CHAPTER-IV-

RAILWAY FINANCIAL FORECAST & ALTERNATE MEANS OF FINANCING INFRASTRUCTURE.

STRATEGIC HIGH GROWTH FINANCING PLAN

Unlike other infrastructure services, IR is primarily a commercial activity and users are always charged for the service provided. The demographic changes and rising income of railway users will continue to provide a stream of revenue that can finance that cost of service. The renewal arrears and safety works have to be funded upfront, before railways reach the stage where decisions to add new capacity and extension of network are based purely on demand and commercial viability of projects.

Guiding Principles and Constraints to the Funding Plan

The guiding principle of a probable rollout plan has been to minimize cost of funds to IR. The funds are required for capital investments not only to achieve requisite growth of an on-going concern but also to achieve turn-around from a financially distressed condition of IR into a vibrant commercial organization capable of raising funds on its own on the strength of its balance sheet.

To achieve this task, it was decided that the rollout plan must meet all financial obligations. The capital restructuring of IR has played an important role here. It has been assumed that the government as sole creditor of the restructured preference capital and debt can afford repayment over a long period of time. The redefined financial obligations and liabilities are to be paid over a longer period that the model time horizon since IR is expected to continue operating indefinitely. The merger of IR with IRFC is bound to swell debt obligations of the balance sheet of the combined entity. None-the-less, all market obligations must be honoured. The rationale behind this is that the financial condition of the

government will not permit it to write-off all or part of the debt. Moreover, as IR demonstrates that it is able to honour all its financial obligations, confidence among lenders and investors will grow.

The second principle followed is to redeem existing debt as soon as the railways turn the corner and start retiring preference capital soon after internal cash generation is sufficient to meet capital expenditure and other financial obligations. There would then be no need to have further injection of preference capital from the government. The rationale behind this is to reduce dependence on government funding and to illustrate that preference capital is required for the medium term only. This is to demonstrate that in the post-turn-around phase IR financial structure is comparable to that of any large infrastructure organization that is capable of attracting equity capital from private investors.

The third principle which was adhered to was to follow a conservative but prodent approach of not taking credit of any money which may accrue from complex restructuring deals or innovative financing options. This is because there are both revenue and operational expenditure implications with such options. This also underlines the fact that these options are more in the nature of improving functional efficiency of IR rather than construed as finance raising options. This also underlines the fact that these options are more in the nature of improving functional efficiency of IR rather than construed as finance raising options. Undoubtedly, any commercial organization including railways will have a dynamic business plan to de-risk its balance sheet and maximize benefits for its stakeholders. The Group has not attempted to anticipate the details of such financing options. By choosing plain debt financing to fund IR restructuring plan our estimates of funds requirement are set at the extreme. In the Expert Group view, it is advisable to follow financial conservatism and orthodox methods for funding such a large capital expenditure, especially in the first five years.

The roll-out plan exhibited can be seen to be a schematic demonstration of one feasible financing plan. Fund requirements broadly match in-flow and out-flow of funds to demonstrate that investment requirements can be met within existing institutional and market constraints. The adherence of these principles has limited the options available to raising funds from the domestic debt market, which itself has many instruments for raising funds. However, investment needs of IR are so large that they cannot be met through one debt instrument alone as the market for each instrument is shallow. The IR own supply of debt instruments can be an influencing factor in pricing of the instrument. Hence, the rollout plan has used many instruments available in the market in addition to matching revenue growth expected from the capital investment after a few years.

In a financing plan for any business (including IR), there are two critical issues to be considered :

* The ability of the business to service debt IR has very limited cash available for the first seven years (in fact, if generates none itself and receives subsidy from GOI), j so a zero coupon bond would be logical.
* the depth of the market to which an instrument is addressed j there is a great deal of capacity in the Indian debt market for plain vanilla 5, 7, or 10 year PSU bonds. By contrast, there is only a small market for more sophisticated bond structures. But, both markets exist and to maintain price competition and cost diversity, IR (like any other business) should endeavour to utilize each market to some extent.

Annual Fund Requirements of IR

On an average, in the last three years, revenue from passenger and freight services achieved growth rates in real terms of 8.2 per cent and 6.2 per cent respectively. In the financing model we have assumed that revenue from passenger services will increase from 7 per cent to 9 per cent in three years time and keep growing at this rate thereafter. Main components of this growth rate will be expansion in capacity, especially in higher classes, natural increase in demand for passenger services on the existing golden quadrilateral and connectivity with other rapidly developing metropolitan.

Freight services are already priced at high levels and railways have been losing some valued customers. The restructuring plan aims to reverse this trend. Hence, in line with the economic rationale given we have assumed that growth in freight revenue in real terms, will gradually increase from 3 per cent to 7 per cent in the first five years. As railways transform their freight business on the lines of a logistics and supply chain management company that is responsive to consumer needs, the revenue growth will continue at the rate of 7 per cent per annum from the fifth year. After the tenth year it will stabilize at the rate of 6 per cent per annum. This is almost double the long run rate of growth but less than the expected freight growth rate of 9 per cent assumed by the Planning Commission [Draft Integrated Transport Policy by Planning Commission (2000)].

Revenue from other coaching, though proportionately small, will rise faster than the freight revenue as majority of this revenue comes from small quantity of freight carried in brake-vans of all passenger trains. As these coaches have to be attached to all passenger-carrying trains as safety measures, this capacity can be profitably utilized through private operators. Overall revenue growth in the first two years increases marginally, but accelerates in the next three years as renewal arrears and safety works get completed.

Scheme of the Financing Plan

The schematic plan elaborates on the Expert Group conviction that implementing the vision statement outlined in chapter 1 and the restructuring programme of chapter 8 will transform railways into a commercially viable organization. In order to continue to enjoy confidence with its only shareholder, the government, and prospective private sector investors and lenders, the Expert Group has imposed the following constraints on the viable scenarios of the Strategic High Growth plan of IR while drawing the roll-out plan :

Revenue Growth Assumptions

Year ending 31st March	2001 (Base)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Freight	0 70%	3 00%	4 00%	5 00%	6 00%	7 00%	7 00%	7 00%	7 00%	7 00%	7 00%	6 00%	6 00%	6 00%	6 00%	6 00%
Passenger	3 30%	7 00%	8 00%	9 00%	9 00%	9 00%	9 00%	9 00%	9 00%	9 00%	9 00%	9 00%	9 00%	9 00%	9 00%	9 00%
Other Coaching	-11 1%	3 50%	5 00%	6 50%	8 00%	8 00%	8 00%	8 00%	8 00%	8 00%	8 00%	8 00%	8 00%	8 00%	8 00%	8 00%
Revenue (Traffic)	3 26%	4 19%	5 23%	6 27%	7 00%	7 67%	7 68%	7 69%	7 69%	7 70%	7 71%	7 09%	7 11%	7 13%	7 15%	7 17%
Revenue (Other)	16 0%	4 00%	5 00Z%	6 00%	6 00%	6 00%	6 00%	6 00%	6 00%	6 00%	6 00%	6 00%	6 00%	6 00%	6 00%	6 00%
Revenue (Total)	1 419%	4 189%	5 22%	6.26%	6%	7 6%	7 64%	7 65%	7 66%	7 67%	7 67%	7 06%	7 08%	7 10%	7 12%	7 14%

(* on the basis of revised 2000-2001 Budget Estimates) Source . Expert Group.

