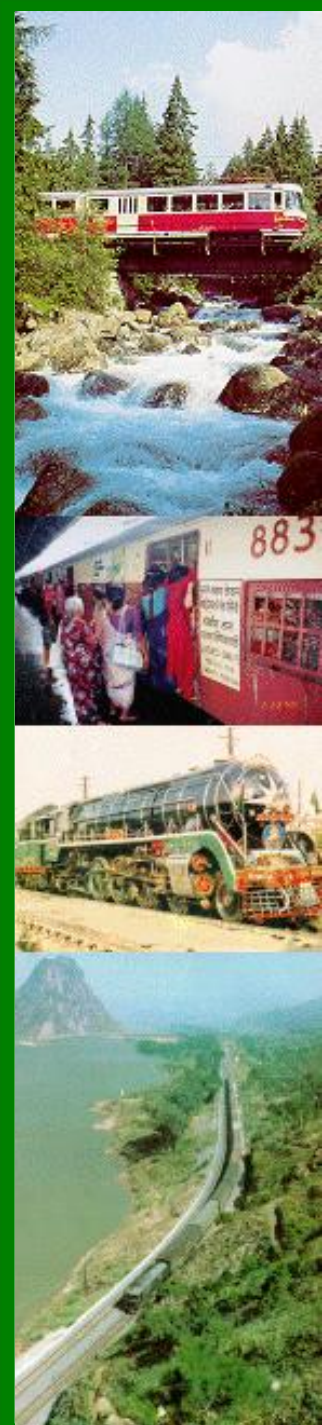
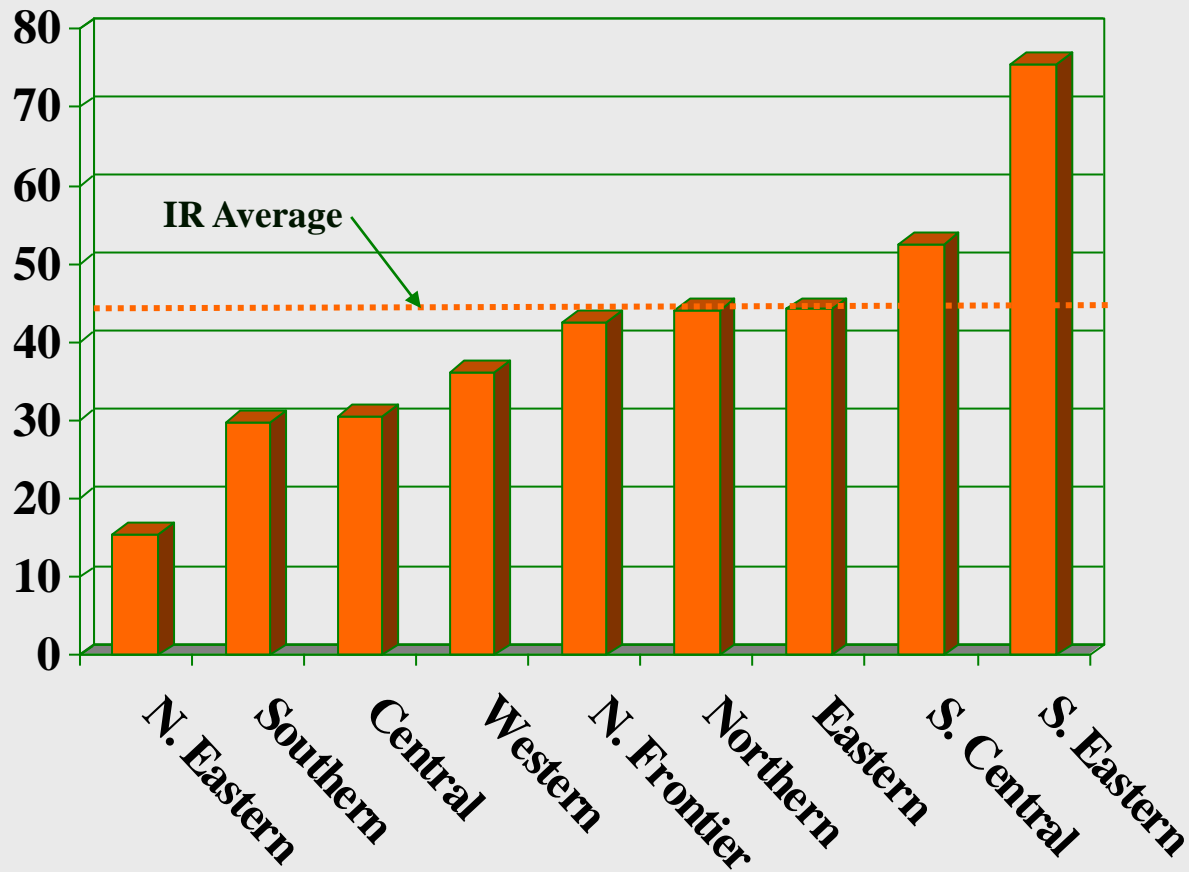


- Similarities with China
  - regional structure, not market driven
  - mixture of government and enterprise, politics
  - imposed social functions, large non-core activities
- In some ways, India really **is** different
  - variations in Zonal characteristics
  - the gauge effect -- three railways
  - suburban operations (2000 trains daily)
- IR faces **serious and near-term** threats
  - the labor cost squeeze
  - high passenger traffic share and low fares
  - rapidly growing (WB financed!) competition
- **No railway ever was restructured wholly from within** -- retain outside involvement.
- What are **INDIA's** objectives

