Private- Public Sector Partnership (PPP) &
Technological Development

Indian Railways is the backbone of the socio-economic growth of India. World's fourth largest rail network and the second largest in Asia, Indian Railways has recently attracted immense global attention due to its successful turnaround to profitability. Indian Railways has been consistently recording impressive growth rates for the last few years. The cash surplus before dividend and net revenue are estimated at US$ 6.17 billion and US$ 4.53 billion, for 2007-08 respectively. This has placed Indian Railways in a much better position ahead of many of the Fortune 500 companies.

India Railway has taken up one of the most ambitious annual plans for 2008-09 with huge investment of about USD 7.91 billion. The plan includes a total budgetary support of USD 1.66 billion that includes USD 163.33 million from the Central Road Fund. This much ambitious plan is eying a massive profits of more than USD 20.447 billion for the year 2008-09.

The Indian Railways has initiated one of the most challenging growth targets for the coming year. This has been claimed on the basis of the most innovative plans and
initiatives thought out by the ministry. Over past few years Indian Railways has remarkably transformed itself to set a bench mark in the global level.

- Increase in income through advertising on all Rajdhani, with the cost of advertising being around US$ 1.26 million per train.

- Introduction of new generation trains that would be fuel-efficient, recyclable and have low-emission to generate certified emission reduction credits.


- Renewal of 44.5 million of PSC sleepers has been set for open line works.

- Technological up gradation and modernization for higher operating efficiency

- Development of PPP envisaged in new routes, railway stations, logistics parks, cargo aggregation and warehouses etc.

- Development of 100 budget hotels with private participation in the vicinity of railway stations.

- Installation of Wi-Fi for providing wireless access at 500 stations.

- Introduction of marketing rights for advertising on railway tickets and reservation charts.

- Establishment of integrated logistic parks on unused lands.

- Development of agri-retail hubs, cold storage houses, multi-purpose warehouses on surplus land with the Railways.

- Training of railway managers to meet future challenges, Indian Railways is planning to set an international management institute in New Delhi.

- Renewal over 2941 kilometres (kms), which will require 3,39,288 tonnes of rail steel, and sleeper renewal over 2382 kms.

- Implementation of Dynamic Pricing Policy, Tariff Rationalization, Non-Peak Season Incremental Freight Discount Scheme, Empty flow Direction Freight Discount Scheme, Loyalty Discount Scheme and Long-term Freight Discount Scheme among others to boost its capacity utilization levels.
The rapid rise in international trade and domestic cargo has placed a great strain on the Delhi-Mumbai and Delhi-Kolkata rail track. Government has, therefore, decided to build dedicated freight corridors in the Western and Eastern high-density routes. The investment is expected to be about Rs. 22,000 crore (USD 4.525 billion). Requisite surveys and project reports are in progress and work is expected to commence within a year.

With increasing containerization of cargo, the demand for its movement by rail has grown rapidly. So far, container movement by rail was the monopoly of a public sector entity, CONCOR. The container movement has been thrown open to competition and private sector entities have been made eligible for running container trains. 14 applicants have submitted the application seeking permission for container train operation, which have been approved.

Rapid economic growth, growing urban population, increasing rural–urban migration, and all-round social and economic development have compounded the pressure on the existing infrastructure, and increased the demand–supply gap in most of the developing world. India is gaining experience about increasing pressure from citizens, civil society, organizations, and the media for providing accessible and affordable infrastructure and basic services.

**Infrastructure and development**

The infrastructure shortages are proving to be the leading binding constraint in sustaining, deepening, and expanding India’s economic growth and competitiveness. It is widely believed that lack of good quality infrastructure is costing India 1–2% growth in gross domestic product (GDP) every year. Good quality infrastructure has been the

*Exchange rate used: 1 USD = 48.9060 INR *)

Content Source: www.ibef.org
main enabler of higher level of economic growth in developed as well as developing countries like USA, Russia, Malaysia, and China. Infrastructure adequacy helps determine success in diversifying production, expanding trade, coping with growing population, reducing poverty and improving environmental conditions.

The importance of sound and efficient infrastructure for sustained economic growth and development is now well recognized in India. Government of India is committed to raising the investment in infrastructure from its existing levels of 4.7% of GDP to around 8%. There are various plans which are laid by the government to develop world class infrastructure in India.

However government is increasingly constrained in mobilizing the required financial and technical resources and the executive capacity to cope with the rising demand for water supply, sewerage, drainage, electricity supply, and solid-waste management. While the infrastructure gap is rising, government budgetary resources are increasingly constrained in financing this deficit. Rising costs of maintaining and operating existing assets, inability to increase revenue and cut costs and waste, and rising constraints on budgets and borrowing, do not allow government to make the required investments in upgrading or rehabilitating the existing infrastructure or creating new infrastructure. India is thus pushed to explore new and innovative financing methods, in which private sector investment can be attracted through a mutually beneficial arrangement. High degree of economic externality in public infrastructure and commercial and socioeconomic risks involved in developing and operating them have made it difficult to appropriate returns from infrastructure investments. The long gestation period of infrastructure projects also requires sustainable financial and operational capacity.

Therefore, there is increasing reluctance in both the public and private sectors to absorb all the costs and assume all the risks of building and operating these assets alone. Since neither the public sector nor the private sector alone can meet the requirements for
Public Private Partnership and its Need

Government of India defines Public Private Partnership (PPP) Project as a project that is based on a contract or concession agreement, between a Government or statutory entity on the one side and a private sector company on the other side, for delivering an infrastructure service on payment of user charges.” These are the long-term contracts between public and private sector for financing, designing, implementing, and operating infrastructure facilities and services.

During the past two decades, PPP has gained increased popularity for development of infrastructure in India. PPP is happening at all levels: Municipal, state and central are the fastest growing vehicle for infrastructure development. Rajasthan, Gujarat, kerela and Andhra have been the early beginners in this field. PPP is becoming the preferred method of infrastructure, starting from transport (roads, railways, toll bridges), education (schools and universities) and healthcare (hospitals and clinics), to waste management (collection, waste-to-energy plants), and water (collection, treatment, and distribution). PPP by no ways reduce the responsibility of government. Government is still accountable for service quality, price certainty, and cost-effectiveness (value for money) of the partnership. The government acts as a facilitator and enabler whereas the private player plays the role of financier, builder, and operator of the service or facility. By way of this partnership the projects benefits from the synergies of private and public sector. The public sector contributes assurance in terms of stable governance, citizens’ support, financing, and assumes social, environmental, and political risks whereas the private sector brings along operational efficiencies, innovative technologies, managerial effectiveness, access to additional finances, and construction and commercial risk sharing.
Issues in structuring PPP

The following are some of the points that should be considered while drafting the PPP framework:

