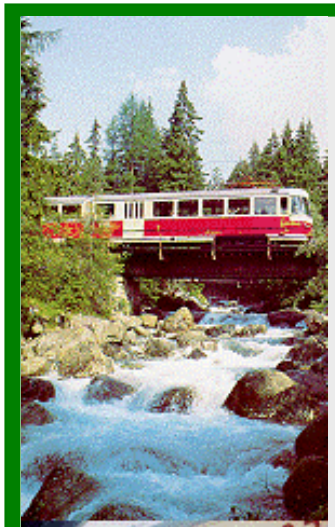
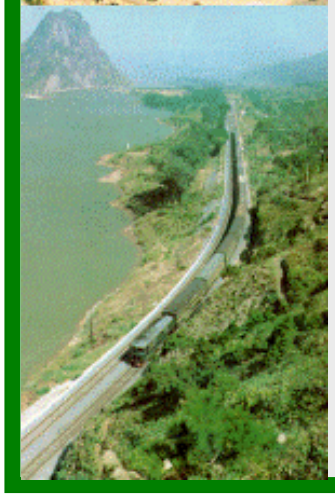
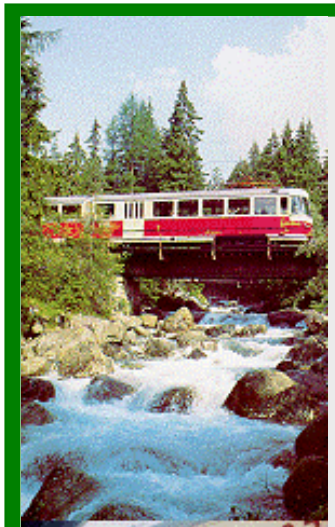


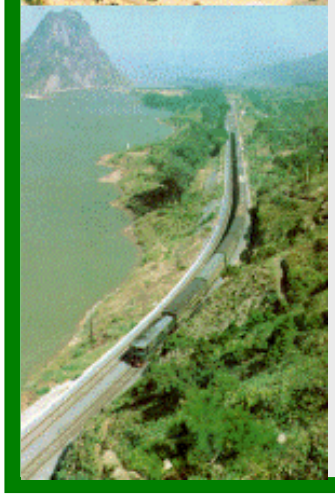


RAILWAY RESTRUCTURING EXPERIENCES

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

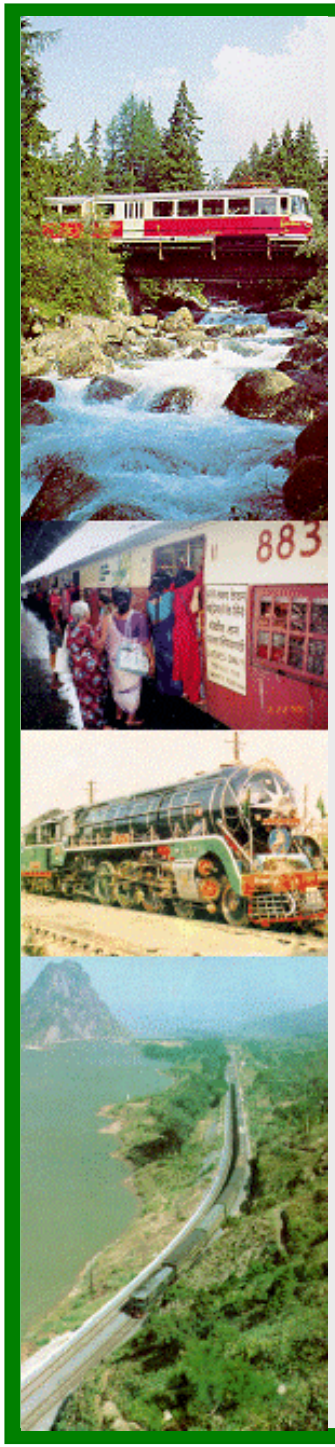
The World Bank





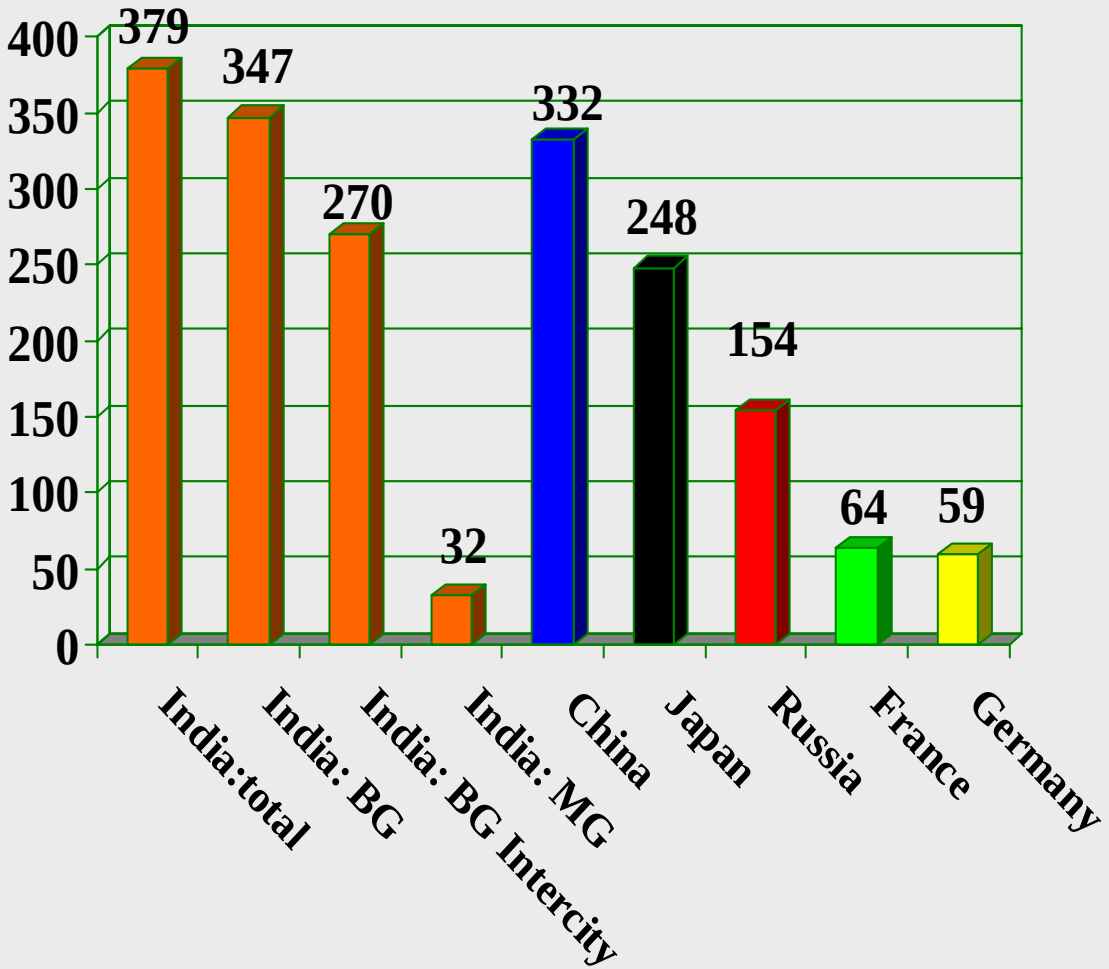
A Perspective

- 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)



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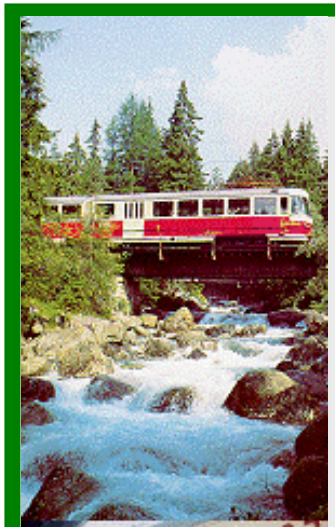
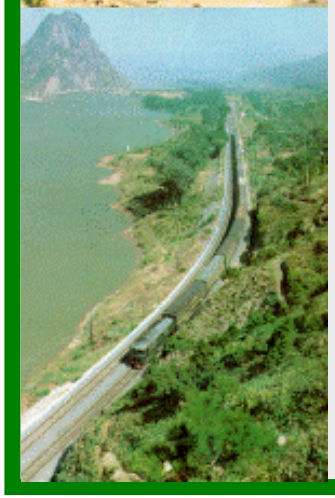
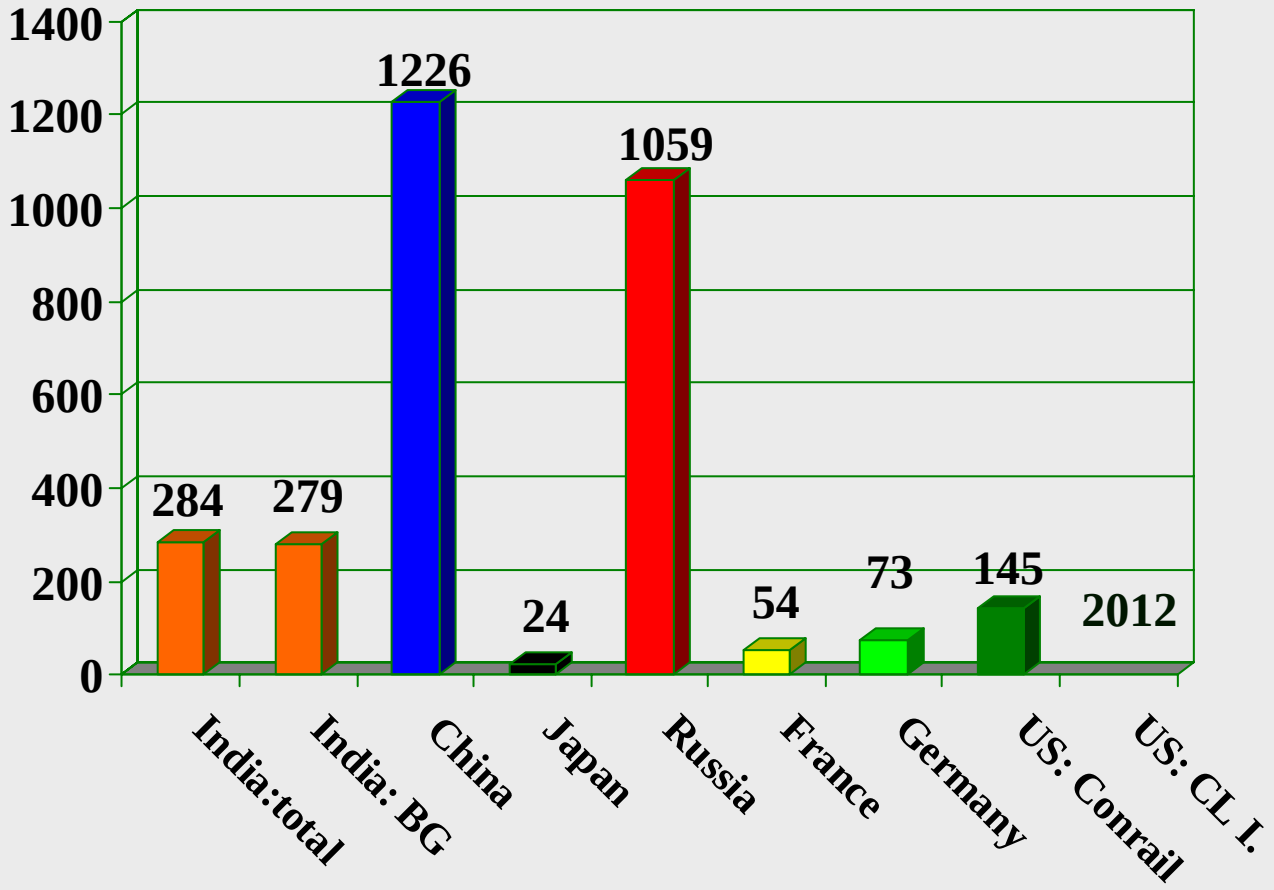




Ton-Km Comparisons

(billions of T-Km in 1997 or 1998)



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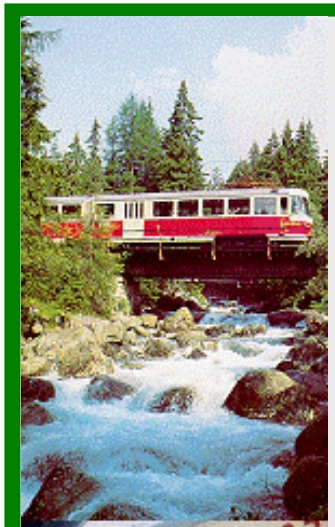
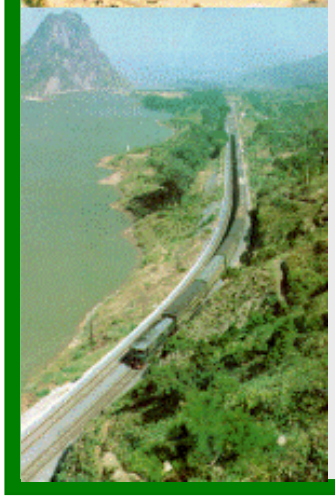
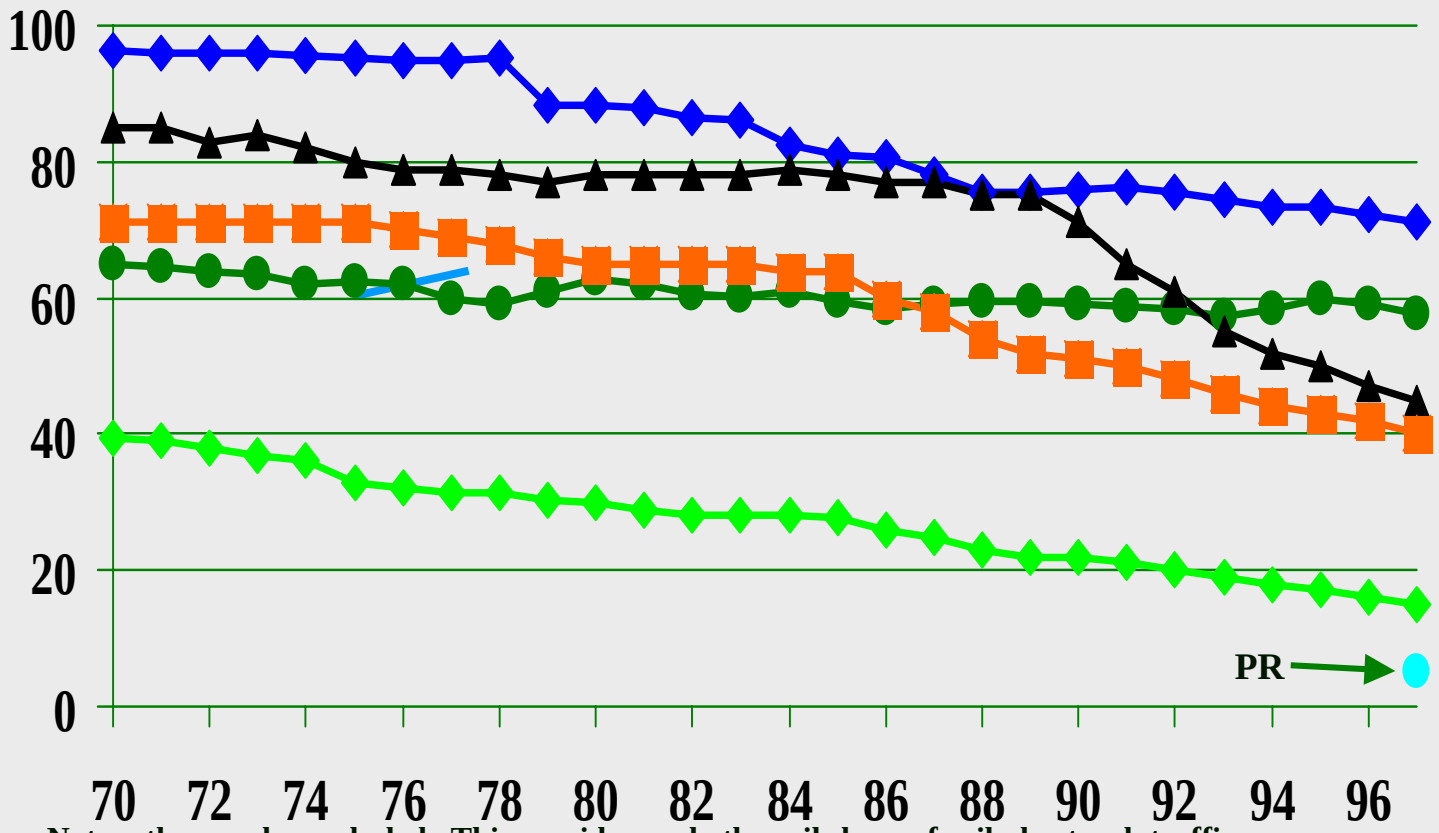




IR's Freight Role is Shrinking:

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



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

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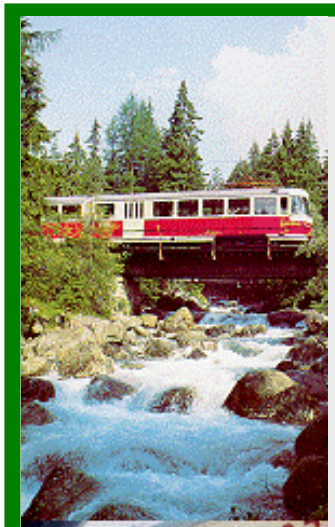
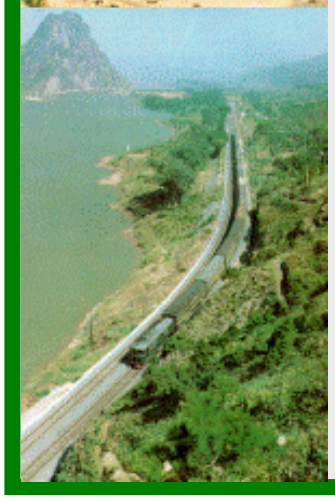
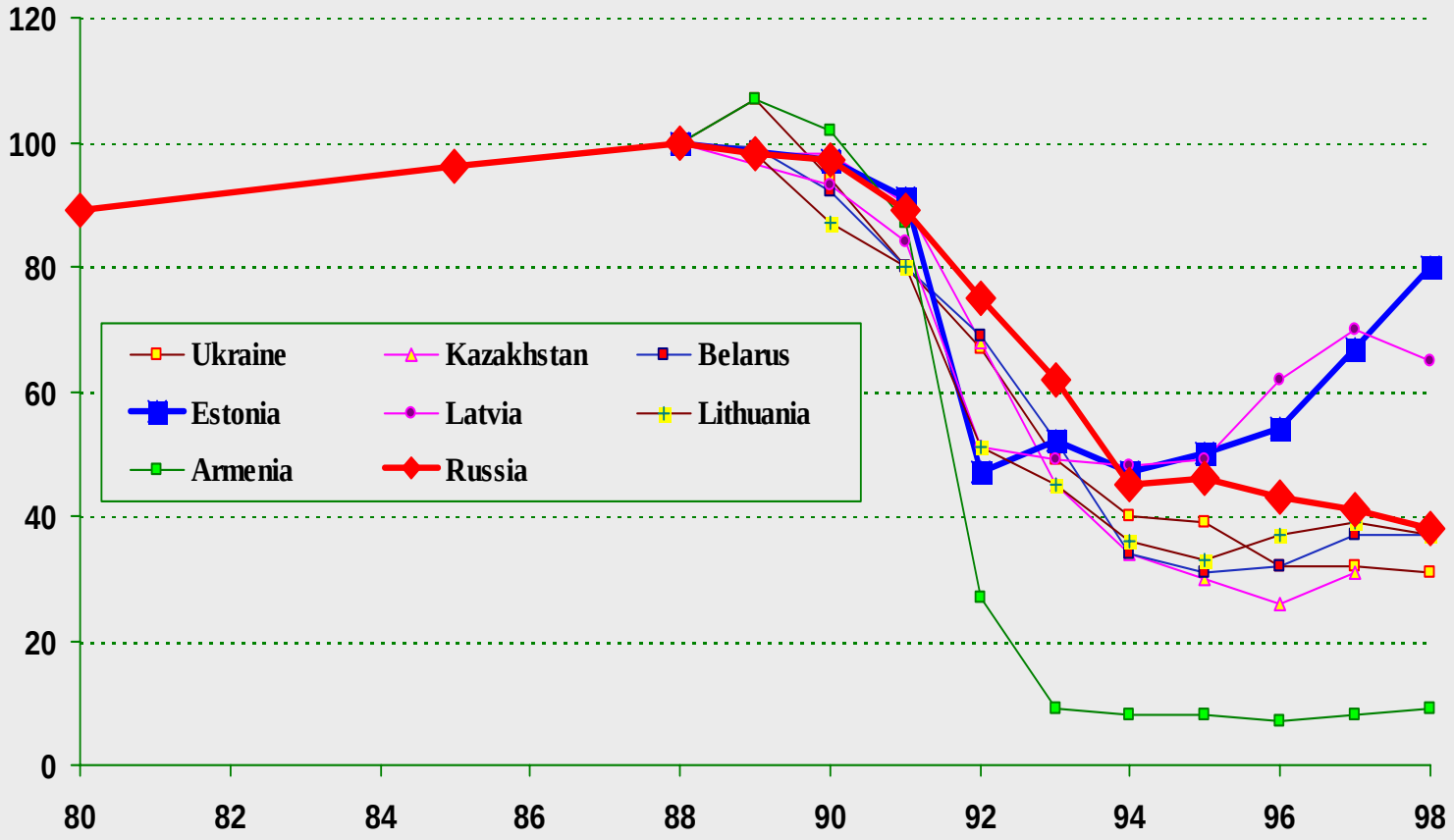




A Real, Worst Case Scenario

Freight Trends in the CIS and Baltic Countries

(Ton-Kilometer Index: 1988=100)



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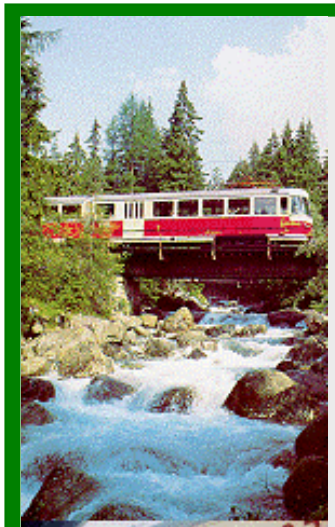

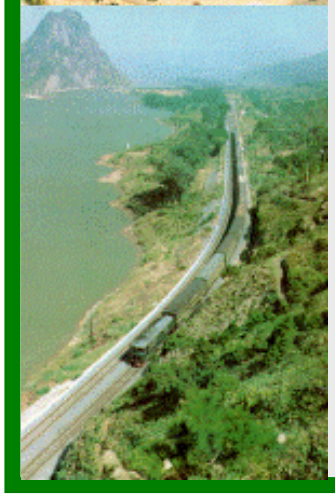

What Others Are Doing

- 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

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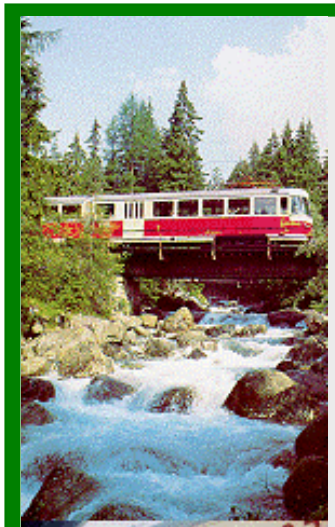
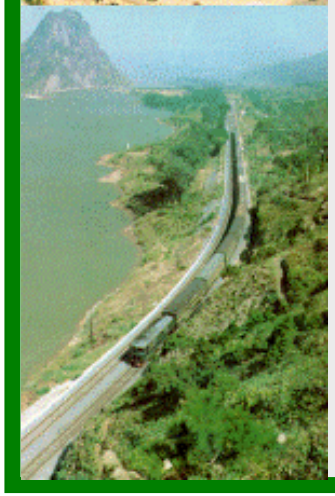




Directions of Railway Change

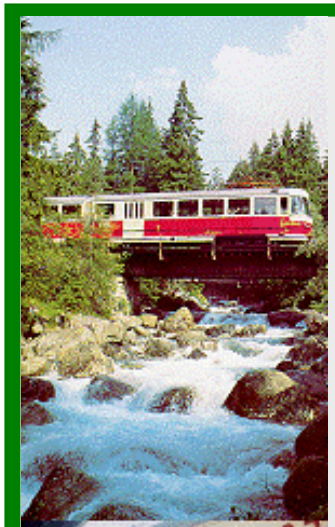
Private Involvement

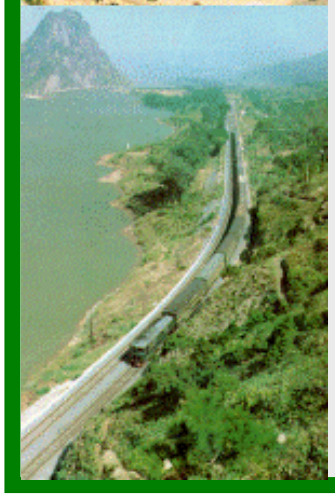
Structural Change

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

Mixtures are possible!

The World Bank



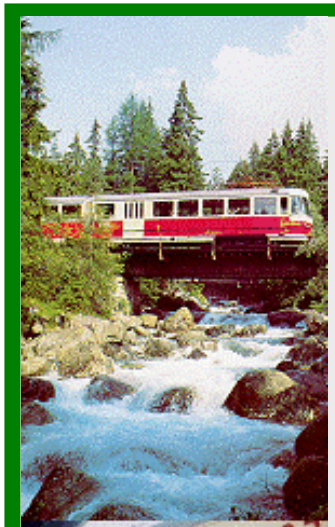


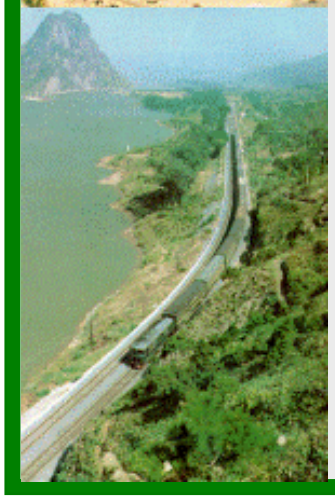
The Deutsche Bahn Structure

DB AG Holding Company

- **DB Netz (Infrastructure)**
- **DB Cargo**
- **DB Stations and Service AG**
- **DB Reise & Touristik AG (Intercity Passenger)**
- **DB Regio AG (Local Passengers)**

The World Bank





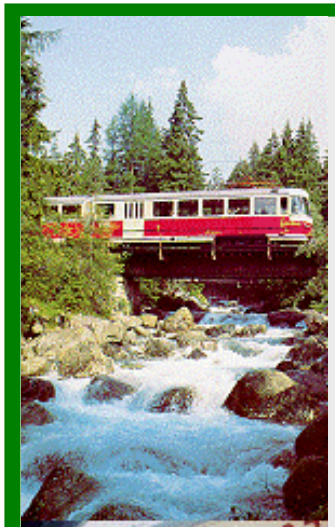
Romania: The New Railway System With Focus on Transition

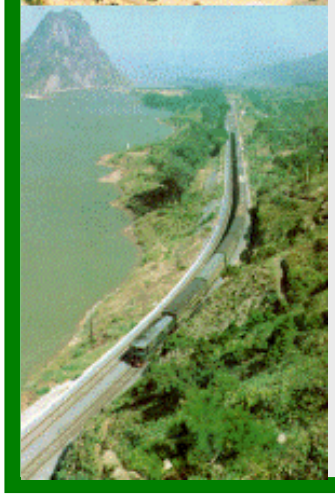
Minister of Transport

Holding Company

- **Rail Management Services Company** — Ensures uniform data
- **Infrastructure Company, public enterprise**
  - **Passenger Company** — Split commuter from ICP, transfer commuter, eventually concession ICP
  - **Freight Company** — First to be sold
  - **Real Estate Subsidiary** — Sell or develop
- **Rail Asset Company** — Spin off
- **Old SNCFR** — Gradually dissolve

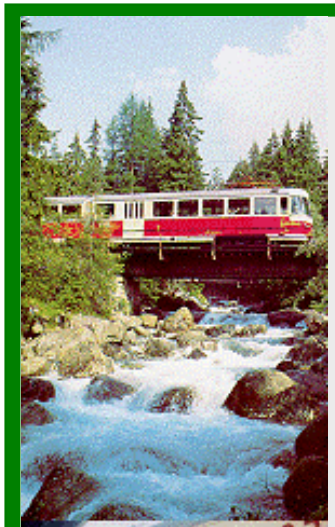
The World Bank

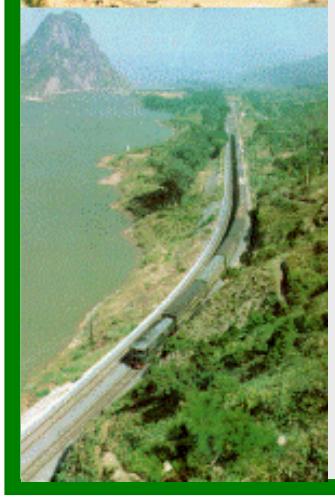




Railway Concessioning

- 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



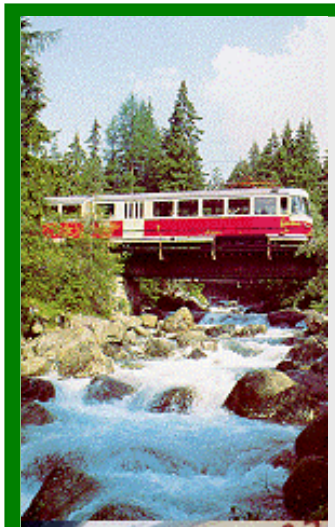


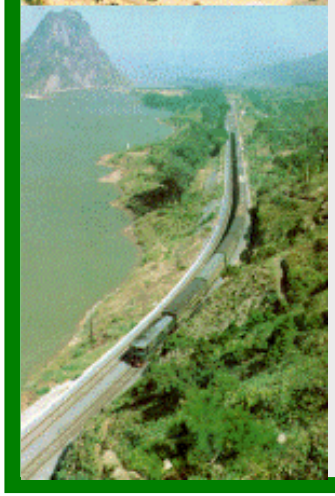
The Chinese Restructuring:

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”)