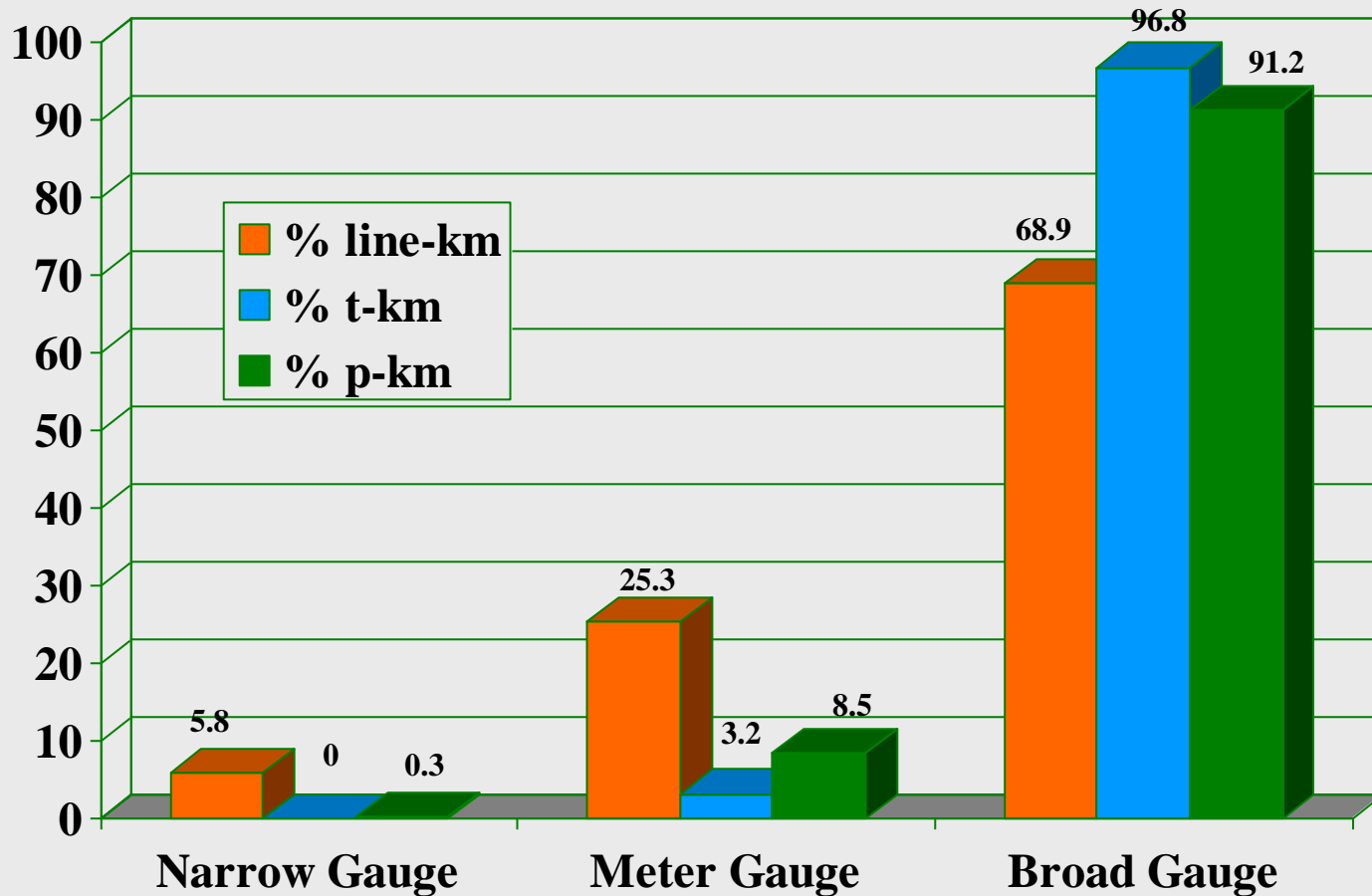




# Zonal Railways Are Different: Freight Ton-Km as Percent of Total Traffic



# The Gauge Effect: India's Three Separate Railways

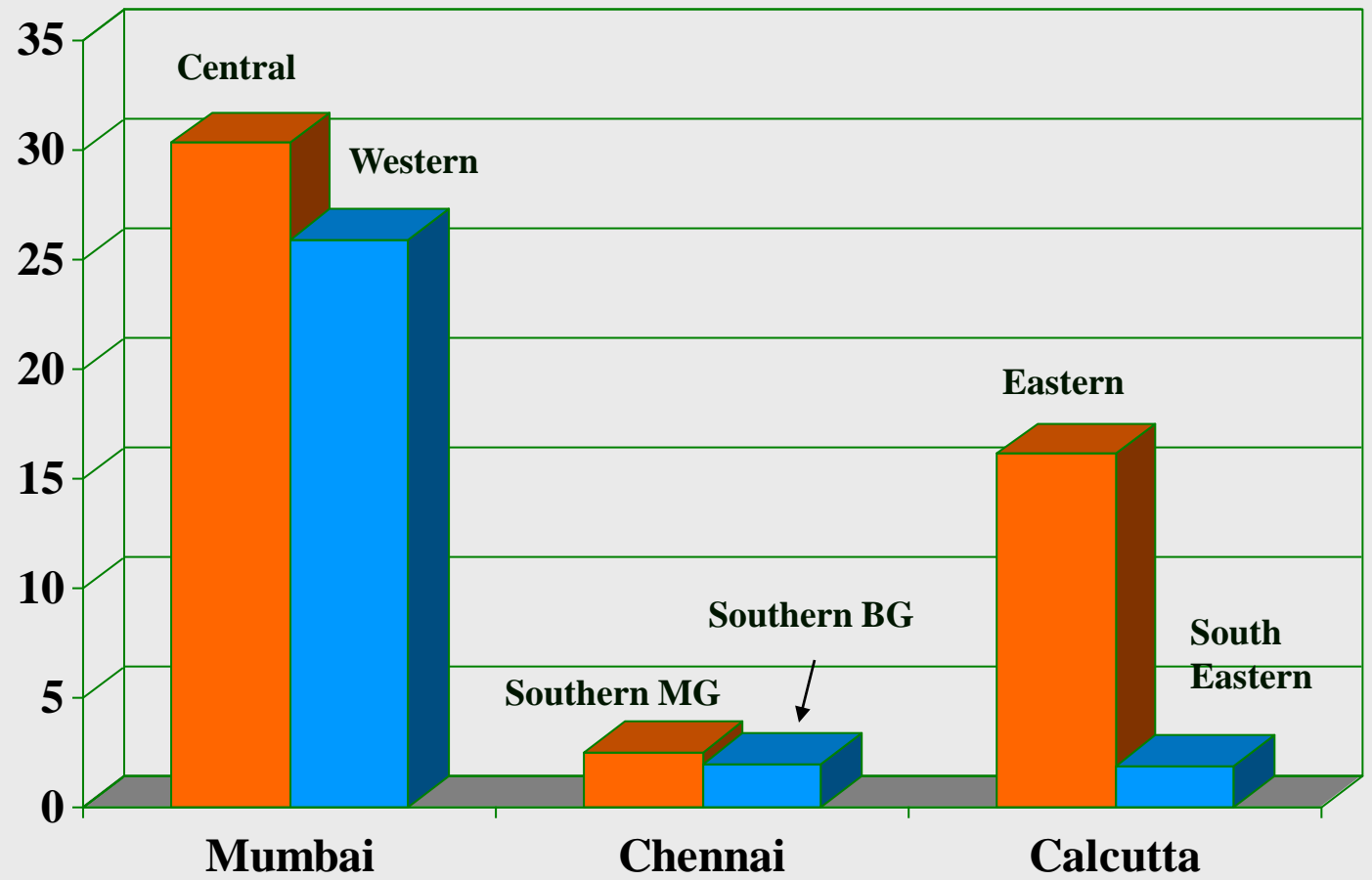




# IR's Suburban Activities

(Passenger-Km in 000,000)