- Proper framework should be developed for risk allocation and risk mitigation
- Credibility of the funding arrangements/payment arrangements should be established
- Fiscal and budgetary implications should be clearly anticipated
- Models for non-distortion subsidy direction have to be created
- There should be a strict adherence of contact by the state
- Contract should be immunized from the changes in the regimes and government
- There should be separation of the responsibility from the actual construction and management.
- Accountants, lawyers, economists, finance specialists should be consulted
- Government should properly define the exercises and workshops
- Cost accounting; reveal information.
- Accounting challenges should be overcome

Advantages of PPP

Several gains can be garnered by going into a PPP:

1. Improved allocative efficiency
2. Higher propensity to be linked to revealed demand
3. Better maintenance and operational management
4. Better design and end use because of involvement of information access rules/laws
5. Inbuilt tendency to increase investments
6. Technological risks can be partly transferred to market
7. High growth situations overrule mistakes if they occur
8. Can smoothen time profile of investments
9. More transparent cost structure
10. Brings government commitment to balance sheets
11. Can bring about enhanced contract adherence

**Identifying Areas for PPP and the best framework**

It is now increasingly evident and accepted that India’s continued economic performance is predicated on significant investments being made in building its infrastructure. The order of magnitude of investments required to sustain existing levels of growth have been pegged at around USD 350 billion over the next few years. So, to cater to this demand, we need to find how to fund such a large requirement of financial resources? Second, how do we ensure that these resources translate into infrastructure assets in an efficient manner? And, three, how do we ensure that, once created, these infrastructure assets translate into high quality services that benefit the economy, communities and ordinary citizens in an inclusive and transparent manner?

Therefore, whilst maintaining the centrality of Government in this process, India must exploit PPPs as a key form of delivery to accelerate development of India’s infrastructure. At the heart of the debate is the need for a focused, efficient and supportive framework of governance. Over the past decade, a large number of projects have been successfully implemented through the PPP format. **Table 1 below** provides details of the number of projects that have been implemented under a PPP framework. Contrary to public opinion, the ownership of assets is less important in these arrangements than the responsibility and obligations for the service to be provided. The role of Government is to ensure that the contracting party satisfies the obligations and fulfils the objectives of the project as agreed. Needless to say, the contours of a PPP contractual arrangement is heavily influenced by the sector, its amenability for...
commercialization, the objectives that are required to be satisfied through the project, the legal, policy and regulatory framework, project specifics including location, design, risks, environmental and social issues, etc. As no two projects are identical, there is a need to “prepare” each project rigorously before being offered for implementation on a PPP basis. As part of the preparation phase, the sensitization of all stakeholders including beneficiaries forms a critical activity. Table 2 below provides details of the number of projects that have been implemented across sectors.

**Table- 2 : Total Projects by Primary Sector and Sub sector**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Sub-Sector</th>
<th>Number of Projects</th>
<th>Total Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>Electricity</td>
<td>63</td>
<td>17,257</td>
</tr>
<tr>
<td></td>
<td>Natural Gas</td>
<td>3</td>
<td>651</td>
</tr>
<tr>
<td></td>
<td>Total Energy</td>
<td>66</td>
<td>17,907</td>
</tr>
<tr>
<td>Telecom</td>
<td>Telecom</td>
<td>34</td>
<td>28,195</td>
</tr>
<tr>
<td></td>
<td>Total Telecom</td>
<td>34</td>
<td>28,195</td>
</tr>
<tr>
<td>Transport</td>
<td>Airports</td>
<td>4</td>
<td>848</td>
</tr>
<tr>
<td></td>
<td>Railroads</td>
<td>2</td>
<td>198</td>
</tr>
<tr>
<td></td>
<td>Seaports</td>
<td>14</td>
<td>1,863</td>
</tr>
<tr>
<td></td>
<td>Toll Roads</td>
<td>50</td>
<td>2,434</td>
</tr>
<tr>
<td></td>
<td>Total Transport</td>
<td>70</td>
<td>5,343</td>
</tr>
<tr>
<td>Water and sewerage</td>
<td>Potable Water and Sewerage</td>
<td>2</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>Sewerage</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Total Water and sewerage</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>172</td>
<td>51,848</td>
</tr>
</tbody>
</table>

**Source :** Private Participation in Infrastructure database, World Bank

It can be seen that today exists a large number of private agencies, domestic and
international, who are willing to participate in these arrangements and there is a substantial level of capacity to undertake projects if offered. It is also pertinent to note that the extent of leverage achieved by Government in these projects could be as high as 10 times. That is, for every one rupee of investment by Government, the PPP arrangement could mobilizes upto Rs 10 for a project.

The preparation of a project for PPP is a critical activity that often decides the fate of a project in terms of reaching successful closure. In the past, a large number of projects offered for PPP by Government were insufficiently prepared resulting in projects not taking off. With experience, in a number of the more recent projects there is evidence of a more rigorous approach to project preparation.

Preparing projects for PPP is more expensive than if projects were prepared for implementation departmentally. The level of detailing in design engineering, assessing its financial viability, contractual framework, project financing, environmental and social assessments, etc, have to rigorously establish the feasibility of the project. In the absence of such rigor, Government will find it difficult to support the project; the bidders will add a hefty risk premium and financing agencies will find the project un-bankable.

Some salient observations in this model have been:

- Prior consultations, visionary leadership, relationship based on trust are triggers of successful partnerships (e.g. Yeshasvini Scheme, Karuna Trust, ASK in contrast to SMS hospital).
- Policies based on prior experiments are more successful (Karnataka, W.Bengal versus Andhra Pradesh and Tamil Nadu).
- Compelling / opportunistic circumstances have been leveraged (e.g. Apollo- Rajiv Gandhi Hospital).
- Obligations more clear for the private partner.
- Partnerships provide earmarked privileges to the poor; however, verification of the authenticity is an operational constraint (e.g. Rajiv Gandhi Hospital & SMS hospital).
AN ANALYTICAL STUDY OF EMERGING ECONOMIC TRENDS OF INDIAN RAILWAYS
SINCE 1998 TO 2008

Analysis of PPP in transport sector Public private partnership in the transport sector in India takes into account a very big sector with subcomponents that have quite different factors affecting it. The PPP model has lead to several positive changes in the Transport sector. However, it still is marred with several shortcomings especially in the railway sector and over privatization in roads.

As a specific case study, let us look at the transport sector in India. India’s road network continues to suffer from low capacity, low coverage, and low quality. 40% of villages do not have access to all weather roads. Only 12% of the national highways are four-lane. The traffic situation in the cities has worsened due to a massive increase in personal vehicles, inadequate city roads, and poor quality of public transport. Airport and seaport infrastructure and train corridors are strained under capacity constraints. Transport demand is characterized with spatially imbalanced growth of transport requirement, Increasing share of road transport, Urbanization, Use of personalized transport, increasing Energy intensity of transport, higher concern for safety, higher sensitivity to environment and public costs, imperative to move towards a supply chain perspective, widening gap between supply and demand for multimodal transport infrastructure and services, Commercial orientation of infrastructure development and need for coordination through the governmental structure.

