Concluding Observations

Introduction:

Indian Rail (Bhāratīya Rail), abbreviated as IR, is the state-owned railway company of India, which owns and operates most of the country's rail transport. It is overseen by the Ministry of Railways of the Government of India. Indian railways has one of the largest and busiest rail networks in the world, transporting over 17 million passengers and more than 2 million tonnes of freight daily. It is the world's largest commercial or utility employer, with more than 1.4 million employees. The railways traverse the length and breadth of the country, covering 6,909 stations over a total route length of more than 63,327 kilometres (39,350 mi). IR owns over 200,000 wagons, 50,000 coaches and 8,000 locomotives of rolling stock. Recently, Railways in many parts of the world are resurging based on new ideas (e.g. high speed trains), new appreciation about the environmental and safety benefits, new customer oriented services (e.g. multimodal), new attitudes amongst management and labour and new investment.
Few facts about Indian Railways are as follows:

1. **INDIAN RAILWAYS – A SUNRISE INDUSTRY** • Railways in India, a sunrise industry! • Indian Railways, a super ‘ Navaratna’. • The Indian Railways (IR) is a truly great institution. It is a global giant that operates profitably, effectively and with relatively little government support.- MCKINSEY & COMPANY

2. **INDIAN RAILWAYS CAPITAL AT CHARGE (Rs in 40709 crores)**
   Route kilometers 63122, NUMBER OF STATIONS 6906, NUMBER OF STAFF 1472 (In thousands), Gross Traffic Receipts Total Working Expenses Net Revenue RUPEES IN CRORES 42605, 39327, and 4148 respectively

3. **INDIAN RAILWAYS ASSETS PROFILE**: Total Track Kilometers 109,221, Electrified Track kilometers 39,358 No Of Bridges 119,984 No Of Level Crossings 37,423, No Of Passenger Coaches 34,895, No Of Emu/Dmu coaches 4,957, Other Coaching Vehicles 4,904, Total Wagons On Line 214,760, No Of Diesel Locomotives 4,699, No Of Electric Locomotives 2930.

4. **TYPE- DEPARTMENTAL UNDERTAKING OF THE MINISTRY OF RAILWAYS, GOVERNMENT OF INDIA**: • Founded 26 April 1853, nationalized in 1951 • Headquarters New Delhi, India • Area served: India • Key people Union Railway Minister: Laloo Prasad Yadav Minister of State for Railways (V): R. Velu Minister of State for Railways (R): Naranbhai J. Rathwa Chairman, Railway Board: K C Jena.

5. **INDUSTRY- RAILWAYS AND LOCOMOTIVES** • Products Rail transport, cargo transport, services • Revenue INR Rs 72,655 Crores (2008) (~18.16BUSD) • Employees 1,406,430 (as on March 31, 2007) • Parent Ministry of Railways, Government of India • Divisions 16 Railway Zones (excluding Konkan Railway)

6. **INDIAN RAILWAYS HAS ONE OF THE LARGEST AND BUSIEST RAIL NETWORKS IN THE WORLD**, transporting over 17 million passengers and more than 2 million tonnes of freight daily. • It is the world's largest commercial
or utility employer, with more than 1.4 million employees. • The railways traverse the length and breadth of the country, covering 6,909 stations over a total route length of more than 63,327 kilometres (39,350 mi). IR owns over 200,000 wagons, 50,000 coaches and 8,000 locomotives of rolling stock.

7. **THE INDIAN RAILWAYS NETWORK:**

Remnants of the North Western; the three northern divisions of the

**NORTHERN:** East Indian (Allahabad, Moradabad and Lucknow), Bikaner and Jodhpur state railways.

**NORTH EASTERN:** Bengal Assam, Oudh Tirhut, a small part of BBCI, Coochbehar State (There had been a large number of changes prior to independence).

**EASTERN:** East Indian (minus the three northern divisions), part of East Bengal, Bengal Nagpur.

**SOUTHERN:** Madras & Southern Mahratta, South Indian, Mysore State, Sangli State

**CENTRAL:** Great Indian Peninsular, Nizam's State, Scindia State

**WESTERN:** Most of Bombay, Baroda and Central India (BBCI), numerous state railways including Baroda, Jaipur, Saurashtra etc.

8. **IMPROVE INCREASED OPERATIONAL EFFICIENCY TO MEET BUSINESS CHALLENGES OF TODAY** Streamline and optimize business procedures productivity from existing systems - Create end-to-end visibility into the Responsiveness to constituents

9. **USING INFORMATION TECHNOLOGY FOR GREATER EFFICIENCY,** Infrastructure System such as the Indian Railways can benefit greatly from the Passenger Freight revenue enhancement, Objectives :-intelligent use of IT Improved and optimized service revenue enhancement Agency for implementation of IT: EDP Centers, CRIS, Zonal MIS Groups, LRDSS Group, Under Planning Cell

10. **PREMIUM PASSENGER SERVICE OFFERED THROUGH MAIL/EXPRESS,** Super Fast, Rajdhani And Shatabdi Trains About 1520 Trains Are Run Daily. Variety Of Services – Ac First Class – Ac Sleeper – First Class –
Ac 3 Tier – Ac Chair Car – Sleeper Class – Ordinary Chair Car • Journey
Through Reservation Only

11. PREMIUM PASSENGER SERVICE: This Segment Accounts For – 5% Of
The Passenger Carried Primier Passenger Service – 34% Of The Pkm 2003-04 –
53% Of The Passenger Total Revenue Passenger Primier The Average Distance
Traffic Passengers Covered By Each Passenger Passengers Is 760 Kms (Millions)
5210.7 234.1 Revenue Earned Pkm(Billions) 529.6 174.8 – Per Pkm Is 40 Paise
Earnings – Per Passenger Is Rs310 (Crores) 13460 7105.6

12. PASSENGER RESERVATION SYSTEM PRS networking of entire Indian
Railways completed in April, 1999. PRS is running currently at 1,200 locations,
Deploying 4,000 terminals, covering journeys of 3,000 trains and executing ONE
MILLION passenger transactions per day. Internet booking of tickets was started
In August 2002. TATKAL has been converted from a separate coach to a normal
Quota and enabled for all trains in 2004 Internet booking timings extended to 4:00
a.m. – 11:30 p.m. from March 2005.

13. CONCERT (COUNTRY WIDE NETWORK OF COMPUTERISED
ENHANCED RESERVATION AND INTEGRATES FIVE REGIONAL 1
64 KBPS LEASED LINE RESERVATION–TICKETING ) Judicious mix
local 2 MBPS 1 64—Centres CRIS 1 2MBPS kolkata Delhi Leased line KBPS a
PRS PRS Line (x2) Leased Leased autonomy with 1 2MBPS Line Leased line
Very—uniformity of business 64 KBPS Mum rules. (x2) bai Leased Line
Secunder complex Business PRS64 KBPS 64 KBPS abad PRS Leased Leased
Line transactions. Comprehensive line Line Chenna—Line 64 KBPS 1 2MBPS
(X 2) Leased Leased functionality i PRS

14. FEATURES OF I.R. PRS – ENQUIRY SYSTEMS • Indian Railway’s web-
site, www.indianrail.gov.in offers PRS enquiries on the internet Berth/Seat
availability, Passenger Status, Fare, Train Schedule etc • National Train Enquiry
System • It gives dynamic information about the running status of any train and
its expected arrival/departure at any given station Unreserved Ticketing System
Indian railways introduced UTS to improve customer satisfaction, revenue generation, accounting, and reporting capabilities and reduce fraud.

15. FREIGHT OPERATIONS INFORMATION SYSTEM

Rake Management System (RMS) • Terminal Management System (TMS) • Parcel Management System

16. IT STRATEGIES OF IR

Applications should transcend boundaries of railway organization and go into the domain of the customer. Implement decision support systems Integration with communication systems and other technologies. - use of Internet, mobile phones, hand held terminals, universal product code readers etc. Manage continuous improvement in technology.

17. FUTURE TRENDS IN IT IN RAILWAYS

Leverage on the state-of-the-art technology to be more competitive and reduce cost • Killer Applications – Ticketing Solutions (Centralized, Stand-alone, Mobile, Smart Card, Self Service, Internet etc.); value added services to customer – On line and e-enabled Freight Management System – Integrated revenue accountable system. A Service-Oriented IT Vision For IR • E-enabled Freight Management • Operations & Scheduling System • Staff Management • Customer care centers • Yield Management • Intelligent Stations Infrastructure • WAP Gateway • Self service kiosks at Stations • WAP Applications and WML Pages • Smart and Stored Value Cards for MST / Passes • SMS Gateway • RFID based Smart card & Biometric • Payment Gateway technology for passenger screening • ERP for IR • Re-vamped Revenue Management • An IR PORTAL

18. INDIAN RAILWAY ENTERPRISE COMPUTING SYSTEMS

APPLICATIONS INDIAN RAILWAY PORTAL INTEGRATION

ENTERPRISE RESOURCE PLANNING

Business ENTERPRISE Strategic Enterprise Intelligence and Managerial Financial Regulatory Reporting Management Data Accounting Accounting MANAGEMENT Warehousing Customer Data CRM Market Research PRS Call Centre Customer Service Base Station PARCEL OPERATIONS FOIS Crew Scheduling Train Planning Management MANAGEMENT Engineering Rolling Stock Inventory
Infrastructure SYSTEMS DATA CONTROL OFFICE APPLICATIONS PROCESSING SYSTEMS TERMINALS, FIXED, MOBILE DATA CAPTURE PDAS DATA LOGGERS SCADA SYSTEMS HAND-HELD PHONES.