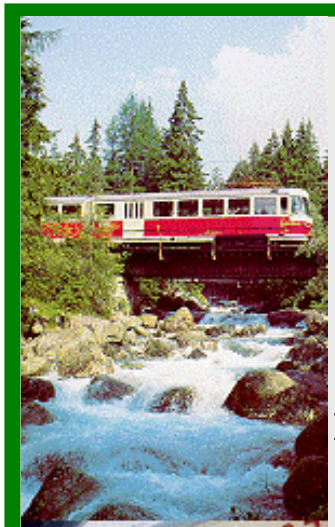
The World Bank

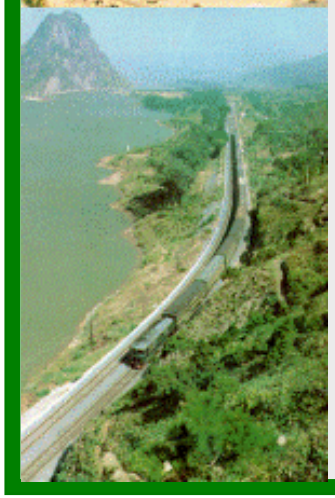




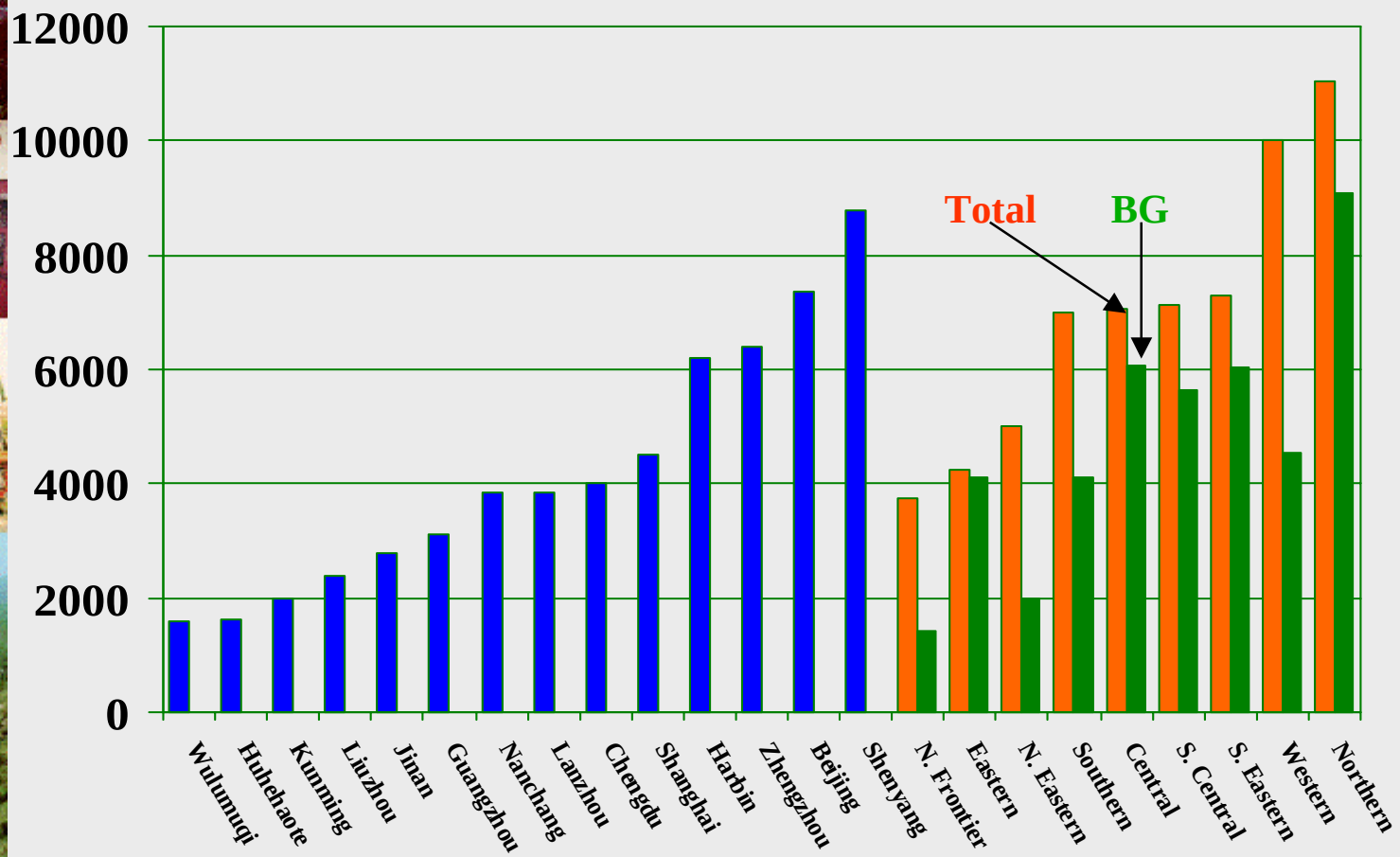
MOR's 14 Administrations

The World Bank





Km of Line: MOR Administrations Compared with IR Zones



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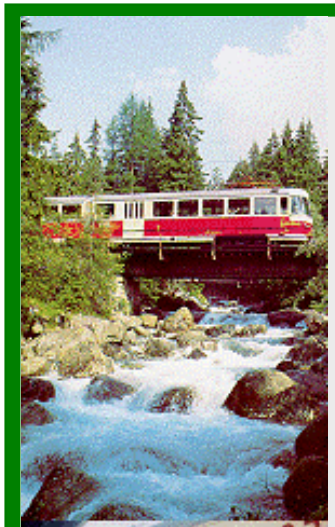
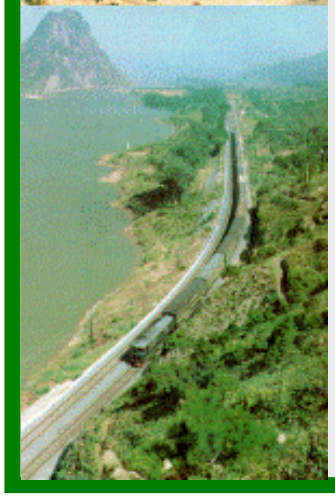
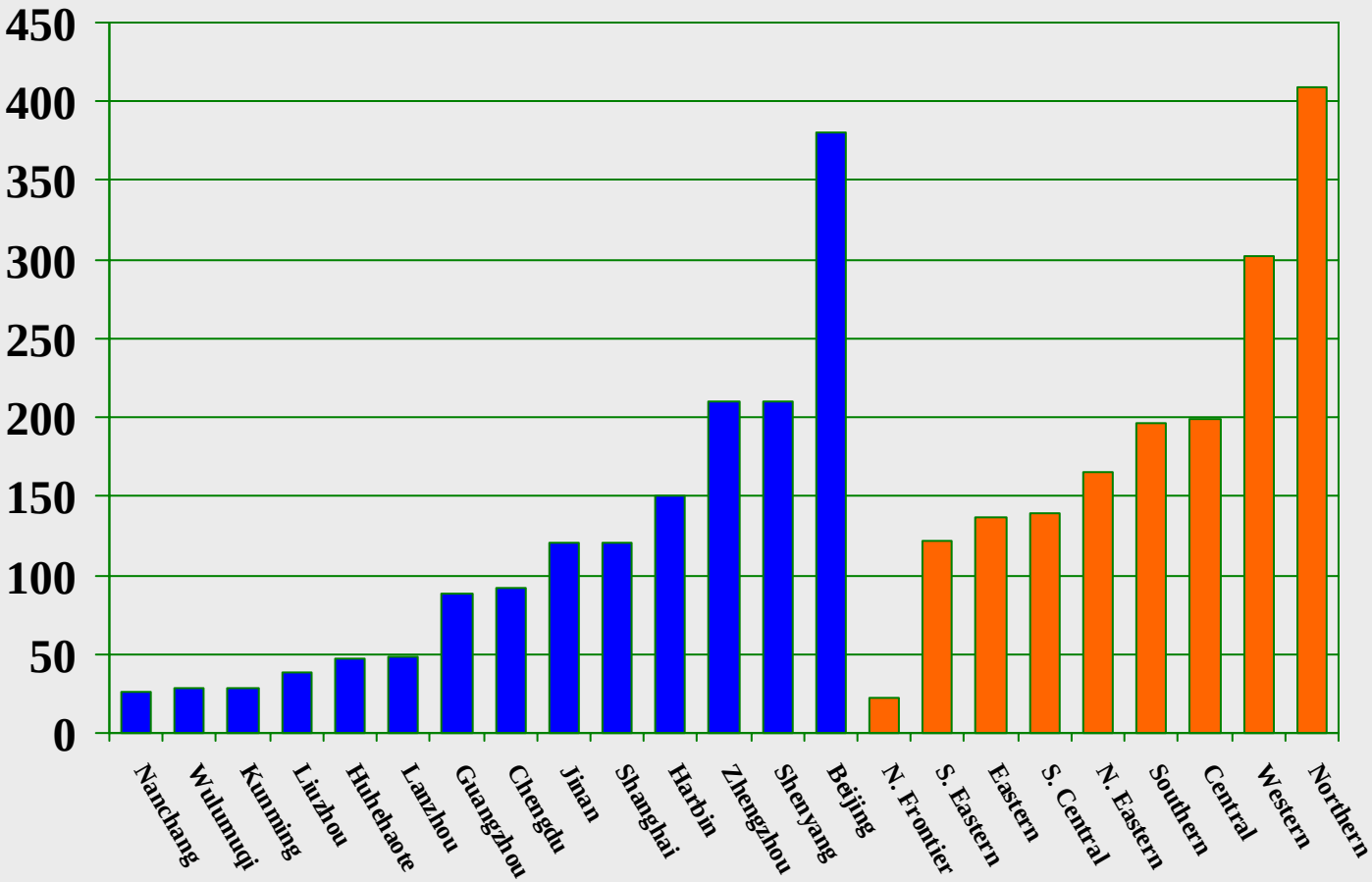




Inter-city Passengers Originating (000,000): Comparison of MOR Administrations with IR Zones



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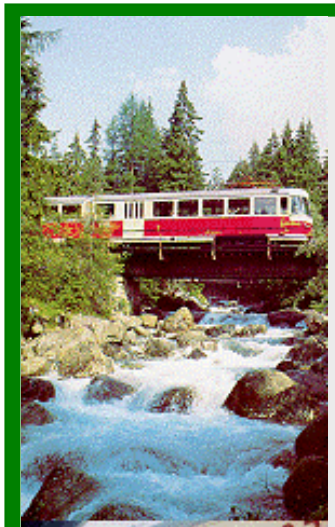
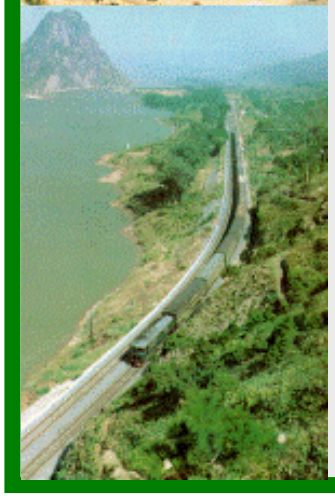
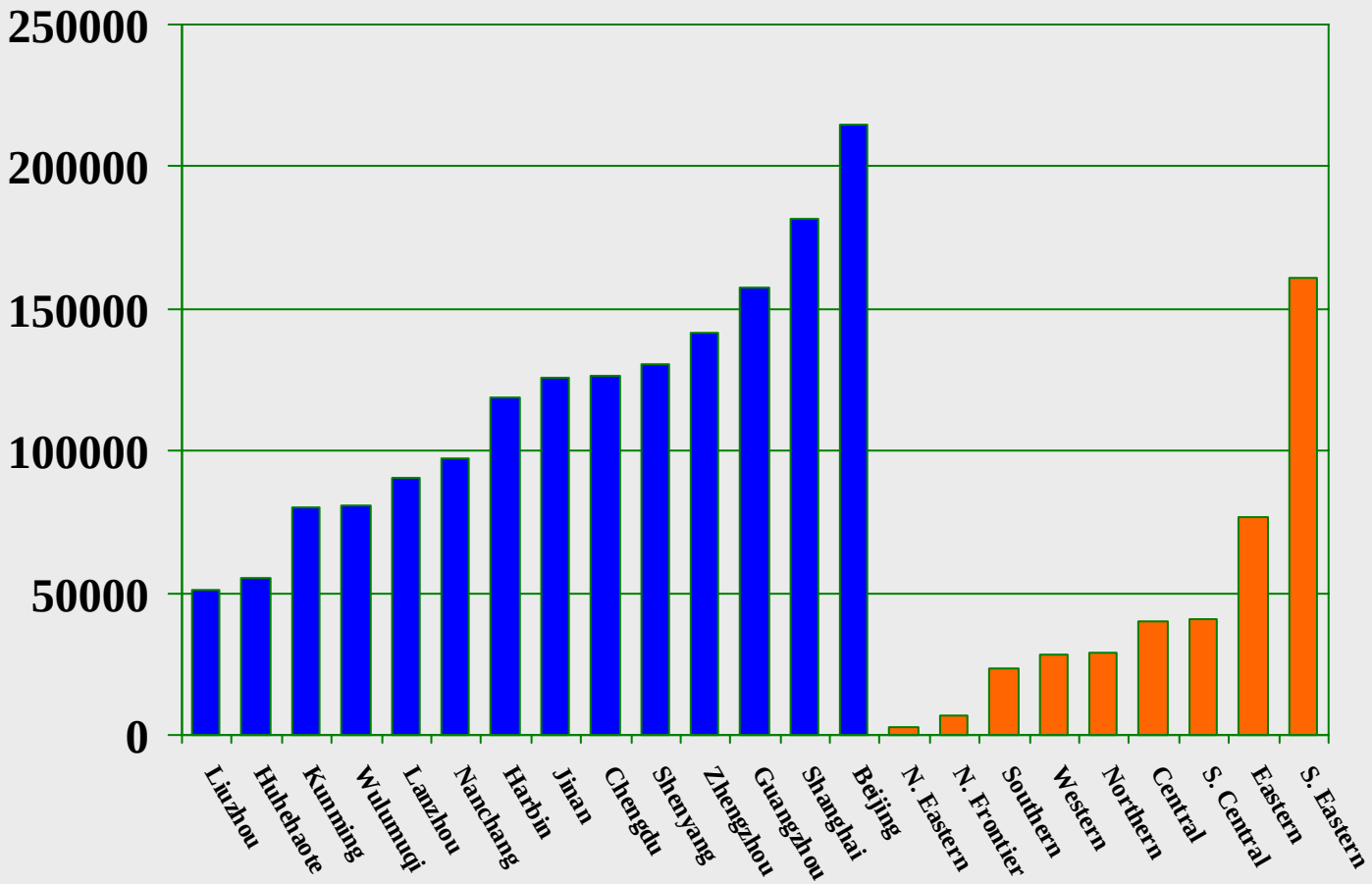
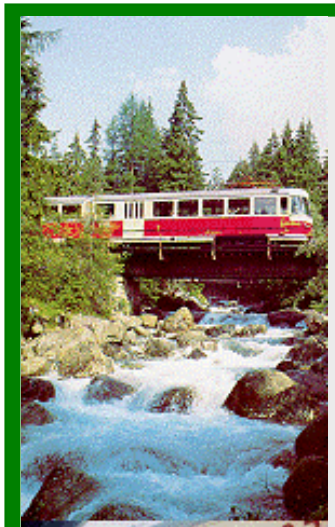


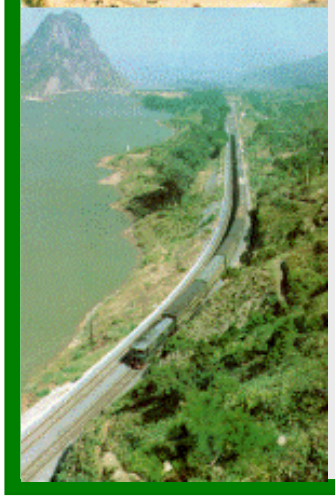


Freight Tons Originating (000,000): Comparison of MOR Administrations with IR Zones



The World Bank

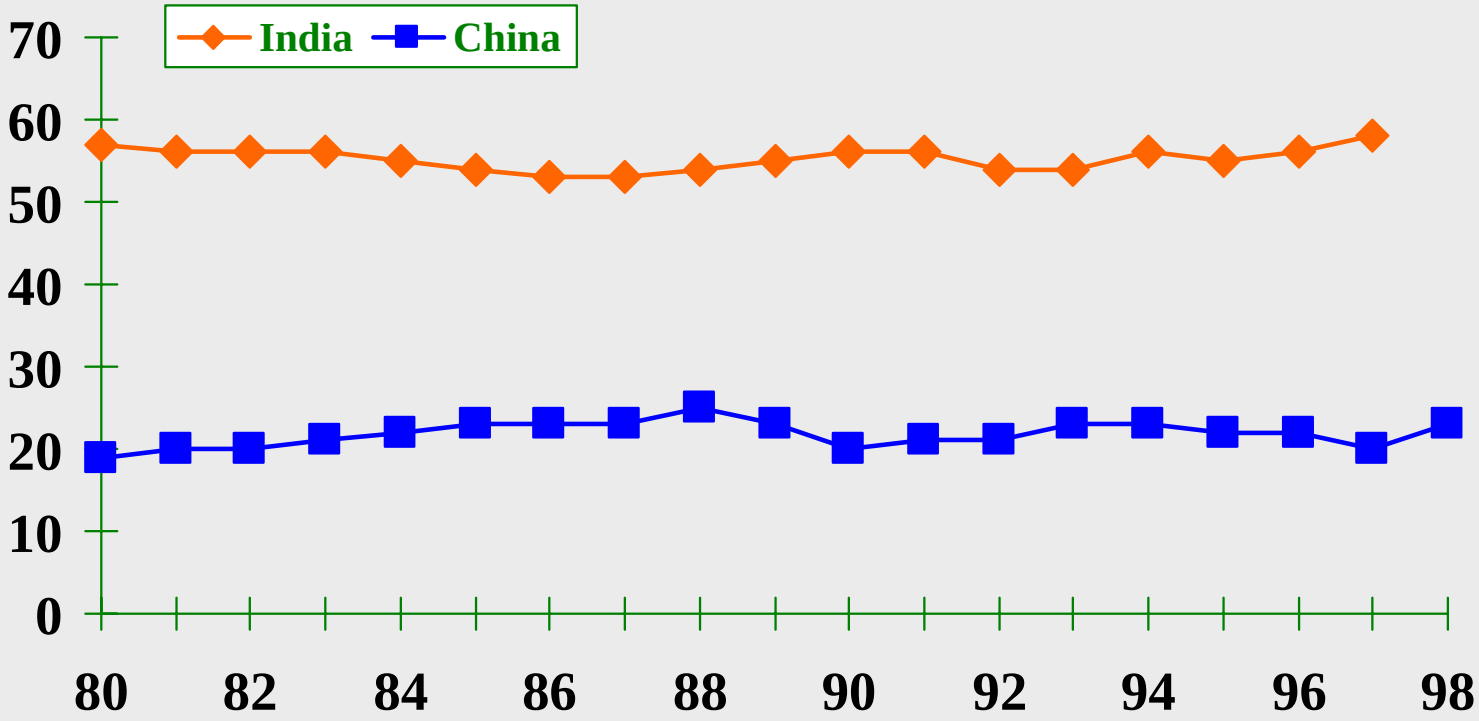




MOR's Freight Orientation:

Percent Passenger Traffic

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



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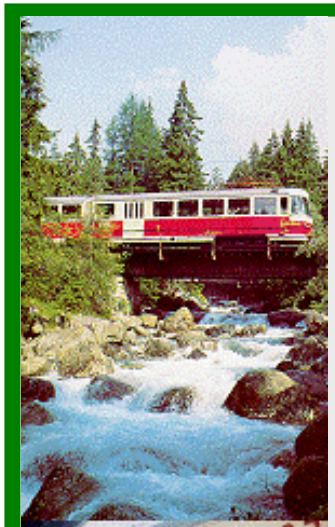
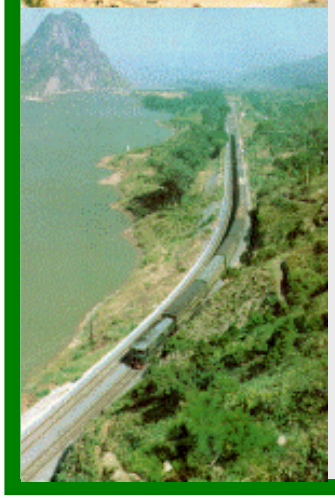
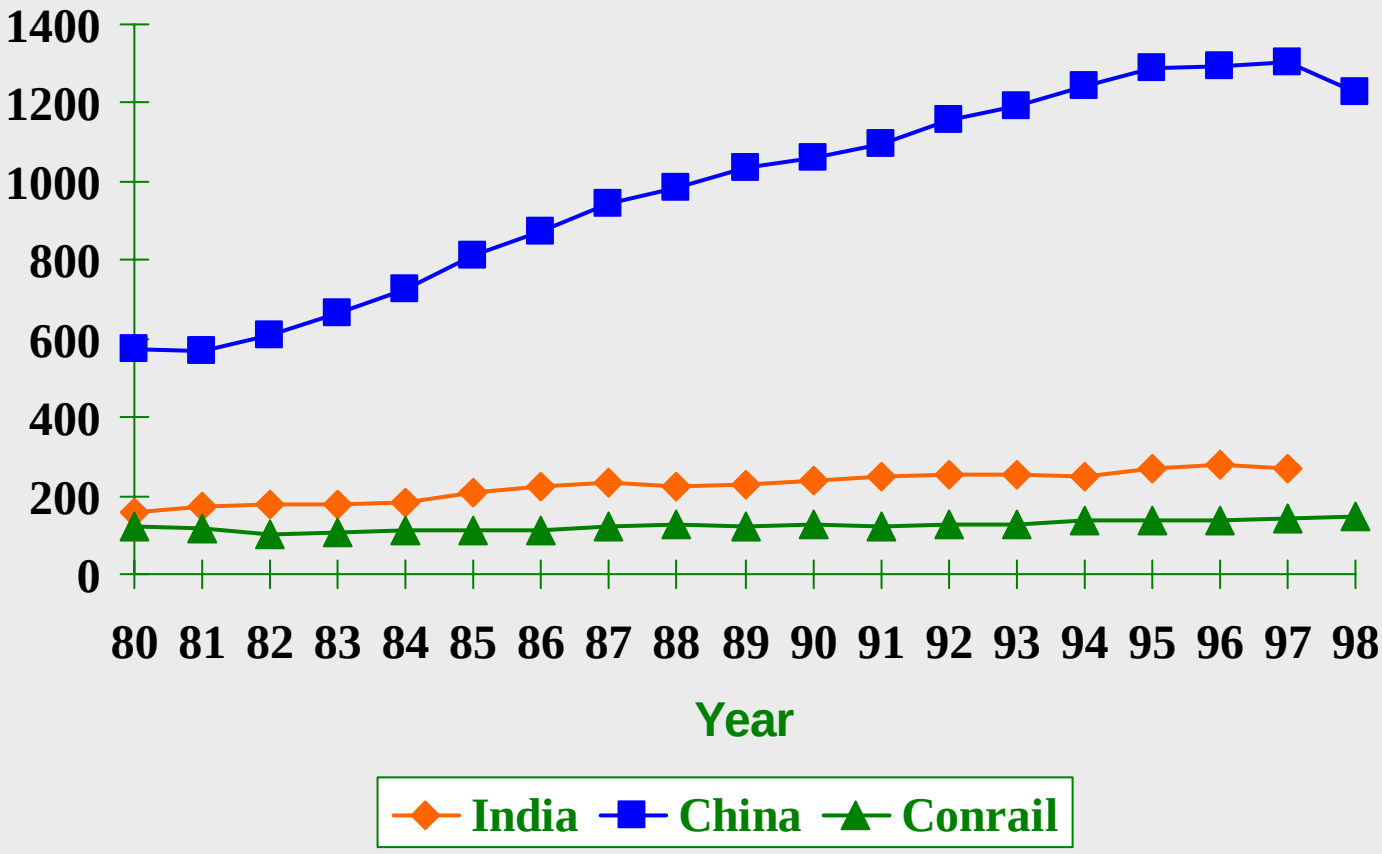




Freight Traffic

(billions of ton-km)