To couple it, the sector is poised with what is known as the “Transport myopia” which concerns with the four major challenges in front of it:
– Safety
– Wear and tear
– Pollution and environmental impact
--Congestion
The myopic view in the sector can be attributed to:

- Bureaucratic mindset in managing organizations which either have to create, maintain, or deliver “Infrastructure”
- Deep rooted hierarchy orientation leading to additional tensions of administrative cadres often occupying more senior positions than those coming from the technical cadres (e.g. ports and road transport corporations)
- Abdication of authority and lack of perceived authority by the top management (e.g. Indian Railways)
- Immature and “feudal” outlook (Civil Aviation minister being pulled up by Lok Sabha for the delay of a flight in which the speaker and a few other MPs from Andhra were traveling, TOI - 8/8/2000)
- Repetitive examination of issues without any implementation of solution

The existing market environment is quite different from what existed some years back. There is a greater time value of the freight unit or passenger, Need for speedier transport of goods, Need for better distribution networks and warehouse locations, Need for market segment perspective and Demand for improved service performance
Thus the Challenges that face the transport sector are:

- Channelization of investments that have multimodal benefits
- To Introduce competition
- Have accountability and autonomy via privatization
- Unbundling
- Risk management

In view of these challenges, the areas of improvement are:

- Asset creation efficiency
- Asset management efficiency
- Service delivery efficiency and effectiveness

Approach to Transport Infrastructure Development

- Unbundling
- Cherry picking: cross-subsidies and subsidy
- Pricing
- Low investment approaches to improving infrastructure quality and capacity
- Land acquisition and management
- Coordinated inter-sectoral development and centre-state issues
- Common carrier versus captive investment
- Technology issue
- Regulatory framework
- Other substantive “checks and balances”

Thus, a PPP would address the above issues by defining 4 major areas and forming a contract as to how to divide those functions and sub functions between state and the private part

1)
This is mostly done by state

The existing division of various components between the public and private parties is presented in the following figure:
# AN ANALYTICAL STUDY OF EMERGING ECONOMIC TRENDS OF INDIAN RAILWAYS
**SINCE 1998 TO 2008**

## Services

<table>
<thead>
<tr>
<th>SERVICES</th>
<th>Air</th>
<th>Rail</th>
<th>Road</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Right of Way</strong></td>
<td>- NA -</td>
<td>(State controlled) Indian Railways</td>
<td>(State controlled) NHAI, PWD, Urban Administrations</td>
<td>(State controlled) Major Ports - Govt. of India, State Maritime Boards, Port Directories</td>
</tr>
<tr>
<td><strong>Terminals</strong></td>
<td>(State controlled) AAI</td>
<td>(State controlled) Indian Railways, Large Industries for Captive Sidings</td>
<td>(Open to all) SRTUs, Large Industries, Trucking Companies, etc</td>
<td>(State controlled) Major Ports - Govt. of India, State Maritime Boards, Port Directories, Some Private and Captive Ports</td>
</tr>
<tr>
<td><strong>Rolling Stock and Equipment</strong></td>
<td>(Open to all) IA, AI, Other Private Airlines</td>
<td>(State controlled) Indian Railways</td>
<td>(Open to all) Immerse Small scale garages, Large organized work shops for SRTUs, few private sector large workshops</td>
<td>(Open to all) Port Dry Docks, HSL, CSL, Chokhandi &amp; Others</td>
</tr>
</tbody>
</table>

## Operations

<table>
<thead>
<tr>
<th>SERVICES</th>
<th>Air</th>
<th>Rail</th>
<th>Road</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Right of Way</strong></td>
<td>(State controlled) DGCA, AAI</td>
<td>(State controlled) Indian Railways</td>
<td>(State controlled) Police Department in case of high traffic density</td>
<td>(State controlled) Major Ports - Govt. of India, State Maritime Boards, Port Directories, Light House Authority</td>
</tr>
<tr>
<td><strong>Terminals</strong></td>
<td>(State controlled) DGCA, AAI</td>
<td>(State controlled) Indian Railways, Large Industries for Captive Sidings</td>
<td>(Open to all) SRTUs, Large Industries, Transport Companies, Control and State Warehousing Corporation</td>
<td>(Party open) Major Ports - Govt. of India, State Maritime Boards, Port Directories, Some Private and Captive Ports, Stevedores, Agents, etc</td>
</tr>
<tr>
<td><strong>Rolling Stock and Equipment</strong></td>
<td>(Open to all) IA, AI, Private Airlines</td>
<td>(State controlled) Indian Railways</td>
<td>(Open to all) SRTUs, Private Vehicle Owners</td>
<td>(Open to all) SCI, Great Eastern, Essar &amp; Others</td>
</tr>
</tbody>
</table>

## Customer Services

<table>
<thead>
<tr>
<th>SERVICES</th>
<th>Air</th>
<th>Rail</th>
<th>Road</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic Services</strong></td>
<td>(Open to all) IA, AI, Private Airlines</td>
<td>(State controlled) Indian Railways</td>
<td>(Open to all) SRTUs, Private Bus Operators, TCI, Patel Roadways, Forwarding Agents, etc</td>
<td>(Open to all) Brokers, Chartering Agents, Forwarding Agents</td>
</tr>
<tr>
<td><strong>Special Services</strong></td>
<td>(Open to all) IA, AI, Private Airlines</td>
<td>(State controlled) Indian Railways</td>
<td>(Open to all) SRTUs, Private Bus Operators, Tour Operators, TCI, Patel Roadways, Forwarding Agents, etc</td>
<td>(Open to all) Brokers, Chartering Agents, Forwarding Agents</td>
</tr>
</tbody>
</table>
AN ANALYTICAL STUDY OF EMERGING ECONOMIC TRENDS OF INDIAN RAILWAYS 
SINCE 1998 TO 2008

<table>
<thead>
<tr>
<th>Licensing</th>
<th>Air</th>
<th>Rail</th>
<th>Road</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>DGCA</td>
<td></td>
<td>IR</td>
<td>RTO</td>
<td>DG Shipping</td>
</tr>
<tr>
<td>Environmental Impact</td>
<td>DGCA</td>
<td>Department of Environment</td>
<td>RTO</td>
<td>DG Shipping</td>
</tr>
<tr>
<td>Safety</td>
<td>DGCA</td>
<td>CRS</td>
<td>Traffic Police</td>
<td>DG Shipping</td>
</tr>
<tr>
<td>Pricing</td>
<td></td>
<td>Parliament Railway Rates Tribunal</td>
<td></td>
<td>DG Shipping, TAMP</td>
</tr>
<tr>
<td>Service Levels</td>
<td>DGCA</td>
<td>IR, Railway Claims Tribunal</td>
<td>-</td>
<td>DG Shipping</td>
</tr>
</tbody>
</table>