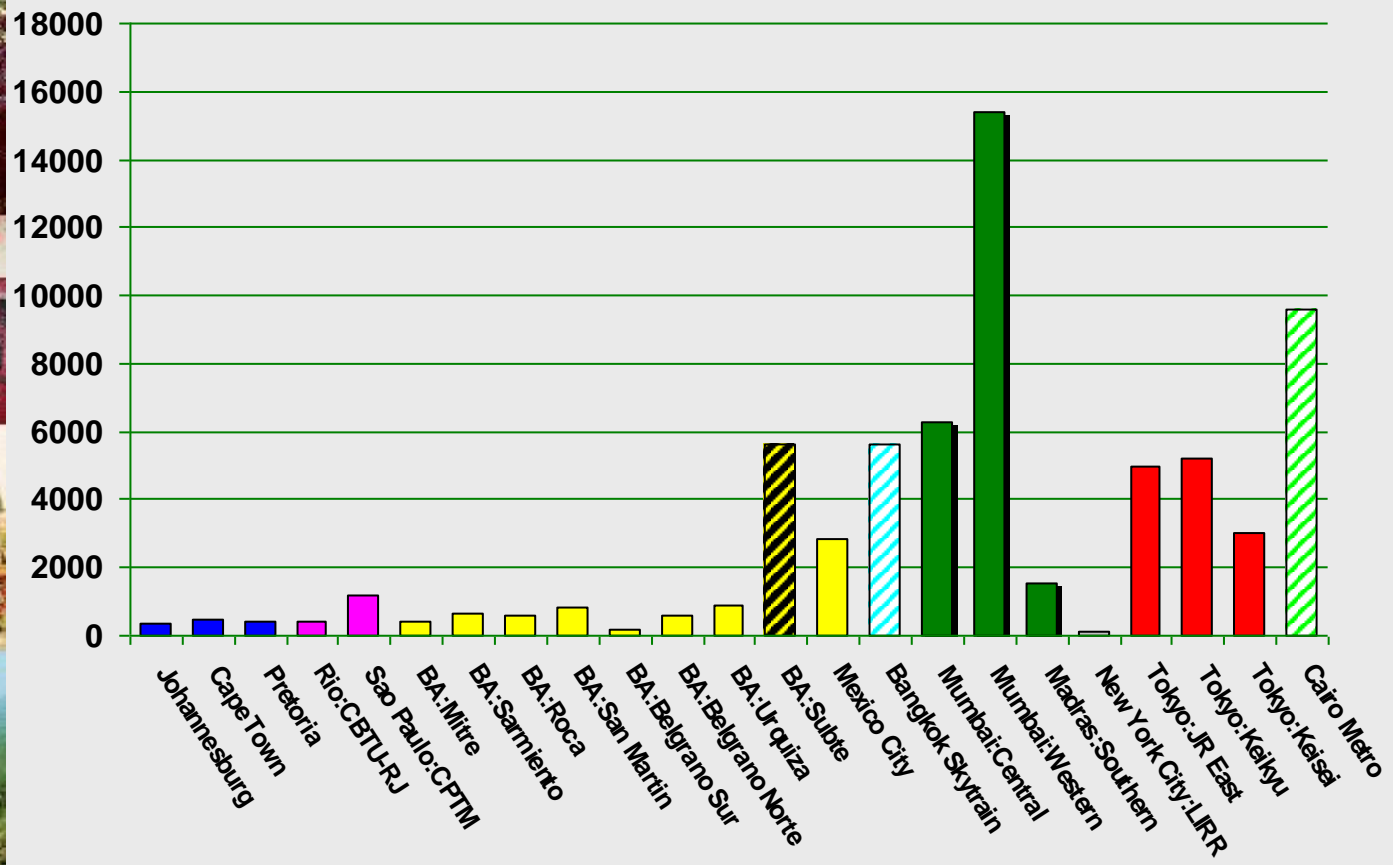
2000 trains daily







# Suburban Rail Systems: Annual Passengers Per Km of Line



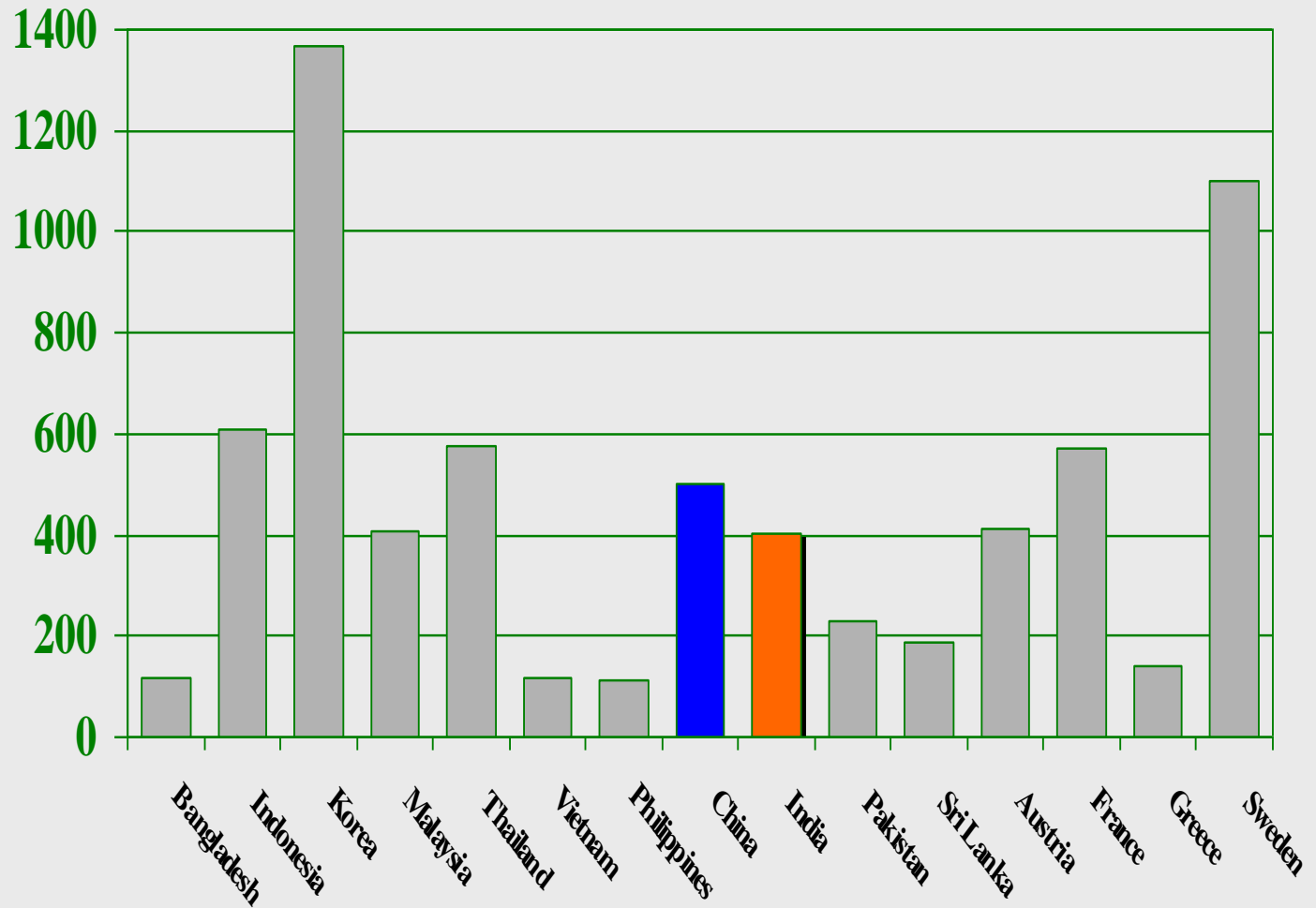
No data for Calcutta or Moscow