The Indian railways have lined up massive plans for upgradation and expansion of its infrastructure, for which it has identified public-private partnership as a thrust area. The railways minister has already announced plans to invest US$ 46.70 billion for the modernization, capacity increase and completion of new projects during the 11th Five Year Plan. Consequently, a number of areas have been opened for private investment.

**The Future Agenda is as follow:**

- Dedicated freight corridor projects.
- Railway station modernization.
- Manufacturing facilities for locomotives, coaches, and other railway equipment.
- High-speed passenger corridors.
- Container services.
- Creation of Inland container depots and warehouses.
- Passenger related non-core areas such as catering, luggage, cleaning and parcel service among others.
- Port connectivity projects.

**Indian Railways Revenues and Surplus**

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue (Rs Crore)</th>
<th>Surplus before Dividend (Rs Crore)</th>
</tr>
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<tbody>
<tr>
<td>2004-05</td>
<td>47,370</td>
<td>4,612</td>
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<tr>
<td>2005-06</td>
<td>54,491</td>
<td>9,118</td>
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<td>2006-07</td>
<td>63,220</td>
<td>13,000</td>
</tr>
<tr>
<td>2007-08</td>
<td>71,218 (est)</td>
<td>21,578</td>
</tr>
</tbody>
</table>
Passenger services

A DMU Train:- Indian Railways operates about 9,000 passenger trains and transports 18 million passengers daily across twenty-eight states and one union territory, Puducherry (formerly Pondicherry) and Sikkim, Arunachal Pradesh, and Meghalaya are the only states not connected by rail. The passenger division is the most preferred form of long distance transport in most of the country. A standard passenger train consists of eighteen coaches, but some popular trains can have up to 24 coaches. Coaches are designed to accommodate anywhere from 18 to 81 passengers, but during the holiday seasons or when on busy routes, more passengers may travel in a coach. Most regular trains have coaches connected through vestibules.

Suburban rail:- The Delhi Metro railway Mumbai's suburban trains handle 6.3 million commuters daily. Many cities have their own dedicated suburban networks to cater to commuters. Currently, suburban networks operate in Mumbai, Chennai, Kolkata, Delhi, Hyderabad, Pune and Lucknow. Hyderabad, Pune and Lucknow do not have dedicated suburban tracks but share the tracks with long distance trains. New Delhi, Kolkata, and Chennai have their own metro networks, namely the New Delhi Metro, the Kolkata Metro, and the Chennai MRTS, with dedicated tracks mostly laid on a flyover. Suburban trains that handle commuter traffic are mostly electric multiple units. They usually have nine coaches or sometimes twelve to handle rush hour traffic. One unit of an EMU train consists of one power car and two general coaches. Thus a nine coach EMU is made up of three units having one power car at each end and one at the middle.

The rakes in Mumbai run on direct current, while those elsewhere use alternating current. A standard coach is designed to accommodate 96 seated passengers, but the actual number of passengers can easily double or triple with standees during rush hour.
Notable trains and achievements:- A train on the Darjeeling Himalayan Railway. There are two UNESCO World Heritage Sites on IR — the Chatrapati Shivaji Terminus and the Mountain railways of India. The latter is not continuous, but actually consists of three separate railway lines located in different parts of India: The Darjeeling Himalayan Railway, a narrow gauge railway in West Bengal. The Nilgiri Mountain Railway, a metre gauge railway in the Nilgiri Hills in Tamil Nadu. The Kalka-Shimla Railway, a narrow gauge railway in the Shivalik mountains in Himachal Pradesh. The Palace on Wheels is a specially designed train, frequently hauled by a steam locomotive, for promoting tourism in Rajasthan. On the same lines, the Maharashtra government introduced the Deccan Odyssey covering various tourist destinations in Maharashtra and Goa, and was followed by the Government of Karnataka which introduced the Golden Chariot train connecting popular tourist destinations in Karnataka and Goa. However, neither of them has been able to enjoy the popular success of the Palace on Wheels. The Samjhauta Express is a train that runs between India and Pakistan. However, hostilities between the two nations in 2001 saw the line being closed. It was reopened when the hostilities subsided in 2004. Another train connecting Khokhrapar (Pakistan) and Munabao (India) is the Thar Express that restarted operations on February 18, 2006; it was earlier closed down after the 1965 Indo-Pak war. The Kalka Shimla Railway till recently featured in the Guinness Book of World Records for offering the steepest rise in altitude in the space of 96 kilometres. A Beyer Garrett 6594 Engine seen at the National Rail Museum The Lifeline Express is a special train popularly known as the "Hospital-on-Wheels" which provides healthcare to the rural areas. This train has a carriage that serves as an operating room, a second one which serves as a storeroom and an additional two that serve as a patient ward. The train travels around the country, staying at a location for about two months before moving elsewhere. Among the famous locomotives, the Fairy Queen is the oldest running locomotive on the mainline (though only for specials) in the world today, though the distinction of the oldest surviving locomotive that has recently seen service belongs to John Bull. Kharagpur railway station also has the distinction of being the world's longest railway platform at 1072 m (3,517 ft).
Freight

Indian Railways makes 70% of its revenues and most of its profits from the freight sector, and uses these profits to cross-subsidise the loss-making passenger sector. However, competition from trucks which offer cheaper rates has seen a decrease in freight traffic in recent years. Since the 1990s, Indian Railways has switched from small consignments to larger container movement which has helped speed up its operations. Most of its freight earnings come from such rakes carrying bulk goods such as coal, cement, food grains and iron ore. Indian Railways also transports vehicles over long distances. Trucks that carry goods to a particular location are hauled back by trains saving the trucking company on unnecessary fuel expenses. Refrigerated vans are also available in many areas. The "Green Van" is a special type used to transport fresh food and vegetables. Recently Indian Railways introduced the special 'Container Rajdhani' or CONRAJ, for high priority freight. The highest speed notched up for a freight train is 100 kilometres per hour (62 mph) for a 4,700 metric tonne load. Recent changes have sought to boost the earnings from freight. A privatization scheme was introduced recently to improve the performance of freight trains. Companies are being allowed to run their own container trains. The first length of an 11,000-kilometre (6,800 mi) freight corridor linking India's biggest cities has recently been approved. The railways have increased load limits for the system's 225,000 freight wagons by 11%, legalizing something that was already happening. Due to increase in manufacturing transport in India that was augmented by the increase in fuel cost, transportation by rail became advantageous financially. New measures such as speeding up the turnaround times have added some 24% to freight revenues.

Rail budget and finances

A sample ticket; fares on this largest computer system network are quite reasonable. The Railway Budget deals with planned infrastructure expenditure on the railways as
well as with the operating revenue and expenditure for the upcoming fiscal years, the public elements of which are usually the induction and improvement of existing trains and routes, planned investment in new and existing infrastructure elements, and the tariff for freight and passenger travel.

**Indian Rail Budget 2008-09**

**Highlights of Railway Budget 2008-09** Union Railway Minister Lalu Yadav presented the Railway Budget for 2008-09 in Parliament on Tuesday, 26th February 2008. Following are the highlights: Review of Performance : 2007-08 · Double digit growth in traffic earnings maintained in first nine months. · Growth in passenger earnings 14%. · Expected growth in goods earnings 14%. · Gross Traffic Revenues 16% higher than the previous year and 2% higher than the Budget Estimates. · Operating Ratio likely to improve from the budgeted 79.6 to 76.3 per cent – best in last four decades. · Return on Capital – an all time high of 21 per cent. · Cash Surplus before dividend expected to be a record Rs.25,000 cr. · Net Revenue expected at Rs.18,416 cr and surplus after payment of dividend expected at Rs.13,534 cr. Budget Estimates 2008-09 · Freight loading target: 850 million tones. · Revenues in Freight earnings to be Rs.52,700 cr; Passenger earnings to be Rs.21,681 cr. · Gross Traffic Receipts to be Rs.81,901 cr – an increase of 12.6 per cent over RE. · Cash surplus before Dividend to be Rs.24,783 cr after making an ad-hoc provision of nearly Rs.5000 cr for anticipated recommendations of the VI Central Pay Commission. Annual Plan 2008-09 · The Annual Plan of Rs.37,500 cr is the largest ever Annual Plan so far. · Thrust areas include enhancement of high density network routes, improvement and expansion of traffic facility and network, construction of flyovers, bypasses and upgradation of goods-sheds. · New Lines - Rs.1,730 cr, Gauge conversion - Rs.2,489 cr, Electrification - Rs.626 cr, Metropolitan Transport Projects - Rs.650 cr. · Track renewal - Rs.3,600 cr, Bridges - Rs. 600 cr, Signal & Telecommunication works -Rs.1,520 cr, Road over/under bridges - Rs. 700 cr and manning of unmanned level crossings - Rs.600 cr. · Passenger amenities - Rs. 852 cr,
the highest so far. · Targets: New Lines - 350 kms, Gauge conversion - 2,150 kms, Doubling - 1000 kms. Passenger Services Trains · 10 new Garib Raths to be introduced. · 53 pairs of new trains. · Extension of trains: 16 pairs. · Increase in frequency: 11 pairs.