Sectoral issues in public private partnership

<table>
<thead>
<tr>
<th>Sector</th>
<th>Key Issues</th>
<th>Policy Objectives</th>
<th>Private Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rail</td>
<td>- Customer orientation is poor, resulting in reducing market shares. - Freight customers profile changing towards private sector. - Asset utilization has scope for improvement. - Reducing budgetary support and known financial resource avenues.</td>
<td>- Restructure railways to enable proactive private participation. - Increase avenues for resource generation. - Increase asset utilization. - Involve private participation in services. - Increase role in multimodal transport.</td>
<td>- A variety of peripheral examples of private involvement are available. Even in this, not always a true &quot;partnership.&quot;</td>
</tr>
<tr>
<td>Airports</td>
<td>- Growth in passenger and cargo traffic, especially in metro airports. - Location and land acquisition.</td>
<td>- Meet the future growth demands of air traffic. - Overcome congestion at airports. - Upgrade facilities to world-class standards.</td>
<td>- One privately financed airport has been commissioned. - Some airport operations may be privatized.</td>
</tr>
<tr>
<td>Air Services</td>
<td>- Appropriate unbundling of routes. - Safety and maintenance.</td>
<td>- Continue the current policy of open-sky and encourage more players. - Regulate safety with greater detail.</td>
<td>- One major scheduled airline, many air taxi operators.</td>
</tr>
</tbody>
</table>
Private Sector plays a dominant and increasing role in Indian economy. The contribution from the private sector for the Social Development activities has been recognized crucial in developing countries like India. APAC has partnered with Southern Railways for establishing a Counseling and Testing Center at Chennai Central Railway Station.

**Public Private Partnership Schemes**

**Hon’able Minister of Railways says:**

Investments at a much larger scale will be required for the above mentioned capacity and expansion network as compared with the provision made in the Tenth Five Year Plan. The funding of this plan of several lakh crores would require multi-source
AN ANALYTICAL STUDY OF EMERGING ECONOMIC TRENDS OF INDIAN RAILWAYS
SINCE 1998 TO 2008

approach based upon deployment of internal resources, market borrowing, public private partnership and budgetary support. The improved financial performance of the Railways will enable a large share of the financing to be met from internal and external budgetary resources. I am not in favour of blind privatization of the Railways nor is PPP a compulsion or fashion for us. We are seeking partnership with the private sector on the terms that are in the interest of Railways and our customers. For example, by leasing out catering and parcel services we have reduced our catering and parcel losses of more than a thousand crores. We have enhanced our capacity by attracting private investments in the wagon investment schemes and siding liberalization schemes etc. Even while retaining the core activity of train operations, we have awarded licenses to private parties for running container trains, which is likely to attract investment of thousands of crores in wagons and construction of terminals over the next few years. We want to have many more such PPP Schemes where one and one make eleven and not two. Public Private Partnership options will be explored with the aim of modernization of metro and mini-metro stations with world class passenger amenities, development of agro retail outlets and supply chains, construction of multi-modal logistic parks, warehouses and budget hotels and expansion of network and increase in production capacity. We have constituted a PPP Cell which will develop the policy framework to provide non-discriminatory level playing field to investors, prepare the bankable documents and set up the procedure for awarding partnerships through open tendering system.

Indian Railways to invest Rs. 2,00,000 crore during 11th Five Year Plan
And railways to encourage ‘ppp’ model for non core sectors

It has been decided to invest Rs. 2,00,000 crore for the modernization, capacity increase and completion of new projects of Indian Railways during the 11th Five Year Plan. This was stated by the Minister of Railways Shri Lalu Prasad while addressing the students and faculty members of International Business School, INSEAD, during his current visit to Singapore this week. He said that Indian Railways have decided to invite Public Private Partnership (PPP) in the non core sector for setting up of logistic parks, wagon
investment schemes, wagon leasing schemes and also to participate in the setting up of more than 7000 agricultural outlets throughout the country. He said that Indian Railways would encourage the introduction of PPP model for setting up of new factories for production of wagons, coaches and locomotives.

The Minister said that Indian Railways is going to upgrade 26 major railways stations as world class stations throughout the country including four metropolitan cities. There will be separate departure and arrival facilities for passenger to decongest existing crowds at station complex besides other modernized passenger amenities like world class waiting/rest-rooms, multi-level parking, malls etc.

Shri Lalu further said that after earning a surplus of Rs 25,000 crore during the year 2007-08 and with its operating ratio of 76 per cent, the Indian Railway have shown achievement which is much better than several top fortune 500 world companies. He said that after taking new initiatives in freight sector, Indian Railways have carried 238 million tonnes of additional freight and earned more than Rs. 14,000 crore additional freight revenue. In view of the increasing demand for freight and to reduce the congestion on existing railway lines, the Indian Railways have decided to construct Dedicated Freight Corridors. In the first phase, the western corridor from Delhi to Mumbai and eastern corridor from Ludhiana to Kolkata will be constructed and in the second phase, Dedicated Freight Corridor will be constructed to link other parts of the country which would result in bringing out new revolution in the field of rail freight transportation. He said for ‘turnaround of Indian Railway’, the credit goes to its 14 lakh employees who in a team spirit worked with full dedication and made Indian Railways to earn billions despite reduction in passenger fares. The Minister said that this great turnaround was achieved without retrenching any employee and without increasing the passenger fare, rather the fares have been reduced.

Shri Lalu Prasad said that our vision is to make Indian Railways world’s number one railway network and the days are not far away when the Indian Railways will be the best.
railways in the world. The Railway Minister is currently on a week-long tour to Singapore and Malaysia

**Construction of High Speed Passenger Corridor/Freight Corridor**

India is today seen as a rising power in the world. The rapid growth of the economy, rising industrialization and urbanization and unprecedented growth in intercity travel, has opened infinite possibilities for developing high speed passenger corridors. Hon’ble Prime Minister while laying the foundation of the Western Dedicated Freight Corridor had expressed the hope that the Indian Railways would also develop world class passenger systems. Therefore, we have decided to conduct pre-feasibility studies for construction of high speed passenger corridors, equipped with state of the art signaling and train control systems, for running high speed trains at speeds of 300 to 350 kms per hour; one each in the Northern, Western, Southern and Eastern regions of the country. These trains will cover distances of up to 600 kms in two to three hours. All alternatives including Private Public Partnership will be considered for implementation of these corridors. Global warming and changing climatic conditions are a world wide concern today. These energy efficient and environment friendly systems would go a long way in alleviating these concerns.

**48 firms interested in Rs 3,000-crore freight corridor**

Major infrastructure development companies like Larsen and Toubro (L&T), Gammon India Ltd, Punj Lloyd, Alstom Projects India, Afcons Infrastructure Ltd are among the 48 players who have expressed their interest to participate in the Engineer, Procure and Construct (EPC) contract for the 300-km stretch of Kanpur-Khurja section of the Eastern Dedicated Freight Corridor Project of the Indian Railways.
The contract is for commissioning of double track electrified railway lines with signaling and telecommunication system and other related infrastructure for operation of freight trains on turnkey basis on the said route. The total cost of the project is estimated to be Rs 3,000 crore.

