INFRASTRUCTURE FINANCING

CHALLENGES BEFORE THE INDIAN RAILWAYS

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Structure

- Overview:
  Investment in Infrastructure: Needs & Stages
- Requirements:
  India
  Railways:
    Process
    Plans
    Requirements
- Finance: Sources

Effects of Infrastructure Deficits

- Huge and growing gap between infrastructure needs & investments
- Historical boom-and-bust spending cycles → Huge infrastructure deficits
- Costs on society: Effect in US

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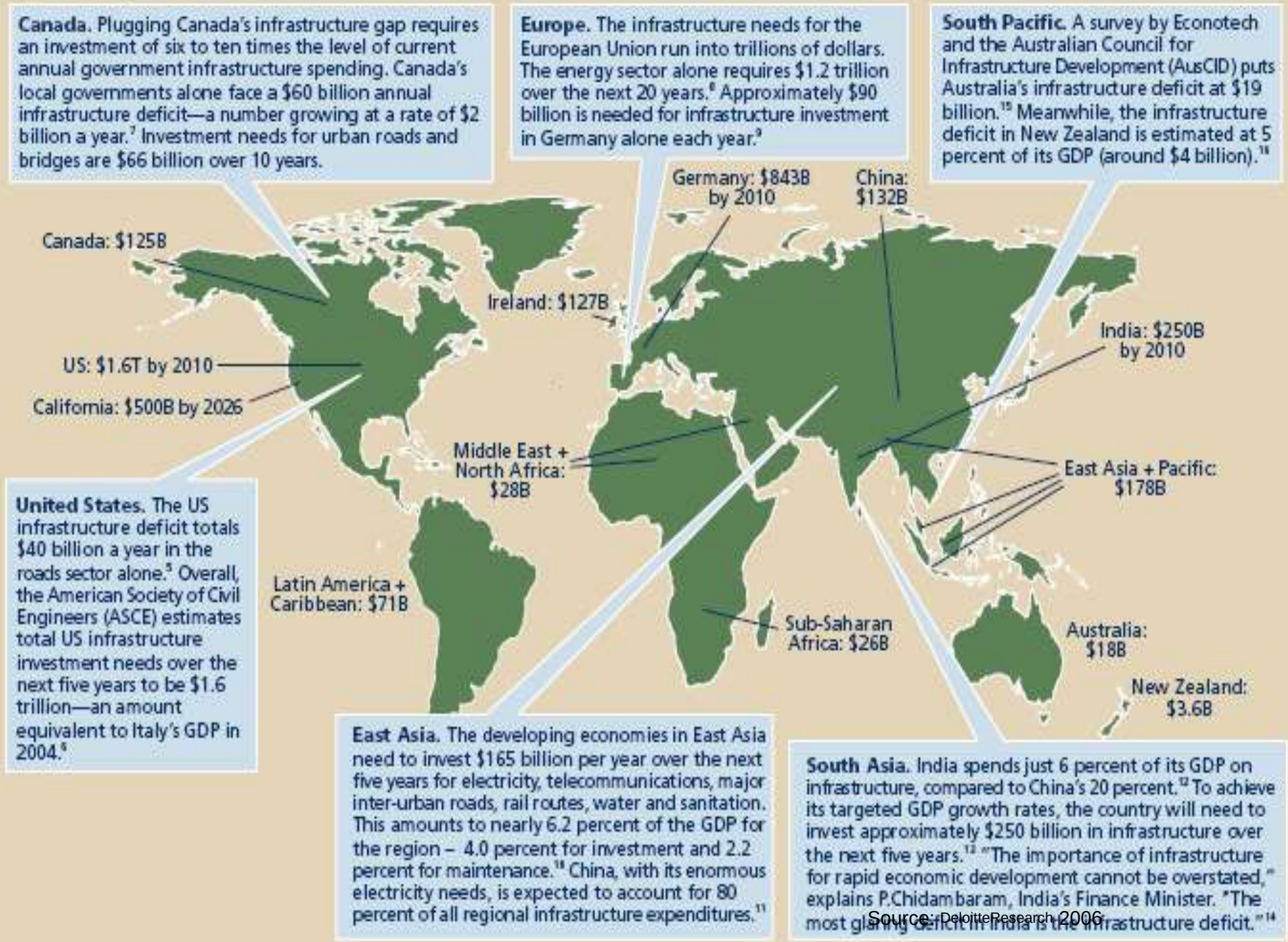
Figure 1. Projected Infrastructure Investment Needs 2005-06



Canada. Plugging Canada's infrastructure gap requires an investment of six to ten times the level of current annual government infrastructure spending. Canada's local governments alone face a $60 billion annual infrastructure deficit—a number growing at a rate of $2 billion a year.[7] Investment needs for urban roads and bridges are $66 billion over 10 years.

Europe. The infrastructure needs for the European Union run into trillions of dollars. The energy sector alone requires $1.2 trillion over the next 20 years.[8] Approximately $90 billion is needed for infrastructure investment in Germany alone each year.[9]

South Pacific. A survey by Econotech and the Australian Council for Infrastructure Development (AusCID) puts Australia's infrastructure deficit at $19 billion.[15] Meanwhile, the infrastructure deficit in New Zealand is estimated at 5 percent of its GDP (around $4 billion).[16]

United States. The US infrastructure deficit totals $40 billion a year in the roads sector alone.[5] Overall, the American Society of Civil Engineers (ASCE) estimates total US infrastructure investment needs over the next five years to be $1.6 trillion—an amount equivalent to Italy's GDP in 2004.[6]

East Asia. The developing economies in East Asia need to invest $165 billion per year over the next five years for electricity, telecommunications, major inter-urban roads, rail routes, water and sanitation. This amounts to nearly 6.2 percent of the GDP for the region – 4.0 percent for investment and 2.2 percent for maintenance.[10] China, with its enormous electricity needs, is expected to account for 80 percent of all regional infrastructure expenditures.[11]

South Asia. India spends just 6 percent of its GDP on infrastructure, compared to China's 20 percent.[12] To achieve its targeted GDP growth rates, the country will need to invest approximately $250 billion in infrastructure over the next five years.[13] "The importance of infrastructure for rapid economic development cannot be overstated," explains P.Chidambaram, India's Finance Minister. "The most glaring deficit in India is the infrastructure deficit."[14]

Source: DeloitteResearch, 2006

REQUIREMENTS: INDIA

- Maintaining GDP Growth Rate at 9% (2007-11), entails 6% increase in total investment

- Required increase in Fixed Capital Formation in infrastructure (next five years) :

  From 4.6% of GDP → 8% of GDP

  ($320 billion!)