· 300 additional services in Mumbai suburban. · Special train from Anandpur Sahib and Patna Sahib to Gurudwara Sachkhand Sahib during tercentenary function of Shri Guru Granth Sahib of Gurta Gaddi. · Special train between Pune and Delhi for Commonwealth Youth Games being held in Pune from 12th-18th October this year.

Amenities · Provision of on-line coach indication display board; on-line train arrival departure information board; on-line reservation availability information board. · Provision of discharge-free green toilets in all 36,000 coaches in XI Plan period at a cost of about Rs.4,000 cr. · LHB design coaches for all Rajdhani and Shatabdi trains over next few years. · Provision of LHB coaches with stainless steel bogies in Mail/Express trains. Concessions · Senior citizen concession for women enhanced to 50% from existing 30%. · Free Monthly Seasonal Ticket to girl students up to graduation level in place of 12th standard and for boys up to 12th standard in place of 10th standard. Improvements in ticketing Termination of queues at ticket counters targeted in two years. · Ticket booking on mobile phones; E-ticket for waitlisted passengers. · Increase in Unreserved Ticketing Systems counters to 15,000 and ATVMs to 6000. Reduction in passenger fares · One rupee discount per passenger for fares up to Rs.50 in non suburban Second Class (ordinary and mail/express) · 5% discount across the board for passenger fares beyond Rs.50 for all non suburban Second Class (ordinary and mail/express). · Increase in discount for travel in new design high capacity reserved coaches. · Reduction in fare – AC-I : 7%; and AC-II : 4% (the reduction will be half for popular trains and during peak period). Freight Business Reductions & Concessions · 5% reduction in freight rates for Petrol and Diesel. · 14% reduction in freight rate of Fly-ash. · Liberalisation of Traditional Empty Flow direction incentive scheme - 30% discount on entire traffic in place of incremental traffic booked from goods shed. · Increase in discount on incremental...
traffic booked from private sidings from 30% to 40%. · 6% freight concession for traffic booked from other States for stations in North Eastern States. New Initiatives · Target for loading fixed at 850 MT in 2008-09. · Blue Print prepared for High Density Network. · Top priority being given to port rail connectivity projects. · New and dedicated iron ore routes to be upgraded/constructed. · Work on Eastern freight corridor from Ludhiana to Dankuni (Kolkata) and Western freight corridor from Delhi to JNPT to start in 2008-09. Procurement of Rolling Stock: All time high of 20,000 wagons, 250 diesel and 220 electric locomotives to be manufactured. · New Wagon Leasing Policy and Wagon Investment Scheme formulated to increase availability of wagons in the system. · Discounts for development of bulk and non-bulk goods terminals.

**Safety, and Security:** · Multi-pronged scheme to strengthen railway safety through various automatic devices like anti-collision device etc. · Rail accidents have reduced remarkably despite substantial increase in gross traffic volumes. · Fire resistant material to be used in coaches. · Unmanned level crossings at busy sections to be manned on a fast track basis. · Integrated security plan drawn up through installation of CCTVs, metal detectors etc.

**Railways fail to meet freight target for 2008-09**

The global economic slowdown has caught up with Indian Railways which failed to meet the freight target of 850 million tonnes (MT) for the year 2008-09. Railways managed to carry about 833 MT of freight for the year, which is about 17 MT short of its target. "The final loading figure will be known in a couple of days. As of now, we have recorded approximately 833 MT till March 31, which is about 39 MT more than the last fiscal," said a senior Railway Ministry official. Last year, it had exceeded its target by carrying 794 MT of freight against the target of 790 MT. While the loading in coal, fertiliser and cement have shown a growth, there is a decline in iron ore and finished steel loadings in comparison with the loads the last year. Railways expect to
touch 369 MT of coal loading for the year 2008-09 as against 338 MT in 2007-08, registering nine per cent growth. According to the official, despite the slowdown there is an overall growth of 4.7 per cent in loading. Though the railways were doing well in the April-September period, loading got affected in October-December 2008, when the recession reared its head. The growth rate dipped down to 1.41 per cent. Railways which have set the target of 900 MT in 2009-10, it may revise it keeping the slowdown in mind.

**Indian Railways – On track for recovery**

Modernization essentially means keeping up with the times. A modern railway system necessarily brings to mind a clean, safe, fast and efficient railway system where everything is in position and in working shape and a customer’s delight. Though the spread and volume of the IR system is huge and thousands of crores have been spent in building up the system after independence, IR still has miles to go to reach international standards. This is perhaps because rail infrastructure is necessarily capital intensive, and in a scenario where demand always outstrips supply, we have not been able to go much beyond providing the basic transportation to our teeming millions. However, if India wants its rightful place in the world, it cannot afford to lag behind in putting in place a modern world-class rail network.

**Areas of modernization**

Unlike the European rail system which caters for mainly passenger transportation or US rail-roads, which are freight oriented, IR has to meet the requirements of both passenger and freight sectors. The areas to be focused on for passenger satisfaction from the point of view of modernization will be high speed trains, better provision of information by making the most of the advancement in IT, cleaner stations and coaches hassle-free systems to meet the ever-increasing demand for travel both in the reserved and the unreserved segments. The freight segment on the other hand has to cope up with the
increasing volume within the plan period by going in for modernization measures in rolling stock, terminals and better information system. From the point of view of both passenger and freight movement, modernization of infrastructure such as track, bridges, signaling and telecommunications and maintaining them in a healthy condition are important.

**Integrated Railway Modernization Plan (2005-10)**

This modernization plan elaborates measures which would enable the system to achieve an ambitious growth rate of 6 per cent in freight traffic (against 5.6 per cent expected in the first three years of the Tenth Plan) and 3.5 per cent in the passenger segment against the current trend of 3.1 per cent. By the terminal year of the modernization plan, 2009-10, IR intends to achieve an originating freight loading of 776 million tones and carry 6,366 million originating passengers. The IRMP at a glance is as under …..

**Passenger business segment**

- Towards high speed travel
- Shatabdi/Rajdhani trains to run with latest technology coaches
- Integrated and extended national train inquiry system
- Expansion of computerized passenger reservation system
- Expansion of computerized unreserved ticketing system
- Computerisation of parcel management system
- Modern and environment-friendly toilets in coaches
- Mechanised cleaning of stations
- Mechanised cleaning of coaches
- Extension of coaching operations information system (COIS) for improved passenger traffic operations
AN ANALYTICAL STUDY OF EMERGING ECONOMIC TRENDS OF INDIAN RAILWAYS
SINCE 1998 TO 2008

• Provision of public address systems on important trains
• Improved safety features in coaches – internal and external crashworthiness, anti-climbing features and use of fire-retardant material in carriages.

Freight business segment

• Running of freight stations at 100 kmph on identified sections
• Completion of 75 throughput enhancement works
• Development of 40 modern freight terminals
• Introduction of high axle load operations on selected routes
• Warehousing facilities near rail terminals through public-private participation
• Web-based claims management system
• Extension of freight operations information system to cover terminal, rake and crew management modules
• Introduction of double-stack containers on identified routes
• Modernisation of freight maintenance
• Introduction of corrosion-resistant stainless steel body wagons
• Introduction of lightweight aluminium wagons to increase carrying capacity
• Modernisation of guard’s brake van
• Provision of bogie-mounted brake system on freight stock
• Development of roll-on-roll-off door-to-door service
• Locotrol for diesel and electric locomotives on identified sections
• Introduction of self-steering bogies.

Strategy of Modernizing IR

Modernisation mainly entails plan expenditure, which is financed both from budgetary and extra-budgetary resources. Modernisation necessarily encompasses many activities that are linked to day-to-day operations, those that have a bearing on safety and investments for creating passenger amenities. Likewise, modernization could be in the
form of creating new infrastructure and assets or replacement of existing assets with those using more advanced technologies. Accordingly, funding of the IRMP would need to tap almost all sources of railway financing in an appropriate mix.

The total expenditure involved for the identified initiatives would be Rs. 240 billion. Out of this, Rs. 40 billion is available under the SRSF for corresponding sanctioned works in the Green Book. Of the remaining Rs. 200 billion, Rs. 37.3 billion is proposed to be mobilized through internal generation and Rs. 60 billion through market borrowing. The balance requirement of Rs. 102.7 billion would have to be met through enhanced budgetary support.

The Delhi Metro: Running ahead of schedule

The success of the metro is a reminder that determination and focus can push through the most difficult projects. The logistics and technical headaches of getting legal clearances and then building massive structures through busy city roads have been overcome successfully.

The momentum has reached a stage where completion targets are being met before the set deadlines. Almost 84 per cent of the first phase of the project is completed. In all, 26.8 km of the metro is now fully operational. This includes all of Line 1, spanning 22.8 km and covering 18 stations and 4 km of line 2, which became operational in December 2004. The remaining 7 km of Line 2 has been completed in June 2005.