: Revenue Estimates : Based on Growth Assumption

Year ending 31st March	2001 (Base)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Freight	23,608	24,276	25,192	26,381	27874	29715	31677	33769	35999	38376	40910	43226	45673	48258	50989	53876
Passenger	10,148	10,818	11,635	12,622	13694	14857	16118	17487	18972	20582	22330	24226	26283	28514	30935	33562
Other Coaching	856	884	226	983	1057	1137	1222	1315	1414	1521	1635	1759	1892	2034	2188	2353
Revenue (Traffic)	34,612	35,979	37,753	39,986	42625	45708	49018	52570	56384	60479	64876	69211	73847	78807	84113	89791
Revenue (Other)	700	726	761	804	849	897	948	1002	1058	1118	1182	1249	1319	1394	1473	1556
Revenue from non-economical sources	717	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Govt subsidy on non	0	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
	0	219	231	234	235	237	237	217	237	237	237	236	236	236	236	236

Total revenues	36029	38,234	40,045	42323	45009	48142	51502	55109	58980	63134	67594	71995	76702	81736	87121	92883

* IR should redeem principal and accrued interest on the stock of existing debt in eleven years in equal installments to ensure that funds are available to meet IRFC market obligations.

* IR should pay dividend to the government on preference capital right from beginning.

* The government support should get phased out and railways should start borrowing right from the first year of restructuring plan what its balance sheet can sustain.

* The first charge on the cash profit of railways will be that of the government and hence railways should commit to redeem preference capital over twenty years commencing from 2007-08 in twenty equal installments.

* In the year 15, IR balance sheet should be comparable to that of a profitable infrastructure service provider company.

The importance of these constraints is as follows. First, if IR adopts the Strategic High Growth path its balance sheet year after year should be able to demonstrate that it has transformed itself into a business-like organization. The annual financial report of IR should mirror that. A phasing out of government backed debt will build up confidence with investors as it demonstrates that enough cash is being generated to redeem debt. Second, the returns on capital employed will demonstrate that railways has moved into higher value added transport logistics business which earns higher revenue per employee. Thus, labour and capital productivity are comparable with other companies. It can then

potentially attract private equity investors who are ready to share risk and reward offered by a competitive rail company in a growing economy. Third, as an on-going business it can attract funds at market rate for its future modernization and expansion plans.

The turn-around of IR will transform it into an efficient and wealth-creating organization. However, before IR achieves this government would have to demonstrate its commitment to IR by backing the proposed programme which is financially viable and by setting in motion the reforms proposed. **The funding support provided by the government should be linked to a restructuring plan.** A contingent funding plan will incentive IR to achieve pre-committed milestones. Markets will welcome such a plan as it will demonstrate that the government is financing reforms and not just bailing out continuing railways deficits. The purpose behind this should be to irreversibly commit IR to reform which will lead to enhancing the certainty of cash-flows. **In the view of the Expert Group, it is essential to get the reforms moving on a firm path within the first 3 years in order to kick-start the change program.** The primary thrust of the conditionalities is to guard against the possibility of a reversal in the restructuring process and to reduce uncertainty. A the same time, these conditionalities will commit the government to fund long-term capital requirements of IR to facilitate reform and also to fulfill its promises regarding subsidies through preference capital.

Roll-out of the Financing Plan

While designing the financing plan, due care has been taken of the constraints faced by Indian Railways and the government. It has also been kept in mind that the plan must fulfill the objective of transforming railways into a commercial organization responsive to its customers needs while fulfilling all its contractual obligation and meet expectations of investors.

Financing by GOI Preference Capital

The underlying salient feature of the vision statement, is to transform railways into a commercial entity. It is envisaged that GOI will be the sole equity holder of the restructured corporation for some time. The Expert Group is convinced that IR requires a large amount of investment upfront to finance renewal arrears and safety works j essentially those investments which railways should have done in the last few years but have not done-if it is to continue to play a leading role in the transportation sector.

As stressed earlier, the future of restructured railways is promising but at present it is in financial distress. It cannot raise funds from the market on the strength of its own balance sheet without paying a substantial payment risk premium. On the other hand, if Rs. 6,600 crore (approximately 20 per cent of budgeted market borrowing of the central government for the FY 2001-02) is to be raised for IR by GOI every year for first five years, it will have an adverse impact on the finances of GOI itself. Hence, the Expert Group felt that a certain proportion of the cash-flow shortfall should be financed by the GOI through preference capital. Using the financial model interatively, we arrived at the figure of 40 per cent which will be able to generate cash flows to meet all the three ascending stages of financial viability. This action on the part of GOI will send a positive signal to the market that the sole equity holder is convinced about the long-term viability of IR. Moreover, it will also give a signal to the markets that GOI is fully committed to ensuring that IR sticks with the investment plan. Almost all preference capital provided during restructuring phase, as per our schema, will be redeemed by the fifteenth year

Multilateral Funding

As discussed above, the financing plan has been developed by looking at what level of market debt the business can support over the plan horizon, then filling the gap from two sources which by their nature, are lower cost (i.e. GOI

preferential shares) or leasierno service than market debt. Thus, accessing multilateral funding through GOI falls under the latter category. The reason that it is easier for IR to service it is that it offers a long moratorium and a very long repayment period.

After meeting 40 per cent of the funds from GOI preference capital, the funds required by railways are still large compared to the absorption capacity of the domestic capital and institutional market. Such large funds, if raised by railways, with implicit backing of sovereign guarantee may adversely impact the spread between government securities and IR bonds of the same maturity. Hence, it has been suggested that IR seek a multilateral loan f little over US $ 1 billion. Advantages of such a loan in financial terms are many. Such a loan has a five year moratorium and a twenty-five year repayment period. For IR, it will be easier to pay the loan from the future revenue streams. The Government of India normally charges 12.5 per cent (6.5 per cent after adjusting for inflation) from the borrowing agency on such loans as it provides a sovereign guarantee and foreign exchange risk.

An indirect benefit from such a loan will be that it unequivocally ties the borrower with performance criteria. Generally a multi-lateral agency loan is tied to a reorganization plan, and tough decisions required to be undertaken during initial phase of reforms will get implemented in a time bound manner as further lending will stop if there is a wavering on the part of management or government[1]. It would be clear, however, that this is a restructuring programme designed and proposed by the government itself and not one thrust on it by an external agency. According to a World Bank Policy Research Report, the primary benefit of conditionality-linked loans is that they provide a means by which reform-minded governments can publicly commit to policy measures and send a signal to the private sector that the reform programme is credible.

Additional Market Borrowing : DDBs, ZCBs and MTNs

The funds required by IR in the first five years of the restructuring process, after infusion of preference capital and multilateral loans, are of the order of Rs. 4,600 crore per year. This amounts to approximately 9 to 10 per cent of the privately placed debt market at present. This money can be raised by IR from the market with some marketing efforts.