- Implications for the Public Sector

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REQUIREMENTS *(contd.)*

- Estimated non-Railway investment requirements by 2012:
  - $ 49 billion - National Highways
  - $ 9 billion - Airports
  - $ 11 billion - Ports
  - $120 billion - Energy
- India can absorb $ 150 billion FDI in infrastructure sector alone

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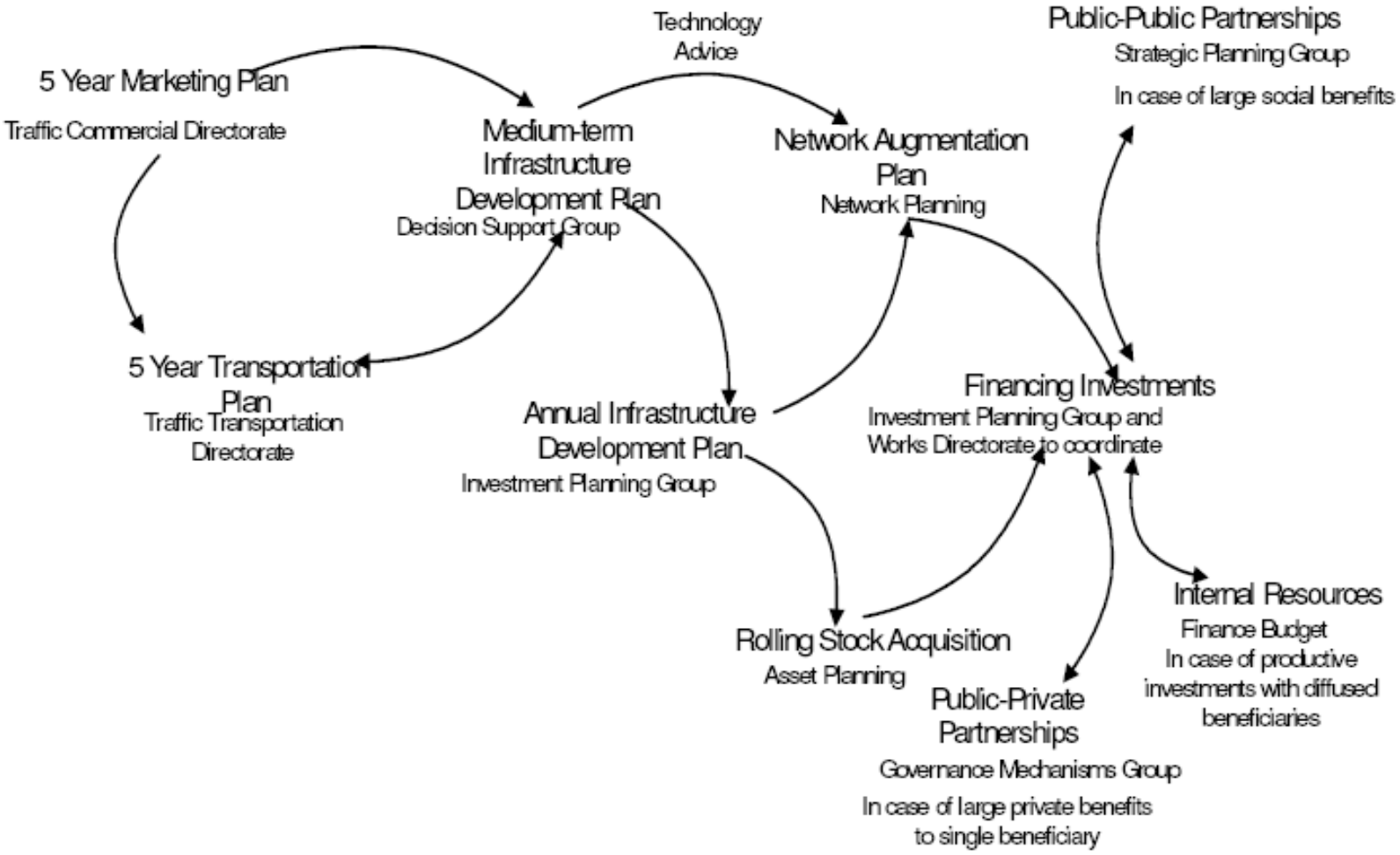
RAILWAYS:
Infrastructure Needs

THE PLANNING PROCESS

Railways



CORPORATE PLAN

- Demand-Supply gap: Quantum jump required

- Projections:
  - Passenger traffic: 8.4 billion (2011-12) from current 6 bill; 9.5 billion (2015); 14 billion (2020).
  - Freight traffic: 1100 MT (2011-12) from current 700 MT; 2000 MT (2020)
  - Rolling Stock: Projected Shortfall in XI Plan (2011):

    Diesel Locos: 700
    Electric Locos: 700
    Wheels: 124000

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XI Plan Approach Paper

Planning Commission, 2006

Focus Areas:

1. Capacity augmentation
2. Establishment of logistics parks and terminals
3. Rationalization of freight structures
4. Increased use of IT-enabled services
5. World class quality passenger amenities
6. PPP for building & operation of rail infrastructure
7. Design of high-capacity wagons
8. Restructuring of IR to focus on core activities
9. Establishing a Rail Tariff Regulatory Authority

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XI Plan Challenges

- Sustaining growth momentum in Passenger & Freight Traffic
- Recapturing primacy in the Transport Sector:

  1950-51: 88% (freight); 68% (passenger)

  Current: 40% (freight); 20% (passenger)
- Augmenting Capacity
- Making Passenger Services self-sustaining
- Mobilizing Resources