# Employee Productivity is Relatively Low

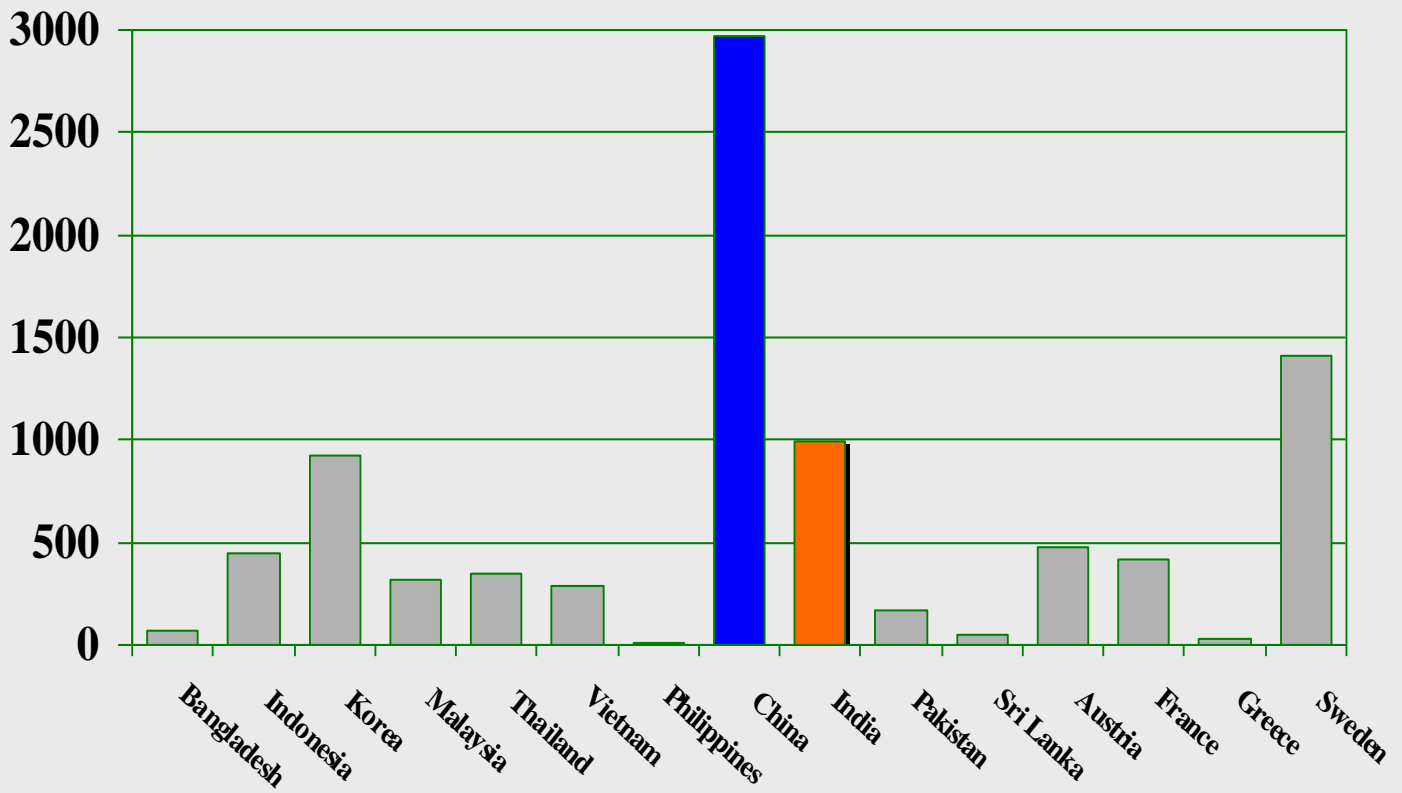
(000 Pkm+000 Tkm/Employee)





# Average Annual Output per Freight Wagon is Not High

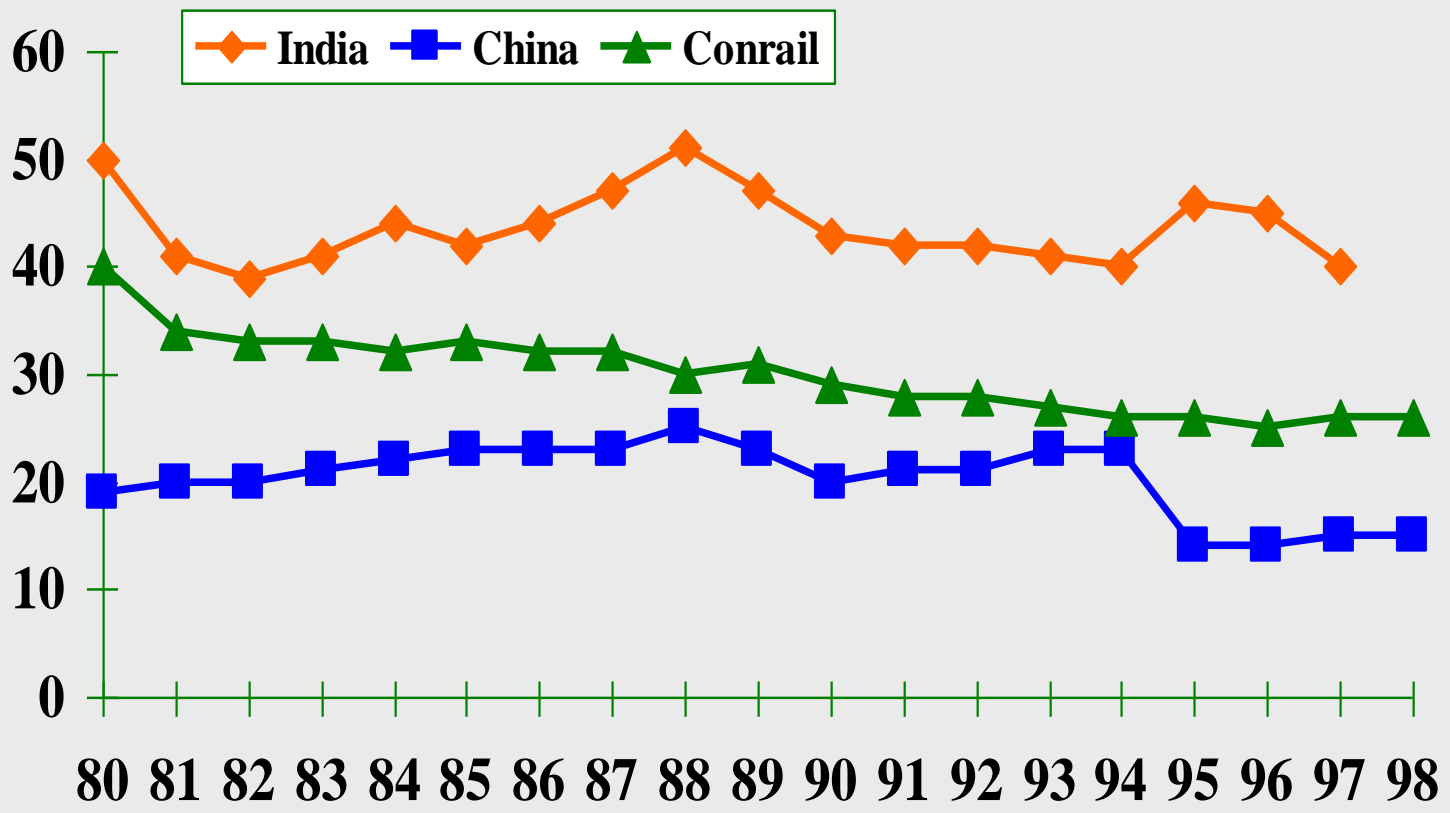
(000 Tkm per Wagon)