The instruments used to raise these funds are in line with the long-term strategy of the financing plan as outlined earlier. We have used 6 year deep discount bonds with a 9 year flat amortization schedule (6 tranches), zero coupon bonds and medium term notes to raise the required debt. The reason behind using different debt instruments is to match debt service capacity of IR and to ensure that all potential lenders are tapped to maximize the number of lenders .

Terms of a Multilateral Loan

Available Amount	Rs. 5000 crore
Drawdown	Five equal yearly installments
Loan	Rs. 3,500 crore (70 per cent of the loan)
Counterparty Funds from Railways	Rs. 1,500 crore (30 per cent of the loan)
Interest Rate after adjusting for inflation	6.5 per cent
Moratorium Period	5 Years
Repayment Period	25 Years

Sources and Uses of Funds

The Strategic High Growth plan envisages capital expenditure of comparatively large sums of money over the fifteen years. A close examination of the financial numbers shows that, in the first half of the plan, IR requires resources to build assets. According to this plan, exceptional support during the first six years will enable a turn around of railways will not need subsidy from GOI in the form of preference capital. Capital expenditure requirements of the organization would henceforth be met from internal cash generation. Railways will need to borrow from the market for a further 6-7 years to fund distributed repayments of the six-year Deep Discount Bonds with flat repayments. The second half of the plan shows substantial increase in internal revenue generation which is used to meet financial obligations arising from restructuring of capital and reducing overall debt burden. In line with the additional restrictions placed on the Strategic High Growth Scenario, interest on existing debt as well as preference dividends are paid every year.

Financial Ratios

Using the High Growth scenario it is calculated various ratios which indicate financial health of the IR, over the time horizon of re-organization. The interpretation of financial ratios can be broadly categorized under the following heads :

Ratios which indicate sustained increase in the operational efficiency.
Ratios which shows capacity of discharging debt service obligation.
Ratios which indicate generation of cash from internal sources to meet substantial portion of its capita expenditure requirements.

Sources and Uses of Funds

Year ending 31st March	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EBITDA	7891	8554	9496	10739	12229	13902	15663	17586	19537	21663	23677	25860	28226	30789	335646
Asset Sale		500	500	500	500	500									
GoI Prefs	2451	2738	3063	2627	2299	747									
MLA Borrowings	1000	1000	1000	1000	1000										
Additional Borrowings	3910	4522	5213	4758	4438	3936	4800	4383	4190	3739	2750	1962			
Short Term Borrowings										503	952	1282	1232		
	15252	17315	19272	19624	20466	19085	20463	21969	23727	25905	27378	29104	29458	30789	33564
Uses															
Int on Extg Debt	2784	2627	2478	2338	2205	2039	1853	1680	1520	1372	1234	1108	992	885	788
Repayment of extg Debt					493	881	902	918	932	941	948	950	950	947	941
Int on MLA Borrowings						619	606	594	581	566	547	528	509	491	469
Repayment of MLA Borrowings						100	100	100	100	150	150	150	150	150	200
Int on New Debt							827	1727	2702	3994	5070	5820	5537	4957	4307
Repayment of New Debt							466	1062	1811	2596	3437	4318	4837	5417	6067
Pref Div	1234	1415	1618	1817	1990	2096	2069	1963	1857	1751	1645	1539	1433	1327	1220
Redemption of Pref Cap							1516	1516	1516	1516	1516	1516	1516	1516	1516
Distributions to Equity														1189	
Capex	11091	13143	15022	15298	15589	13163	11934	12217	12514	12824	12650	12991	13350	13725	14119
Increase in NWC	144	130	154	171	189	187	189	191	193	195	181	183	184	186	187
	15252	17315	19272	19624	20466	19085	20463	21969	23727	25905	27378	29104	29458	30789	33564

Sources and Uses of Funds with Tax-Free Bonds

Year ending 31st March	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sources															
EBITDA	7891	8554	9496	10739	12229	13902	15663	17586	19537	21663	23677	25860	28226	30789	335646
Asset Sale		500	500	500	500	500									
GoI Prefs	2451	2738	3063	2627	2299	747									
MLA Borrowings	1000	1000	1000	1000	1000										
Additional Borrowings	3910	4607	5383	5013	4778	4361	4894	4175	3707	4010	2680	1945			
Short Term Borrowings										445	963	1287	1134		
	15252	17400	19442	19879	20806	19510	20557	21761	23244	26118	27320	29093	29360	30789	33564
Uses															
Int on Extg Debt	2784	2627	2478	2338	2205	2039	1853	1680	1520	1372	1234	1108	992	885	788
Repayment of extg Debt					493	881	902	918	932	941	948	950	950	947	941
Int on MLA Borrowings						619	606	594	581	566	547	528	509	491	469
Repayment of MLA Borrowings						100	100	100	100	150	150	150	150	150	200
Int on New Debt		85	170	255	340	425	1040	1762	2590	3711	4655	5479	5190	4614	3980
Repayment of New Debt							347	819	1440	3092	3793	4648	5086	5577	5126
Pref Div	1234	1415	1618	1817	1990	2096	2069	1963	1857	1751	1645	1539	1433	1327	1220
Redemption of Pref Cap							1516	1516	1516	1516	1516	1516	1516	1516	1516
Distributions to Equity														1372	5019

Capex	11091	13143	15022	15298	15589	13163	11934	12217	12514	12824	12650	12991	13350	13725	14119
Increase in NWC	144	130	154	171	189	187	189	191	193	195	181	183	184	186	187
	15252	17400	19442	19879	20806	19510	20557	21761	23244	26118	27320	29093	29360	30789	33564

Build-Operate-Lease-Transfer (BOLT) Schemes

Under IR BOLT scheme, bids are invited from private parties for financing and executing a whole project and not for executions only separate sub-components (earthwork, rails, sleepers, signaling, etc.) as is the case in the conventional method. The bids follow the two packet process. In this system, bidders are first short-listed on their technical/managerial and financing capabilities. Packet is used to find out the eligible bidders. After than Packet 2 is opened to find out the most cost effective financial bid for Indian Railways. The successful contractor is awarded the project and he has to sign the various agreements with the Indian Railways.

Packet 1 contains the following details :

* Details of the plant and machinery with the contractor.
* Track record of projects handled by the contractor previously.
* Managerial expertise of the contractor in handling such projects with supporting evidence.
* Financial plan for the project together with the cash flows over the project life. He has to specify the sources from where he will get the funds and the way he would manage the cash payments to be made over the project life.
* The complete financial statements of the contractor or the company have to be provided so as to reflect their financial health.

Packet 2 contains a proposal of lease payments the company expects under different scenarios. The different scenarios are a function of :

* With/without tax benefits.
* With/without depreciation benefits.
* For a period of 8/10/12 years.

Thus each bidder has to quote 12 different acceptable lease amounts that would be paid to the Railways, and should also specify the final transfer payment to be made at the end of the lease period in each case.

During project execution, constant monitoring and evaluation is to be done by the engineers from the Indian Railways to ascertain quality and timely progress of the project.

The BOLT scheme is innovative in certain respects. It can help in lowering the administrative costs for IR as the main construction work is taken over by the private contractor. It clubs the relative strengths in project management of the private partner and in rail operations of the IR. It was assumed that this form of privatization would apart from raising additional resources, bring in efficiency through better project management and reduced time and cost overruns.