The request for proposal (RFP) for the project is expected to be invited by August 2008 after selecting the suitable contractors on the basis of their technical and financial capability. Dedicated Freight Corridor Corporation of India Ltd (DFCCIL), which is overseeing the implementation of the project, hopes to award the final contract for the work by October 2008.

The Bhaupur-Mandrak section on the Kanpur-Khurja route is the first stretch on which the process for the construction work has been initiated out of the entire 2,700-km-long dedicated freight corridor comprising the Eastern Corridor from Sonnagar to Khurja and Western Corridor from Dadri to JNPT. The total cost of the entire project is estimated to be Rs 28,121 crore.

During February 2008, DFCCIL received approval from the Union Cabinet for starting the work on both the corridors. Sources in DFCCIL said that the process of construction work on this stretch was initiated first because of the availability of sufficient land with the Indian Railways. On the remaining portion, land acquisition is pending.

Railways require around 25,000 hectares of land for the construction of the whole corridor. Of this, railways are in possession of around 15,000 hectares and the remaining 10,000 hectares will have to be acquired. Sources in DFCCIL said that the land plans will be finalised by August 2008 and around 60 per cent of the required land was expected to be acquired by March 2008 and the remaining by a year and so.
World Bank team to assess Indian Railways' eastern freight corridor project

A six-member World Bank team will hold discussions with Indian Railways about the funding requirements for the ambitious dedicated eastern freight corridor project. Indian Railways, which has approached the World Bank for funding the Rs12,000 crore eastern dedicated freight corridor (DFC) project, will present a detailed report of the plan to the visiting team, as there are certain World Bank guidelines which need to be adhered for receiving any fund, a railway ministry official said.

While the World Bank team will be in New Delhi on 14 July, another delegation from Japan Bank for International Cooperation (JBIC) will also visit India tomorrow to assess the engineering and environment aspect of the western corridor of the dedicated freight corridor.

JBIC is expected to fund the 1,483 km long western freight corridor project estimated to cost about Rs16,000 crore. The DFC to be commissioned as part of the long term railway strategy aims at separating freight and passenger corridors. The corridor will be used exclusively for operating freight trains at a maximum permissible speed of 100 kmph.

All the procedures including land acquisition, compensation, tendering process, procurement involved in the eastern freight corridor are expected to be discussed with the World Bank officials during their visit, said the official.

Production of Rail Wheel Rolling Stock/ Modernization and Capacity Augmentation

In view of the demands of growing traffic, along with expansion of network, availability of rolling stock will be increased through effective utilisation of available rolling stock, technical upgradation and modernisation and by setting up new production units. During the 11th Five Year Plan production of rolling stock will be
doubled as compared with the previous Plan. Capacity of existing rail coach and loco production units will be enhanced through expansion of these units.

**Rail Wheel Factory (Indian Railways)**

**Rail Wheel Factory** (RWF) at [Yelahanka, Bangalore](#) is a premier manufacturing unit of Indian Railways, which is engaged in the production of wheels, axles and wheel sets of railroad wagons, coaches and locomotives for the use of the [Indian Railways](#) and select overseas customers. It was commissioned in 1984 to manufacture wheels and axles for the Indian Railways. The plant has many unique and modern features incorporating state of art development in technology and designs. For example, the civil engineering structures are planned on with modern architectural concepts; the cast steel technology used in the manufacture of wheels uses the scrap steel collected from Railways own workshops as raw material, the end products (the wheels, axels and wheel sets) are precisely engineered with little scrap for human errors; rigid quality control and latest MIS for production planning and control. It has a planned capacity to manufacture 70,000 wheels of different sizes, 23,000 axles and to assemble 23,000 wheel sets. It employs over 2000 personnel and has an annual turnover of about 82 crores. It is an ISO 9001: 2000 and ISO 14001 certified unit for its business processes. It has claims to the best productivity figures among comparable industries. It has a very high level of automation in its manufacturing facilities and has an enviable information technology set up.
Rail Wheel Factory is located at Yelahanka, a suburb of the Garden City of Bangalore, which is the political and industrial capital of the State of Karnataka. The Plant is situated at a distance of 16 Km from the city center.

Details of the land and plant area are as follows:

**LAND AREA** The Rail Wheel Factory extends over an area of 117.77 hectares.

<table>
<thead>
<tr>
<th>Area</th>
<th>Hectares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant Area</td>
<td>77.30</td>
</tr>
<tr>
<td>Colony area</td>
<td></td>
</tr>
<tr>
<td>East Colony</td>
<td>13.36</td>
</tr>
<tr>
<td>West Colony</td>
<td>27.11</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>117.77</strong></td>
</tr>
</tbody>
</table>

**RWF ORGANIZATION**

The General Manager heads the plant. He is assisted in discharging his functions by functional heads of Mechanical, Finance, Stores and Personnel departments. Till early 1980s, Indian Railways were heavily dependent on imports for meeting their requirement of wheels and axles. Indigenous capacity was available only in Tata Iron & Steel Company (TISCO) and Durgapur Steel Plant (DSP). The TISCO plant was technically not capable of meeting the changing requirement of wheels and axles for the new designs of rolling stock. The performance of DSP was quite indifferent and this plant was only able to partially meet IR’s needs.

The Planning Commission sanctioned the Rail Wheel Factory project in 1978 at a cost of Rs. 146 crores. Trial production commenced during 1983. Late Smt. Indira Gandhi, then Prime Minister of India, formally commissioned the plant on 15th September 1984. This plant is very energy intensive. The electricity consumption is around 90 lakh units per month with contract demand of 31.7 MVA with a recorded maximum demand of about 23.75 MVA. Out of 90 lakh units, about 55 lakh units are consumed in Electric Arc
Furnace and the rest of the energy is being consumed in other areas of the plant. The monthly electric bill is about 3.65 crores.

The plant started production with a single type of wheel & wheel set and six types of axles. Over a period, the plant widened its scope to produce products suitable for all gauges viz. Broad-gauge, Meter-gauge and Narrow gauge – 11 types of wheels, 9 types of axles and 5 types of wheel sets. Till July 2005, RWF has so far manufactured 15,17,000 Wheels, 8,02,000 Axles and 5,84,84 Wheel sets for Indian Railways, wagon building industry and export.

PRODUCTION PERFORMANCE

Production performance in terms of quantity and value over the last three years has been as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Wheels</th>
<th>Axles</th>
<th>Wheel Sets</th>
<th>Production Value (Rs. Crores)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Target</td>
<td>Actual</td>
<td>Target</td>
<td>Actual</td>
</tr>
<tr>
<td>2002-03</td>
<td>1,00,716</td>
<td>1,01,554</td>
<td>40,754</td>
<td>43,322</td>
</tr>
<tr>
<td>2003-04</td>
<td>1,09,600</td>
<td>1,10,407</td>
<td>49,925</td>
<td>50,513</td>
</tr>
<tr>
<td>2004-05</td>
<td>95,081</td>
<td>95,125</td>
<td>48,000</td>
<td>49,502</td>
</tr>
</tbody>
</table>

MANUFACTURING PROCESS AT A GLANCE

Rail Wheel Factory manufactures wheels, axles and wheel sets.