Since Line 2 is completely underground, the connectivity and operational network has increased. For instance, passengers can now interchange from the underground metro station at Kashmere Gate to its elevated metro station and go to Line 1 destinations.

Work on all sections of Line 3 is in full swing. The first Line 3 stretch to start operations will be the Barakhamba Road to Kirti Nagar section where 82 per cent of the civil works
are completed. This will bring the benefits of metro service right into the heart of the city. When the first phase of the project is completed in 2005, at a cost of Rs. 105.7 billion, it is estimated that the metro will be carrying around 1.5 million passengers per day.

The project is being developed and operated by an SPV, the Delhi Metro Rail Corporation (DMRC), which is owned equally by the union government and the Delhi state government. Work on the project began in May, 1995. The project has a debt-equity ratio of 70:30. JBIC funded 64 per cent of the project cost; the remaining amount has been sourced through a combination of interest-free subordinate debt from government land acquisitions (8 per cent) and property development by DMRC (6 per cent).

### Phase 1 components

<table>
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<tr>
<th>Line</th>
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<td>No.1</td>
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<td>18</td>
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<td>No.2</td>
<td>VishwaVidyalaaya-Central Secretariate</td>
<td>11.0</td>
<td>10</td>
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<tr>
<td>No.3</td>
<td>Indraprastha-Barakhamba Road-Dwarka Sub City</td>
<td>32.10</td>
<td>31</td>
</tr>
</tbody>
</table>

### KEY ISSUES FACING INDIAN RAILWAYS

Despite of positive side of a coin there is a negative side of this coin also. Therefore, a list of some **burning issues relating to Indian Railways is as follows:**

**(i) Mechanical Issues:**

- **a.** Coupling of locomotives and failures
- **b.** Availability and failure of powers
- **c.** Increased braking distance and its impact on operations of trains
- **d.** Improved designs of wagons and their colour (provision of additional springs on wagons, etc.)
e. Requirements of bankers
f. Design of 25 ton/30 ton axle load wagons within the existing standard moving dimensions
g. Re-examination of the restriction on the axle load of BOXN HA wagons which through designed for 23.5 tons are restricted to 20.32 tons due to the restriction
h. Modification of design of existing wagons on order to make them fit for 25 ton/30 ton operations

(ii) Engineering - Track and Bridges relating Issues:

a. Stallings, wheel burns, instances on exit from yards, graded sections
b. Standard of maintenance required
c. Rail stresses and reduced fatigue life, quality of grooved rubber pads. Impact on PRC sleepers, track fittings, formation and need for formation strengthening by blanketing, frequency of incidences of rail/weld fractures
d. Planning for track renewals for long and continuous stretches free of speed restrictions
e. USFD testing to detect rolling contact fatigue and gauge corner fatigue defects
f. Behaviour of LWR, need of distressing twice – before winter and summer seasons
g. Rail profile measurements, rail grinding
h. While the track structure for 25 ton axle load has been specified as 70 kg 90 UTS rail of PSC sleepers 1,660 per kilometer, no track standard has yet been laid down for 30 ton axle load. Work on this needs to be taken up by RDSO

i. Bridge capability by using non-destructive techniques for assessing capability of bridges taking into account the design features and to identify individual bridges which may need strengthening or which could be used with speed restriction for the high axle load till they are strengthened.

j. The need for review of the standard of construction of all new line bridges/gauge conversion projects now in progress where track work has not yet been done to identify sections where the required upgrading for higher axle load can be done now itself by the process of material modification to the sanctioned estimates.
k. There would appear to be a need to review the existing codes for design of bridges utilizing the services of IITs and eminent consultants to study the world practices and update our codes.

l. To start with, monitoring of the effect of the haulage of 58 BOXN wagon trains with CC+8+2 loading needs to be done with wheel impact load detectors and inspection and checking of the effect on individual sample bridges.

(iii) Traffic relating Issues:

a. Stalling of freight trains in the sections (level and graded)
b. Monitoring of overloading of wagons (CC+8+2) and weighment conditions
c. Trailing load and powering of trains
d. Requirement of bankers on graded sections
e. Operational problems of running heavier freight trains
f. Running of coupled locomotives.

(iv) Electrical relating Issues:

a. Coupling of electrical locomotives, failures of powers due to increased load, calculation of increased braking distance and its impact on operation of trains
b. Movement of TE and PF coupled with loco operations.

(v) S and T relating Issues:

Increased braking distances and its impact on inter-signal distances: There would be a need to examine the impact of the heavier axle load trains on the braking distance and location of signals to see if any modifications are required.

(vi) RDSO relating Issues:

a. Reports of wheel impact load detectors
b. Study on rail stresses based on increased track modulus calculated
c. Report of stresses on sleepers at various points
d. Report of bridge load monitoring system

e. Report of vibration signature technique to measure dynamic recording and to monitor characteristic and changes thereto to monitor health of bridges

f. TRC/Oscillation trials of sections carrying heavy axle load.

**Other important issues are:**

- Overcrowding in General Compartments
- Cutting Railway Lines and Stealing Fiss Plates Causing Accidents
- Trains Late Arrival
- Unhygienic conditions of waiting rooms
- Unhygienic condition of public convenience
- Railway Garbage Management

**Some Major Problems in Detail:**

The Indian Railways (IR) has been a vital component of the social, political and economic life of the country. IR’s transportation network has played a key role in weaving India into a nation. This network has not only integrated markets but also people across the length and breadth of this huge country. IR's role in times of war and natural calamities has also been commendable: it has always risen to the occasion and transported men and materials in large numbers at short notice. It is because of these reasons that IR is one of the foremost institutions of the country today. At the same time, because of a series of developments in the 1990s, IR is today on the verge of a financial crisis. Urgent action is needed to revitalise it so that it can continue to serve the nation.

The root of the financial problem confronting IR is therefore found in the lack of adequate productivity increases that are commensurate with the real wage increases over time.
The proportion of expenditure on repairs and maintenance has been declining steadily over the years. The strain on the IR's resources has also prevented adequate investment in track renewals and other safety related areas. This is another consequence of the unigauge project. Consequently, the arrears of track renewals have grown from 3,548 km to 11,211 km over the last ten years. Though the overall number of accidents and the number per million train kilometres have shown a declining trend, the absolute numbers are still high, with scope for improvement.

These tendencies became accentuated in the 1990s and the economics of IR are now extremely vulnerable. For first time in 17 years last year IR was not able to pay a dividend to the government on its past investment. It is in financial crisis. Its ability to invest adequately in providing efficient and cost competitive services in the future is seriously in question. Thus IR is in a watershed period in its history today and therefore drastic action needs to be taken in a number of areas to make this august organisation the country's pride once again.

If IR is to survive as an ongoing transportation organization it has to modernize and expand its capacity to serve the emerging needs of a growing economy. This will require substantial investment on a regular basis for the foreseeable future. With the prospect of getting substantial free or subsidized resources from the government increasingly unlikely, new investment will have to be financed on a commercial basis. This is the challenge facing the Indian Railways.

LONG TERM TRAFFIC GROWTH PATTERNS

The ability of IR to accelerate the growth rate of its revenues from both freight and passenger traffic is central to the success of any effort to restructure the organization and to finance the necessary investments. All the new investment and organizational restructuring that is envisaged will be of little use if the demand for railway services does not increase apace.
One of the major reasons for the deterioration of the organization's financial condition has been a steady decline in the growth rate of freight traffic in recent years. The growth rates of passenger traffic, in contrast, have been fairly healthy, and there is a significant increase in the share of revenues being realized from the higher classes of passenger services. Despite this trend, however, an overwhelming proportion of passenger revenues is still being raised from the lower classes.

Passenger fares, specially for the lower classes, are set with clear political considerations in mind, which almost inevitably leads to subsidization. Some of this is made up by inflating upper class fares, but the potential for fully compensating for the subsidy for the lower classes from this source has been limited. To maintain some control over IR’s financial deficit, the burden of cross-subsidization inevitably falls on freight traffic. IR has been steadily losing its market share of freight to road largely because it has not been able to compete on prices.

Looking to the future, the changing structure of production in the economy in the next decade may further erode the competitive position of the railways. Manufacturing activity, which is relatively more transport intensive than services particularly with respect to bulk transportation, appears to be peaking at somewhat less than 30 per cent of GDP. In India, the service sector is already by far the dominant sector, accounting for about 48 per cent of GDP and also appears to be the fastest growing. The implication of this pattern is that every increase in GDP will require faster bulk transport services. IR will have to compete even harder with other modes in order to sustain its traffic volumes, let alone accelerate growth. Thus a significant change is needed in IR's strategy towards its freight services.

It is found that with tariff rebalancing over the next 5 years, passenger revenues can grow by about 8.6 per cent per year; without tariff rebalancing, the growth in revenue would be about 7.5 per cent, per year both in real terms. These projections account for some fall in
growth in passenger volume growth in the lower classes that would result from fare increases.

POSSIBLE GROWTH SCENARIOS AND INVESTMENT REQUIREMENTS

ALTERNATIVE SCENARIOS

We have used all the current information available from IR to construct three possible investment strategies for IR over the next fifteen years. The first two scenarios, of Low Growth and Medium Growth are constructed in a Business as Usual framework, whereas the third scenario, strategic High Growth will require substantial focused remunerative investment and corresponding organizational restructuring of IR internally and its relationship with government, including corporatisation.