Unfortunately, however, no BOLT scheme has been successful. At one time three Gauge Conversion projects were offered under BOLT. One of the offers was withdrawn by IR on grounds of the need for urgency to implement the project, another got caught in litigation and is currently as good as a closed issue, while the third is still calive, but proceeding at a very slow pace. Some of the technical features of the BOLT scheme are noteworthy.

Risks under the BOLT Scheme.

The respective risks under the BOLT scheme (as compared to the conventional projects), for the IR and for the private contractors are given below :

Risks for Indian Railways

* Funding risks are transferred from IR to the private contractor, thus there are very few chances of the project languishing during implementation for lack of budgetary support or because of diversion of funds for other urgent or important projects.
* Previously the project used to be broken up and given to many contractors. Thus the risks were spread among different parties but now it is dependent on a single contractor, the contractor selection is thus a crucial variable in the whole scheme.
* Insulation from project completion risks. The agreement covers virtually all probabilities of delay or hold up in the project construction.

Risks for private contractors

* Project completion risks are high as the BOLT contractor has the sole responsibility for the whole project. There are also heavy penalties in case of time overruns.
* Increase in raw material supply risk the contractor has to arrange for the full supply. As most of the materials like rails, sleepers are specific to the railways and have few supply sources, the risk of increased costs due to inflation or adverse demand supply position is high.
* Information uncertainties faced by the contractor increase the risks, as he is unaware of the exact details of the project as appraised by the railways and the project cost that he should take in his calculations while making a competitive bid.
* Risks on cash flows are guaranteed under the authority of President of India. The risks on return are thus the same as those of a sovereign bond, i.e., it is as good as return free of risk. However problems can be on contractual issues which could affect either the cash flows or the perception of investors.

Project Selection

(This is common to both the conventional method and the BOLT scheme)

* Reconnaissance survey – This survey comprises a preliminary project feasibility study.
* Detailed engineering survey as the name indicates it is a detailed study under for finalizing the alignment and includes final location of stations, bridges, tunnels and any other important landmark. At this stage, detailed cost estimates for the project are also prepared.
* Traffic survey-this survey is made to estimate the expected traffic, both goods and passenger, and the additional revenues generated to make an assessment of cash inflows.

On the recommendations of ICICI in a Report commissioned by IR, the conditions applicable to BOLT schemes have been completely overhauled recently. The main features of the new Scheme are given below :

* Design, Build, finance, Own and Transfer concession (BOT)

* Net Present value of future periodic access charges during the concession period to be the only bid parameter.
* Railways to provide detailed project report to pre-qualified bidders.
* Detailed design of bridges and structures to be done by the developer and approved by railways in time bound manner.
* To give sufficient comfort to lenders, railways to enter into tripartite agreement.
* Incentive to the developer for early completion to advance receipt of access charges.
* An independent engineer for project management and dispute resolution to be engaged by the Railways.
* Developer to be responsible for insurable force majeures only.
* Railways to bear responsibility for all others including direct/indirect political force majeures.
* Developer to be indemnified against consequential losses.

Operational efficiency of IR

As may be seen from Appendix 6.6, EBIDTA/Total Revenue increases from 20.6 per cent in FY 2002 to 30.9 per cent in 2010, an increase in operational efficiency by approximately 12 per cent over the period. This is achieved by increase in total revenue from Rs. 38,234 crore in FY 2002 to Rs. 63,134 crore in FY 2010 (an increase of 65 per cent) with an increase in expenditure from rs. 25,949 crore in FY 2002 to Rs. 36,898 crore in FY 2010 (an increase of only 42 per cent). A similar trend is observed in other ratios such as EBIT/Total Revenue and PBT/Total Revenue. As the margins show marked improvement, ROCE indicates rising trend in capital productivity. ROCE in the year 2016 has a sharp increase as all debts are paid off in line with the financial plan assumptions.

This sustained increase in operational efficiency generates additional internal resources to fulfil the debt obligations (both interest and repayments) and capital expenditure requirements.

Debt Service Requirements

In order to assess the ability of IR to meet its interest obligations and total debt servicing obligation, the analysis of interest coverage ratio (ICR) and the debt servicing coverage ratio (DSCR) is. It may be observed that the interest coverage (EBIT/Interest Expense) improves from 1.22 to 2 over the eight periods whereas the DSCR is always above 2.8 during this period. In the High Growth Scenario the average DSCR is 4.2 with minimum DSCR being 2.81 in the years 2003 and 2004.

Capital Expenditure Requirement

The Financial and Credit Ratio statement brings out the fact that from the sixth year of re-organization, the annual yearly capital expenditure requirements of Railways is funded by its internal accruals (EBITDA/Capex is 1.06 in the sixth year). This indicates a healthy financial situation of IR, which again is a direct consequence of its operational efficiency.

Analysis of the Cash Flow Statement

The sources and uses of funds reflect the total cash inflow into the organization as well as the cash outflow due to its various obligations like capital expenditure, debt obligations etc. It is evident from the cash flow statement that the IR is able to fulfil all its obligations viz. capital expenditure requirements, debt service obligations and returns to preference capital. This is reflected in continuous improvement in Return on Capital Employed which increases from 5 per cent in the first year of re-organization to 11.4 per cent in the 10th year.

Financial and Credit Ratios in the Short and Medium Term

Year ending 31st March	2001	2002-2006 Average	2002-2011 Average	2012-2016 Average
EBITD/Total Revenues	18.7%	22.7%	29.6%	34.5%

EBIT/Total Revenues	7.1%	10.5%	18.1%	26.8%
PBT/Total Revenues	1.2%	2.5%	9.1%	21.1%
ROCE	4.3%	5.2%	8.9%	20.7%
EBIT/Interest Expense	0.87	1.31	2.04	5.02
EBITDA/Interest Expense (DSCR)	2.29	2.85	3.33	6.42
EBITDA/Capex	0.61	0.70	1.41	2.12

The financial ratio analysis of successive year averages shows that the High Growth plan will transform IR into a commercially viable organization. It may be reiterated that the key to the entire transformation is higher operational efficiency. The improvement in the ratios year-after-year provide advance signals to IR management and the outside world of its success in achieving the goals of re-organization, thus fulfilling one of the needs of restructuring.

Own Your Wagon Scheme

This scheme was started in the early 1990s to get private investments for building up modern wagon stock. Under the scheme, the wagons could either be procured directly from a wagon builder or from the IR. In the former case, the wagon buyer has to pay a design fee and an inspection charge of one and a half per cent and in the latter case, the buyer has to pay a service charge of three per cent of the price. The utilization of the wagons, which could either be under a general pool or a closed circuit, would be mutually decided.

The parties eligible to enter the scheme are :

* Individuals as producers
* Corporate entities as producers
* Association or group of companies
* Thermal plants and other bulk consumers

* Leasing companies

Three possible arrangements are envisaged for the wagon owners, as given below :

* Pure lease : As a pure lease, the wagon is used by the railways as a general wagon and it pays lease charges at the rate of 16 per cent per annum, on quarterly basis for a period of ten years, followed by a rate of one per cent for the next ten years. The lease charge will be calculated on the current price of similar wagons owned by the Indian Railways. After the expiry of further ten years the lease is continued on mutually agreed terms. Owner however also has freedom to dispose of the wagon. Maintenance will be done by IR at its own cost.