1. Wheel Manufacturing process

Wheel manufacturing facility was set up in RWF with complete technology transfer from M/s. Griffin Wheel Company, which is a subsidiary of Amsted Industries USA. The parabolic / deep-dish design of wheel developed by M/s Griffin is a low stress wheel with the advantage of
a high strength to weight ratio. M/s Griffin’s patented process of Controlled Pressure Pouring is used for wheel casting. The technical support from M/s Griffin continued till 1991. Thereafter, RWF is independently pursuing manufacture and technological improvements, including development of new designs of wheels. The Plant utilizes Railway scrap as raw material. The scrap is melted in three Electric Arc furnaces. The chemistry of the molten metal is precision controlled using Computerized Spectrometers. This enables precise control of steel composition during steel making for obtaining optimum metallurgical characteristics needed for tough service and long life.

The casting is done in graphite moulds, which are precision-machined using forming tools. This ensures that all wheels are cast to the same dimensions and tolerances. The Controlled Pressure Pouring Process is employed for casting. The molten metal ladle is placed in a chamber and sealed with an airtight cover. A ceramic pouring tube is attached to the cover. Compressed air, forced into the chamber, pushes the steel up through the pouring tube and into the graphite mould positioned over the tube. The steel fills the
mould from bottom to form the wheel. As the steel is forced into the mould at a controlled rate, the wheel is cast to extremely close tolerances.

2. Axle manufacturing process

Axles are manufactured from billets cut from blooms supplied by reputed indigenous Steel Plants. The billets are heated in a Rotary Hearth Furnace to forging temperatures. They are then forged on a Special Purpose Long Forging Machine having multiple hammers. The long forging machine was procured from M/s. GFM, Austria. The machine is capable of forging axle to close tolerances in one-heat shaping in under 5 minutes. The forged axle is gas cut to required length, number stamped and then heat treated under controlled conditions to obtain axle forgings meeting the desired metallurgical and physical properties. Two years back, the Long Forging Machine was upgraded with Computerized Numerical Controls for better precision and quicker set up changes for forging a variety of axles of different designs.

The forged axles are machined on a battery of Farrell machines supplied by M/s. HMT Ltd, India. The operations include end machining, rough turning and finish turning which are carried out on hydraulic copying lathes, multiple operation axle machining centers and grinding / burnishing machines. A concept of integrated engineering has been adopted for handling and transfer of axles from machine to machine, which facilitates the flow of axles. All axles are subjected to ultrasonic testing and magnetic particle testing for ensuring zero defect products of the highest quality.

3. Wheel set Assembling Process

The assembly of wheel sets is done on a highly automated Wheel Assembly Complex. The wheel seat size of the axles is measured on an automated measuring unit and the
dimensions are transferred to two wheel borers. Paired wheels are custom bored as per the wheel seat size to get correct interference fit. The wheels are then pressed on the axle in a 300T Farrell Wheel Press. The Wheel Press Complex is capable of pressing 180.

A new Wheel Assembly Complex, with a capacity to produce up to 300 wheel sets per day, has been procured from M/s. Simmons Machine Tools Corporation (SMTC), USA. The new complex is under pre-commissioning checks and trials.

**Electrification, Technological Up gradation and Modernization**

Electrification was first introduced on IR in 1925 with 1500 Volts DC and was subsequently extended by installing 3000 Volts DC system. In 1957, IR introduced electrification on single phase 25 kV system for all future schemes. With the completion of electrification of Kolkata-Chennai route in December, 2005, the golden quadrilateral with double line is now fully electrified. Electrification of Mumbai-Chennai route is in progress. During the X Plan, upto 2005-06, 1,449 route kms. have already been electrified against the plan period target of 1,800 route kms. The progress of electrification in IR over the plan periods is as under:
Thus, about 27% of total route kms. is under electric traction as on March 31, 2006. During 2005-06, a total of 170 route kms. were electrified as under:

<table>
<thead>
<tr>
<th>Period</th>
<th>Route kms. electrified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upto 1985</td>
<td>6,440</td>
</tr>
<tr>
<td>VII Plan (1985-90)</td>
<td>2,812</td>
</tr>
<tr>
<td>Annual Plans (1990-92)</td>
<td>1,557</td>
</tr>
<tr>
<td>VIII Plan (1992-97)</td>
<td>2,708</td>
</tr>
<tr>
<td>IX Plan (1997-02)</td>
<td>2,484</td>
</tr>
<tr>
<td>X Plan 1st year (2002-03)</td>
<td></td>
</tr>
<tr>
<td>2nd year (2003-04)</td>
<td>455</td>
</tr>
<tr>
<td>3rd year (2004-05)</td>
<td>504</td>
</tr>
<tr>
<td>4th year (2005-06)</td>
<td>320</td>
</tr>
<tr>
<td>Total (as on March 31, 2006)</td>
<td>17,450</td>
</tr>
</tbody>
</table>

| Source | INDIAN RAILWAYS ANNUAL REPORT AND ACCOUNTS 2005-06, p26 |

The electrified network will be extended over the Golden Quadrilateral and its diagonals, and in all directions from Kashmir to Kanniya Kumari and Guwahati to Amritsar by the end of the 11th Five Year Plan. Electrification of Thiruvananthapuram-Kanniya Kumari, Thrichur-Guruvayur, Tiruchirapalli-Madurai, Barabanki-Gorakhpur-Barauni-Katiyar-Guwahati and Jalandhar to Baramullah sections will be completed during the 11th Five Year Plan. In the first phase, electrification of Jalandhar-Jammu, Barabanki-Gorakhpur-Barauni and Tiruchirapalli-Madurai sections are proposed to be taken up in 2007-08. Similarly, doubling and electrification of Pune-Wadi-Guntkal and electrification of Daitari-Banspani, Haridaspur-Paradeep new lines will be undertaken by Indian Railways’ Public Enterprise RVNL in the coming years.
Modern Facility in Passengers Trains

The policy agenda for the 11th Plan includes, augmenting capacities to move containers from ports in order to avoid their pile up at ports. Allowing container movement by competing public and private entities, establishment of logistic parks and terminals has been placed on agenda. Further rationalisation of freight structures and increased use of IT-enabled services have also been proposed. PPPs for building and operation of rail infrastructure have been proposed. Modernisation of railways at increased speed is identified as a priority in the 11th Plan. Re-organising the structure and activities of railways, by corporatising manufacturing and maintenance of rolling stock and leaving the core activities of provision of infrastructure and operation with railways is envisaged during 11th Plan period.

The following passengers’ services are provided by Indian Railways:

- Passenger fares have been reduced by 5 per cent for sleeper class as well as second-class, while fares for AC I, AC-II and AC-III have been cut by 7 per cent, 4 per cent and 3 per cent, respectively.