# Ratio of Wages to Revenues

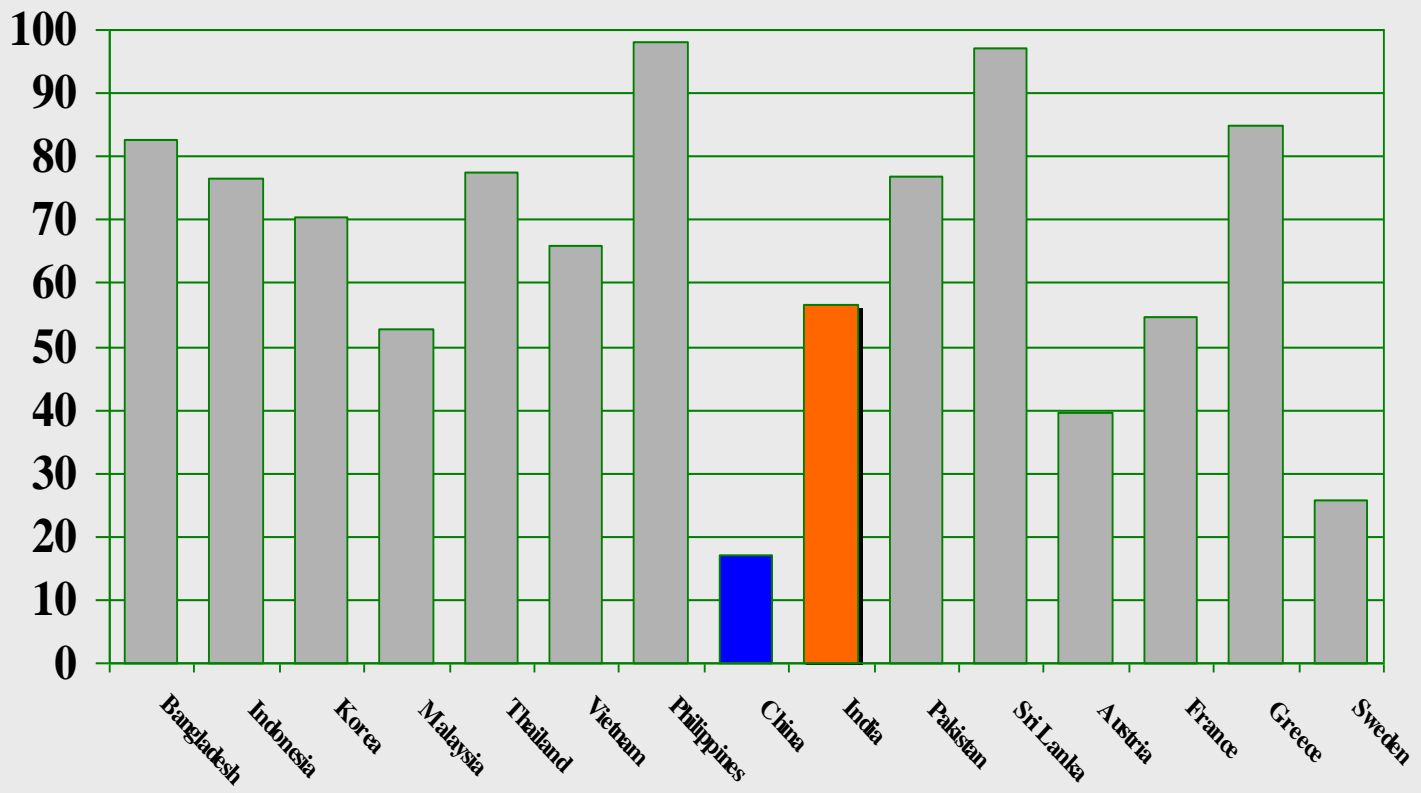
(%)





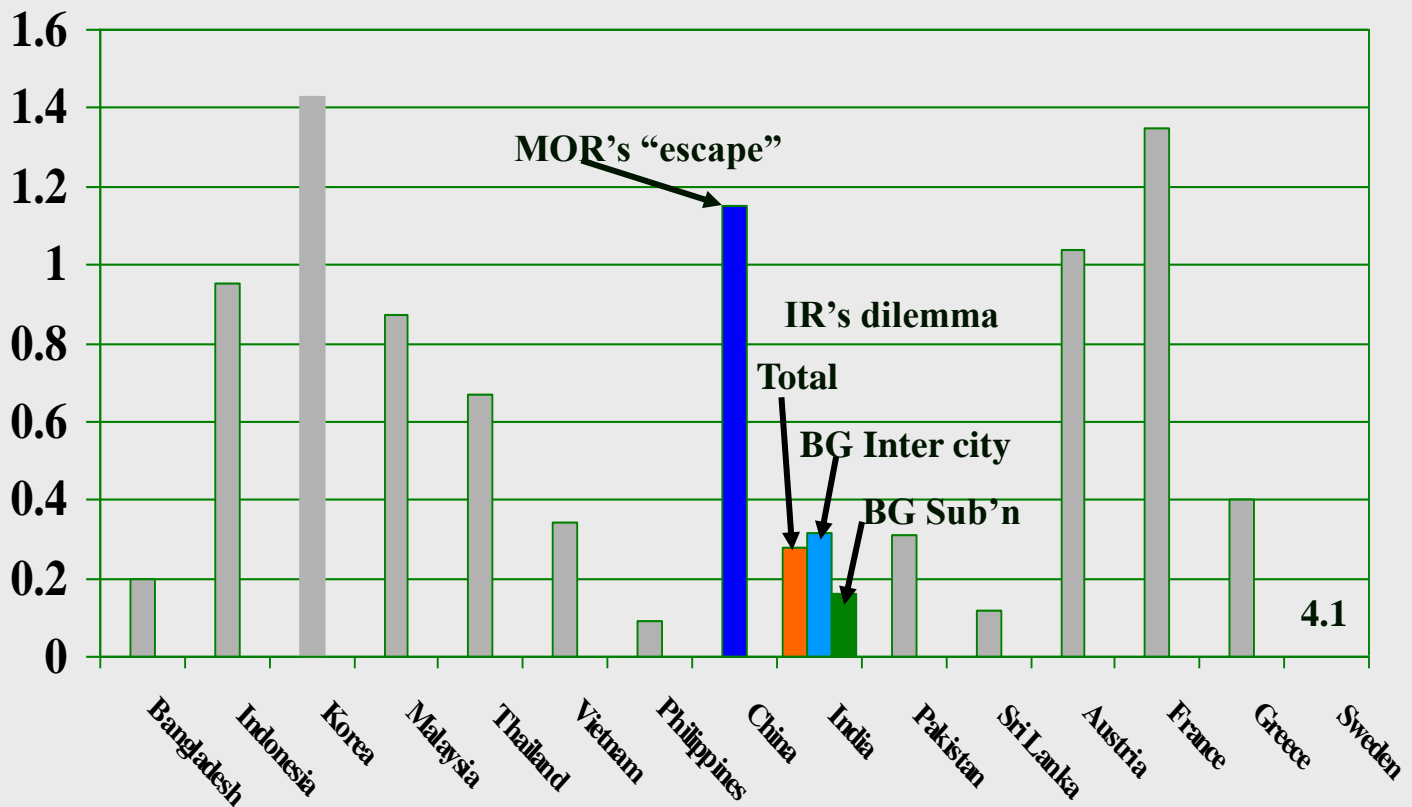
# IR's Passenger Traffic as Percent of Total Traffic Is High