* Lease cum guaranteed clearance with general service wagons. Under this arrangement, in addition to paying the lease as specified before railways would assure the lessor to clear a minimum volume of traffic during a specific period. The movement of traffic would however be subject to rules, legal and administrative provisions like the Railway Act, preferential traffic schedule, central or state government restrictions/bans on movement of goods etc. There would be no further freight concession. Maintenance of the wagons would be done by railways at its own cost.

* Guaranteed Clearance : In this category, lease charges will not be paid to the wagons moving in dedicated routes. Instead, Railways would give a concession in the freight rates depending on the movement patterns of the wagons. The freight concession would vary with changes in budget provisions. Maintenance would be done by the railways and the rates would be charged to owners at mutually agreed rates.

One drawback of the scheme is that it has many one sided contract clauses, like the termination of guarantees in case of damage of wagons in accidents by paying the book value (which due to depreciation provisions of Income Tax law would be much lower than the market value of the asset). Similarly, in case there are any change of rules, which are unacceptable to the owner, the wagons would revert to railways at the book value.

In spite of certain changes in the modalities of the scheme, it has not picked up as expected.

While availability of wagons to participants could increase due to supply guarantees, the non-participants could also benefit due to increased wagon stock.

IR ability enlivening service level guarantees is a significant issue. Conceptually, there would be a question as to whether such a scheme can be successful at all in a pooled wagon system. There is greater scope where wagons could be dedicated to a customer like in iron ore circuits, coal merry go round etc.

The improvement in the ICR and the DSCR over successive periods suggests that credit worthiness of railways improves substantially after the first five years. One can infer from the results, that the strong cash-flow situation after the first five years would provide IR adequate cushion to withstand any shortfall in cash flow during the implementation period.

PERSPECTIVE OF THE STRATEGIC HIGH GROWTH PLAN

The investment required for the High Growth scenario is large compared to yearly investment made by railways at present. Compared to the investment envisaged for the National Highways in the next seven years, investment for the High Growth scenario is approximately 60 per cent higher. But, it must be emphasized that whereas the National Highway Development Programme (NHDP) is only for the capacity expansion of National Highways, investment under the Strategic High Growth scenario includes all the capital investments required for railways. This includes investment in rolling stock in addition to replacement costs including renewal arrears and safety works of Rs. 90,000 crore over fifteen years. During the first seven years investments for replacement, arrears and safety works put together will account for 58 per cent of this sum.

Similar to the NHDP, which envisages up-gradation of road infrastructure in the country, the Strategic High Growth plan should also be accorded equally high priority to provide an efficient rail network and rolling stock. Compared to the highly concessional multilateral loan provided to the National Highway Authority of India (NHAI), the recommended injection of preference capital for five years to meet capital expenditure of railways is not exorbitant. After initial investment and commercialization of railways, the organization has the wherewithal not only to meet infrastructure needs of the growing economy but also to repay all the concessional loans and preference capital. The financial plan shows that without concessional loans also, the railways capital expenditure is viable through market borrowings. Therefore, it is incumbent on the government to accord priority to railways during it restructuring phase as it has given to the roads sector. Such a priority would be in line with the evolving integrated transport policy of the government. Moreover, competitive railway services for short-and medium distance shall be beneficial for the country since a competitive transport sector will contribute to the country since a competitive transport sector will contribute to the overall competitiveness of the economy in the rapidly globalizing world.

Comparison of Capital Expenditure Requirement for the National Highway Development Programme (NHDP) and Strategic High Growth Plan of Railways

Period	The NHDP	Period	Strategic High Growth Indian Railways
2001 j 2007	Rs. 58,000 Crore	2002 j 2008	Rs. 95,240 Crore
2008 j 2016	NA	2009 j 2016	Rs. 104,390 Crore

Comparison of Transportation Cost and Energy Consumption

	Roads	Railways
Energy Consumption (BTU/Tonnes-Km)	1700	320
Transportation Cost (Rs./Tonne/Km)	244	155

Undoubtedly, capacity expansion of major arterial routes provides immense choice to people in a flexible manner as the road network is an open access network. Yet, as shows, a rail network j organized on a closed access basis is more environmental friendly, energy efficient and cost effective to meet nations growing transportation demand.

As in the NHDP for capacity expansion of the road network, the High Growth scenario envisages capacity expansion of the rail network. After the year 2007, the reorganized railways would however be able to undertake this programme through internal resource generation just as the fuel cess is providing resources for roads through an effective user charge. During the first seven years, the cash outlay to the NHDP programme by GOI will be comparable to that of the Strategic High Growth programme of IR. It is understood that eighty percent of the World Bank loan given to NHDP will be serviced from the Consolidated Fund of India. In fact, money spent by GOI on railway restructuring will build quality assets for the government, for which it can find private investors without compromising transport needs of the economy provided by railways. Money realized through this route can be used by the government in creating social infrastructure of the country.

Apart from IR being an environmental friendly mode of transport, there are certain inherent advantages in funding front loaded investment. First, the amortization inherent advantages in funding front loaded investment. First, the amortization obligations are expected to be met by increase in revenue growth. Second, the financing plan indicates that increase in cost will be partly pass-through to passenger business and rest would be recouped from growth in volume of both, passenger and freight business (as explained in Chapter 3) and

thus providing a natural hedge. Third, with de-politicization of tariff setting and the restructuring of IR as recommended the commercial viability of railways is highly probable.

6.4 SUMMARY

The programme for restructuring of IR which requires approximately Rs. 200,000 crore or US$ 40 billion of investment over a fifteen year period is a viable programme. It is a hot-seat restructuring plan without disturbing Irs current services and financial obligations. Moreover, within fifteen years all Inewmpreference capital injected by GOI is redeemed and market obligations are met in full. The financing plan of the Strategic High Growth Scenario shows that it is viable and fulfils the three ascending conditions of viability referred to . Whereas financing of restructuring of railways, in the initial period, rests heavily on preference capital supplied by the GOI and a loan available from multilateral institutions at commercial rates, its main purpose is to build confidence among other lenders through the GOI commitment to the restructuring plan. It must be emphasized that government support is absolutely necessary during the initial phase of restructuring. Without such support is available. Injection of a long term loan from any multilateral institution would be subject to IR achieving pre-announced and agreed milestones and will help to ensure that government maintains its commitment through thick and thin. The objective of these conditionalities is to guard against the possibility of a reversal in the restructuring plan and to reduce market uncertainties.