The Low Growth case assumes no organizational restructuring and an investment programme similar to that observed in the 1990s. The Medium Growth case assumes significantly improved functioning of IR within the current organizational framework, but with higher investment levels and higher revenue growth. Even with these optimistic assumptions, it is found that neither of these two cases are financially viable without excessive levels of budgetary support which do not seem to be feasible, even if socially justified. The only feasible, but extremely difficult scenario, is the Strategic High Growth one.

The principal strategy for achieving a very high growth lies in aiming at a growth rate of goods traffic that has not been reached in the past. The second part of a plan for very high growth will be to ensure that such high rates of growth are not at the cost of passenger traffic, especially long distance. The third important requirement will be to undertake structural changes to make possible the simultaneous high growth of freight and passenger traffic possible, as outlined in this report.
Freight

Freight is the key profit earner for IR. The long-term strategy of increasing freight rates regularly too frequently over the Eighth Plan -to protect railway profitability has been counterproductive, driving freight customers to other modes of transport, or even resulting in structural changes in their industries to reduce transportation costs. There is urgent need for a new viable, long-term strategy to profitably grow the freight business.

The Strategic High Growth option is marked by a signal departure from recent investment practices. The new element is an investment package making up a total business plan mainly targeting the needs of the railways users. The main parts of this strategy are as follows:

- **Strategy to improve speed of freight trains**: A significant improvement in freight train speeds will need to be brought about for which it is necessary to eliminate obstacles to fast train movement.

- **Up-grading rolling stock**: The present wagon design will need to be improved in order to make for a smooth interface between bogie and track and thereby reduce cost of maintenance as well as number of break-downs.

- **Specific commodity related investments**: Certain commodities, particularly types of finished steels, and cement movement in bulk, require special types of wagons and handling arrangements. This will need to be planned over selected sections that cater to the commodities mentioned.

- **Improved signaling and communications**: The elimination of road crossing, together with the planned introduction of higher capacity locomotives and wagons of improved designs will create the condition necessary for reducing the speed differential between freight and passenger trains. For realizing this improvement, large investments will be needed in signaling and communication.

- **Container terminals**: New operators should be permitted to enter the field for container traffic, which is a very high growth area. To fully exploit the demand
and arrange for coordinated growth between road and railways, there is need to set up two or three additional container depots each in the large industrially advanced states and at least one container depot in all other states.

- Ensure that there is no real increase in freight rates which is uncompensated by added value to customer, and that **present rate structure is rationalized to remove distortions that have crept in**.
- Special focus to customer needs of commodities that are drifting away from railways.

These trends imply a major revamping of IR's approach to freight traffic. IR has to regain its primacy in bulk freight, and at the same time, has to increase its competitiveness in the haulage of other commodities.

**Passenger Traffic**

With respect to the IR's movement of passengers the central problem is that more than 90 per cent of traffic is in the low-price segments. The key challenge to IR is to maintain its obligations on the lower price services, while at the same time increase both capacity (through investment) and utilization (through innovative pricing and other marketing instruments) of the upper classes. The revenue potential from the upper classes needs to be exploited to the maximum extent. The prognosis here is quite optimistic in view of the ongoing changes in income distribution towards higher incomes in the country. IR has already responded to these ongoing changes in the demand pattern for passenger services by introducing new classes of services such as Second Class A.C. 2 tier, Chair Car services and new trains such as Shatabdi Express. Continued innovation in this direction will lead to the attainment of the kind of revenue growth projections that have been made in this Report.

The attainment of financial health will necessitate both higher growth in traffic as well as tariff rebalancing. IR has little option but to rebalance passenger tariffs in a manner consistent with the elasticities of demand for the various classes.
The Expert Group finds that appropriate tariff rebalancing will require an annual adjustment of about 10 per cent increase in second class sleeper fares and 8 per cent in second class ordinary fares on a continuous basis for about 5 years assuming about 6 per cent annual inflation over the period. It is also found that upper class demand elasticities are such that revenues will increase if the upper class fare increases are muted to around 1-2 per cent a year over the same period, assuming that capacities are expanded appropriately in terms of local availability to meet the enhancement in demand expected. The Expert Group is aware that such differential increases in tariffs would appear inequitable and therefore difficult to implement. This is the result of excessive increases in upper class fares in the past. Moreover, at the end of such a tariff rebalancing exercise the ratio of fares between II class (Mail and Express) and ACI class would be about 1: 9, quite similar to the 1:9.6 ratio recommended by the 1993 Railway Freight and Fare Committee. Such fare restructuring would have to be accompanied by tangible improvements in service, particularly for all II class services.

We have not studied the structure of suburban fares in any degree of detail. But it is evident that similar measures will have to be taken there. Alternatively, if the relevant cities or states are keen to subsidise their urban commuters, the resources should come from them. With the kind of measures suggested for both freight and passenger traffic, the Strategic High Growth Scenario would see average annual revenue growth at about 7.5 per cent per year at constant prices over the projection period of 2001-02 to 2015-16.

**Staff Costs**

Along with the achievement of higher revenue growth as indicated, IR will have to explore every avenue of cost reduction. Among the cost reductions to be implemented staff cost reduction will be crucial. If Indian Railways is to become a truly modern transportation system offering services that could face up to the emerging competition, the issue of an accelerated reduction in manpower has to be addressed without delay.
In any set of financial projections, a substantial net reduction in employee strength (at least twenty per cent of the total) has to be provided for. Retention of current strength would rule out any upturn in IR's performance, even in a high traffic growth scenario. Going by the conclusions of a diagnostic study on this problem carried out by RITES for the Railway Board the excess manpower could be more than 25 per cent of the total. On a very conservative basis therefore, a reduction of twenty per cent of the present overall strength should be targeted over the next five to seven years. This will require, apart from reductions through normal retirements, the spinning off of ancillary activities and also a well-designed VRS scheme to be implemented early, in phases.

IR has an enviable record of very healthy labour relations. This must not be compromised. Any such programme of staff rationalization must be fully discussed with the employees and an acceptable programme formulated.

**Investment Requirements and Financing**

The Business as Usual Low Growth Scenario envisages an investment programme of about Rs. 130,000 crores over the next fifteen years (at 200Q-2001 prices). The Business as Usual Medium Growth scenario envisages an investment programme of about Rs. 160,000 crore over the same period and the Strategic High Growth Scenario of about Rs.200,000 crore. It is found that Strategic High Growth Scenario can be financially feasible since it would lead to the kind of revenue growth that has been projected. The financial feasibility of this scenario is dependent on:

- Further attention to cost reduction in all aspects.

Despite of positive side of a coin there is a negative side of this coin also. Therefore, a list of some **burning issues relating to Indian Railways is as follows:**
KEY ISSUES IN RAILWAY PLANNING AND INVESTMENT

A review of the current railway planning process shows that public and parliamentary pressures are only some of the factors adversely affecting railway investments and that even in areas where these pressures do not apply, the investments do not follow proper priorities. The results are evident in the declining trends in productivity. From the analysis of IR’s Planning policy certain trends are evident. These are:

- Unsustainable shares of investments get allocated to projects of low priority and doubtful return.
- Standards of project selection have slackened, especially in recent Plan years, and the investments made have not and in many cases, could not have improved traffic output to a corresponding degree.
- Overall, the incremental approach to capacity augmentation is now yielding diminishing returns.

From the point of view of investment strategy, the most undesirable feature of the annual budget exercise is the very short-term focus it imparts to all investment initiatives.

The priority for Indian Railways is to invest in debottlenecking points of congestion in the network (particularly on the saturated arterial networks of the Golden Quadrilateral linking Delhi, Kolkata, Chennai and Mumbai). Instead of debottlenecking, Indian Railways is being forced against its wishes to invest in initiatives that make matters worse not better. About half the Capital Fund has been absorbed in gauge conversion which has produced no discernible performance improvement. New lines have absorbed 20-30 per cent of borrowed capital, only to increase Indian Railways reach into areas where there is little or no traffic, at a time when non-remunerative lines should have been closed in order to free resources to liberate those arteries clogged with traffic.
Unfortunately, plans for the future are worse still. At present, there are 70 new rail line projects included in the railway budget with a total estimated cost of approximately Rs.23,000 crores. If it were not for the fact that the patient will die long before it has the opportunity to transfuse this Rs. 23,000 crores into unremunerative lines, these self destructive investments would surely be terminal.

The hardheaded conclusion is that the Railway Works Programme has lost focus over the last decade and is on the way to becoming an autonomous process with little connection to organizational aims or resource limitations. The prevailing structure has served well in a captive market and the planning needs associated with it. In a changing scenario brought about by the economic reforms, IR is now in a competitive environment where there is need to bring in customer orientation at the project framing stage itself.

IMPLICATIONS FOR THE ORGANISATION: REINVENTING INDIAN RAILWAYS

Why change is unavoidable

IR over the past decade has fallen into a vicious cycle of under investment, mis-allocation of scarce resources, increasing indebtedness, poor customer service and rapidly deteriorating economics. The root cause of the decade of decline is an unstable political system increasingly driven by short-term political compulsions. Prices could not be adjusted, costs could not be cut and investment decisions were increasingly distorted because of political compulsions. In short, the new populist political reality effectively tied the hands of management.