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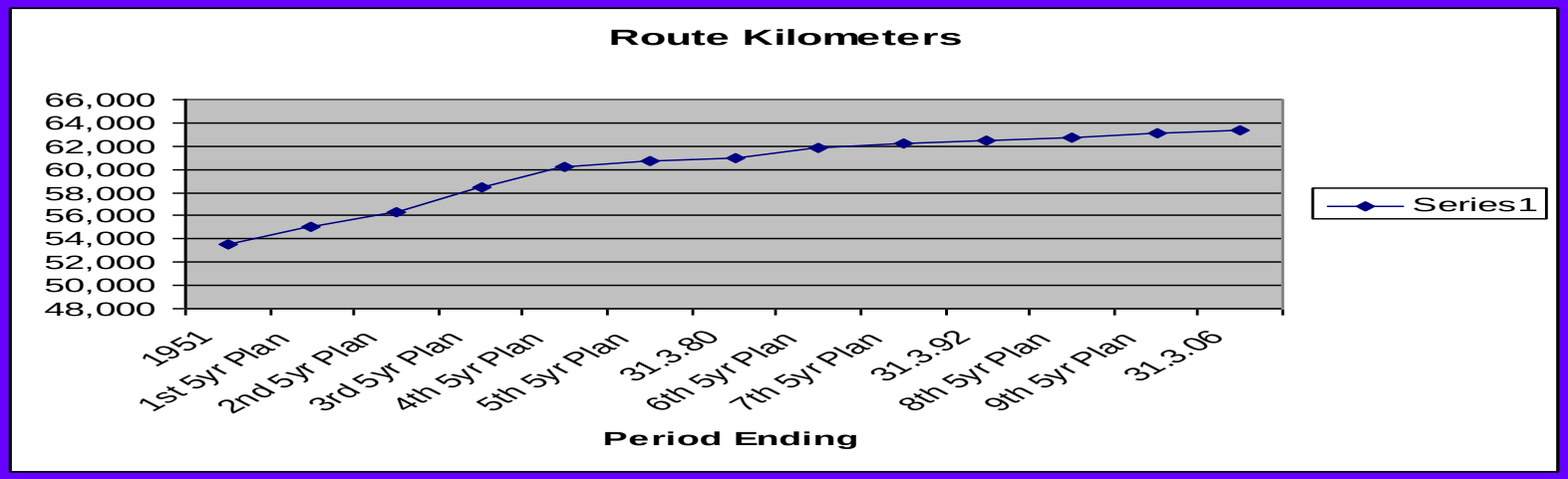
Key Areas

- Multiple Gauges
- Trend Growth Rates
- Projections
  - Passenger
  - Freight

The Network

- 01.04.1951: 53596 kms (25258 kms BG, 24185 kms MG, 4153 kms NG)
- 01.04.2007: 63332 kms
- Growth of traffic uneven across network. Major growth channels: Golden Quadrilateral (GQ) and diagonals.



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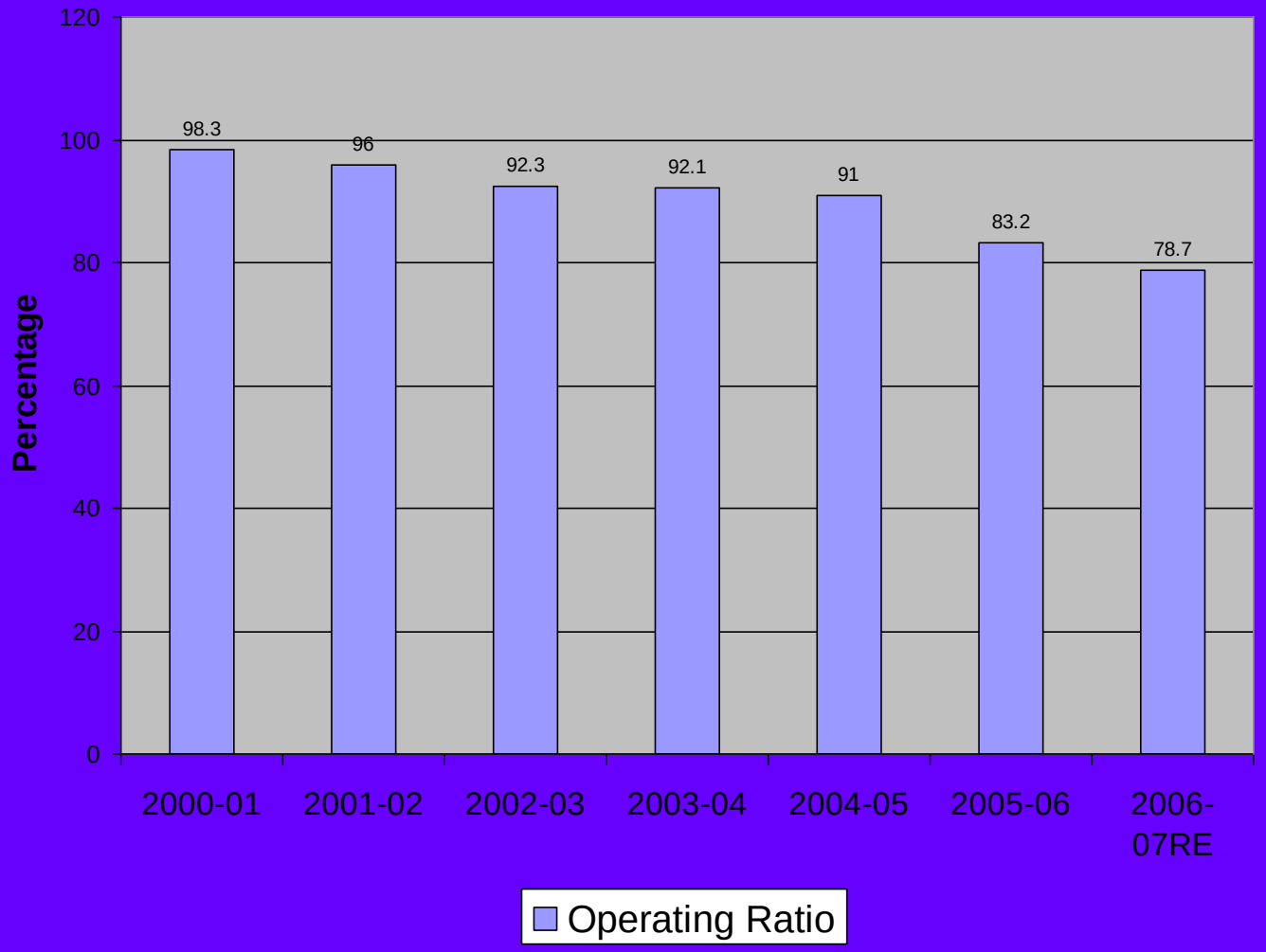
Operating Ratio