Capital Expenditure and its Financing

(Rs. Crore)

		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Capex		11091	13143	15022	15298	15589	13163	11934	12217	12514	12824	12650	12991	13350	13725	14119
Sources																
Internal																
	Depreciation	4489	4825	5217	5638	6051	6388	6518	6831	7045	7262	6676	5724	6040	6357	6673
	Cash Profits	-1784	-1469	-1000	-256	270	421	-631	-99	243	365	1445	3178	5254	6333	5410
	Asset Sale	0	500	500	500	500	500	0	0	0	0	0	0	0	0	0
External																
	GOI Pref	2451	2738	3063	2627	2299	747	0	0	0	0	0	0	0	0	0
	Multi-Lateral Funds	1000	1000	1000	1000	1000	0	0	0	0	0	0	0	0	0	0
	Govt subsidy on non ..	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
	Return of diesel .	229	231	234	235	237	237	237	237	237	237	236	236	236	236	236
	Mkt	3510	4522	5213	4758	4438	3936	4800	4383	4190	4242	3701	3243	1232	0	0

Some alternative means of raising finances may be used to support investments envisaged in the Strategic Growth plan. We have taken credit for Rs. 500 crore/year over the programme period under the heading of non-conventional means of raising finances, and sale of assets worth Rs. 2500 crore over the first five years. Some of the means to unlock potential value of assets will affect the asset as well as the liability sides of the balance sheet and, perforce, we have not used many of the instruments while drawing up the roll-out plan. Some of structured financial instruments can also be profitably used by the railways. The focus of these instruments is on inflation indexed

securities, leasing and securitization of receivables. The core idea embedded in all these innovative instruments is to reduce the cost of funds to IR and yet provide either guaranteed risk-free returns or service into investors. Some legal changes will be required to make these instruments attractive to investors, to facilitate issuance of these instruments, and to promote their liquidity

It is proposed to provide a relatively simple but robust financing plan using instruments that are currently available in the Indian capital market. It is a conservative plan and uses plain vanilla debt instruments. However, in view of the heavy borrowing requirements of the first seven years extensive use is made of zero coupon bonds, deep discount bonds and multilateral borrowings. These instruments are suggested in order to shift the debt servicing burden or IR to later years when its financial position is projected to become much healthier. As the Indian capital market becomes more sophisticated it would be possible to use a greater diversity of financial instruments to raise resources for the investments required. IR would then be able to develop the market for innovative instruments and use them to further reduce the cost of capital de risk its balance sheet and improve its bottom-line.

The financial plan outlined demonstrates financial viability of the Strategic High Growth Scenario sketched out. This demonstration of financial viability hinges crucially on exceptional government support during the first five years. Once such financial viability is demonstrated it should be understood that there are many possibilities of financing options that can be used to fund the kind of programme envisaged. What is provided in this financing plan is only one such option. As investors and lenders are convinced of the commercial and financial viability of IR may different project financing techniques become available. Annex. 6.2 outlines some of these possibilities, including options such as leasing of equipment which are widely used in other railways, joint ventures with both public entities such as state governments as well as with private enterprises, BOT projects and the like. The exploitation of such new financing

techniques would require the induction of market responsive financial managers into IR.

We have also treated the Indian Railways as a monolithic organization in this financing plan. As IR becomes commercially viable in a 5-7 years framework it could also be unbundled into different corporations accomplishing different functions. Each of such subsidiaries or privatized corporations could raise funds in the commercial market in different ways. We have not looked into such a possibility since our main aim is to demonstrate the financial viability of the Strategic high Growth programme that has been projected. The financial analysis in the short and medium term indicates that as a large infrastructure service provider, Indian Railways will be an attractive avenue of investment for equity investors, pension funds and insurance companies and the like. Its debt servicing capacity is well within the prudent norms for infrastructure projects. A sensitivity analysis has also been carried out, which shows that the viability of this programme is not sensitive to small changes in cost. The bulk of the investment will be towards removing serious traffic related risks to the programme. Lack of sustained support from the government for implementation of the restructuring programme will, however, constitute serious institutional risk.

Underlying the success of the roll-out plan for financing the restructuring programme is the improvement in operational and investment efficiency. This can only be achieved if there is a compatible incentive structure and there is improvement in the soft-ware-inside of IR operations. A coherent approach to railways reform must differentiate between a desire to improve rail services and a desire to attract private capital to remedy lack of public funds. The latter, which retains investment decisions within the public sector, and merely seeks to access private money, is unlikely to deliver what rail users need, as the decisions are not driven by market incentives. The first task of railways reorganization must therefore be to transfer these decisions to the

commercialized entity, whose incentives to cater to the consumer are much stronger. At the same time it is important to note that a commercial entity also delivers the goods only when it is faced with competition. To transform itself into a commercially viable organization ready to compete with other modes of transport in passenger as well as freight business, IR must restructure itself to provide an incentive structure responsive to the needs of its customers. This imperative is well recognized within the members of the Railway Board. A former member of the Railway Board has said,

Railway employees have been used to a situation where people
Used to come to them with requests to carry their goods. The
trucker on the other hand goes to the doorstep of the customer.
Our employees need to change their attitude in view of the
changed situation where we no longer enjoy a monopoly situation.

(Business Standard j September 6, 2000)

Whereas it is essential that IR is reorganized into the kind of commercial viable enterprise that is proposed, the government could provide various sweeteners in the financing options available during the first 5 to 7 years. It is now generally accepted that essential infrastructure in the country could be financed partially through the issue of tax-free bonds of different descriptions. As mentioned, such bonds have been authorized to organizations such as the National Highway Authority of India (NHAI) for the financing of National Highway Development Projects (NHDP), and HUDCO for financing of urban infrastructure. The availability of such tax-free bonds to IR would reduce the debt burden that it has to assume particularly during the first 5 to 7 years. Similarly the government has agreed to pass on even hard multi lateral lending to the NHAI on soft terms. Similar considerations can be given for the transfer of multi lateral loans that can be obtained for the financing of the Indian Railways restructuring programme. In exchange for such sweeteners from the government IR would have to demonstrate its commitment to the kind of restructuring proposed in the report. It would have to demonstrate much greater customer orientation and its

willingness to become a truly commercial organization. This would also include significant tariff rebalancing, the reduction of many travel concessions that are currently given, and also perhaps more aggressive sale of assets that are currently not necessary for IR core operations.

The success of the financing programme proposed for the strategic high growth scenario is crucially dependent on the credibility of the commitment shown by the government to undertake the kind of organizational restructuring proposed. It would be necessary to draw up a coherent programme of review which inspires confidence among lenders such as multilateral agencies and other lenders and investors. This would require a widespread consensus and constraint monitoring of the reform programme. It would also mean that infructiuous investments are no longer proposed nor made and an explicit focus on growth and efficiency is demonstrated.

Alternative Means of Raising Finances

We outline alternative means of raising finances which may be used to support investments envisaged in the Strategic Growth plan. We have taken credit for Rs. 500 crore/year over the whole period under the heading of non-conventional means of raising finances. Some of the means to unlock potential value of assets will affect the asset as well as the liability sides of the balance sheet and, perforce, we have not used many of the instruments while drawing up the roll-out plan given in Section 6.2.

NEW FINANCIAL INSTRUMENTS

Long Term Funds from Insurance Companies

As insurance market is being opened up in India and these companies have long-term funds available with them, they seek long-term borrowers of funds. IR can raise funds from these organizations at PLR and, probably, below PLR if backed by a letter of comfort from the GOI.

Securitisation of Certain Receivables

The Railway Ministry can raise money directly from financial institutions (FIs) and banks through the securitisation route to part finance its annual requirements. Under this method certain receivables, including anticipated realizations of dues to the Railways can be securitised. One of the streams of future receivables could be the part of the Central Road Fund earmarked for railways as reimbursement of diesel levy paid by railways.