- Senior citizens above 60 years of age will now get a 30 per cent discount, while women above 60 years would get a 50 per cent discount. (See: Passenger fares reduced)

- Petrol and diesel has been cut by 5 per cent, and Fly ash by 14 per cent. The highest freight rate classification has been cut to 200.
He said that in the last five years the departmental undertaking had made a combined profit of Rs68,778 crore and paid the government a Rs15,000-crore dividend to the government during the term of the government.

Among the traveler amenities that the Indian Railways plans to introduce, Yadav said the Go-Mumbai Card / Smart Card facility for easier ticketing for commuters would be launched shortly to, among the steps to remove the endless wait at booking windows at railway stations in the next two years. Besides, there will be an increase in ticketing counters to 15,000 in the next two years from the current 3,000 now. The number of auto ticket-sale machines would go up by 6,000 in the next two years.

The minister also said that the railways would leverage the telecom infrastructure to enable telephonic ticket booking and said that booking tickets through mobile phones had already started. Moreover, all long distance trains would be equipped with on-board indicators displaying information on the distance and time of approaching train stops.

For the convenience of commuters 50 major stations across the country will have lifts and escalators, while 30 bigger stations would have multi-level parking system. He also said that the railway ministry would run a Mother-Child Healthcare Express jointly with the Rajiv Gandhi Foundation.

**Passenger Service Improvements:**

Railways are the premier mode of passenger transport both for long distance and suburban commuter traffic. Despite severe operational and resource constraints, IR introduced 178 trains (single), extended the run of 105 trains (single) and increased the frequencies of 28 trains (single) for non-suburban passengers. For suburban/local passengers, Railways introduced 46 trains (single) and extended the run of 35 trains (single). Besides, during the year, IR introduced 30 DMU/DEMU, 6 MEMU and 6 rail bus services. Moreover, the run of 6 DEMU/MEMU services were extended.
Ticketless Travel:
During 2005-06, 14.12 lakh checks were conducted against ticketless/irregular travel (including cases of unbooked luggage). About 119.07 lakh cases were detected and Rs.233.11 crore realised on this account.

Passenger Amenities:
The allocation under the Plan Head “Passenger and Other Railway Users’ Amenities” was Rs. 273.54 crores for 2005-06.
In order to provide upgraded passenger amenities at stations, 319 stations have been identified for development as Model Stations till 2005-06 out of which 110 stations have been developed already. Some of the thrust areas identified for improving passenger amenities are as follows:

- To improve standard of cleanliness at stations, a number of initiatives have been taken including introduction of mechanized cleaning, provision of washable aprons, ‘Pay and Use’ toilets, etc. Under the Integrated Railway Modernization Plan (2005-10), it is planned to extend mechanized cleaning at 250 ‘A’ and ‘B’ category stations by 2007-08.
- Integrated Train Enquiry System (ITES) has been set up at Patna and Bangalore to improve telephone enquiry system. The system consisting of both Interactive Voice Response System (IVRS) and manual interface provides details of accommodation availability, current status of tickets and status of running trains on dialing number 139 as a local call from anywhere in India. Other parts of IR will soon be covered by this system.
- Tatkal reservation has been extended to almost all mail/express trains and in all classes excepts first class and air conditioned first class.
- With a view to optimize the utilization of available accommodation in trains, a scheme to upgrade full fare paying passengers to the higher class against the available vacant accommodation has been introduced in all mail/express trains having sleeping accommodation. During the year, 24 more stations were provided with water coolers and another 102 stations were electrified.
Passenger Reservation System (PRS) has been increased to 1,315 locations in the year 2005-06 as against 1,180 locations in the last year. Similarly computerised Unreserved Ticketing System (UTS) was made functional at 589 locations during 2005-06.

**Coach upkeep:**

498 old coaches were given mid-life rehabilitation. Improved flooring had been provided in all coaches of mail and express trains.

Further, every coach is being provided with improved flooring at the time of overhauling. Bogie mounted air brake system had also been retrofitted in the existing coaches. 860 coaches were retrofitted with enhanced capacity screw coupling and draft gear. Stainless steel trough flooring had also been provided in 305 coaches including EMUs.

**Clean Train Station Scheme:**

In order to bring about a quantum jump in en route cleaning of trains, a new scheme “Clean Train Stations” has been developed in which mechanized cleaning facilities are being provided at selected stations en route on the entire Indian Railway network to ensure effective cleaning of coaches and toilets within.

**Catering Services:**

During 2005-06, catering facilities were provided through 257 pairs of trains and 11,319 static catering units. There are 52 departmental catering units under zonal railways and 1,621 under Indian Railways Catering & Tourism Corporation (IRCTC). Privately-operated catering units on zonal railways and under IRCTC were 3,671 and 5,975 respectively.

Facilities are being developed to meet the pressing requirements of passenger for good quality food and simultaneously enhancing railway’s revenue by introducing the concept of food plazas at stations. By the end of 2005-06, 36 food plazas were operational. The sales turnover of the departmental catering units during 2005-06 was Rs.176.11 crore. Licence fee realised from catering/ vending contractors amounted to Rs.84.16 crore in 2005-06.

Thus, it can be concluded that various measures to improve the passenger amenities were proposed in the Budget. For termination of queues at ticket counters in 2 years time, substantial increase was announced in UTS counters and ATVM, ticket booking on...
mobile phones and extension of e-ticket facility to waitlisted passengers, issuing of season ticket and platform ticket on Smart Card through PPP. The budget has also announced several other measures such as provision of dischargefree green toilets in all coaches in the XI Plan period, increase in height of platforms, provision of platform shelters, foot-over bridges, up-gradation of coaches with stainless steel bogies in mail/express trains and provision for electronic display board for specific information.

**Railway Safety, security, welfare and Medical facility**

The core values of the Indian Railways (IR), which are uniquely inappropriable and sustainable, include safety apart from security, punctuality and reliability. The constant endeavour of the Indian Railways is to become the leader in the nation's transportation sector by providing **modern, reliable, safe, customer-led** and **customer -focussed** services to the nation.

The demand for introduction of additional passenger services and other facilities on regional considerations is becoming stronger day-by-day. Demands for new lines in underdeveloped and economically backward areas, though financially not viable, would continue to be made. The main area of concern is safety. With rising awakening of rights, demand for higher safety in travel is bound to increase in near future. Increased rail-road interface at the level crossings, both manned and unmanned, makes them potential accident spots. The continuous increase in the growth of rail traffic on saturated high density corridors would require lesser dependence on human beings and greater technological support for the train operating staff for ensuring public safety.

The Indian Railways have one of the largest skilled, dedicated and qualified pool of professionals in the country. The rail sector is superior to other modes in terms of safety, environmental and noise pollution, energy consumption and land requirement. Public expects very high standards of safety from the Railways.

The Indian Railways, at their own initiative, have been periodically getting the system reviewed and scrutinised for safety performance. During the last four decades, four
Safety Review Committees have investigated the deficiencies and suggested reforms for improving safety of the system. Railway Safety Review Committee (RSRC 1998), headed by Justice H.R. Khanna, retired Judge of the Supreme Court, was the last one in the series.