Indian Railways is one of the most studied institutions on the planet. For almost every conceivable question that can be asked there already exists a comprehensive and rigorous report that lays out the facts and indicates the answers. What is striking, however, is that there has been little action on the many reports IR has commissioned, both internal and external. The overwhelming sentiment of the Expert Group is that time has run out.
Action is overdue. The imperative is to get started fast on a programme of restructuring and reform.

**Corporate Form**

The Expert Group has carefully examined the experience of European and other railways in their restructuring efforts. There is no doubt that many of the compulsions that drove developed countries do not apply to India. There is also no doubt that the wholesale privatisation pursued in some countries is neither feasible nor advisable in India and that the UK experience reflects a hasty and ill-considered experiment driven by political expediency, and is not a model to be followed.

It has become clear that with a few exceptions at the margin the focus should be on commercialization rather than privatization. It is clear from international experience that privatising railways is not only exceedingly difficult and controversial but also that no approach has yet proven to be satisfactory. In contrast, the verdict with respect to commercialisation is clear. This involves reorganising the rail system into its component parts, spinning off non-core activities, restructuring what remains along business lines and adopting commercial accounting performance management systems.

If IR is expected to function on commercial principles, its management needs to be allowed a degree of autonomy that is comparable to any other commercial organisation. To grant the railway autonomy by creating an arms length relationship with government is one of the salient features of railway restructuring around the world. In Europe most countries have separated railway operations from government influence and have introduced independent regulators for the sector. China had stated an aim to ensure complete separation of government and enterprise functions within the railway operations. Russia is currently separating operations, regulations and policy.
Governance defines the roles and institutional relationships associated with policy, regulation and management. These roles are currently blurred and need to be clarified and institutionalised based on the assumption that railways in India will evolve into a broad-based industry with multiple players and multiple owners.

The Expert Group debated long and hard on the most desirable restructuring of the governance of Indian Railways, and on the role of the Government of India (GOI) in governing IR. In view the mixed record of restructuring elsewhere there was considerable discussion on the extent of organisation that should be suggested. In view of the complexities involved in restructuring as large an organisation as IR there is great need to ensure that the steps recommended and taken are in the correct direction. One stand of view has been that commercialisation can be done without corporatisation of IR.

It has been pointed out that the functioning of a large number of public sector corporations in India would suggest that the mere act of corporatisation does not automatically reduce government interference. This is indeed correct. Mere corporatisation will not accomplish anything. For any reorganisation to be successful there has to be an ex ante acceptance and commitment by the Government and IR alike that IR will operate on commercial lines. Implicit in this is that non commercial activities mandated by the government will be clearly demonstrated and IR appropriately compensated for such activities. Given the key objective of commercialising IR and making its management autonomous, we have concluded that nothing short of major restructuring will be necessary, along with eventual corporatisation. However, some Members of the Expert Group expressed their skepticism regarding the usefulness of Corporatisation.
Implementing Corporatisation

Before corporatisation of IR can take place, a great deal of prior internal reorganization Implementing would be required. The underlying design principle is to create outward-looking, business-oriented, customer-driven institutions. This will involve reorganization of the core transportation network into its key component parts; freight, passenger, suburban, fixed and shared infrastructure and others.

Prior to the proposed corporatisation of IR it will also be necessary to recast IR’s accounts into company format. The Government will, therefore, need to initiate the process of restructuring the financial accounts of IR in accordance with the Company Act 1956. The objective is to develop financial statements (Balance Sheet, Profit & Loss Statement) that can be understood by the financial community and the public at large. This will also take some time.

Once the broad framework of the proposed restructuring is accepted, the Government of India, Ministry of Railways will have to set up a special task force to frame the new legislation enabling the new organisational framework. This task force would need to commence operations with a thorough review of the Indian Railways Act and the Indian Railway Board Act. New legislation would need to be drafted that:

- Mandates corporatisation of the Indian Railways into the Indian Railways Corporation (IRC)
- Permits a revamp of the Railway Board
- Redefines the relationship between Government and a revamped Indian Railway Executive Board (IREB)
- Provides for exemption from taxation -excise, sales tax etc. for the period of transition, say 5 to 7 years.
- Permits private participation in Railway operations.

Dr.S.K.S.YADAV 337 ANUJ KUMAR
Facilitates the induction of personnel form outside the Railways

Mandates the subsidisation in social areas to extent of funds provided by Government

Sets up a social safety net to take care of surplus labour.

Indian Railways must eventually be corporatised into the Indian Railways Corporation (IRC). The Government of India should be in charge of setting policy direction. It would also need to set up an Indian Rail Regulatory Authority (IRRA), which would be necessary to regulate IRC’s activities as a monopoly supplier of rail services to begin with, particularly related to tariff setting.

The Indian Railways Corporation (IRC) would be governed by a reconstituted Indian Railways Executive Board (IREB). The Government of India should be in charge of setting policy direction, and constituting IRRA and IREB. As key responsibilities, it should:

- Implement changes in the structure, according to its vision. As owner of the system it will constitute Indian Rail Regulatory Authority and Indian Rail Executive Board by approving legislative packages necessary to constitute those bodies (new Indian Railways Act, new Indian Railway Board Act and other required laws/bylaws).

- Define the extent and nature of social obligations to be fulfilled by the railways and provide adequate funding. Railways will contribute to the Indian social/developmental sphere, expanding socially desirable routes, providing essential services and fostering development in backward regions. The width, depth and limit to those social obligations is a political issue reserved to Indian Government, that will be stated, differentiated and funded with full transparency.
Also, Government would have the power to requisition railway services during times of emergency / calamity.

- Appoint/ dismiss people holding key responsibilities at both India Rail Regulator Authority and Indian Railway Executive Board, as ultimately responsible for their overall performance. However these powers should be appropriately circumscribed in the appropriate legislation.

**Age From kulhads to bullet trains**

As Lalu Prasad presented his sixth consecutive railway budget in Parliament, it was clear that he has come a long way from the rustic kulhad-khadi-char-dham-yatra days of 2004. Then, he was carrying the baggage of an increasingly unpopular Bihar leader at the end of a 15-year rule, the clouds of the fodder scam marring the rustic wit. His first budget in 2004 showed a nervousness thinly veiled by his trade mark bluster.

So, he talked of earthen cups to help potters, khadi bed sheets, providing social security for coolies and contract workers. The behemoth of the Indian Railways was rolling along with income barely ahead of expenditure — they were spending 91% of their income in running the sytem, with only a small amount left over for improvement and expansion.

But five budgets later, Lalu is a picture of confidence and tech-savvy smoothness. The mannerisms are still rustic but he now talks of bullet trains and net portals. This transformation is largely derived from the much heralded 'turn-around' of the railways accomplished under his watch.

Passenger traffic is up, but that is to be expected in a country of teeming millions. Goods traffic and hence earnings from freight fares have also zoomed up, taking traffic receipts from about Rs 47,000 crore in 2004-05 to over Rs 82,000 in 2008-09. Expenditure has
also risen, but the railways have generated much more surplus cash than ever before — about Rs 50,000 crore, after contributing to pension and depreciation funds.

It is this amount that gives Lalu the sheen of confidence. Most of this has come about by increasing earnings from freight, not by loading passengers. By a slew of measures which included rationalization of freight fares, faster turnaround for wagons, and overloading them, the railways managed to milk the freight gravy train for all it was worth.

But has the surplus really been put to good use — for making travel comfortable, safe and hassle-free? Over the years, travel by trains has become cheaper, especially for the AC sections. Amenities, like cushioned berths, are more evenly spread. Net-based booking and information systems are widely available. But services are definitely down. Out-sourcing of catering, cleaning and such other services with lax oversight is probably the culprit.

That the rail network entered Tripura and J&K is of emotional significance, but the country still awaits expansion of this lifeline to the hinterland — after all, India's rail network has increased by a measly 17% since the British left!

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**Important trends going on in Indian Railways**

**Railway ticket booking through cellphone**

Railway ticket booking through cellphones is picking up fast with 1,000-odd tickets being booked through cellphones every day all over the country. Cellphone-savvy people, particularly in metropolitan cities, have been using this new system quite frequently.
new system has spared the cellphone users the travails of waiting in queues to procure railways' computerised journey tickets.

**Singapore model for Metro in Chandigarh**

To make the Metro project a commercially viable venture, RITES is studying the Singapore model so that it could be replicated in Chandigarh by finalizing the financial plan accordingly. Under this, income from parking fee and taxes charged on tickets would be utilized to break even the annual investment of Rs 3,000 crore.

**France's top railway operator in India for comparative study**

A team of top officials from Société Nationale des Chemins de fer français (SNCF), France’s top railway operator which also runs the TGV, are now in the country to undertake a comparative study of engineering and maintenance of rolling stock. The French delegation will hold meetings with the Railway Board and in various zonal railway headquarters to discuss and exchange notes on maintenance methods and practices in the two countries.