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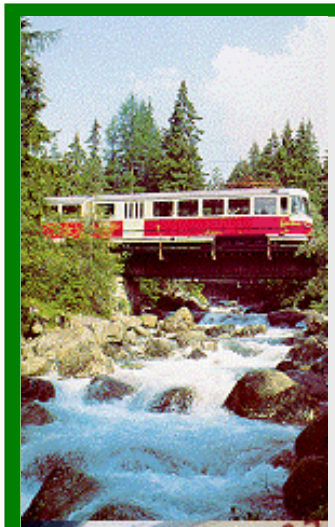
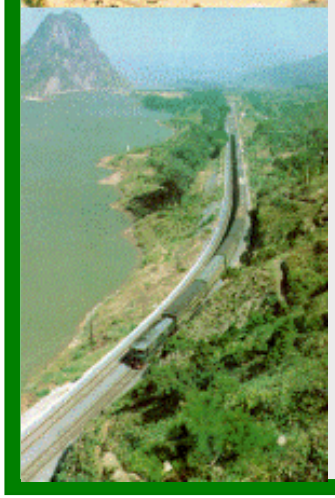
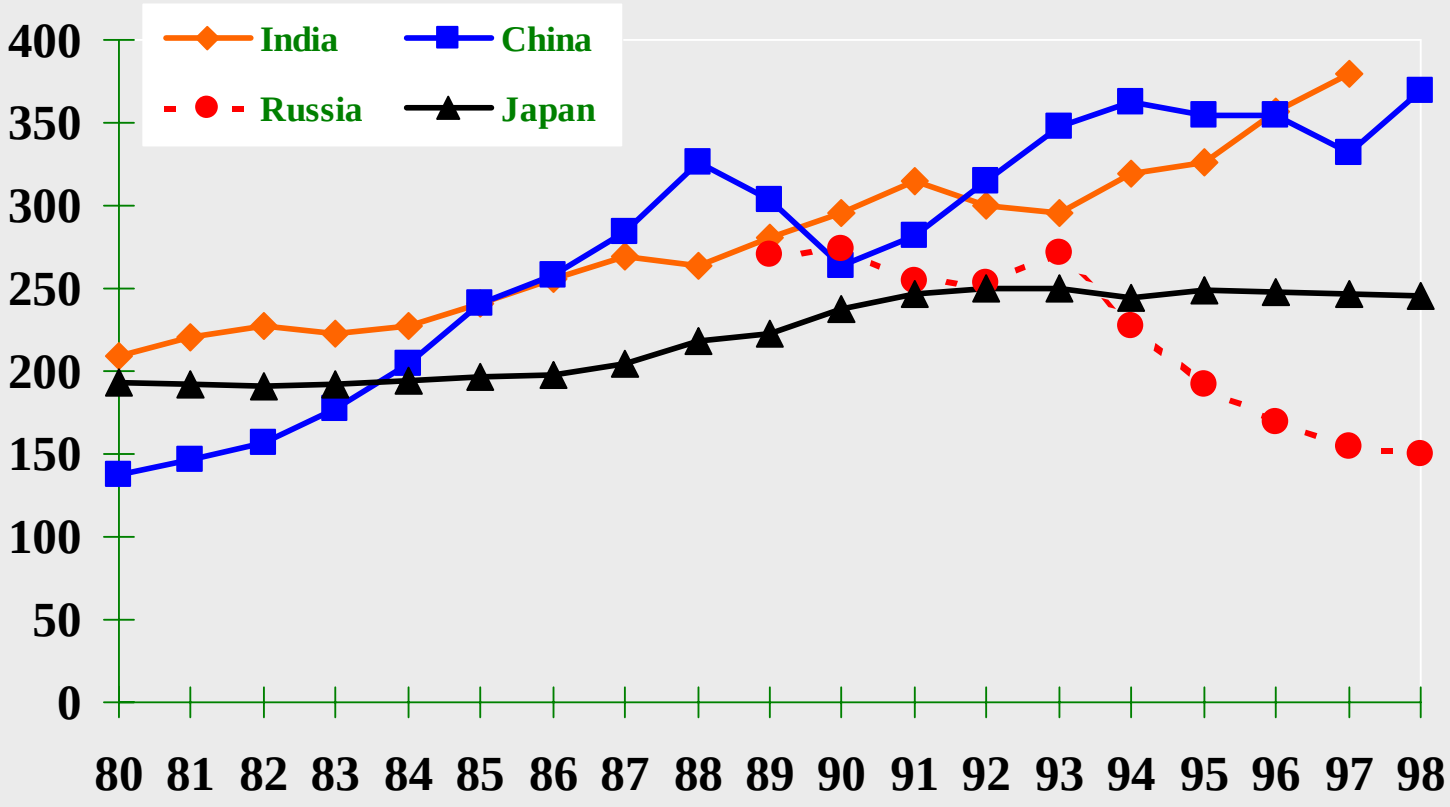




Passenger Traffic

(000,000 p-km)



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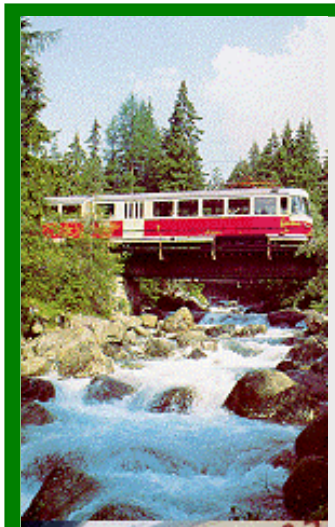
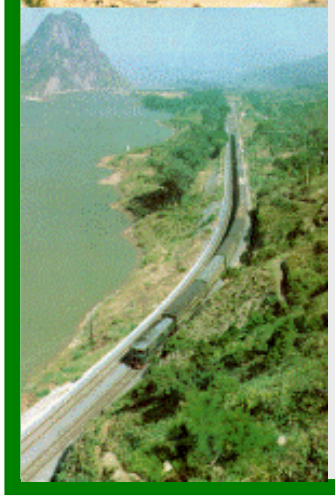
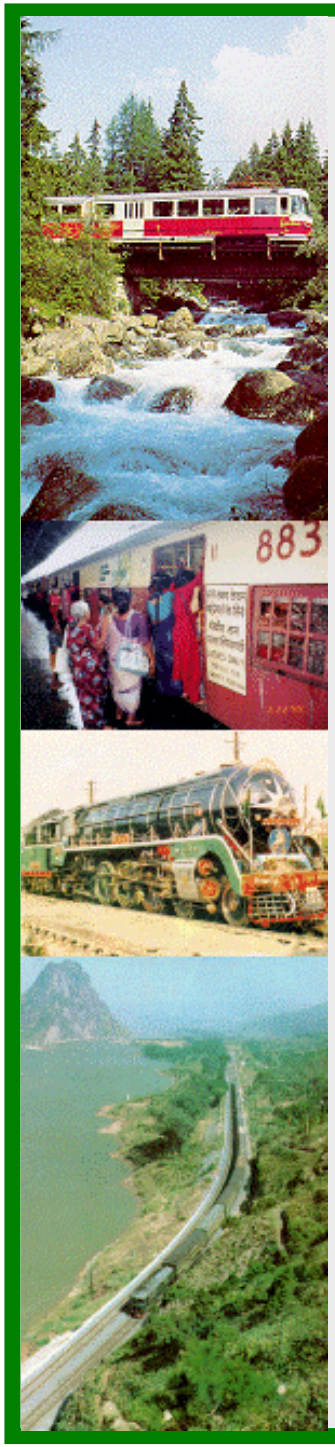




MOR's Problems

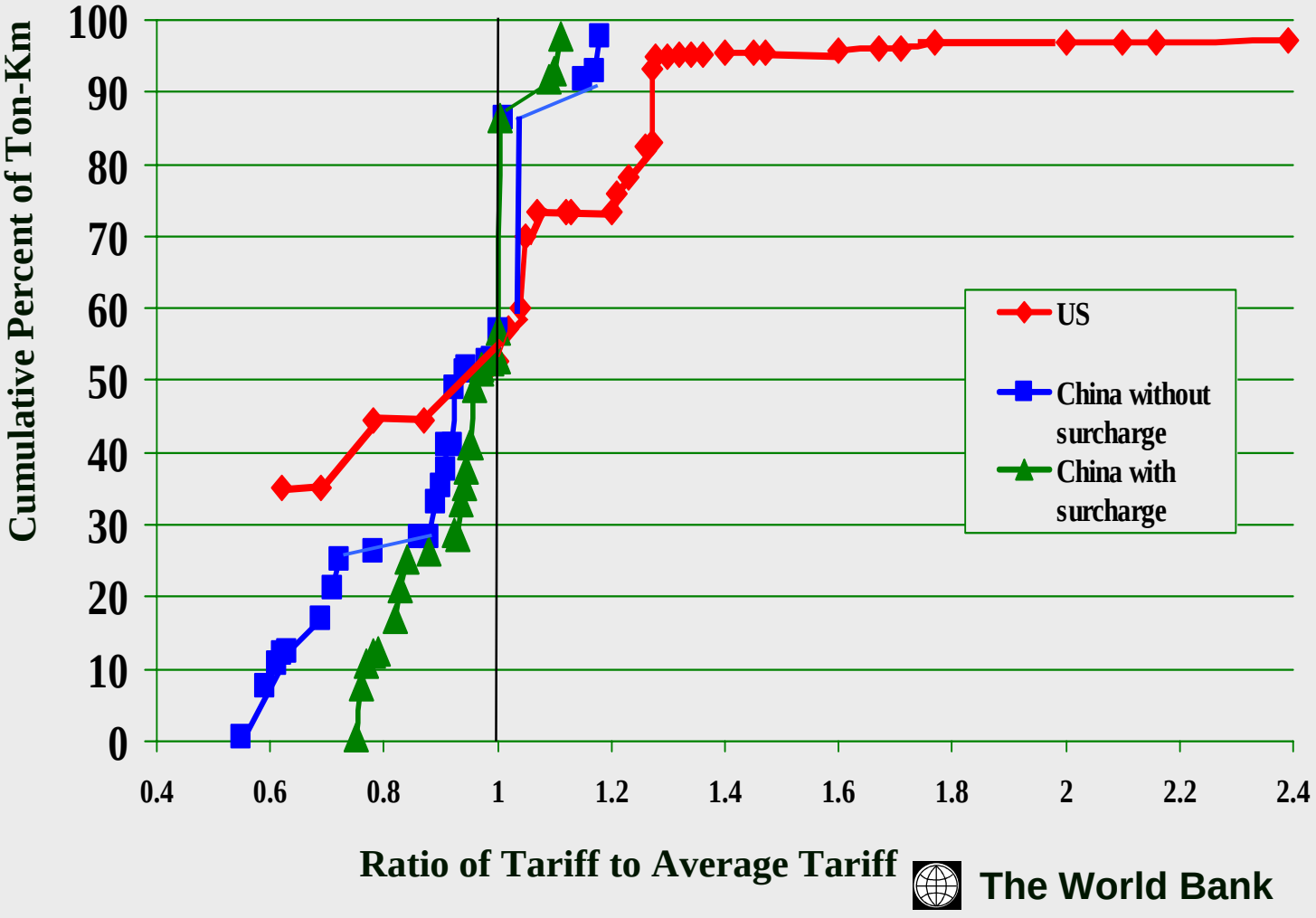
- Confusion of government and enterprise roles
- Geographic organization causes
  - fragmentation of traffic and decisions (but ~90 percent of freight moves inter Administration)
  - bureaucratic decisions (revenue distribution, wagon allocation) made at the center
  - 14+ points of management
  - no 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



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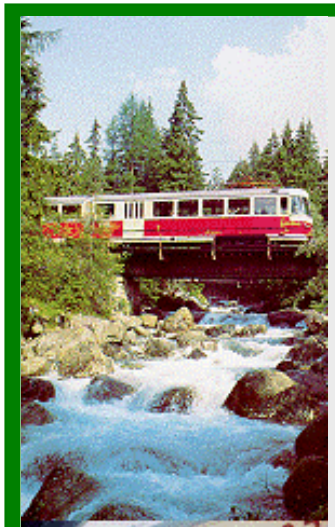

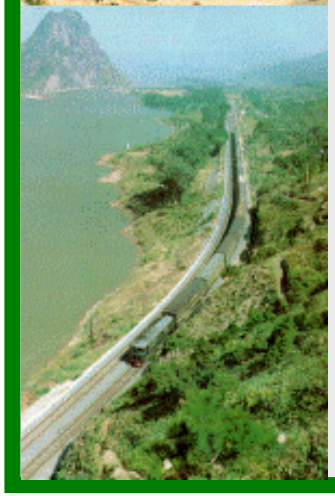

MOR's Program of Restructuring: Guidelines

- 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

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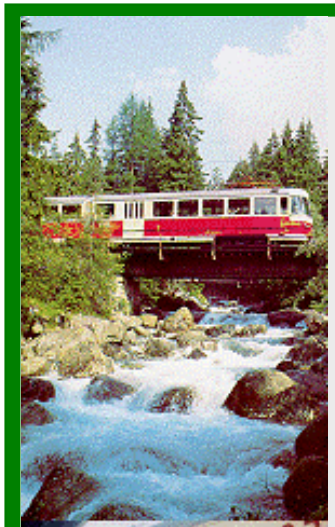
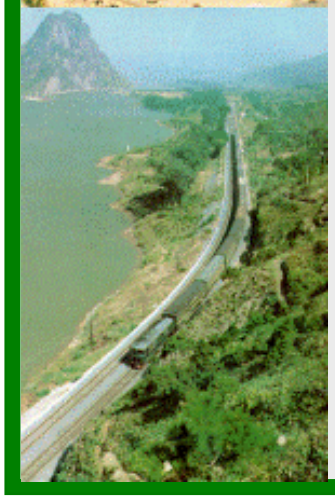
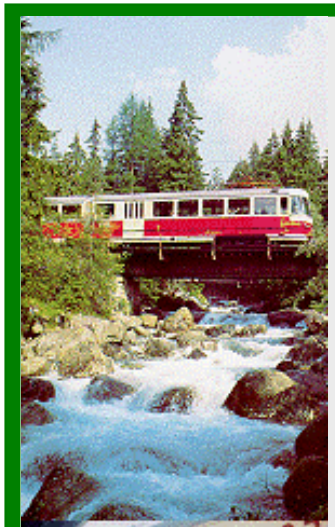
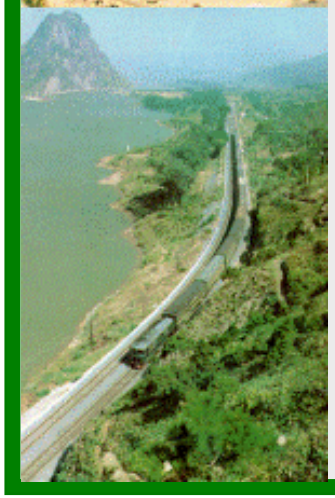




MOR's Restructuring Program: Committed Actions

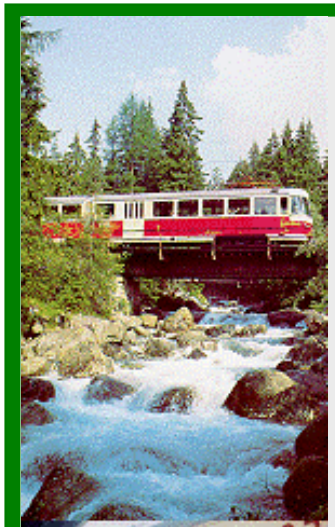
- Make non-core activities (manufacturing) "independent"
- Transfer social activities to government (usually local)
- Separate passenger businesses, (PTE's) from the remainder of the railway in each Administration (freight and infrastructure remain integral for now). Separation to be accounting at first, 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

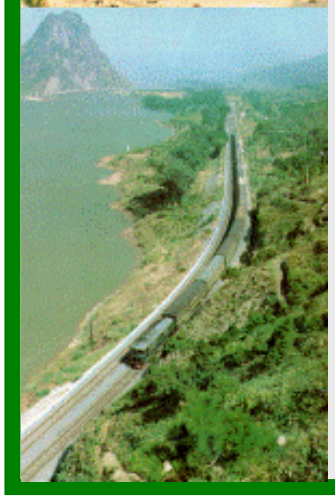




MOR's Restructuring Program: Future Decisions

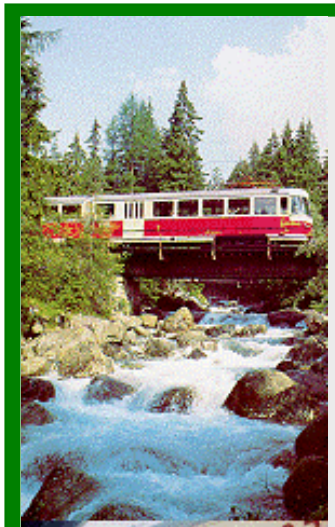
- Restructure PTE's as appropriate across Administration lines -- could entail mergers and/or creation of competition
- Accounting separation of Freight TE's. Institutional separation to be decided later
- FTE institutional separation (called "up/down"), if it occurs, could then lead to cross boundary 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

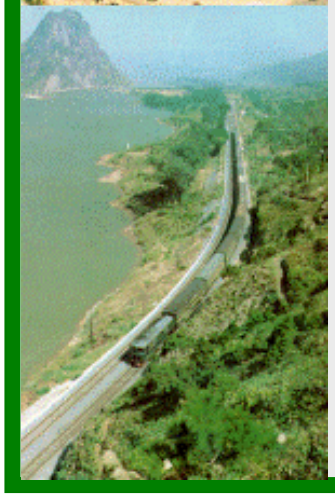




MOR's Restructuring: Issues and Approaches

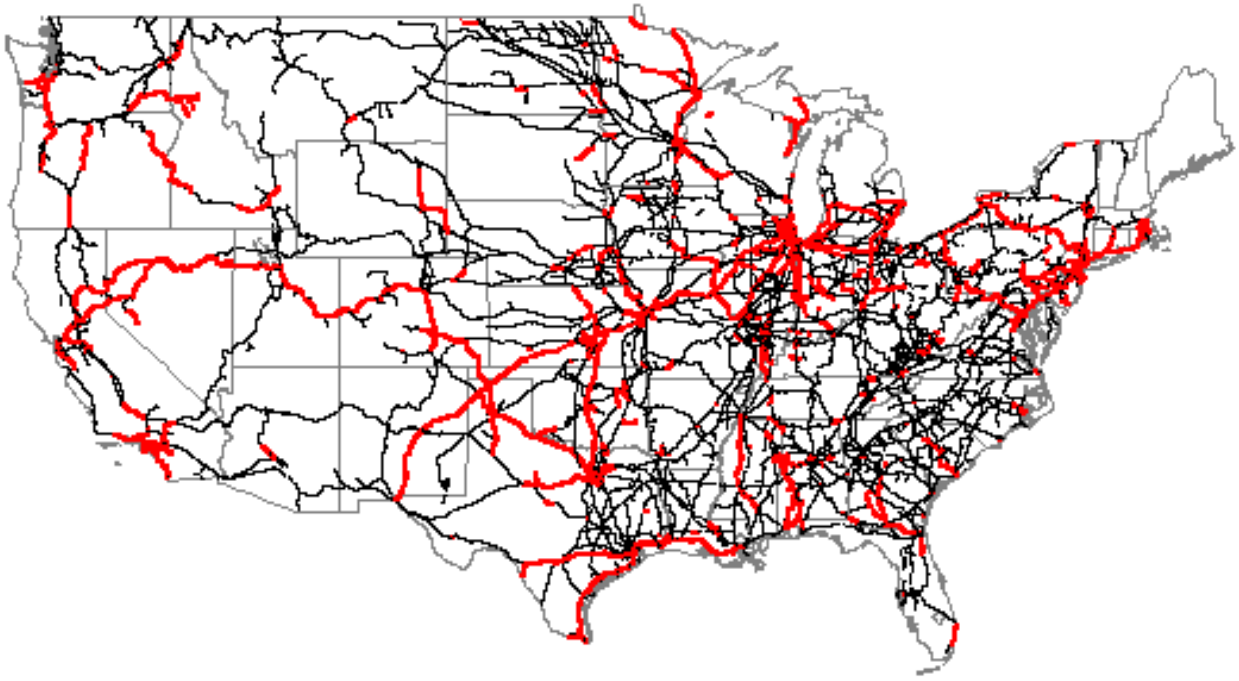
- **Separation of enterprise and government** -- establish an MOT, set up railways as enterprises, initially at Administration level
- **Commercial approach** -- Line Of Business (LOB) organizations at all levels -- freight, several passenger companies, related
- **Rail enterprise structure** -- choice 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)