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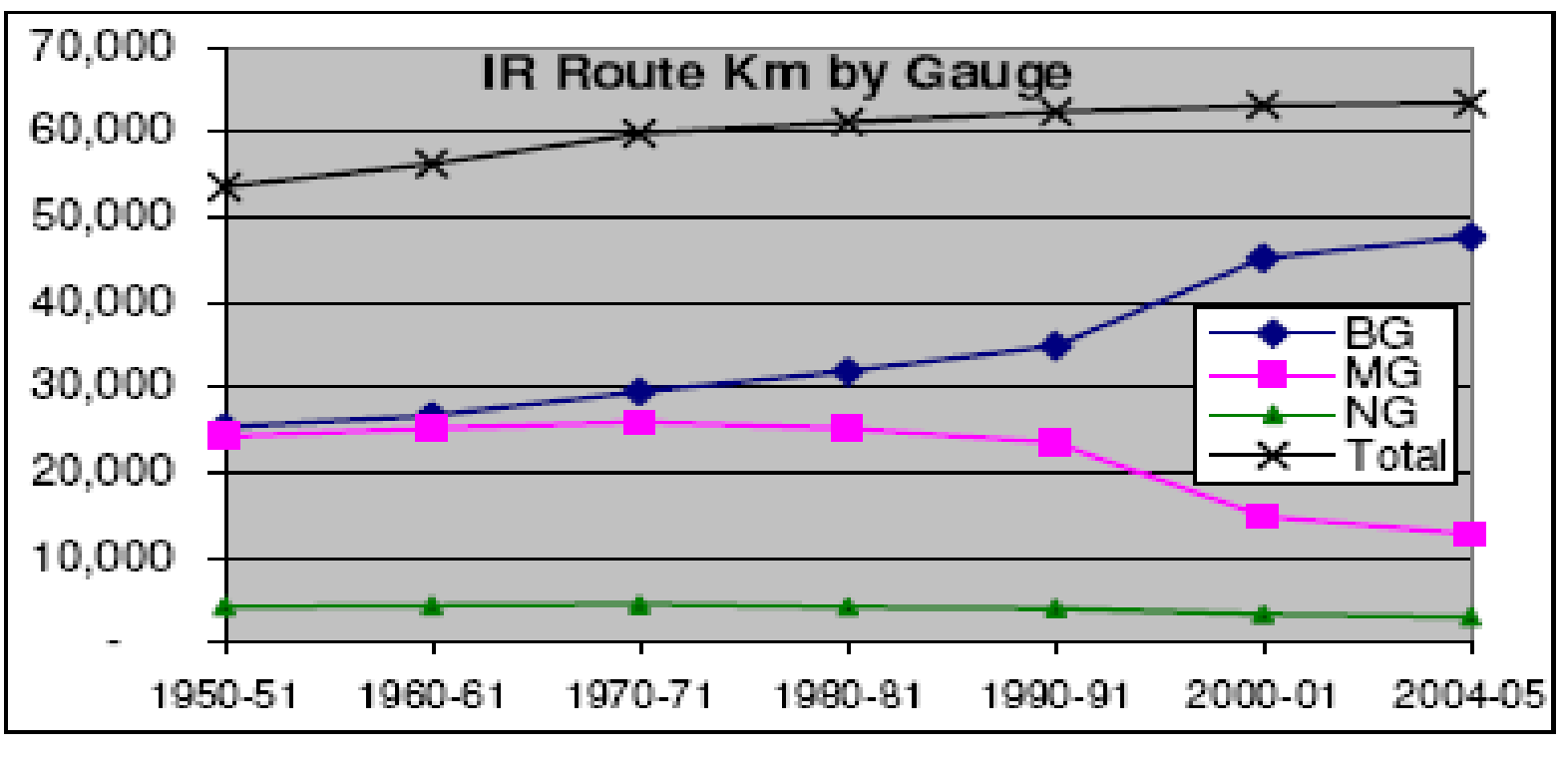
Multiple Gauges

- Prevalence of multiple gauges→ Reduced effective network.
- 9500 kms MG identified as critical alternate routes. Of these:
  - 1500 converted
  - 6000 kms in the process of conversion.



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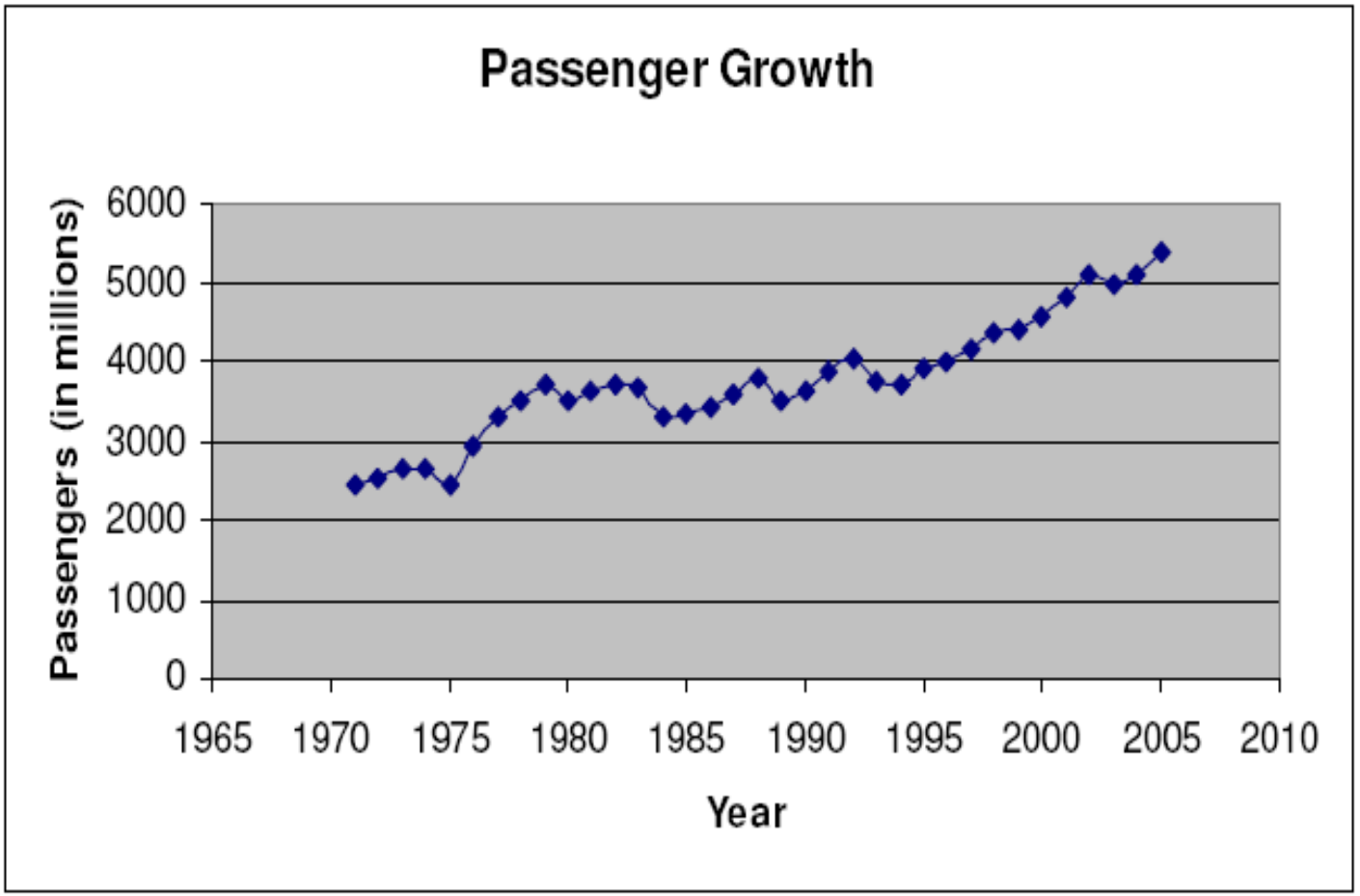
Passenger Traffic