**British Wi-Fi technology to Indian Railways**

British Wi-Fi technology major Nomad Digital has entered into a joint venture with Indian company Zylog Systems to provide wireless internet access to India’s massive railway network. Newcastle-based Nomad Digital is a market leader in the provision of mobile wireless services for transportation, while Zylog supplies a range of IT products and solutions to its customers across multiple sectors such as banking, insurance and telecom.

**Indian Institute of Science (IISc) to study safety of railway bridges**

It is now the Railways which is turning to the 100-year-old Indian Institute of Science for its civil engineering capacities, in understanding structural engineering and safety.
The premier institute is undertaking an intensive study on the condition of railway bridges in the South Western division to help the Railways decide whether bridges can take additional load.

**Railways pledges to put new suburban rakes on right track**

Even as Siemens has accepted that the traction motors in its swanky trains are faulty and agreed to replace them by the first week of April, the railway authorities have started damage control. The main reasons for failure have been identified as malfunctioning of traction motors, faulty software, pneumatic trouble and auxiliary warning system inconsistency. Traction motor and software failure contribute to 90% of the breakdowns.

**More facilities on offer as Rajdhani completes 40 yrs**

Very soon, those travelling to New Delhi by the Rajdhani Express will no longer need to take the trouble of booking a hotel room separately. They will have the option of booking a hotel room while procuring their train tickets.

Revealing that the Indian Railways has plans for more luxury trains like the Rajdhanis to connect state capitals to New Delhi, he said experiments are on to serve more hygienic and filling food to passengers. "By the end of 2009, we hope to have Wi-Fi connectivity between Mughalsarai and New Delhi," Lalu Yadav added. According to him, high-speed corridors for bullet' trains can be possible in five years with help from the state governments.

**Lure of tourists: World's oldest steam engine ride**

Travel by the world’s oldest working steam locomotive on the Delhi-Ajmer route has gained momentum with the heritage train running to full capacity. Plying only eight times a year during the first and the last quarters, the 'Guinness Book of World Records' recognised train christened "Fairy Queen" ran with its full capacity of 60 passengers.
yesterday when it left the Delhi Cantt station. Among the passengers of the 154-year-old train, 30 were foreigners.

The official said passengers can now book a ticket of the train through Internet on the Railways website.

**Railways harnessing solar energy for electrification**

Indian Railways is harnessing solar energy for electrification of railway assets and introducing better technologies to reduce emissions from locomotives in its bid to check environmental pollution and conserve energy, the Lok Sabha was informed.

**Central Railways summer gift: 1,512 spl services**

This summer, escaping the Mumbai heat will be a little easier. Central Railway (CR) will run as many as 1,512 summer special services—an unprecedented 85% rise over last year’s number. The summer specials will be run between April and June. The first train will leave on April 2. These specials will be in addition to the regular long-distance services and are expected to benefit close to 4 million passengers. This is not all. CR will also run a number of intra-state trains to Nagpur, Solapur, Usmanabad and Pandharpur. Having introduced 11 new destinations, CR has taken the total number of special train routes to 27 this summer.

**Railway has huge potential for job creation despite recession**

Despite lay offs in some sectors and a freeze on employment, the Railways is moving ahead with new recruitments, and has a huge potential of growth, Lalu told reporters on the sidelines of a function to mark the foundation day of the All India Management Association (AIMA) here. Yadav also underlined the need for infrastructure development, expansion and modernization in the Railways.

**Vacant Posts is around 1.7 lakh in Railways**
The number of vacant posts on Indian Railways as on date is around 1.7 lakh including 32646 posts reserved for Scheduled Castes/Scheduled Tribes and Other Backward Classes. Filling up the vacancies of reserved as well as unreserved posts is continuous process. Some vacancies always remain due to non-availability of eligible empanelled candidates in the recruitment and promotional grades.

**Germany keen on public-private-partnership [PPP] projects with railways**

Germany and India could co-operate in automobile and transport sectors, German minister for transport, building and urban affairs Wolfgang Tiefensee said. “We have met the Railways and discussed public-private-partnership projects for upgrading the infrastructure of Indian Railways,” Mr Tiefensee told ET during his recent visit to New Delhi.

**Railways Budget 2009-10**

The estimated 14 million passengers who travel by trains in India daily had reasons to cheer on Friday, as Railway Minister Lalu Prasad cut fares by 2 percent, introduced 43 new routes and hiked the planned expenditure for expansion, in spite of the economic downturn that saw lower freight revenues last quarter.

Presenting the interim rail budget for 2009-10 in parliament in his inimitable style, punctuated by light-hearted digs at members of the opposition, Lalu Prasad also announced the extension of 14 routes, an increase in the frequency of 14 trains and additional spending on safety.

He also earmarked a higher plan expenditure of Rs.37,905 crore (Rs.379.05 billion/$7.58 billion) towards expansion next fiscal, against revised estimates of Rs.36,773 crore (Rs.367.73 billion/$7.35 billion) for 2008-09, hoping for higher passenger and freight earnings since January.
Railways to equip AC coaches with eco-friendly technology

As part of its green initiative, Indian Railway plans to equip its entire fleet of over 1000 AC coaches with eco-friendly refrigerant technology by March. So far, Railways have been using CFC-based refrigerant technology which leads to depletion of ozone layer. India, which is a joint signatory to the Montreal Protocol, had set a deadline of December 2010 for phasing out this technology.

Railways keen to get Chinese help on high-speed trains

Indian Railways is planning to get technical support from China to operate high-speed trains along the four high-speed corridors identified across the country, said Union minister of state for Railways R Velu. "Chinese Railways has evinced interest in assisting Indian Railways to operate high-speed trains and also to set up world class railway stations," said the minister who recently led a high-level technical delegation to China.

Inauguration of Construction work on eastern Dedicated Freight Corridor

Construction work of eastern Dedicated Freight Corridor (DFC) will be inaugurated by Chairperson, United Progressive Alliance, Smt. Sonia Gandhi at Rohtas in Bihar tomorrow. The construction of the Eastern corridor will commence on the Sonnagar-Mughalsarai (127 kms.) portion and will be taken up initially on a 105 kms. portion from New Ganjkhwaja near Mughalsarai to New Karwandia near Sonnagar. This portion will be funded by equity from the Indian Railways.

The Dedicated Freight Corridor project on the Western and Eastern routes is one of the most ambitious projects that Indian Railways has ever taken up and once completed would meet the transport requirements of the two busy truck routes. The Eastern corridor from Ludhiana to Dankuni (1801 kms.) will pass via Saharanpur, Khurja, Kanpur, Mughalsarai and Sonnagar and will be single line on the Ludhiana-Khurja portion (426 kms.) and double line on the remaining portion. The Western corridor from Jawaharlal
Nehru Port Trust (JNPT) to Tughlakabad/Dadri (1483 kms.) will pass via Surat. Vadodara, Ahmedabad, Palanpur, Ajmer and Rewari and will be a double-line corridor, except a 32 kms. single line link from the main corridor to Tughlakabad.

**Government okays setting up of railway locomotive factories**

The government has approved a proposal to set up two greenfield electric and diesel locomotive factories in Bihar at an estimated investment of Rs.20 billion (Rs.2,000 crore). The factories will be set up in Madhepura and Saran districts as a joint venture between Indian Railways and an international manufacturer. The companies short-listed for the joint venture include Alstom of France, Germany’s Bombardier and Siemens, General Electric’s Indian subsidiary and EMD of the US. The railways ministry will procure 800 electric locomotives of 12,000-horse power (HP) each and 1,000 diesel locomotives of 4,500/6,000 HP each from these factories over a period of 10 years. These locomotives will also be maintained by the joint venture company over the next 26 years.

- Indo-Asian News Service

**Rail coach factory in Rae Bareli**

UPA chairperson and Congress president Sonia Gandhi launched a Rs.20 billion ($408 million) rail coach factory in her parliamentary constituency, Rae Bareli. 'The rail coach factory will serve the nation's biggest need - creating jobs. As many as 8,000 to 10,000 youths across the country will get jobs once the factory comes up,’ said Gandhi, who earlier arrived in Rae Bareli to launch the rail coach factory that will come up in Lalganj area. The upcoming factory will have state-of-art infrastructure that will be at par with any other rail coach factory in the world, she added.

**Ticket machines at major railway stations soon**

Automatic ticket vending machines are likely to be installed shortly at the busiest principal train stations like Amritsar, Jalandhar, Ludhiana and Jammu in the Indian Railways’ Ferozepur division. A proposal in this regard sent to the New Delhi
headquarters is at the final stages before being approved. The move comes follows the ever-increasing number of passengers visiting stations every day.

**Railways commission computerized passenger reservation facilities**

In its endeavor to improve passenger amenities, Indian Railways have commissioned computerized passenger reservation facilities at 186 locations during the year 2008. Passenger Reservation System (PRS) are now available at 1665 locations on entire Indian Railways. These include Unreserved Ticketing System (UTS)-cum-PRS locations also. In the beginning of 2008, i.e. on 1st January 2008, PRS facilities were available at 1479 locations. On an average, 3.5 crore passengers per month are being booked in PRS with average Passenger Earnings of Rs. 1350 crore per month. On 14th February, 2008 all time high 1.9 million transactions were done in PRS.

Presently Computerized Unreserved Ticketing System (UTS) is available at 1630 locations with approximately 4735 counters as against 950 UTS locations with approximately 3,000 counters as on 1st January 2008.