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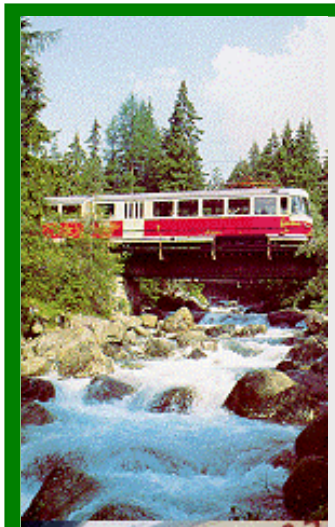
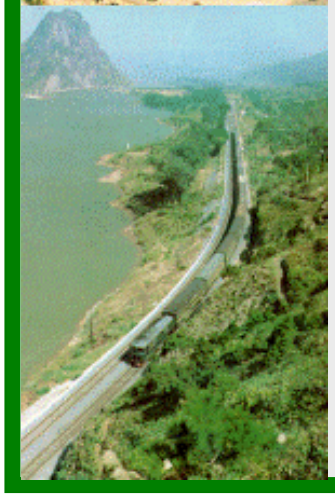
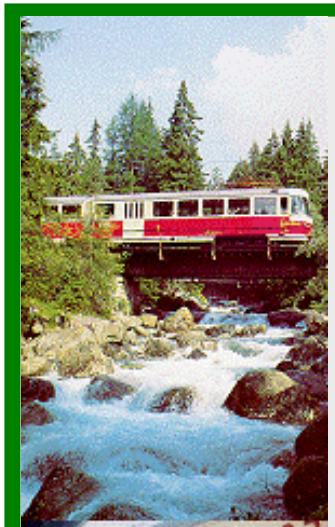
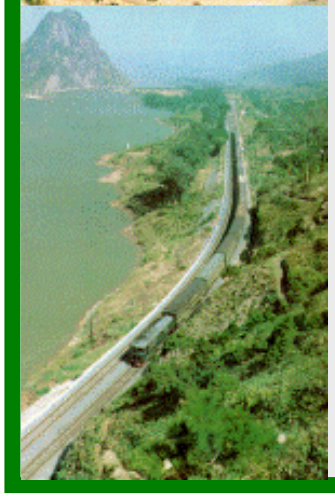




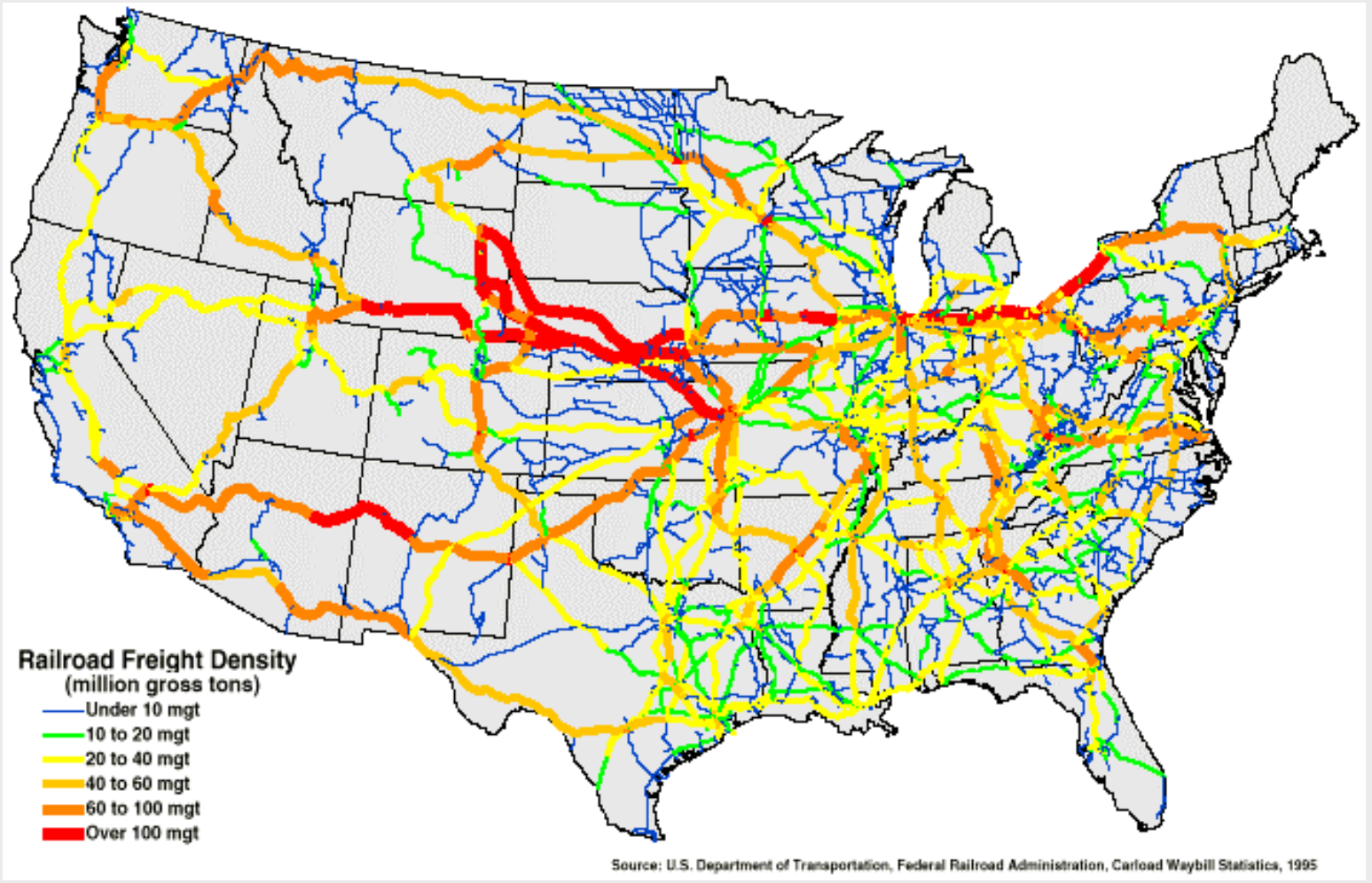
MOR Restructuring; Primary Tools for Evaluating Options

- **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



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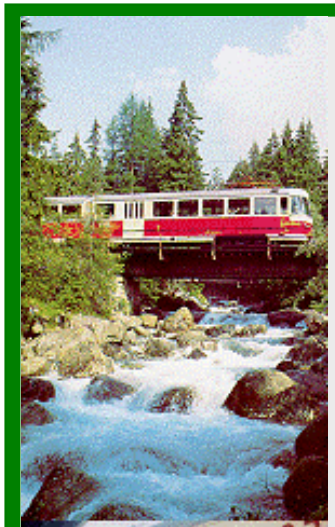

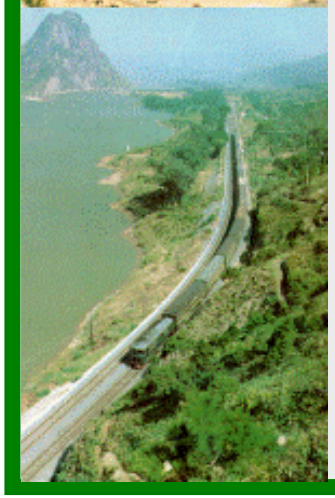

Restructuring IR: Initial Observations

- 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

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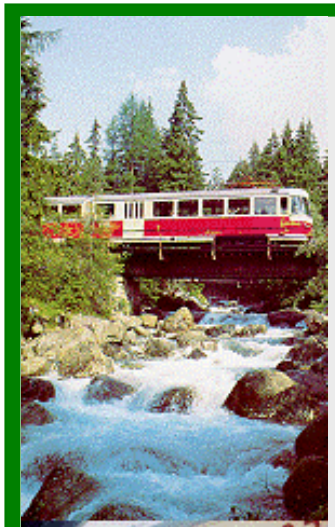
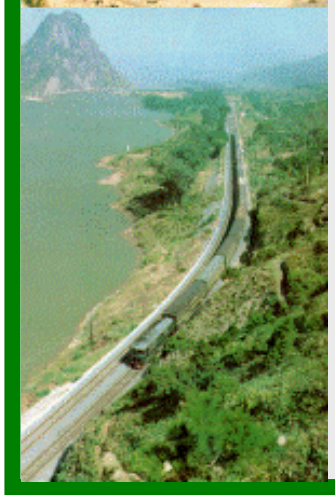
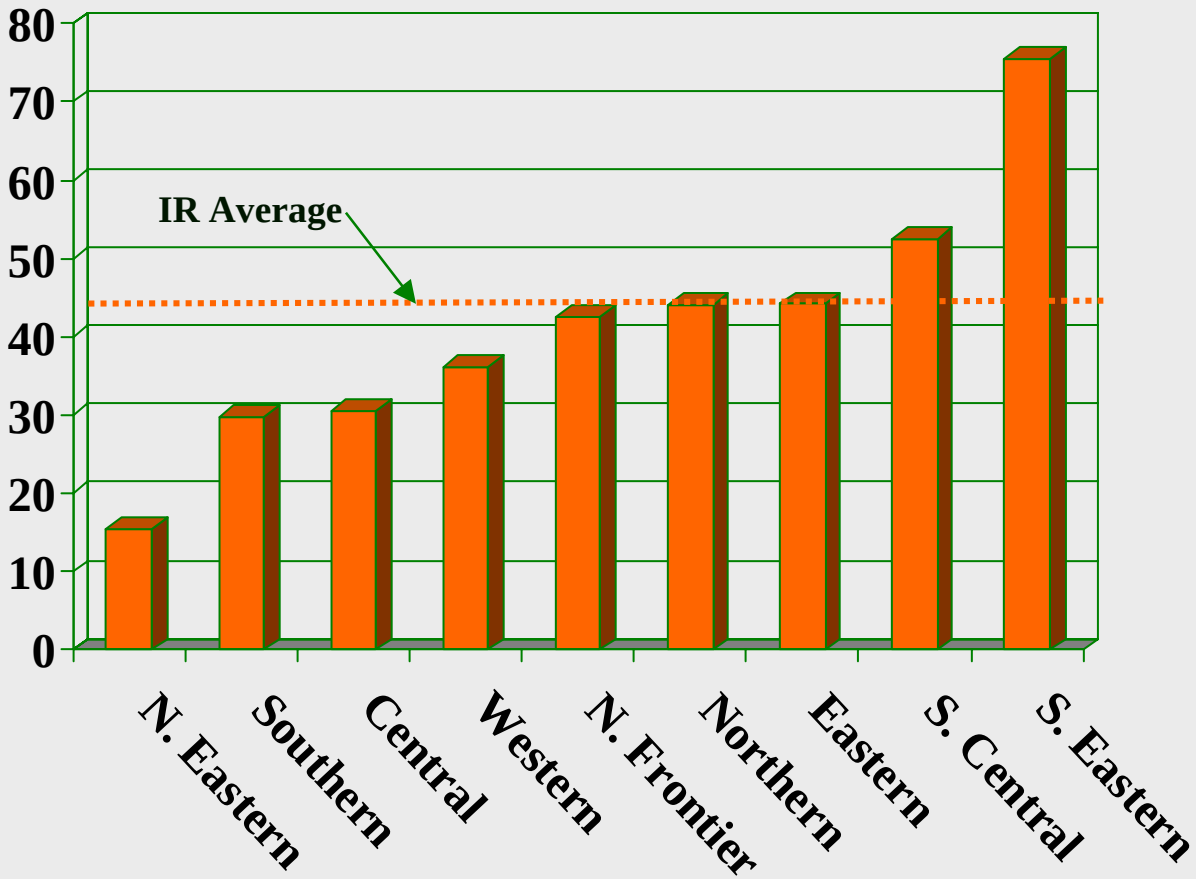




Zonal Railways Are Different: Freight Ton-Km as Percent of Total Traffic



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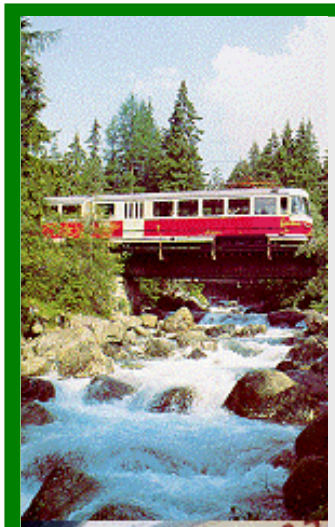
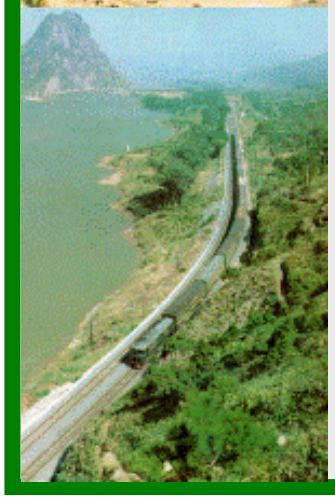
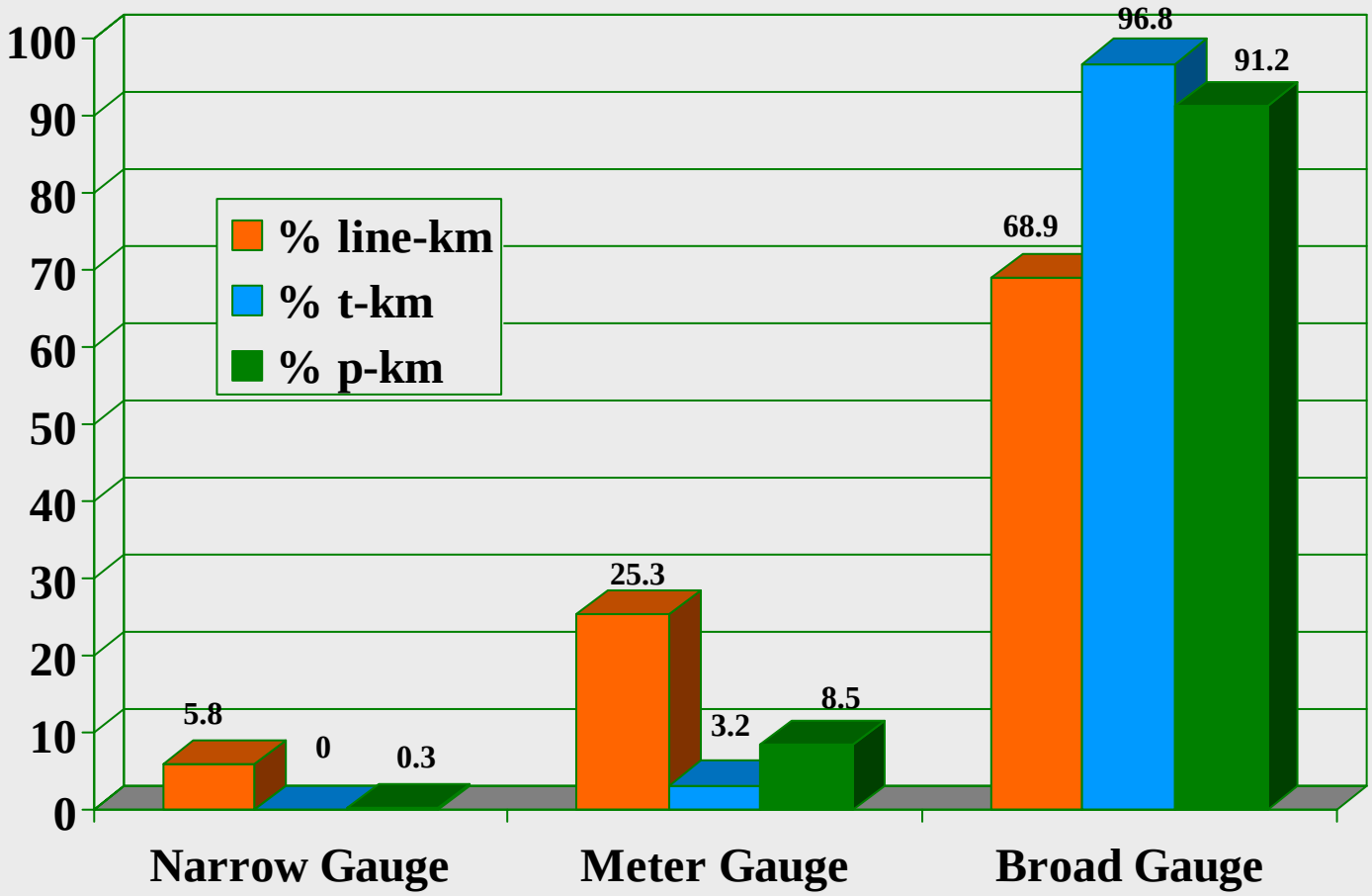