**Railway Safety Review Committee** (1998), in Part-I of its report recommended, inter-alia, that Railways should formulate a Safety Plan. It says:

"Railways should immediately make out a Comprehensive Corporate Safety Plan which will clearly state:

- Safety policy/objectives & strategies for achieving them
- Unambiguously enunciate basic tenets & requirements of safety
- Prioritize safety-related works and indicate timeframe, investments proposed, and set benchmarks for safety achievements" (Para 2.26.4)

On Safety Projects, RSRC recommended inter-alia:

"Decisions on safety projects should cover the items completely in all aspects like funding, time-schedules, actions, accountability etc. over several years" (Para 2.3.1)

**Major issues**

The Corporate Safety Plan, as recommended by the Khanna Committee, is proposed to cover:

- Items to be implemented in order of priority
- Laying down the timeframe for achieving them
- Defining different managerial responsibilities
- Investments required to complete the safety-related works

Expectations on the safety front are becoming more demanding and stringent. Risk levels of earlier times are no longer acceptable by the people. Therefore, safety environment on
the Indian Railways cannot be viewed in isolation. It has to be seen as part of not only the
IR system, but an interwoven segment of social ethos. Good management, improved
work culture, meticulous planning and prudent financial management are necessary to
enhance the safety standards on the system.

The goals to be achieved to enhance safety on Indian Railways are:

- To make railways more reliable and a safer mode for transportation of men and
  material
- To stimulate the implementation of modern, proactive and systematic safety
  measures
- To bring about both qualitative and quantitative improvements in safety
  performance
- To encourage safety research and development
- To reduce consequential train accidents

Need for Safety Culture

Safety is an ethos that should pervade all activities of railway operations and
maintenance. This ethos has to be instilled and nurtured. It is not an attribute that is likely
to be evident merely because rules are reiterated or instructions issued. The concern for
safety has to be all pervasive in the functioning of the Indian Railways.

Responsibility for ensuring safety is entirely of different departments and their
accountability in this regard cannot be diluted. The safety organisation has essentially to
be a co-ordinating service department helping the concerned departments to discharge
their safety functions effectively.

Changes in policies pertaining to recruitment, training and redeployment taking into
account modern developments and ensuring a code of conduct for safety staff will be the
thrust areas in the Corporate Plan period. The safety organization will also be involved in
investment planning for safety-related works. A safety action plan based on defined and
acceptable levels will be prepared and its implementation will be the joint responsibility of the executive departments concerned and the safety wing.

Although statistically, the Indian Railways performance has been steadily improving and it has remained one of the safest modes of transport; yet a few serious accidents resulting in loss of life have affected the public perception about railway safety. The Khanna Committee made a number of recommendations relating to technological upgradation, institutional changes and investment planning which need to be acted upon.

The Corporate aim of the Indian Railways is to commit itself to ensuring that all its activities are managed to the highest level of safety which is pragmatic and reasonably practicable to achieve. Though the Railway Board retains the ultimate responsibility for ensuring safety, yet it has to be discharged through zonal railways and divisions. To see that adequate safety management systems are in place, the Railway Board will have to continue to measure how effectively individual zonal railways are managing the affairs as far as safety of travelling public and infrastructure is concerned.

Areas to be covered

Following areas have been identified, being of particular importance, for which targets are to be laid down :-

(a) Passenger safety  
(b) Road users safety  
(c) Quantitative reduction in accidents  
(d) Improving asset reliability  
(e) Prompt rescue and relief operations

Each Zone and Division is required to identify safety risks, particular to its business and will have to prepare a detailed action programme to ensure that the standards of safety are improved.
The Plan, inter alia, involves administrative decisions, policy directives, induction of safety equipment and acquisition of safety materials. It also aims at reduction of passenger casualties, road users casualties, enhancement of human resource development, revision and modification of rules and efforts to curtail and contain asset failures etc.

**Implementation**

The timeframe of many activities cannot be legislated absolutely as it would depend on the quantum of work involved for implementing it over the entire Indian Railways and availability of funds. The project-wise requirement of funds may undergo changes on periodic reviews. Actual fund allocation for each safety project would also depend on the inter-se priority of the project and the total fund availability in a particular year.

The actual implementation of all safety projects would generally be done route-wise with `A' and `B' routes to be taken up first and `E' and `E Spl.' routes lastly; except in case of level crossings, where the works would be taken up on basis of volumes of traffic on the rail-road intersections.

The investment priorities will have to be decided on the following considerations:-

- Rehabilitation, renewal and replacement of assets
- Safety works and their prioritization
- Modernisation and technological upgradation
- Capacity generation

Most of the arrears of renewals are proposed to be liquidated in a phased manner over a period of 5 years through Special Railway Safety Fund. All fresh arisings of renewals are proposed to be liquidated through the Depreciation Reserve Fund by making adequate provisions. The decision on any safety project will cover the items completely in all respect, like funding, time schedules, and accountability, etc. over the entire duration of the project.
The main principles for operational safety will revolve around efforts to identify and develop appropriate methods and implement the same for reducing the risks associated with human interface in operations. Similarly, the IR would strive to reduce the risks associated with rail-wheel interaction.

Concerns

Finally, absolute rail safety is a concept that cannot be traded off with any consideration. Risk is an element of everyday life of every transportation mode. To eliminate accidents altogether would mean enormous investments and possibly unacceptable counter-measures. However, the primary aim of achieving higher standards of safety is to achieve zero-tolerance to all risks. Although the collated safety data indicate the improving safety standards on Indian railways, continuous efforts are to be made to improve it further with optimum utilization of technology, funds and allied resources. The Corporate Safety Plan (2003-2013) is prepared with this broad objective.

The Safety Plan, as the long-term safety blueprint, prepared on the 10-year strategy, is generally based on the Railway Safety Review Committee's recommendations and the major items brought out in the White Paper on Railway safety. The plan envisages key areas like reduction of collisions, derailments, level crossing mishaps, fire in trains, signal passing at danger, trespass and vandalism etc with the objective of achieving reasonably higher standards of safety on Indian railways.

**Safety Plan Objectives:** The Safety Plan will have the following broad objectives:

A. To achieve reduction in rate of accidents per million train kilometers from the present level of 0.44 to 0.17 by the year 2013

B. Implement measures to reduce chances of passenger fatality substantially in consequential train accidents by 2013
C. Focus on development of manpower through major improvements in working environment and training to reduce the accidents attributable to human failure by 40% by 2013

D. Achieve safety culture on all fronts including maintenance depots, worksites, stations, controls etc

E. Progressively achieve an environment of "Fail-proof" from the present "Fail-safe" system of asset failures by upgrading the systems by 2013

F. Prioritization of safety related projects

G. Implementation of accepted recommendations of RSRC at an accelerated pace

The following requirements would need to be met to achieve these objectives:

- Safety should take priority over other considerations.
- Responsibilities should be clearly assigned.
- Every railway zone should introduce clear safety management plan.
- Qualitative changes should be brought about in the human resource development

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