$(P\text{-km}/(P\text{-km}+T\text{-Km}))\%$





# IR's Ratio of Average Passenger Fare to Average Freight Tariff Is Very Low: IR's Destructive Linkage With High Passenger Share





# IR's Program: Initial Actions

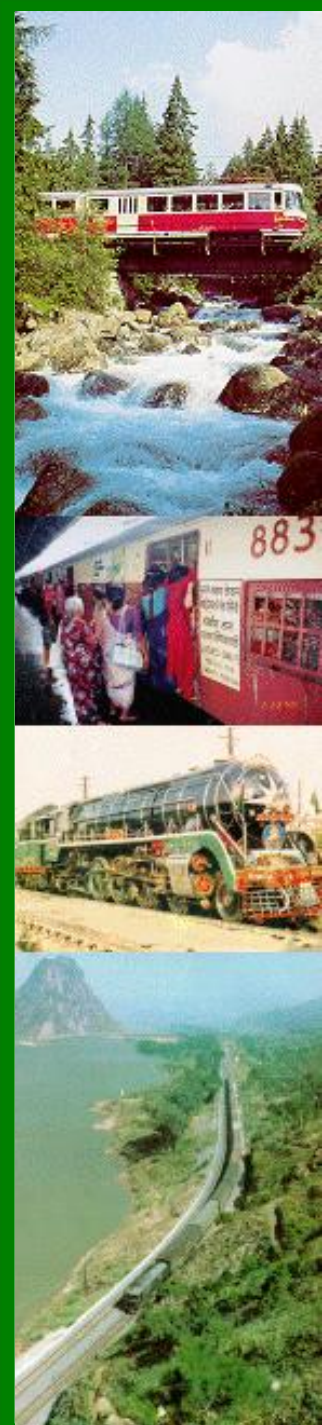
- IR as enterprise separated from government -- enterprise under commercial rules (profit motive, business Board with outside involvement and private sector personnel rules)
- Enterprises adopt LOB organization on an accounting basis
- Separate and localize suburban operations -- accounting first, then institutional
- Spin off social, non-rail activities
- Make manufacturing activities independent and competitive, then privatize (if and when)





# IR Restructuring: Medium Term Actions

- Separate out NG and localize, concession or privatize the pieces
- Finish high MG priority pieces, localize, concession or privatize the unconverted pieces
- Localize, concession or privatize BG “bits and pieces”
- Create local (accounting separation at first) companies to operate local, short haul passenger companies (4800 trains daily)
- Create accounting-based LOB’s at national level for freight and long-haul passengers (1200 trains daily)
- Consider more specialized companies like CONCOR (commodities, value-added services) with private involvement
- Think **NOW** about a fair approach to labor