The Gauge Effect: India's Three Separate Railways



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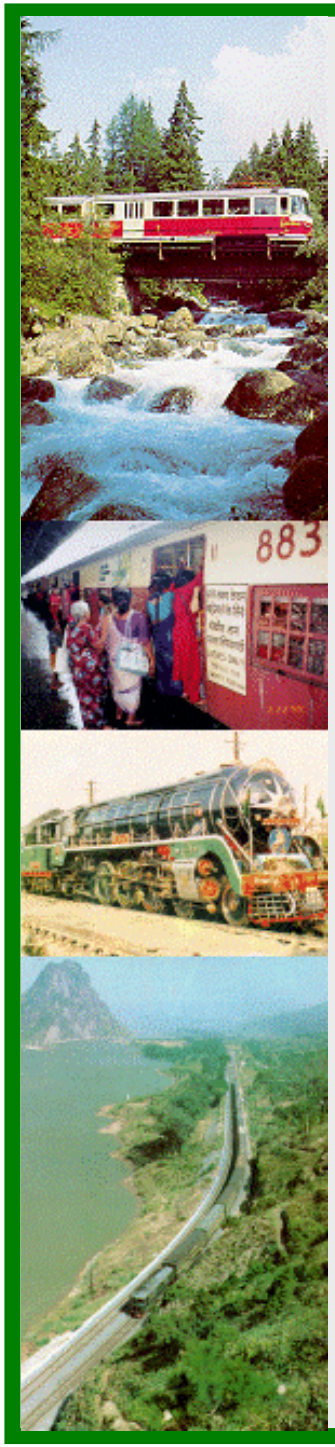
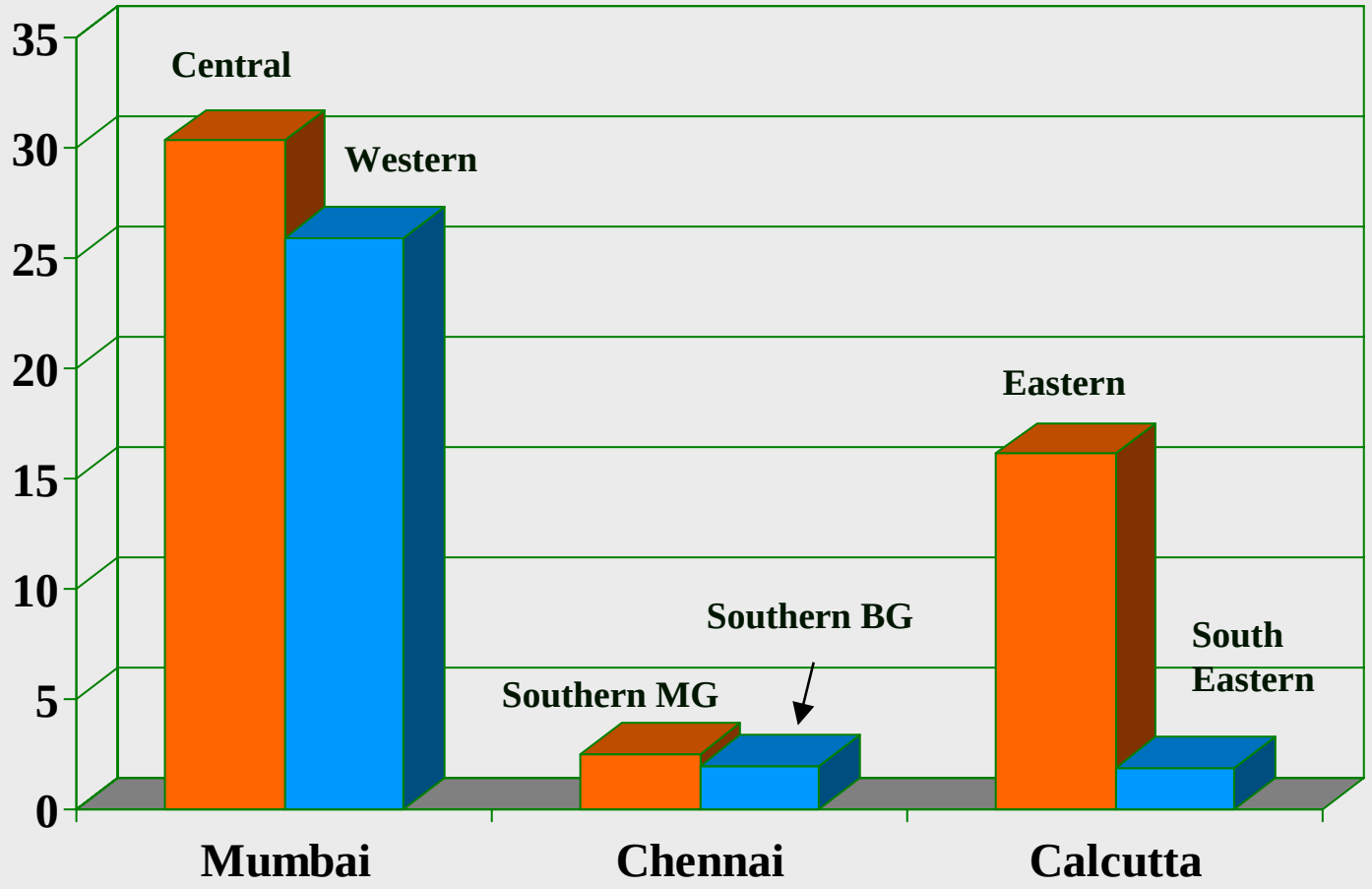


IR's Suburban Activities

(Passenger-Km in 000,000)

2000 trains daily



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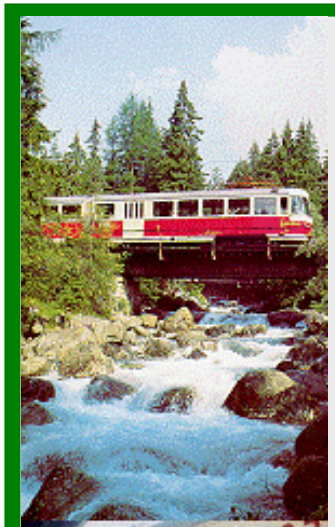
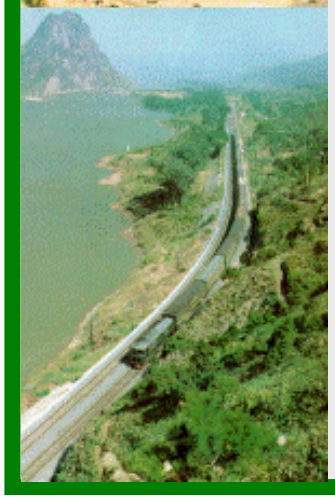
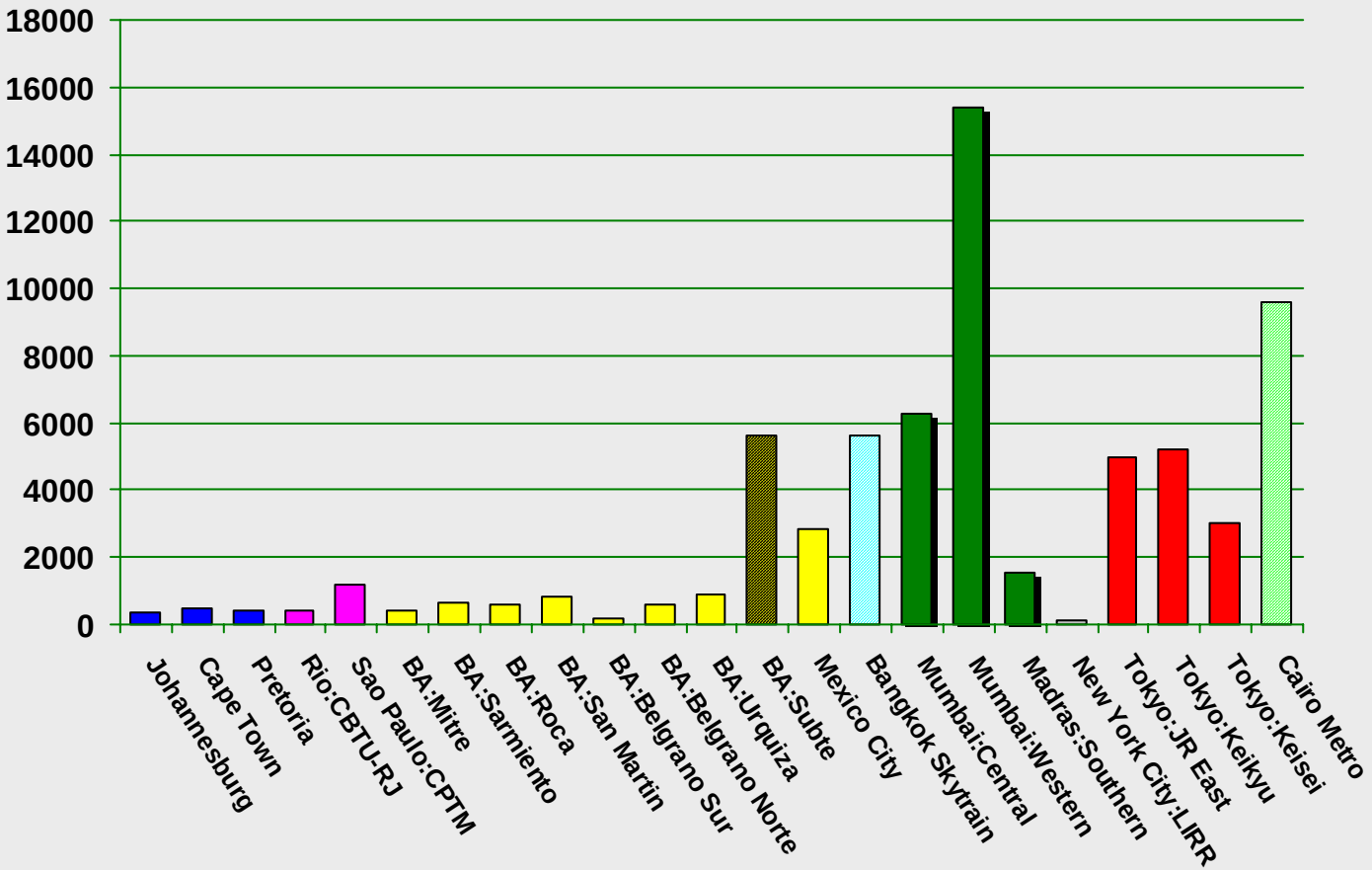




Suburban Rail Systems:
Annual Passengers Per Km of Line



No data for Calcutta or Moscow

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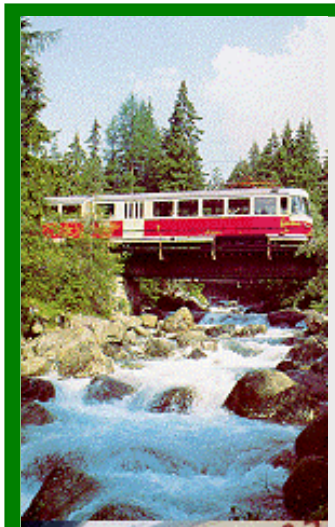
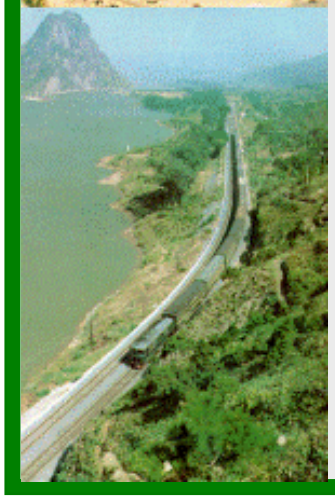
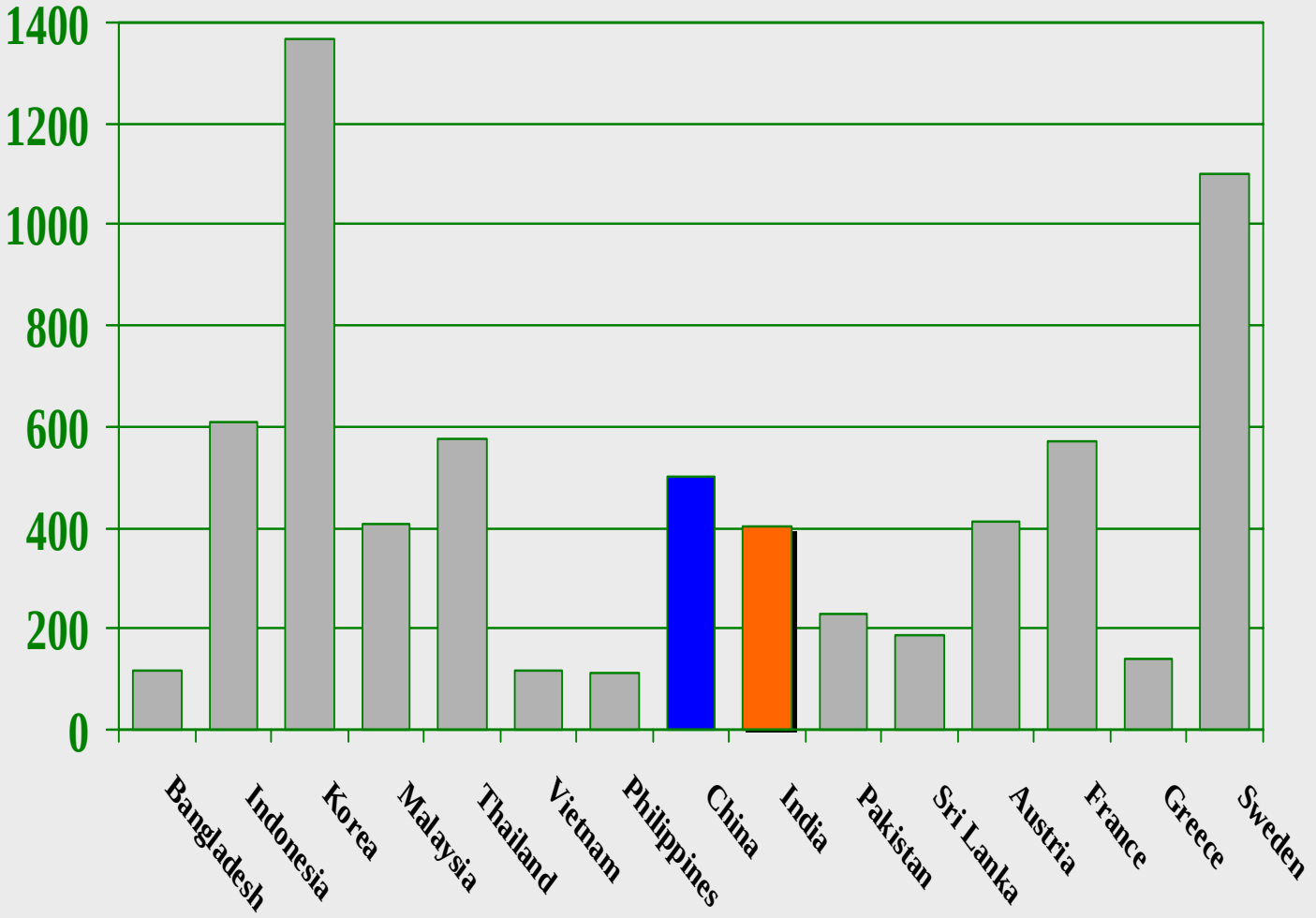




Employee Productivity is Relatively Low

(000 Pkm+000 Tkm/Employee)



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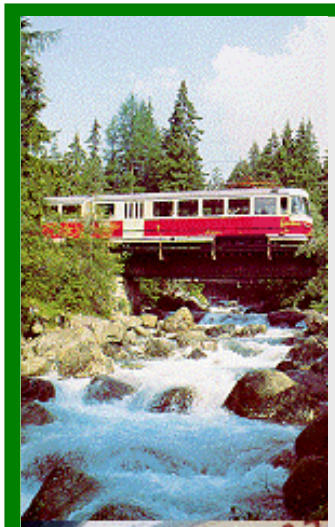
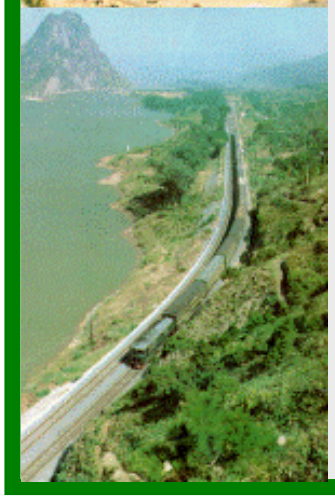
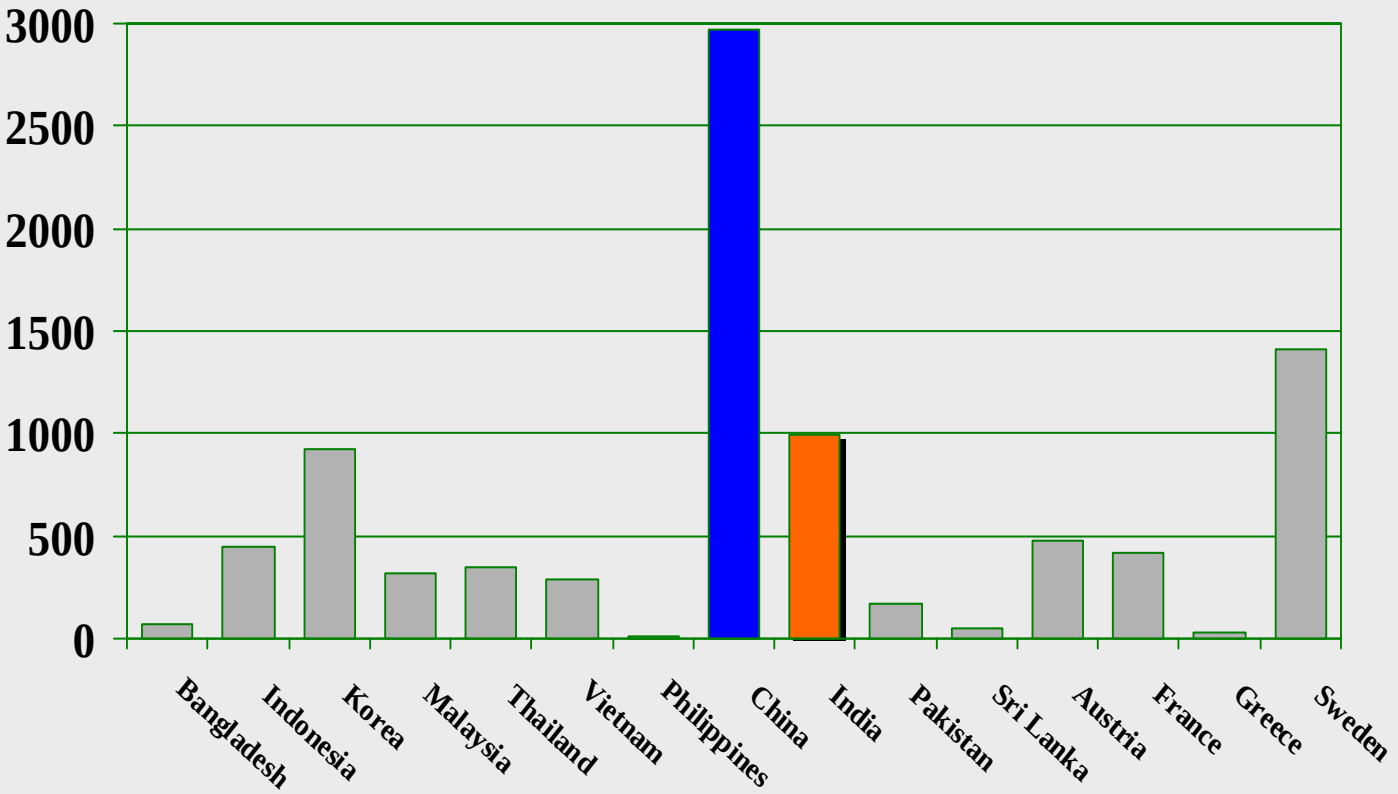