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Passenger Traffic *(contd.)*

Corporate Plan (2010):

- Growth Rate (est): 6-8% p.a (trend growth=2%)
- 400% increase in ticket delivery points
- High-income growth corridors
- Finalize proposal for HS technology
- Woo budget airline passengers (long distance segment)

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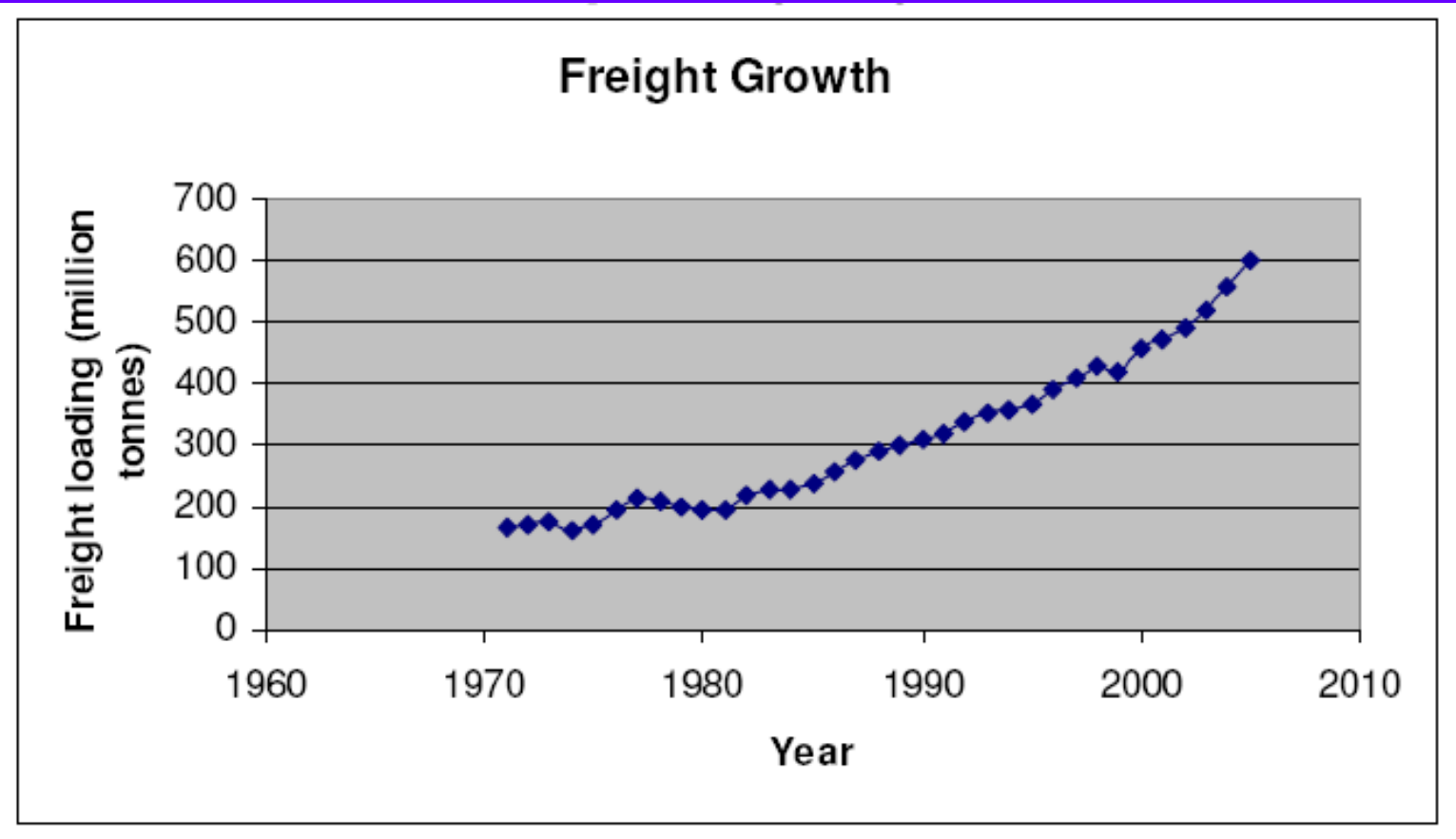
Freight Traffic



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Freight Traffic

- Unprecedented growth in originating traffic:
  Projections: 8-10% p.a (Trend growth=4%).

- 16% (GQ) of network= > 50% of the traffic

- MG + NG = 20% of network, < 1% traffic - loss making (islands cut off from the main network)

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Freight Traffic *(contd.)*

- **Strategic investment prioritization**
  - Strengthen port connectivity
  - Allay Customers' time-sensitivity concerns
  - DFC + Gauge Conversion/Projects for alternative routes in XI Plan)

CAPITAL EXPENDITURE (Rs. Crores)

	FY2007 RE	FY2008 BE	% Change
New Lines and Restoration	1500	1600	6.67
Gauge Conversion	1300	2400	84.62
Rolling Stock	6800	5500	-19.12
Track Renewal	2900	3400	17.24
Signaling and Telecom	1500	1600	6.67
Electrification	200	300	50.00
Metropolitan Transport	300	700	133.33
Freight corridor		1300	

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ANNUAL PLAN 2006-2007

			BE	RE
			(Rs. cr)	*(Rs. cr)*
I.	**Internal Resources**			
	DRF, DF & OLWR		5910	6603
	Capital Fund		4009	4815
	Total Internal Resources		**9919**	**11418**
II.	**Safety Funds**			
	Railway Safety Fund		710.86	710.78
	Special Railway Safety Fund(Rly's contribution)		875	788
III.	**Capital from General Exchequer**		5435.14	5435.14
	a) Budgetary Support			1050
	b) Additional Budgetary Support for			
	National Projects			
	c) Contribution to SRSF		1365	1365
Total Capital from General Exchequer			**6800.14**	**7850.14**
IV.	**Market Borrowings and Others**			
	IRFC		4170	4170
	RVNL		500	500
	WIS		500	210
	Total Market Borrowings		5170	4880
	TOTAL PLAN SIZE		**23475**	**25647**

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Infrastructure Investment Strategy