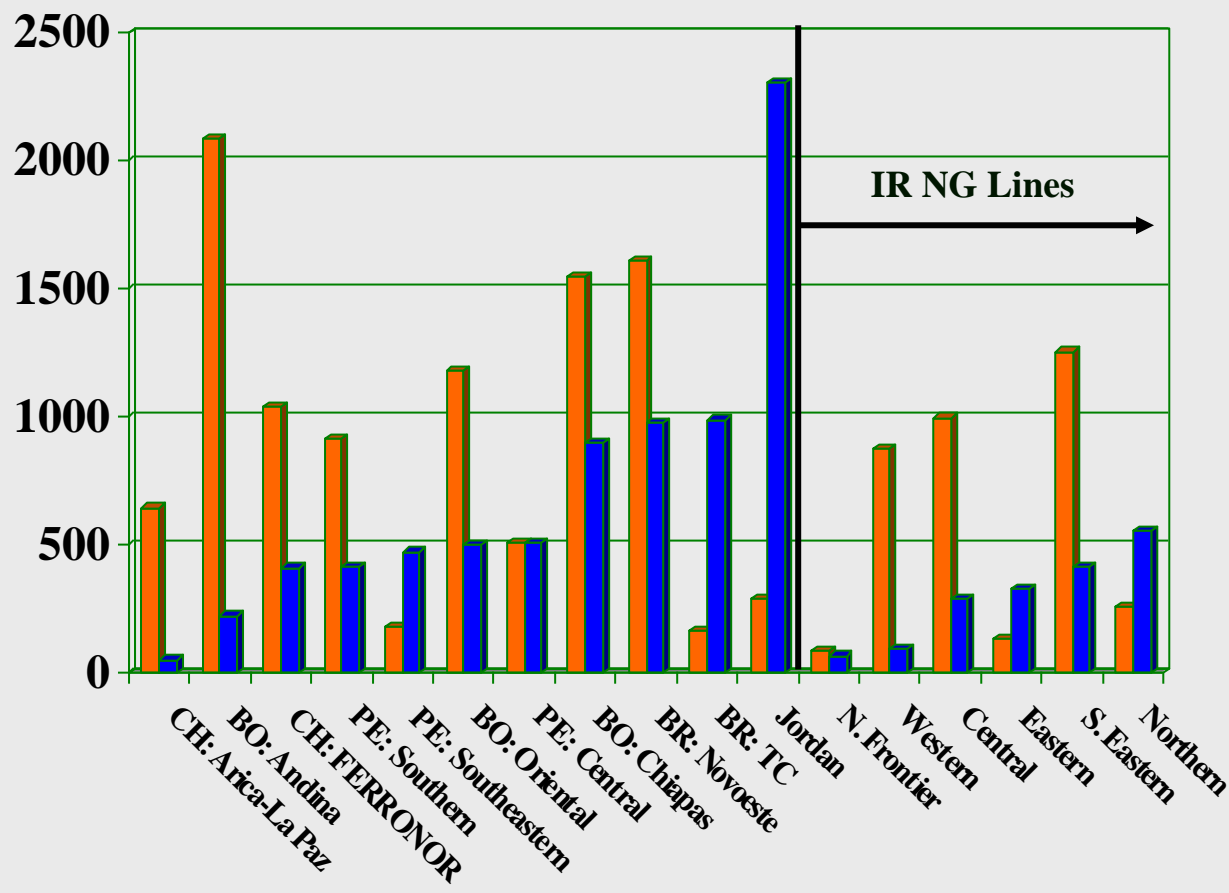






# IR Narrow Gauge Lines Compared With Smaller Operating Concessions

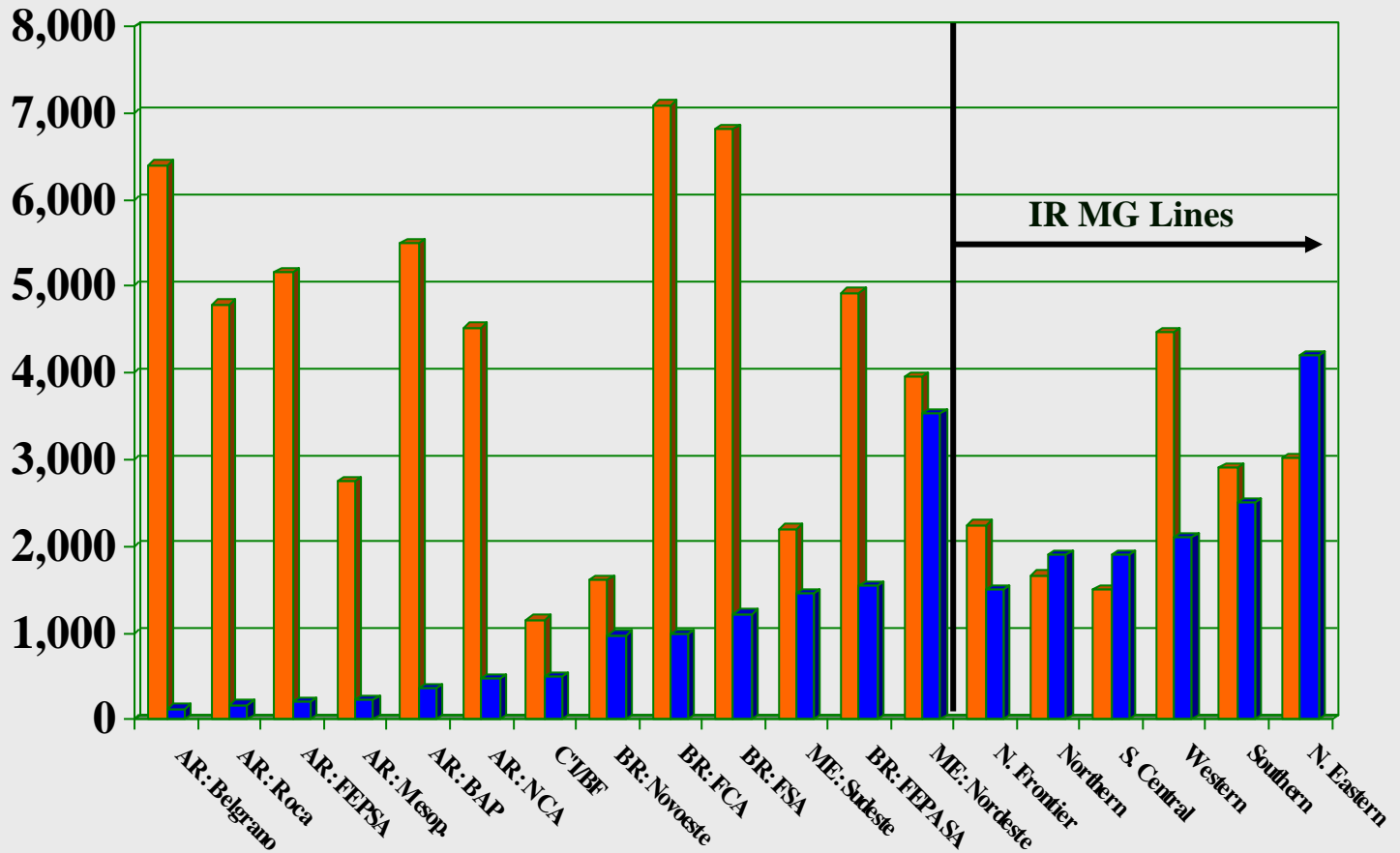
(orange = line-km, blue = traffic density in TU/km)



# IR Meter Gauge Lines Compared with Middle-Sized Operating Concessions



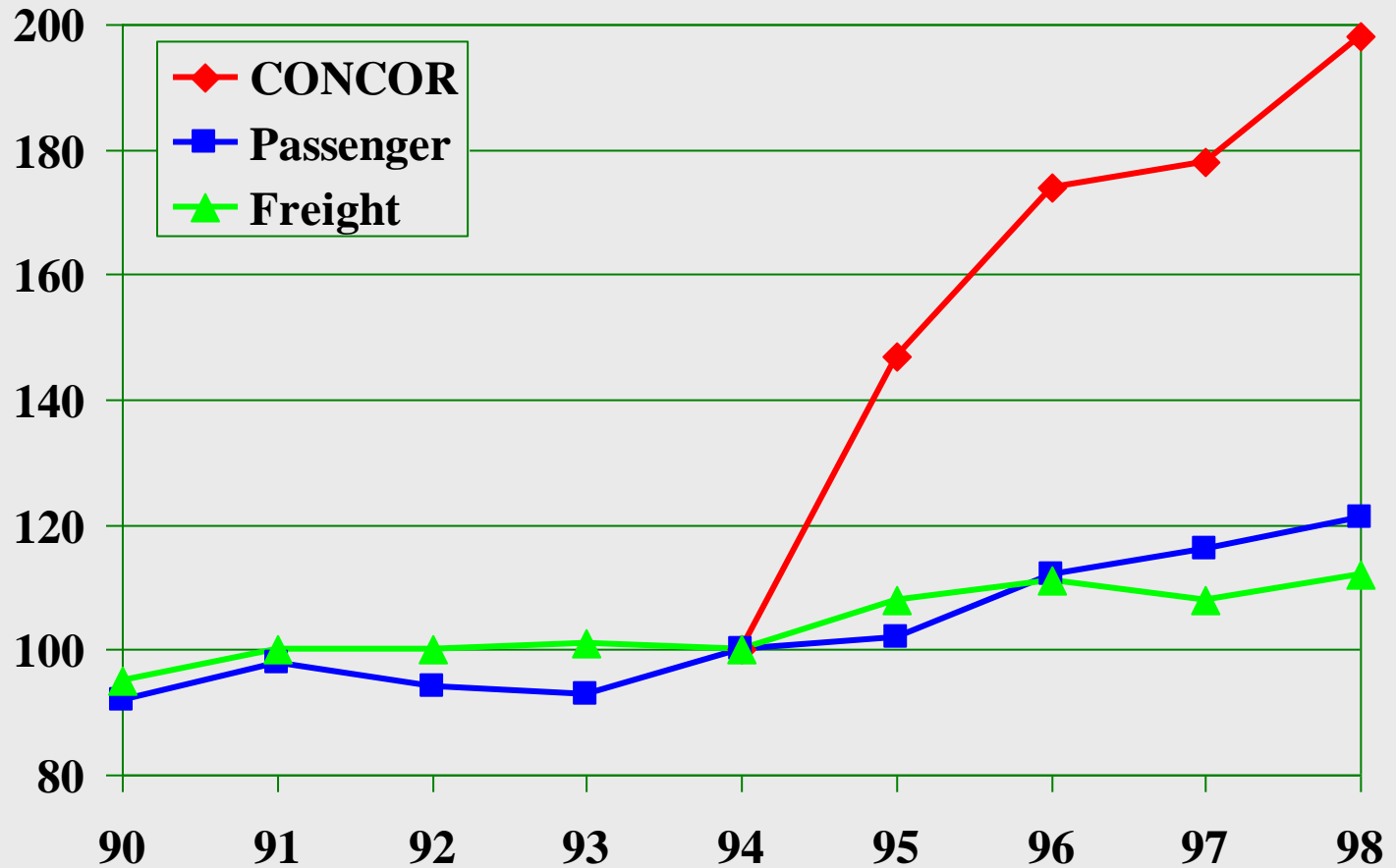
(orange = line-km, blue = traffic density in TU/km)