Income tax free bonds

Though the Government has taken an in-principle decision to phase out income tax free bonds, there is a market for tax-free bonds which Railways can tap into to raise certain amount of money. This instrument is especially attractive to high income group earners. Just like NHAI, the railways should also be allowed to raise money from the market using these bonds.

Capital gains tax free bonds

Apart from income tax free bonds, capital gain tax free bonds is another instrument which is a deep discount bond but as holder does not have to pay capital gains tax, the cost of borrowing for the issuer i.e. railways will be lower. Railways should be allowed to raise funds from the market using this instrument also.

FINANCING OF ROLLING STOCK

Leveraging of Unencumbered Assets (Leasing)

Most of the railways in other countries do not have monolithic organizations which design, build, operate and maintain assets themselves. Instead, there are specialized companies such as General American Transport Corporation (GATX) and GE Capital which have expertise and long experience in leasing different types of equipments such as wagons, inspection cars, motive powers etc.

The Railways can set up a leasing company with GATX or GE Capital or any other large company having sufficiently long experience in leasing railway rolling stock and equipments as equity partner who would bring models of leasing suitable for railway equipment, costing and designing of such equipment in line with future developments. As a lessor they supervise functioning of their equipment to improve productivity of their assets. One advantage of this arrangement is that there is no cherry picking and hence, the leasing company would ensure that productivity of all assets improve. In short, management, know-how and software expertise of these leasing companies as an equity holder shall improve productivity of the existing assets as well as help in producing equipment which can meet future needs.

Under this option the railways sell unencumbered rolling stock to a company, say, Raillease Co., which in turn, leases the rolling stock to the railways. Money which the IR gets by selling its rolling stock go into rehabilitation, upgradation and expansion of fixed infrastructure. Lease payment to Raillease Co. by the railways goes in servicing debt etc. of the Raillease. This option provides one time payment to railways but increases the operating cost as railways have to pay lease charges to the Raillease. Money which railways can garner by selling rolling stock depends on market conditions. This option is very much in line with the spirit of the restructuring process. There are legal implications of leasing/selling of assets which railways should go into and request the government to enact enabling legislation to unlock asset value.

Operating lease is a variant of a normal lease. Under operating lease the Railways could even sell its fixed assets such as housing stock, hospitals etc to a leasing company and have a back-to-back leasing arrangement with the company1.

There are two advantages to railways to go for a joint venture with leasing companies and go for operating leasing arrangements. First, the Railways will be able to leverage their existing unencumbered assets which can be invested in improving and strengthening the rail network as fixed network is generally owned by railways. Second, in an uncertain demand scenario, equipment leasing will be beneficial to railways as they will be paying for the usage of equipment as and when they use it. The risk of technological obsolescence and lower utilisation of rolling stock due to fall in demand is borne by the leasing company.

Financing of rolling stock - OYW and BOLT

Cost of private investment in the form of the Build-Operate-Lease-Transfer (BOLT) and Own-Your-Wagon (OYW) schemes can generate investments to the tune of Rs 1,000 crore for a few years. In the past the Build-Own-Lease-

Transfer (BOLT) scheme received a lukewarm response from investors because of weak structuring of the scheme. Now the Railways has prepared a new model concession agreement which does away with leasing and offers to bear the risk of traffic on lines of the annuity system proposed for the roads sector. The new model concession agreement document provides for a tri-partite agreement between the Railways, the project developer and the financial institution. Under the new scheme the Railways will pay an annuity to the developer who builds the asset. That would protect the builder from traffic risks, as the Railways would pay the charges irrespective of whether they generate that much revenue from the asset or not.

The OYW scheme too with certain revisions in terms of contract and improvement in extra services provided to OYW holder can be utilized to reduce investment required in replacing old wagons and to introduce wagons incorporating new technology.

Supplier's Credit

A large portion of the rolling stock requirements of IRs is met from its own production units. If the railways or lessor import some of the rolling stock, it can get as much as 85 per cent of the finance from suppliers or export-import institutions. Usually, the term of the loan is 10-15 years and is available at competitive rate of interest linked to the LIBOR rate.

FINANCING OF FIXED INFRASTRUCTURE TO INCREASE CAPACITY AND EXPAND THE NETWORK

SPV for Commercially Viable Projects with private sector participation

It may be worthwhile to look at viable projects, more specifically short and medium haulage projects dose to ports having dedicated traffic. These SPVs, if structured appropriately, could reduce investments requirement for railways and enable it to gradually move toward re-structuring. For example, IR has signed

an MOU with Pipavav Port Limited, Gujarat, a private company, to form a joint venture for conversion of Pipavav-Surendranagar metre gauge line into a broad gauge line. The Kandla Port Trust has also evinced interest in converting the 330 Km long railway line from Gandhidham to Palanpur from meter gauge to broad gauge at the estimated cost of Rs 250 crore. Kandia and Mundra port projects are the first private projects in port and rail connectivity. Such SPVs can also be formed on Golden Quadrilateral into expand aggregate capacity of highly used routes.

SPV with State Governments

The Railways can form a Special Purpose Vehicle (SPV) with state governments for taking up railway development schemes, with equal participation by the ministry of railways and the state government. The railways has already signed a MoU with Karnataka and Delhi and Mumbai has similar arrangements to develop urban transport network.

Construction of Sidings

The Railways can also invest funds with public and private sector companies for construction of sidings, in order to recapture market share as well as to bring the rail network to the doorstep of large customers. Sidings are rail tracks that branch off from the railway line to factory gates, thereby providing door-to-door connectivity to the customers. The system of a assisted sidings, can wean away traffic from the road sector. Currently, the entire investment for building the sidings are borne by the companies themselves and the railways only runs the wagons and charges a specified amount. The costs for developing sidings are high, which deters companies from constructing them. Additionally the reduction in the service and inspection charges would go a long way in attracting new private investors.

GENERATION OF REVENUE STREAM FROM PRIVATE PARTICIPATION TO UTILISE EXISTING ASSETS

Air space

Commercial exploitation of air space especially from commercial publicity in urban areas can bring substantial revenue. Using air space for billboards, hoarding etc. is already prevalent in metropolitan cities. This should be extended to other urban areas. Another potential avenue to raise revenue is from utilization of air space of railway stations. As railway stations are usually situated at the center of urban areas, commercial shopping complexes can be built to exploit scarce value of land in such areas. Coupled with this the Rail Tel franchisee operated Inormation Kiosksmt many of the railway stations are also feasible2.

Space on rolling stock

Commercial exploitation of space available on rolling stock especially for commercial advertisement has been a run away success on local trains in Mumbai. This can be extended to metro/local trains of other metropolitan areas a well as to shuttle services of class A cities. Moreover, some space on through trains for small advertisements can b used.

Surplus Land"

Surplus railway land at stations and un-utilized Goods Sheds at roadside stations can be offered for development c warehousing capacity and, thereby generate additional traffic on the railways on the one hand and supplement revenues on the other. In order that land assets are most efficiently utilized, a Land Development Authority i railways may be constituted.