**Indian Railways freight traffic 606.73 million tonnes**

Indian Railways have carried 606.73 million tonne of revenue earning freight traffic during April to December 2008. The freight carried increases to 34.48 million tonne over the freight traffic of 572.25 million tonne actually carried during the corresponding period last year, registering an increase of 6.03%.

**The Royal Rajasthan on Wheels**

The Royal Rajasthan on Wheels, India's latest and most luxurious train aimed at foreign tourists, left Delhi's Safdarjung station on Sunday. On board were 23 awestruck passengers from US, UK, Belgium and India, along with 29 lucky media persons. The train was on its maiden eight-day tour of Rajasthan and Agra. The new train follows the
stupendous success of the `Palace on Wheels'. It is yet again a joint collaboration between the Rajasthan Tourism Development Corporation (RTDC) and the Indian Railway.

With a total capacity of 82 persons, the train will have 13 deluxe coaches, one super deluxe salon, four service cars and two restro bars. The tariff, put sources has been fixed at 2000 USD per suite per person per night. The deluxe room tariff is 800 USD.

**Railways Introduce ‘Mobile Helpline’**

Indian Railways have taken an initiative to introduce ‘Mobile Helpline’ for the convenience of railway users.

**Railways to invest Rs. 230,000 cr in 11th Plan**

**INDIAN** Railways will invest Rs. 2,30,000 crore under the 11th Five Year Plan which is almost three times the amount allocated in the 10th Five Year Plan, this is disclosed by country’s **Railways Minister Lalu Prasad while presenting the Interim Budget for fiscal 2009-10**. As India’s general election to country’s Parliament is around, the minister submitted the interim budget for first four months of next fiscal. The Railways have deployed their investible surplus of nearly Rs. 70,000 crore earned between 2004-05 to 2008-09 to increase its productivity.

A pre-feasibility study to run bullet train between Delhi and Patna will soon be started. In addition to the bullet train proposals between Delhi-Amritsar, Ahmedabad-Mumbai-Pune, Hyderabad-Vijayawada-Chennai, Chennai-Bangalore-Ernakulam and Howrah-Halida which were announced in 2007-08 Railway Budget. The action for examining feasibility study is already on for these routes.

**Indian Railways plans Rs 37,500 crore investment**

**INDIAN RAILWAYS has taken up biggest ever annual plan for the Railways in fiscal 2008-09 entailing massive investment to the of Rs. 37,500 crore signifying 21 percent increase over previous year.**
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On safety related plan heads, provision has been made for Rs. 3600 crore for track
renewals, Rs. 1520 crore for signal and telecommunication works, Rs. 700 crore for
Road Over Bridges and Road Under Bridges and Rs. 600 crore for manning of
unmanned level crossings. The Railway Minister also sought additional funds to the
tune of Rs. 1712 crore from Ministry of Finance for national projects of Udhampur-
Srinagar-Baramulla, Jiribam-Imphal Road, Dimapur-Kohima, Azra-Byrnihat and
Kumarghat-Agartala new line, Bogibeel Rail-cum-Road Bridge and Lumding-Silchar-
Jiribam, Rangia-Murkongselek gauge conversion.

During the year 2300 km broad gauge lines are likely to be completed. The target for
construction of broad gauge lines in 2008-09 is 3500 km. The construction of new line
between Kakapore and Badgam in the Kashmir valley has already been completed and
the remaining portion in the valley will be completed in 2008-09. Expressing gratitude
to the Hon’ble Prime Minister for deciding the funding of National Projects in the
North Eastern region, through 25 percent funds from Railways Gross Budgetary
Support and balance 75 percent as an additionality, he proposed to create a non-lapsable
Northeast Rail Development Fund to expedite track construction process in this region.

Rs 75,000 cr for line capacity expansion

An investment of Rs.75,000 crore will be made over the next seven years to augment
line capacity on identified routes to create the required capacity for carrying an
additional 310 million tones freight traffic. A blue print on the route-wise detailed study
has been prepared and accordingly, route-wise works would be undertaken in a phased
manner. This would include 124 works of doubling, third and fourth lines, bye-passes,
flyovers, crossing stations, intermediate block stations, automatic signaling works and
yard re-modelling. These works include construction of the Eastern and Western
Corridors and informed that 104 throughput enhancement works, already in progress,
would be completed over the next two years. The entire network would be provided
with Intermediate Block Stations (IBS) by March next year.
**Reduction in passenger fare**

The Railways have reduced passenger fares of various classes while introducing the Railway Budget for 2008-09 in the Lok Sabha today. There will be a reduction of one rupee in the second-class fares of up to rupees fifty for non-suburban mail/express and ordinary passenger trains. The second-class fares of all mail/express and ordinary trains will be reduced by 5% for the tickets costing more than fifty rupees per passenger to benefit long distance passengers. The Railway Minister also announced a reduction in the fares for newly designed. Fare reduction by 2% for the newly designed AC 3 tier and AC Chair Car coaches has also been announced. This reduction will be only half for popular trains and during the peak period. To make the fares for higher classes more competitive, the Railway Minister announced reduction of fares for AC-I class by 7%, AC-2 tier by 4% and. This reduction would only be half for popular trains and during the peak period. With this reduction, the process of rationalization of AC class fares has now been completed. **Source: Press Information Bureau, Ministry of Information and Broadcasting Government of India**

**Some other Problems of Indian Railways:**

1. Lack of national transport policy; 2. Inappropriate or bias policies
3. Lack of national strategy for development; 4. Lack of regional strategy for development
5. Insufficient legal / regulatory basis / licensing; 6. Insufficient capacity to organise in government; 7. Insufficient interest by private companies to organize;
8. Insufficient understanding of market (needs, size etc); 9. Low market potential
10. Poor quality of links in infrastructure; 11. Poor of nodes / interchanges
12. Poor access between modes; 13. Poor transport equipments; 14. Poor handling / transfer equipments; 15. Lack of public investment; 16. Lack of private investment; 17. Low interest by customers; 18. Low level of information available
Solution of railways Problems in nut shell

What should we do?:

- Comprehensive rail transport consultancy
- Design for bulk solids and liquids handling
- Design/sizing of rolling stock
- Solution to special transport problems like over dimensional consignments
- Assistance in repairs to rolling stock
- Traffic analysis, site selection, pre-feasibility, DPR, detailed engineering & commissioning
- Design for track hoppers, decantation systems, conveyors, bagging plants
- Design for automatic loaders, pumping stations, storage tanks & pipeline systems
- Design of hopper wagons, container flat wagons, high capacity wagons
- Design for shunting & flame proof locos
- Movement survey for rail and road and obtaining permission for movement
- Modifications to wagon design
- Problem evaluation & selection of agencies for rolling stock repair
- Quality assurance services and testing of rolling stock
- Modelling & optimisation through finite element method & analysis

Comprehensive rail transport consultancy in handling solid and liquid cargo, design of rail systems and rolling stock, and transport of ultra large consignments.

Resources should be made available:

Thirty three full time experts in planning, engineering and economics.

Latest equipment and software - high speed computers, NISA and AutoCad software, GPS equipment, theodolites, electronic distomats and auto levels.

Projects should be Implemented:

- Bulk handling facilities for urea/ammonium phosphate for IFFCO, FACT, Kochi, India
- Concept to commissioning of coal transportation systems for NTPC, UPSEB, MSEB,
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APSEB, MPEB, India
- Feasibility study, DPR and system design for railway siding for loading cement - JP Bela, India
- Solution for special transport problems - selection and arrangement of special 18/20/24 axle wagons for ODC movement - NTPC, BBMB, BHEL, India
- Design of maintenance facilities for locos and wagons for NTPC, OPGC, SEBs and private firms, India
- Technical specifications, tender documents for procurement of locomotives, wagons, weighbridges, line side equipment and M&P for NTPC, SEBs, OPGC, India
- Preparation of tender documents and technical evaluation for procurement of flame proof locomotives - IOC, GSFC, India
- Study to assess requirements for starting manufacture of diesel hydraulic locomotives - BHEL, India
- Design of special wagon for Defence, India
- Design of low platform container flat wagons for CONCOR, India
- Live monitoring of all freight trains will enable recipients of consignments to get an accurate forecast of cargo arrival
- Analysis of the total demand for rail transport and its logical matching with incoming rakes to optimize the supply of empty rakes for loading
- As reports are available to every one similar types of stock can be clubbed and moved in single trainload formations
- Customer's orders, billing and cash accounting of freight traffic can be done at nodal customer centers, and not necessarily at the handling terminals
- High-end and B2B customers can access FOIS features. Web-enablement of FOIS to help customers with better inventory management and logistics planning
- A complete logistics management ecosystem with real time information on the chain of physical distribution would reduce inventory costs
- Customer database and information system can be maintained.

More general bogies should also be increased in each train.
Few other suggestions

1. Capacity augmentation, especially Delhi-Mumbai and Delhi-Howrah dedicated freight corridors
2. Establishment of logistic parks and terminals
3. Rationalization of freight structures
4. Increased use of IT enabled services
5. World class quality passenger amenities
6. Public-private partnerships for building and 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
10. Still there is a need to give a world wide look to Indian Railways.

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