- Requirement:
  - Review of past investment record
  - Identification of:
    Shortcomings
    Required Changes
- Continue long term strategy: Gauge Conversion & Doubling, Asset Replacements, New lines, Rolling Stock.
- New Areas of Focus: Throughput Enhancement, Terminal Infrastructure, User Amenities, IT

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Infrastructure Strategy *(contd.)*

- "No readymade investment policy for a vast network like the Indian Railways" (Budget Speech FY 2007)

- Approach: Short + Long term Investment Strategies:
  - Short term: Low Cost- High Return projects:
    AIM: Eliminate Bottlenecks + Effective Rolling Stock Utilization
  - Mid and Long term: Productivity Enhancement + Capacity Augmentation (key: Routes on GQ)
    AIM: Optimal Utilization
    Improvement of Standards
    Capacity Augmentation

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Infrastructure Strategy *(contd.)*

- Short-term Strategy:
  - (i) Improve Wagon Productivity
  - (ii) Improve Wagon Mobility
  - (iii) Run higher axle-load trains
  - (iv) Reduce Unit Costs
  - (v) Reduce Transit Time
  - (vi) Improve Asset Reliability

Infrastructure Strategy *(contd.)*

Medium/Long-term Strategy:

(i) Provide World-class Terminals + Infrastructure to reduce transit time

(ii) Dedicated Freight Corridor

* Two thirds of total revenues
* 2700 kms DFC in next 5 yrs
* Current focus: two legs
* Initiation of all sides by 2011

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Investment: Requirements

Estimated Total Investment 2007-2015:
$80 billion

(Rs.350,000 crores)

Previous period (2002-2007, estimates):
$15 billion

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Govt of India: Issues

- Public investment : insufficient
- Need for participation by private sector.
  - Attractive to the private sector if Govt:
    i. Bridges some associated difficulties
    ii.Bears some of the associated risks
- Key Principle: PPPs to be seen to be in the public interest (achieving additional supply at reasonable cost).
- Serve to put private resources into public projects

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Measures taken by Govt of India

- Viability Gap Funding
- India Infrastructure Finance Company Limited (IIFCL)
- The India Infrastructure Finance Initiative
- FDI in Infrastructure Sectors
- Independent Regulation
- Model Concession Agreements (MCA)
- ECB Ceiling
- Corporate Bond Reporting Platform
- Permitting MDBs to raise local currency resources
- Capacity building for PPP
- Revolving Fund for Project Development

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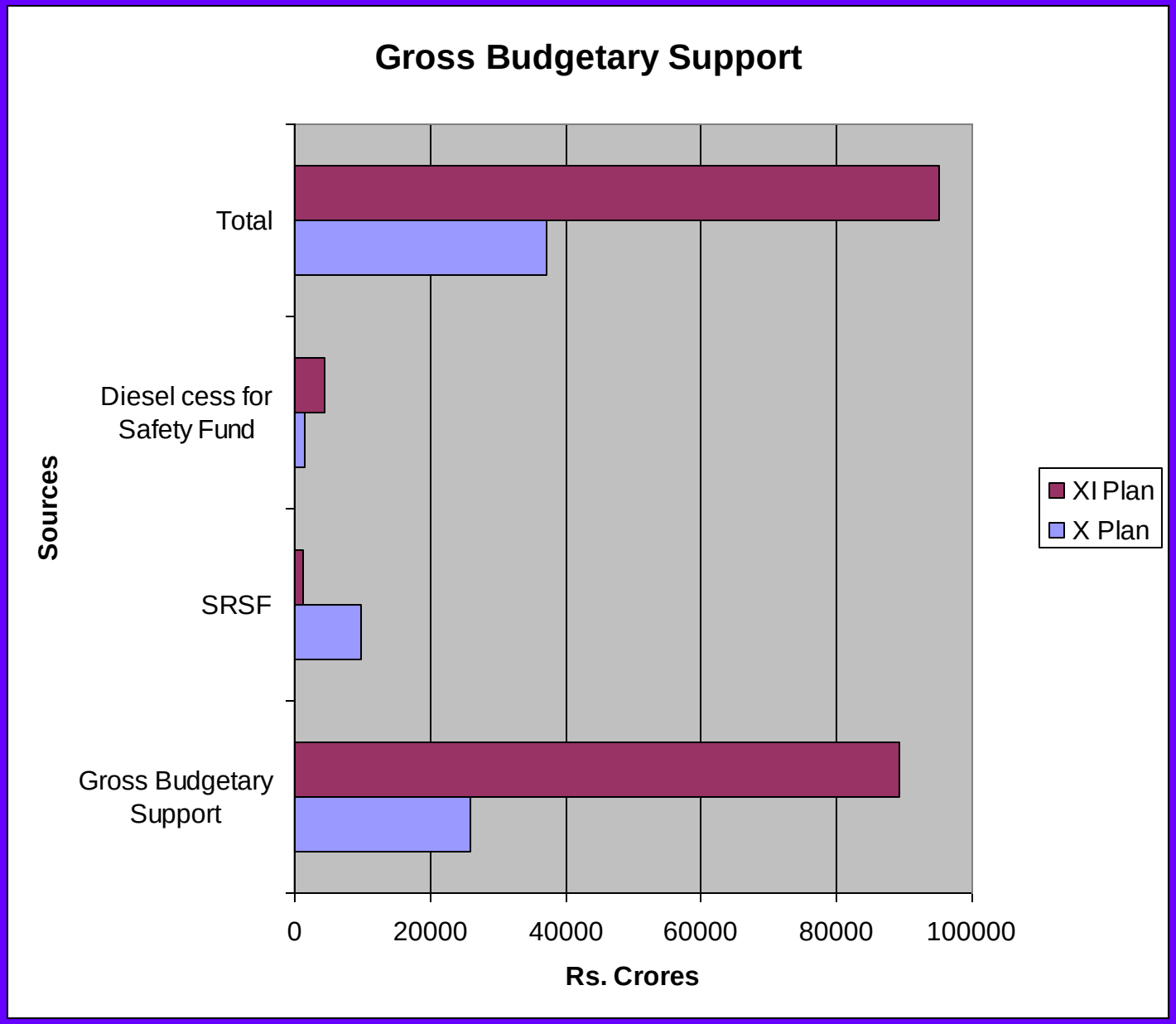