In metropolitan and Class A dries, which have large commuter population, food court plazas can be built in partnership with leading food and beverage companies. Such food plazas can provide multiple cuisine, snacks and beverage including take-away food packets of high standards of taste, quality, ambience and hygiene. It is understood that c certain stations some of the leading food chain operators are to start operating shortly. To unlock full potential i real estate near stations one has to think of shopping malls which provide convenience of shopping at competitive rates as is the case on airports rather than meet immediate consumption needs of passengers.

INNOVATIVE FINANCIAL INSTRUMENTS FOR RAISING RESOURCES

We describe briefly some of structured financial instruments for the Indian Railways financing programme focusing on inflation indexed securities, leasing and securitization of receivables. The core idea embedded in all if instruments is to reduce cost of funds to IR and yet provide either guaranteed risk-free returns or service investors. Some legal changes will be required to make these instruments attractive to investors.

(i) inflation-indexed securities

Though all investments are designed to generate returns that, at a minimum, preserve the purchasing power of the investment, inflation-indexed securities explicitly link the return on the investment to levels of inflation with the objective of preserving the real value of the investment and providing an additional real return to the investor. The objective of inflation-indexed securities is to provide real returns for investors and savings for the railways.

Inflation-indexed securities provide inflation protection by indexing the future cash flows of the security through an adjustment mechanism that creates a specific linkage to changes in a prescribed price index. The key feature of inflation-indexed securities is the positive dependence between the level of inflation and the cash flows under the security.

There are close similarities between conventional fixed and floating interest rate securities and inflation indexed structures. For example, a fixed interest security will carry a coupon that is designed to provide investors with compensation for both expected inflation and a real rate of return. Similarly, a floating rate security will carry a margin over an interest rate that is reset periodically. The movements in the underlying interest rate will reflect changes in inflationary expectations, providing the investor with both a real rate of return and compensation for inflation. In contrast, the inflation-linked security has a real rate that is fixed for the life of the transaction and inflation compensation explicitly linked to and determined by the actual inflation level over the life of the security. Thus, the key difference between inflation-indexed securities and conventional securities is the explicit adjustment for actual (as distinct from expected) price inflation and a pre-agreed and fixed real rate of return in the case of inflation-indexed securities.

Since railway fares are or at least should be linked to inflation, it would be appropriate that most, if not all, expenses of IR, including interest, are also inflation-indexed. In other words, if the general inflation regime in India were low, Railways would have lower revenues than if the general inflation regime were high; thus, it would be of advantage to the Railways if the interest burden of the railways were lower during periods of low inflation. Moreover, since investors will probably accept a lower real yield in return for insurance against unexpectedly high inflation, indexing may significantly reduce the borrowing costs of IR in real terms.

Most economists believe that the real risk-free rate in India should be in the region of 3-4 per cent. However, the projected real rate for conventional fixed income securities in this report is 6 per cent. Thus, ceteris paribus here is a potential saving of 2-3 per cent per annum on inflation indexed securities since the investor is protected against unexpectedly high inflation and there is a floor real rate of zero if there is an unexpected period of deflation. If railways use this instrument, the funding cost of funds to IR could get reduced by the premium, currently required by investors to compensate for inflation risk to which railways have natural hedge as cost of its services are indexed to inflation. IR would acquire this benefit at the cost of assuming future inflation risk.

Based on a recent NCAER study, there is a large class of investors, particularly middle-class retail investors, that is very risk-averse. We believe that aversion to inflation risk is a significant component of risk-aversion, hence the preference for short-term bank deposits and gold amongst this class of investors, despite the average real return on bank deposits and gold being low. It appears that in the future there may be a significant appetite for inflation-indexed bonds by both insurance and pension companies as well as retail investors for securities insured by entities with explicit or implicit government support. Moreover, it should be noted that IR would also benefit from a liability portfolio perspective. Most of its long-term

liabilities would be nominal fixed-rate liabilities (that would be more expensive in real terms during a period of unexpected disinflation) whereas the inflation indexed securities, that would form a small portion of its total liabilities, would be comparatively less expensive for IR during such a period. This would help in creating an internal hedge rather than betting solely on unexpected high inflation in the future. The capacity of inflation-indexed securities to provide protection against inflation is subject to certain practical limitations such as identification of an appropriate index (most inflation-indexed securities in the U.S., Canada, UX, Australia and several emerging markets such as Brazil, Chile, Mexico, Poland, Turkey and Israel are indexed to a Consumer Price Index), index calculation including one-time adjustments, indexation lag (most countries have a 3-6 month lag linked to CPI) and the tax treatment of the returns on the inflation-indexed securities.

The following are some of alternative structures based on this premise.

* **Inflation-indexed coupon bond**

This structure is a conventional bond with a bullet maturity with a coupon paid either quarterly or semi-annually. Each coupon consists of a fixed real rate component as well as an inflation component for the relevant period. The fixed real rate coupon is pre-agreed at the time of the issue. The inflation component is calculated periodically over the life of the security and the nominal coupon payment is accordingly determined.

* **Capital-indexed bond**

This structure is a conventional fixed rate bond with a bullet maturity. The coupon paid on the bond is a pre-agreed real rate of return. On each coupon payment date, an indexation adjustment is made as follows:

1. The bond principal is indexed; that is, the principal value is adjusted by the inflation level applicable to the capital adjustment). This accretion to the principal is not paid to the bondholder at the time of calculation.

2 The real rate of interest is then used to calculate an additional interest amount based on capital adjustment (the interest indexation amount). This interest indexation amount is paid to the bondholder as part of the periodic interest payment.

3. The accumulated capital adjustment is paid to the bondholder at maturity.

The capital-indexed bond is in effect a normal coupon bond paying the real rate of interest with the cash flows (both principal and interest) being indexed to inflation.

* **Indexed annuity bond**

This structure consists of an amortizing bond where the principal and interest (calculated as the real rate of interest) is repaid by level installments. The periodic payments (both principal and interest) are adjusted for inflation. The capital adjustment and the interest adjustment are paid to the bondholder at each interest payment date.

All these variants incorporates a zero-floor element whereby if the periodic inflation falls below zero (deflation) the bond value does not increase but there is an adjustment as of a future period.

(ii) Leasing

In a lease, the benefit of the depreciation on capital assets (and thereby, the tax shelter thereon) goes to the lessor, though the lessee operates and uses the assets. Since the cash-flows to the lessor include the lower tax payable due to higher depreciation, to get the same return on investment, the lessor would charge the lessee lower financial costs. In other words, the lessee cost of funds becomes lower as he passes on the depreciation benefits to the lessor.

The Railways are a non-tax paying entity, and hence has no use of the depreciation benefit. Nevertheless, railways is an ideal lessee, and financing its capital expenditure through leases will substantially lower its cost of funds.

(iii) Seuritization of proceeds

An innovative way of raising much needed resources for the Railways could be through securitization of railway receivables, where the investors to the bonds are the users themselves. Bonds for retail investors may be floated whereby there is GO interest payable, but the detachable coupons might be used for purchase of railway tickets at a discount of, say, 25 per cent. The retail investors may monetize unused coupons (or part of the value of the coupon that is not used): IR could immediately invest the amounts received and benefit from the float till the coupons are used.