Average Annual Output per Freight Wagon is Not High

(000 Tkm per Wagon)



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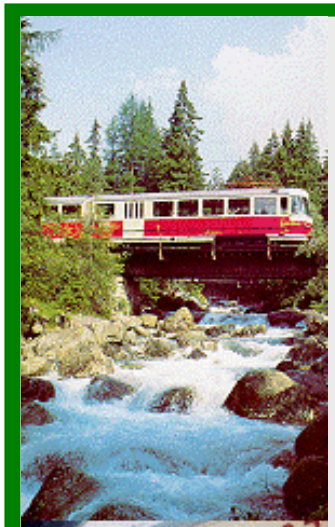
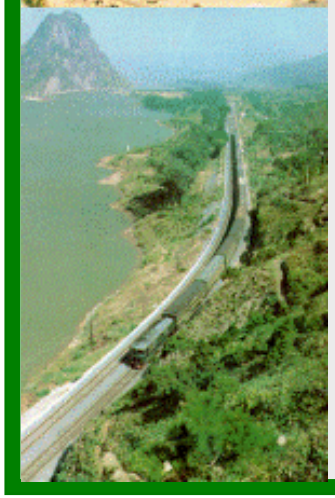
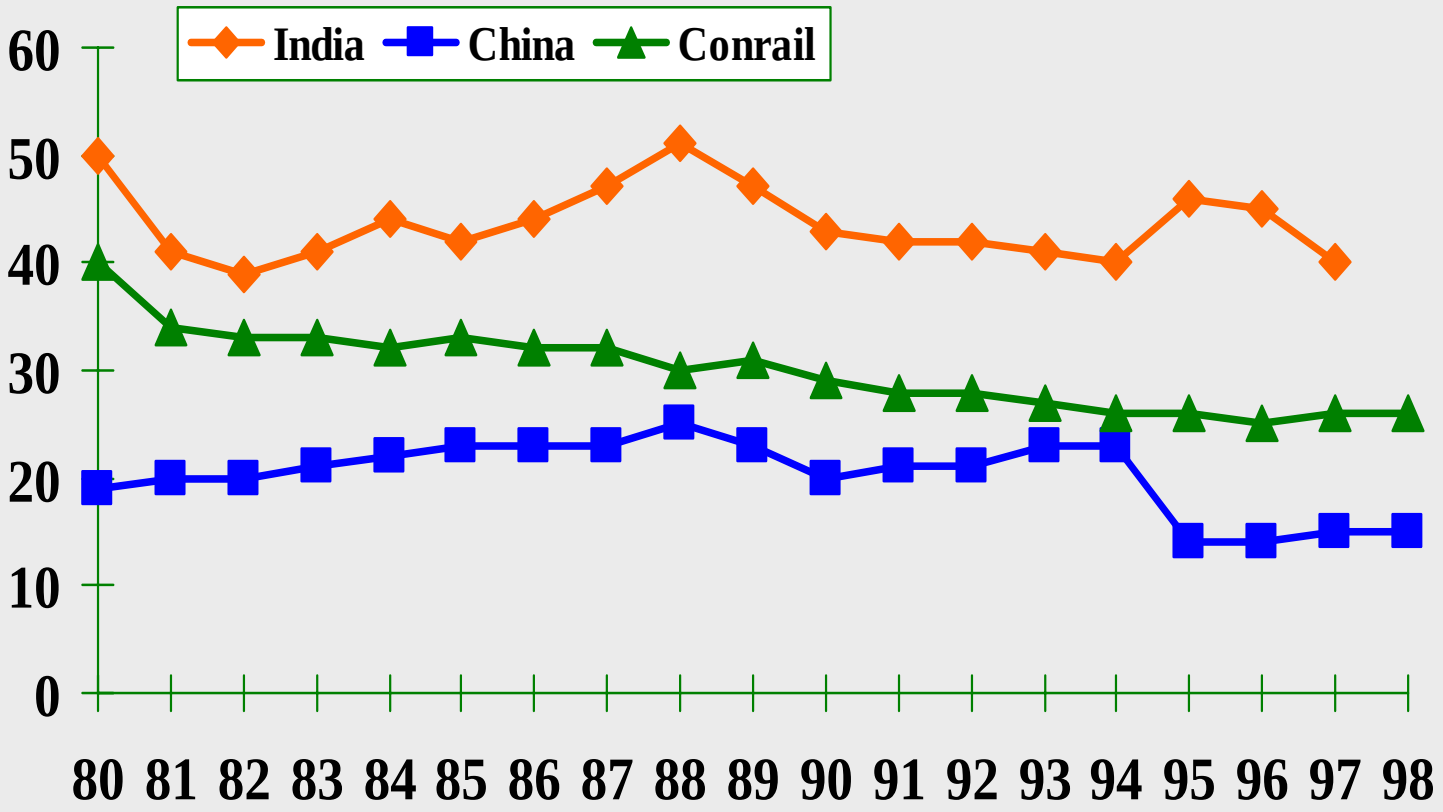




Ratio of Wages to Revenues

(%)



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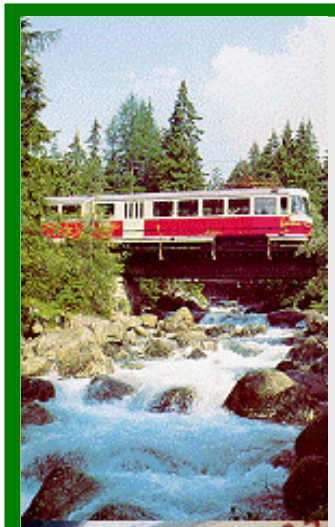
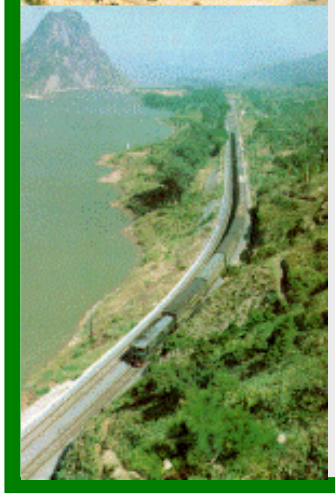
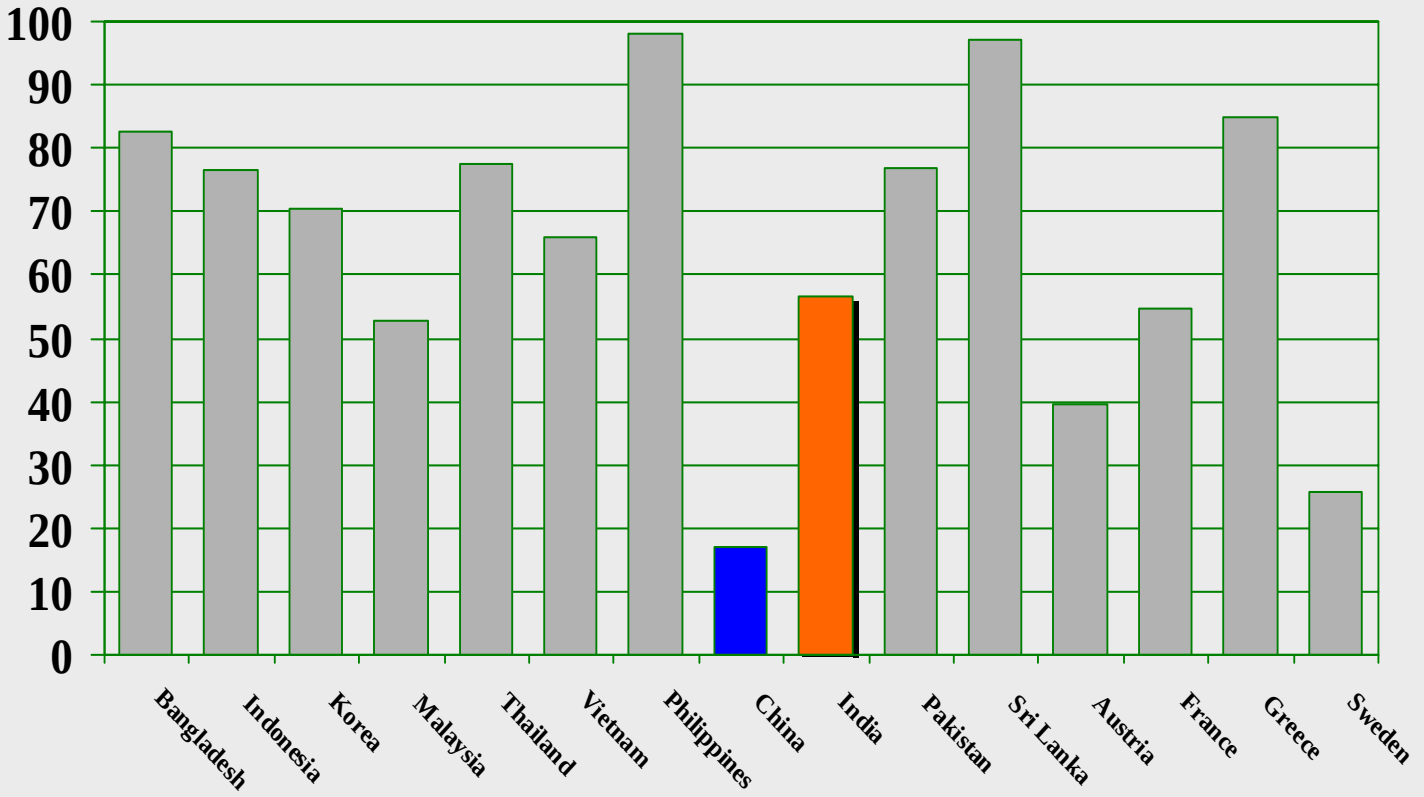




IR's Passenger Traffic as Percent of Total Traffic Is High

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



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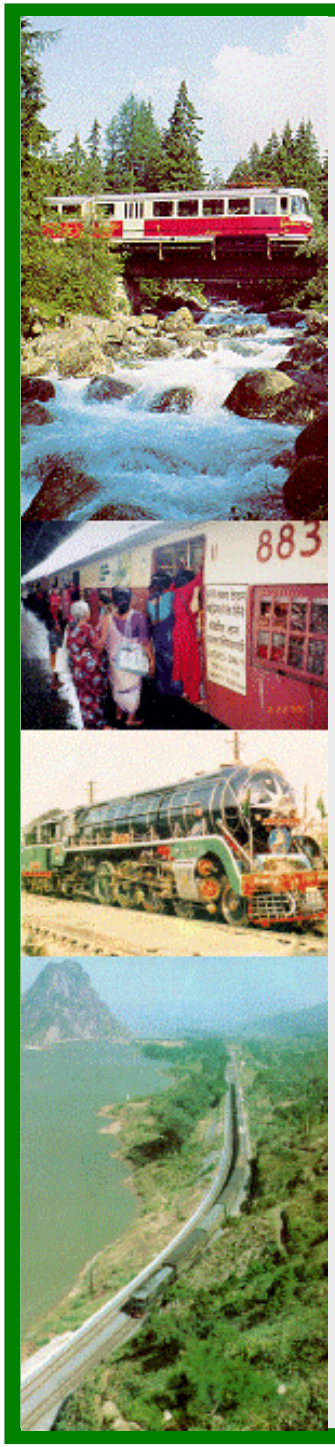
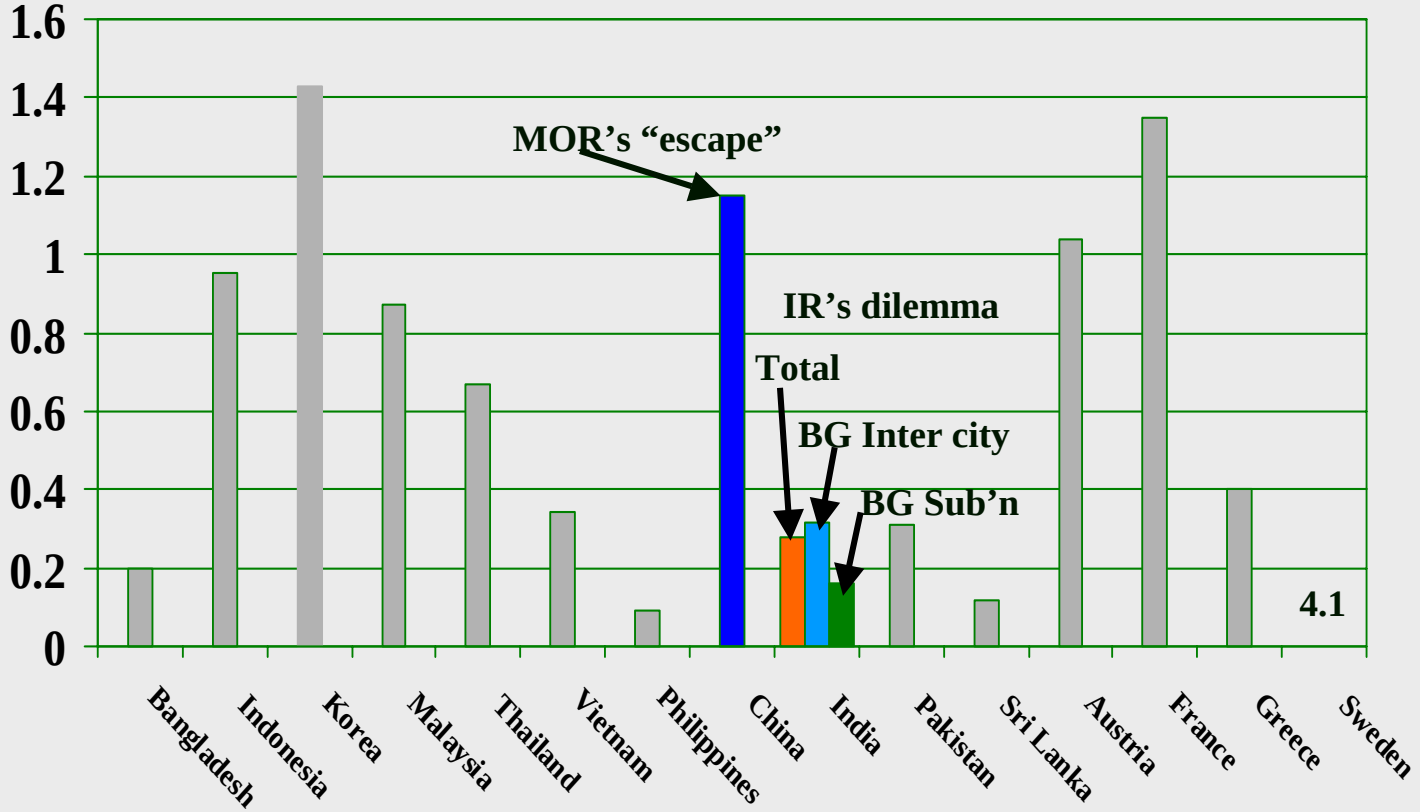


IR's Ratio of Average Passenger Fare to Average Freight Tariff Is Very Low:

IR's Destructive Linkage With High Passenger Share



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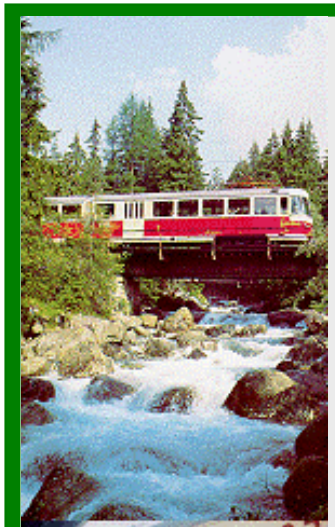
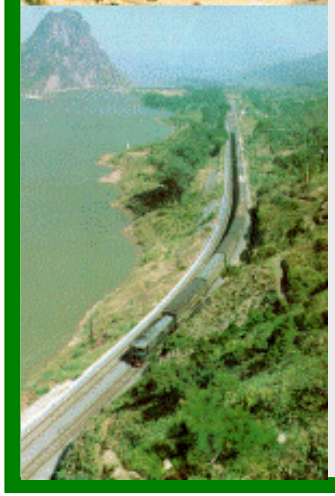
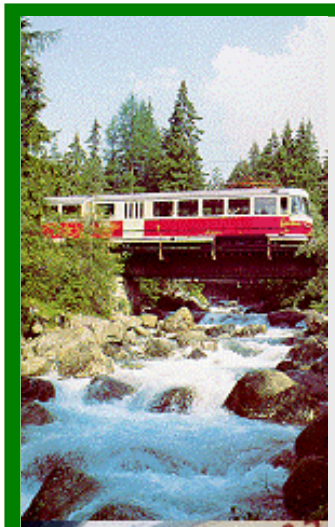
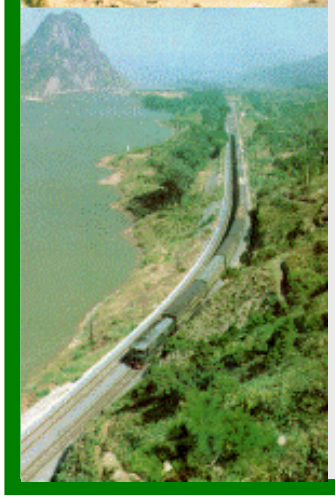