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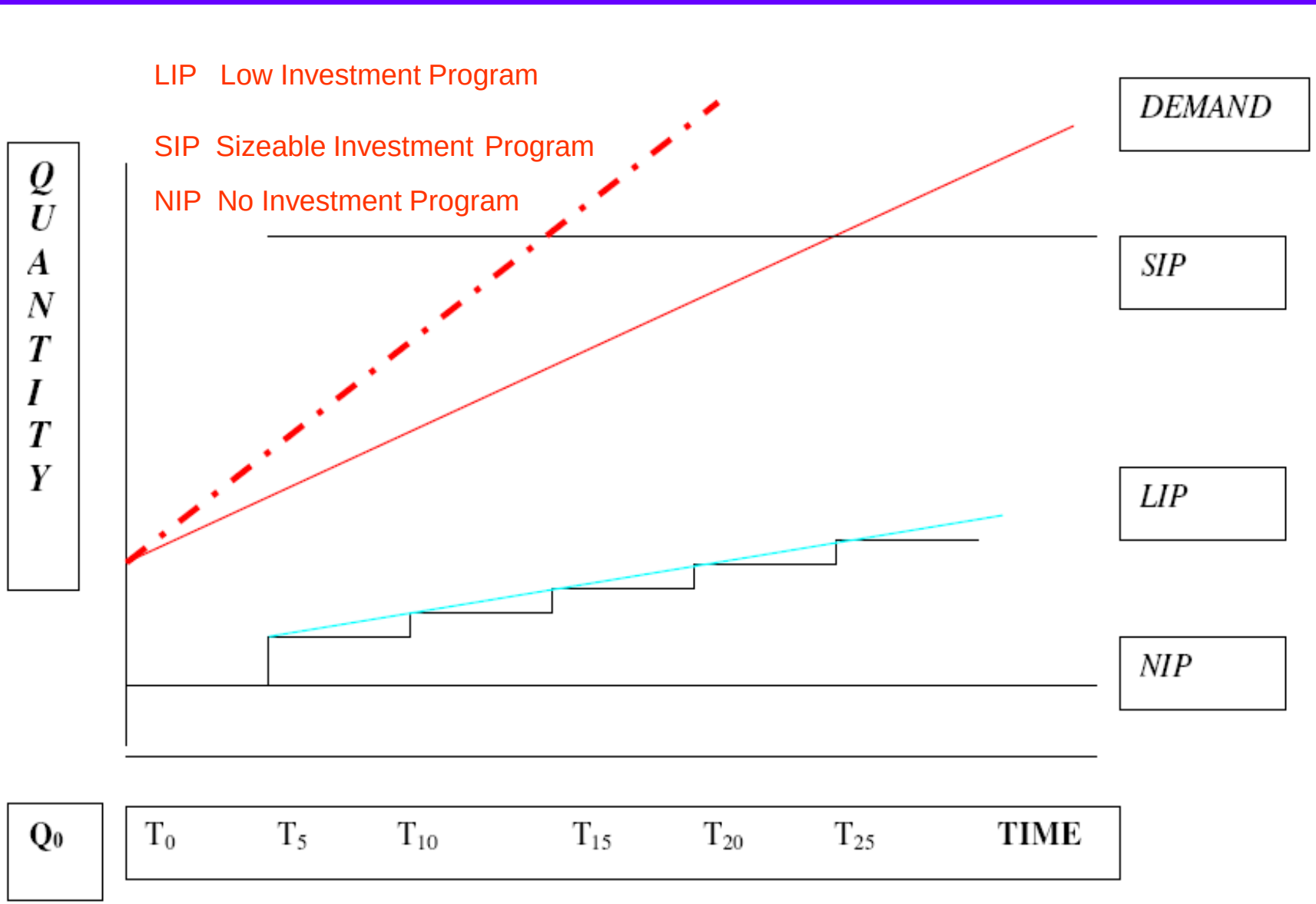

Incremental vs. Sizeable Investment Strategies

Financing the Infrastructure: Investment Sources

- Internal
- Market Borrowings
- Central Government Support (via the Budget)
- External Borrowings
- State/Municipality Partnerships
- Private Partnerships

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Sources of Financing
Xth Plan (2001-2006) Outlay

SOURCE	Plan Projections	Estimates
Internal Generation + Market Borrowings	$7b *(Rs. 33000 crs)*	$10b *(Rs. 45296 crs: 28331+16965)*
Budgetary Support	$6b *(Rs. 27600 crs)*	$9b *(Rs.36935 crs)*
Total	$13b *(Rs. 60600 crs)*	$19b *(Rs. 82232 crs)*

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Advantages of PPP

i. Spread of investment costs over asset lifetime.

ii. Track record: on-time, on-budget delivery.

iii. Transfer of construction & maintenance risks to the private sector

iv. Incentivize assets maintenance.

v. Possibility of lower infrastructure cost via reduced construction & overall lifecycle costs.

vi. Encourage customer service orientation.

vii. Enable focus on outcome-based public value.

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Source: World Bank

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Interventions

INFRASTRUCTURE ◀ ——— ▶ CAPITAL MARKET

DIRECTED ▲

Revenue guarantees Subsidized resources Detailed directed guidelines Rate of return caps	Infrastructure Grants DFI loans & guarantees Restrictions on investor types Tax incentives Directed funding Utility privatisation
Capacity building for regulators & planners PPI enabling legislation Judicial reform Antitrust legislation	Equal Tax Treatment Take-out financing Improved disclosure/ accounting standards Remove of stamp tax Remove deposit insurance Enabling legislation