# Three IR Markets: the Impact of LOB Focus and Private Involvement



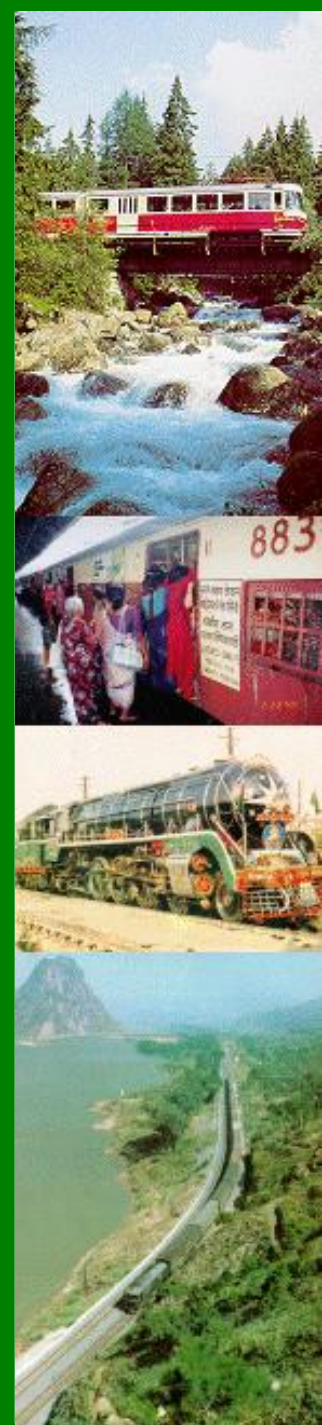
Traffic Volume Index: 1994=100





# Structural Options

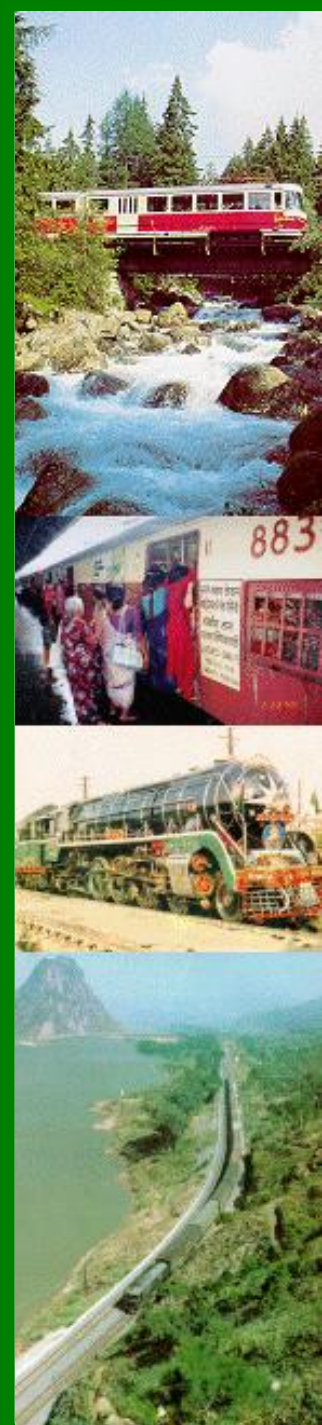
- Structure -- infrastructure (integral, dominant or separated)
- Why separation of infrastructure?
  - equal access for conflicting users
  - promote intra- rail competition
  - clarity of costs and benefits of various services
  - facilitate mixed solutions
- Why NOT separate
  - complex and costly -- transaction costs
  - potential conflicts and confusion
- Critical issues
  - access charges -- structure and levels?
  - scheduling and dispatching -- who and where?
- **Indian potential** -- consider dominant -- integral structure with infrastructure managed at regional level. Freight should be dominant, inter city passenger managed at both regional and national level. Transition important





# Options for Competition

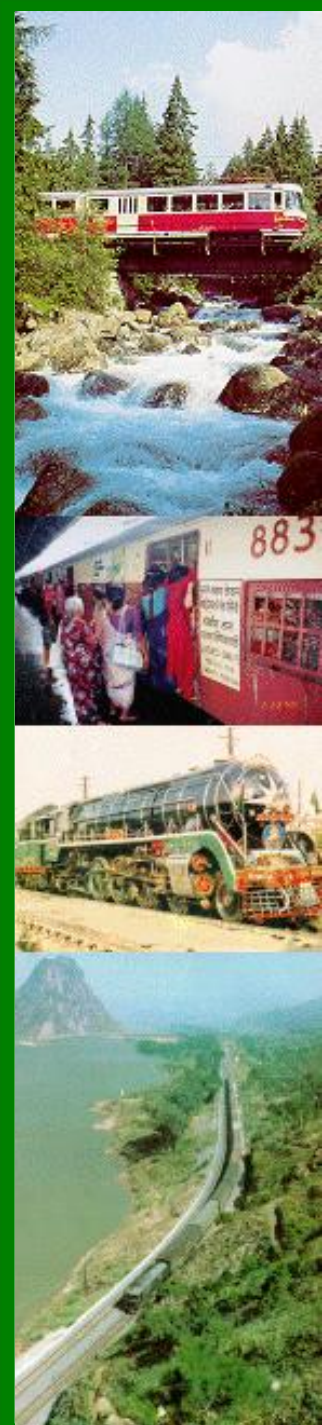
- Need detailed analysis of freight and passenger flows -- use **LRDSS** -- identify major markets where competition could be sustained (the quadrilateral?)
- Choice initially based on maximum origin to destination service, then on competition in major markets -- in the US, 25 percent of tracks serve >50 percent of the rail freight market
- Analyze likely profitability of freight and passenger flows -- use costing models
- Use profitability analysis to support pricing changes, competition needs and PSO requests
- Infrastructure territory is not as important as freight enterprise and passenger enterprise structure -- and all three can be different





# Options for Private Sector Role

- Private sector, *per se*, is neither panacea nor ideological objective -- nor objectionable
- Don't privatize monopolies -- especially future suppliers -- restructure them first, along with railway services, and provide for regulation
- Consider specialized companies (like CONCOR) for private sector involvement
- Consider NG, MG or BG "short lines" for private sector operation (privatization or concessioning, passenger or freight) -- pick a few examples and try them





# What Has the World Bank Done?

- Restructuring analyses, analytical tools and TA
- Asset rehabilitation to support new structure
- Labor transitions and retraining
- Resettlement
- Environmental cleanup
- Changes in structure (suburban devolution, creation of management and accounting systems)
- Risk guarantees
- Transaction management
- Investment in private operators