IR's Program: Initial Actions

- 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

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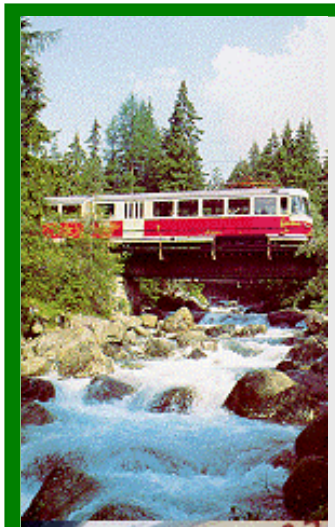
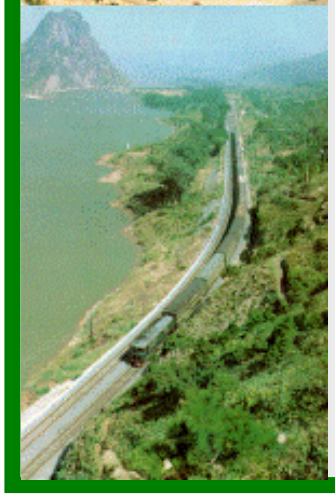
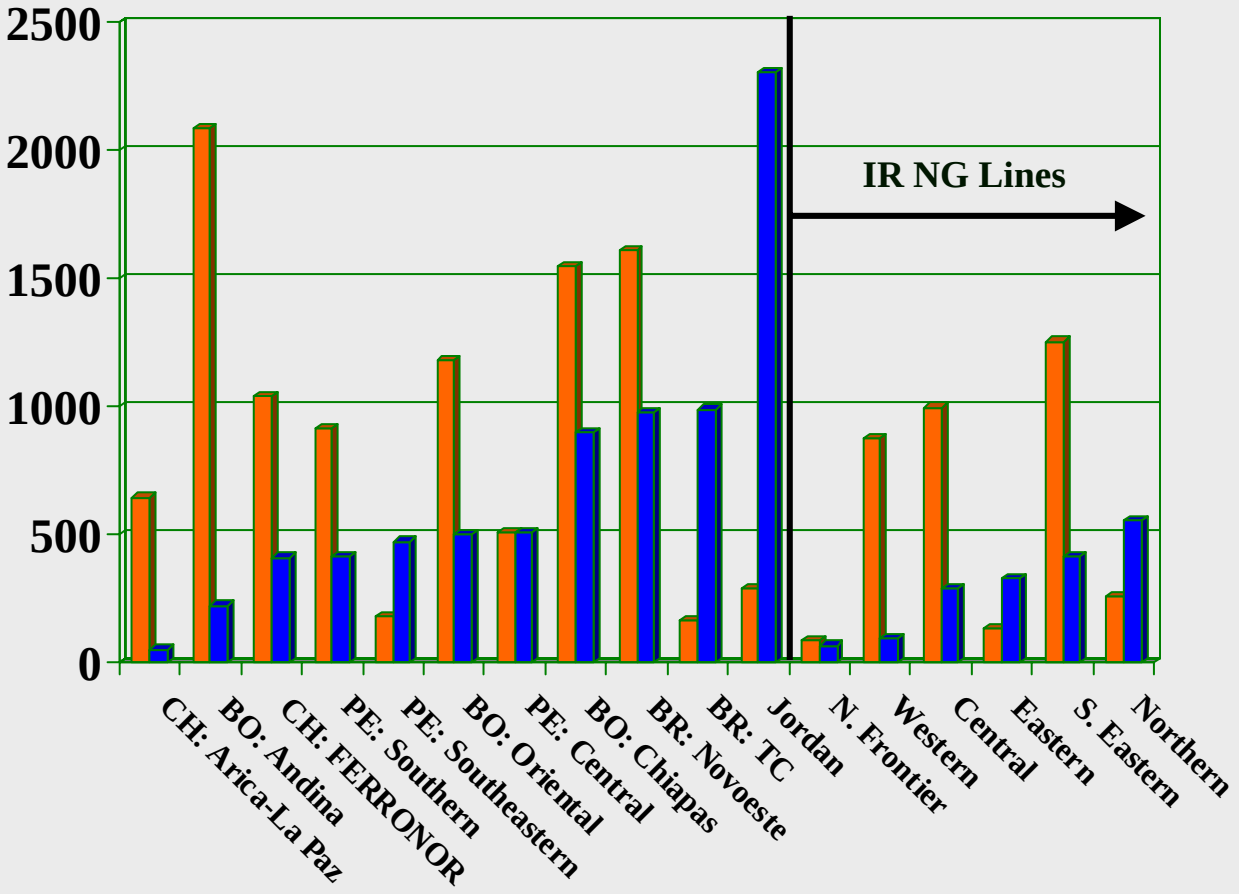




IR Narrow Gauge Lines Compared With Smaller Operating Concessions

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



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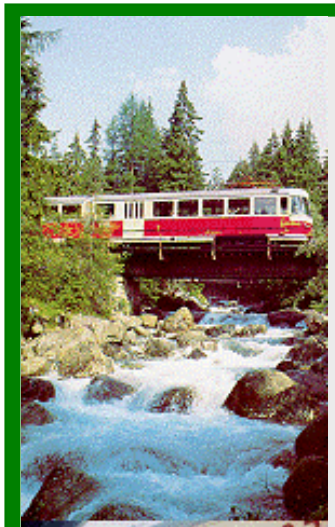
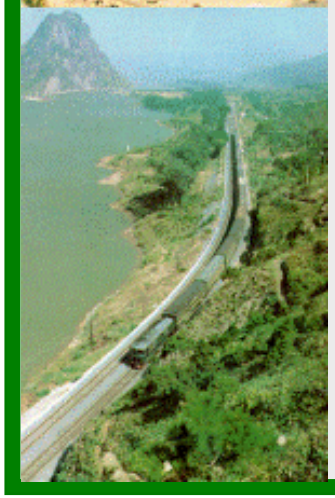
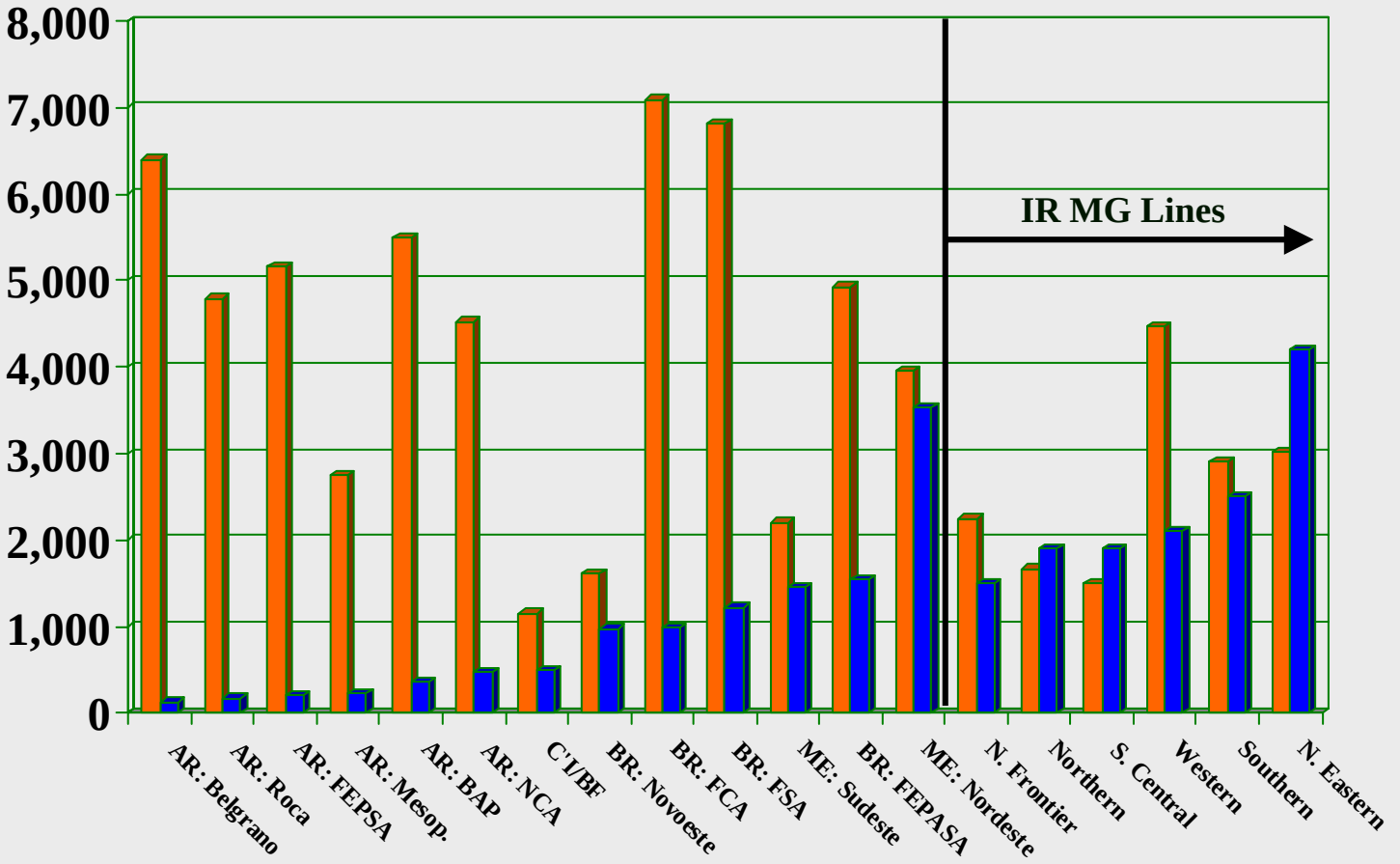




IR Meter Gauge Lines Compared with Middle-Sized Operating Concessions

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



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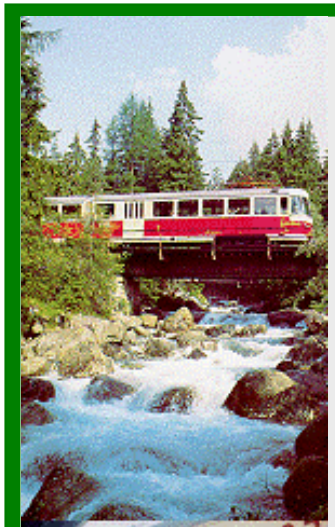
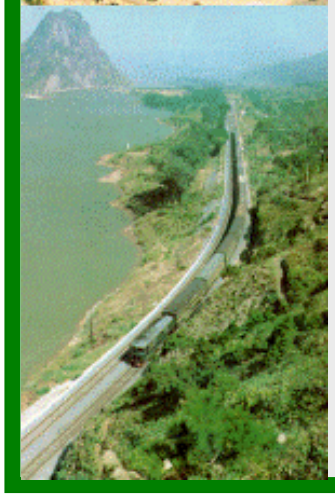
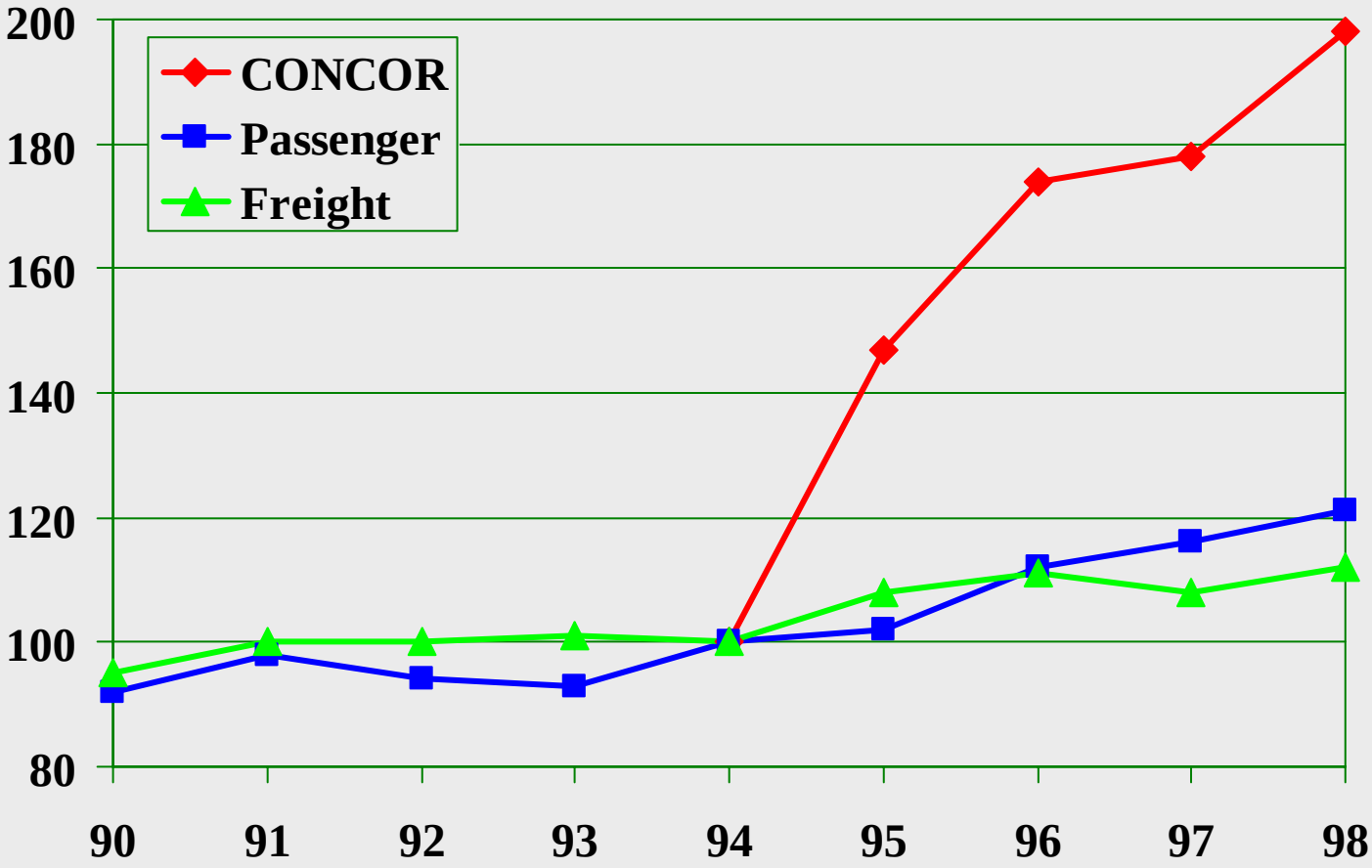




Three IR Markets: the Impact of LOB Focus and Private Involvement

Traffic Volume Index: 1994=100



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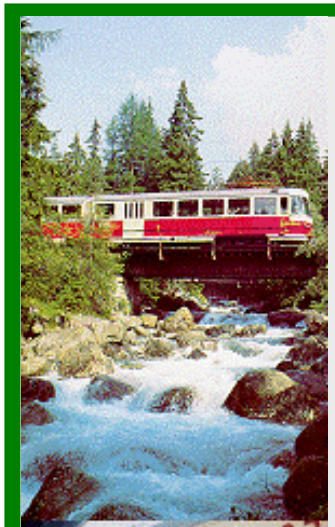

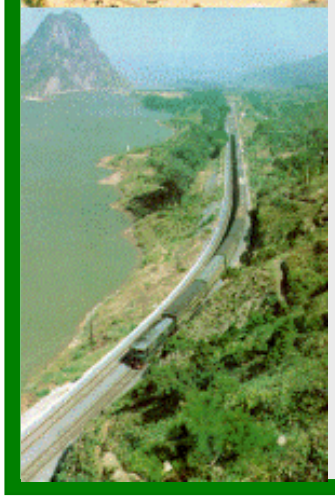

Structural Options

- 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

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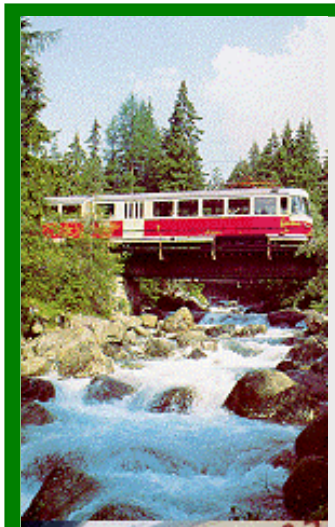
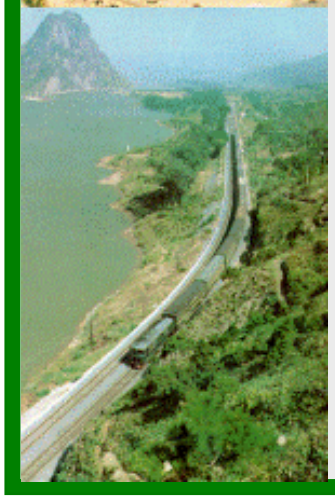
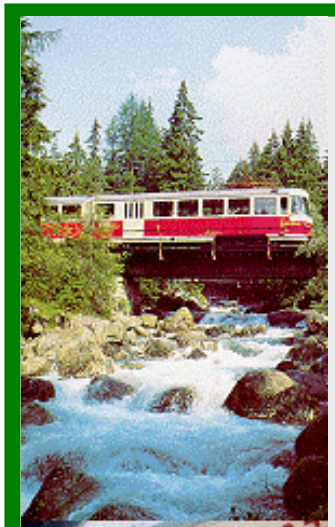
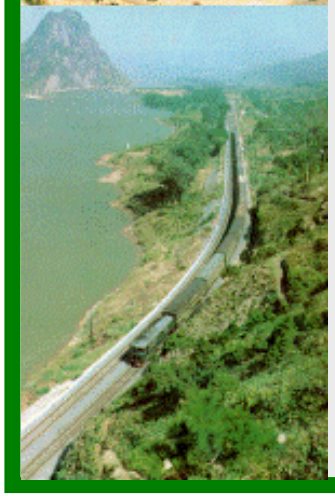




Options for Competition

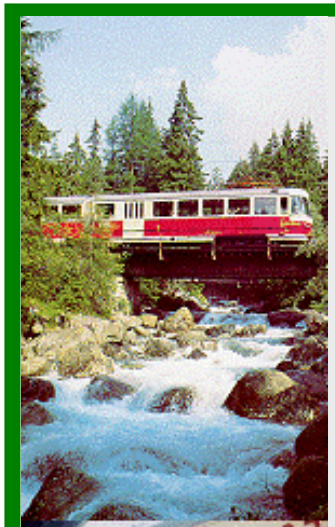
- Need detailed analysis of freight and passenger flows -- use LRDSS -- identify major markets where competition could be sustained (the quadrilateral?)
- Choice initially based on maximum origin to destination service, then on competition in major markets -- in the US, 25 percent of tracks serve >50 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

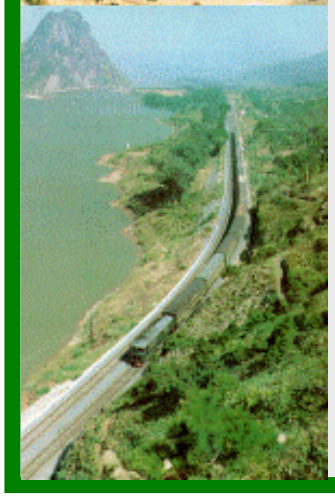




Options for Private Sector Role

- 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

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