▼ FACILITATING

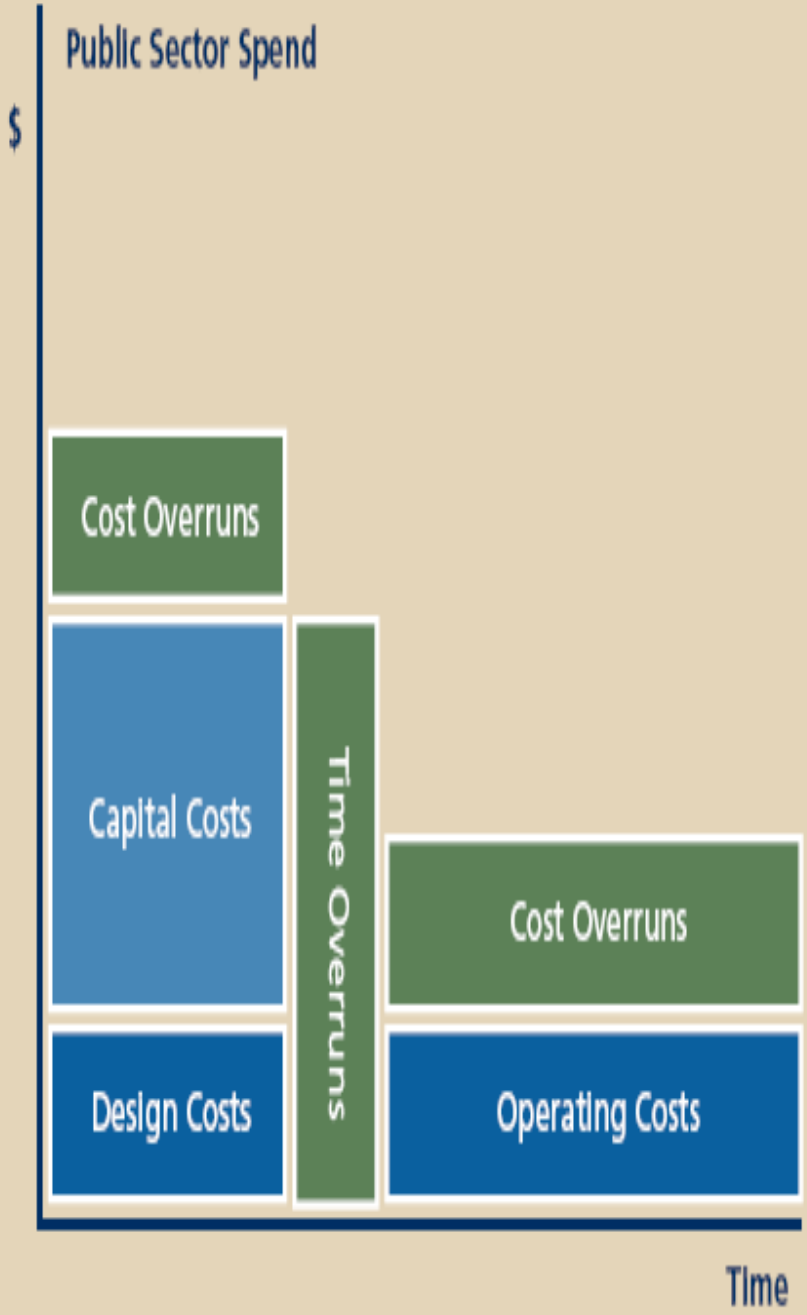
Inefficiencies

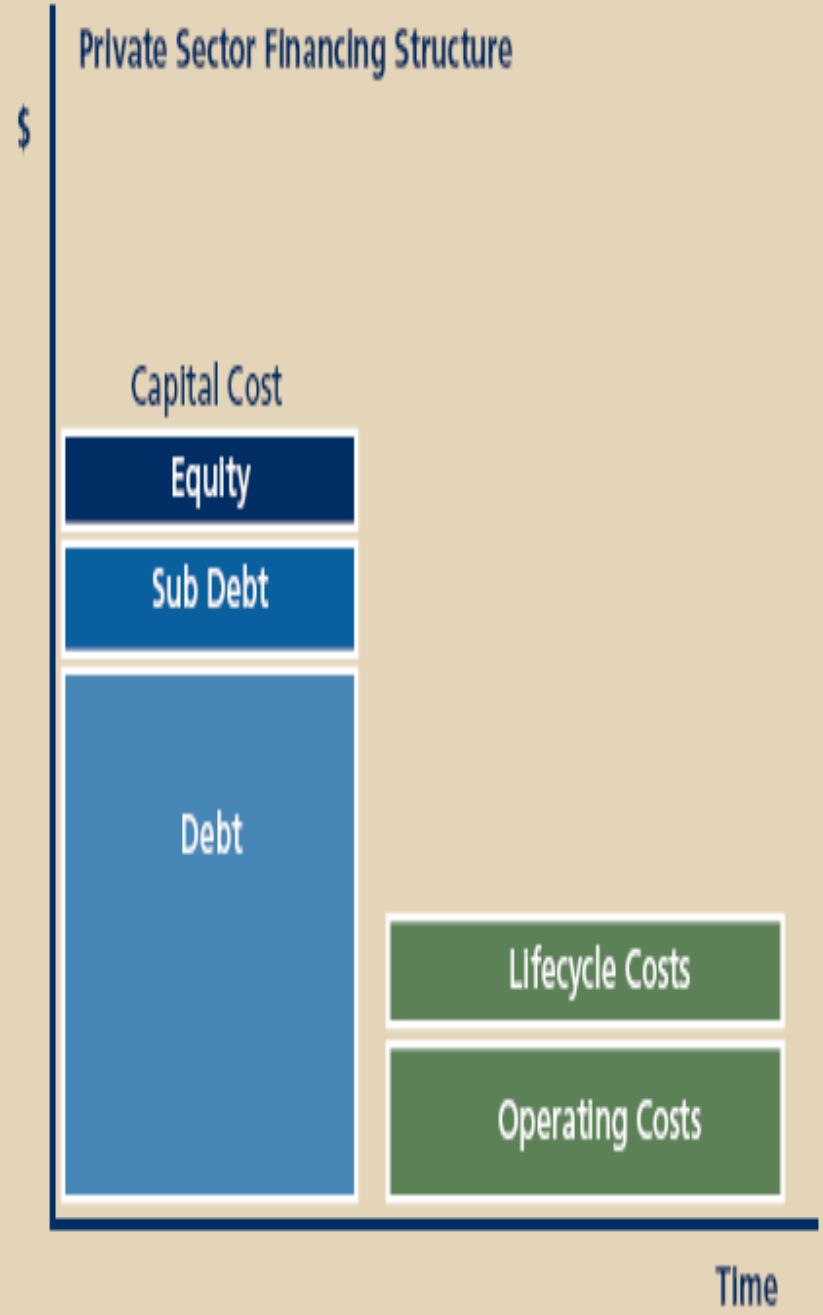
INFRASTRUCTURE ◀ ——— ▶ CAPITAL MARKET

DIRECTED ▲

No capable project sponsors Uncreditworthy projects Weak Government capacity Political uncertainties Unreliable raw materials	No sources long term funds Sponsors qualified but financially weak Political environment precludes investment No access intl. markets Fiscal crowding out Financial market instability
Weak regulatory structure Lack of good title Monopolistic practices prevail Rule of contract doubtful	Tax on infrastructure investments Regulatory structure High transaction cost Credit support for alternative investments Legal constraints Limits on market development

▼ FACILITATING





Source: Deloitte Research

CONCLUSION: Investment Strategy

- Financially viable investments:
  - Those that benefit large, diffused group of customers
  - Those that benefit a single or small group of customers.

  - Internal resources
  - PPP

- Economically viable investments

  - City/State Governments (cost sharing)/ Concessional MDB funds + PPP

  (Priority: Projects with 50% State Govt contribution)

- Investments motivated by larger, nationally strategic interests.

  - Budgetary Support

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भारतीय रेल

150 वर्ष YEARS

INDIAN RAILWAYS