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CASE STUDIES

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Introductory Note

It has been evident for several years now that India faces a severe infrastructure deficit which can seriously jeopardise its bid to achieve a sustained GDP growth rate of 10 percent. The shortages are especially stark in the transport sector. Therefore, for the last decade or so, the government has been following a policy that seeks to promote public-private partnerships in infrastructure. The objective is to supplement, where possible and desirable, public funds with private investment. As a result, in spite of the initial slow progress, PPPs have now picked up momentum and several PPP projects are currently in operation. However, an evaluation of India's experience with PPPs has not been attempted so far in a sector-specific manner. This issue of the Journal seeks to make good this gap.

The Asian Journal seeks to provide a medium for exchange of knowledge, experience, ideas, information and data on various aspects of economic and social development. The main focus of the Journal has been on the publication of empirical, policy-oriented, thought-provoking articles covering especially the areas of transport and infrastructure. Each issue of the Journal deals with some contemporary topic of national importance. This particular issue focuses on the experiences and the lessons to be learnt from public-private partnership in the Indian Railways.

Towards this end, the papers in this issue have all been written by experts with a great deal of practical experience and an intimate knowledge of the issues that have been cropping up in PPPs at the microeconomic, operational level. Indeed, most of the articles are case studies which aim to highlight the problems that have been identified in the last few years and offer solutions to them.

I hope this comprehensive issue of the Journal will be instrumental in generating pragmatic answers to the problems being faced in the Indian context, especially in view of several mutually conflicting objectives. In particular, it would have served its purpose if it succeeds in turning the attention of policymakers and analysts away from the general to the particulars of the PPP experiment.

I must acknowledge here our gratitude to the Hon'ble Minister for Railways for his message for this important issue. It signifies his abiding interest in the development of rail infrastructure in the country. I also thank Ranjan K. Jain for agreeing to be the Guest Editor for this issue of the Journal. Thanks also to Sumant Chak for coordinating the efforts to bring out the Journal.

K. L. Thapar
Chairman

सत्यमेव जयते

रेल मंत्री
भारत सरकार
Minister of Railways
Government of India

11 April 2008

MESSAGE

It gives me great pleasure to learn that the Asian Institute of Transport Development is devoting an entire issue of its prestigious journal to the subject of Public-Private Partnerships in the Railways. As we all know, the Indian Railways are the backbone of India's transportation system. They have undoubtedly done yeoman service for the country for the past several years. However, it is well recognized that if the transport needs of India's rapidly growing economy are to be fully met, the country will have to make large investments in expanding the capacity of the Railways.

Railways have been placed in a virtuous cycle of high growth through a number of policy initiatives taken recently. It is recording unprecedented growth. To maintain this growth momentum huge investments are required. Further, in certain non-core areas, Public Private Partnership can lead to synergy, which can further help in providing impetus to growth. To bridge the funding gap between what is available and what is needed and to create synergy with private sector in non-core area of Railway working Public Private Partnerships (PPPs) have assumed ever-increasing importance. The combined effort will accelerate the much desired expansion of capacity.

Recognising its benefits, Indian Railways have taken several initiatives to promote such partnerships. The evaluation of the experience gained in this area would be useful for making mid-course corrections. It is indeed gratifying that the Institute, which, some years ago, formed the Rail Collective to serve the needs of PPPs in the Railways, is continuing with its work in this area. The Institute has demonstrated its ability to offer guidance on important issues in a way that enables policy framework to be fine-tuned.

(Lalu Prasad)

PERSPECTIVE AND CRITIQUE

1. Introduction

Globally, there has been a revival of the railways as they are the most efficient and environmentally friendly means of transport. While this is a welcome development, there is currently a huge deficit of rail infrastructure, both in quantity and quality. This is particularly true of the emerging market economies, and even more so of India whose economy has been growing at about 8.5 per cent over the last five years. To put it differently, with the GDP elasticity of transport demand being about 1.25, the demand for transport has been growing at between 10-12 percent. The capacity deficit has thus been greatly accentuated. Most of the high-density rail network is now fully saturated and is under great strain. To bridge the gap, there is need for a four-fold increase in investment in the railways. Recognising this, the 11th Plan proposes to increase such investment to about $63 billion at 2006-07 prices, from an actual investment of about $21 billion in the 10th Plan.

However, in view of the demands from other sectors, not all of this investment can come from public resources. It is in this context that the role of the private sector becomes important. It needs to be brought in through public-private partnerships (PPPs) with a view to supplementing scarce public resources, creating a more competitive environment, improving efficiencies and reducing costs. Funding through PPP and borrowings is expected to be of the order of $18 billion during the 11th Plan.

But what is a public-private partnership (PPP)? At its most general, it is an arrangement between a public (government) authority and a private (non-government) entity by which services that are the obligation of or which have traditionally been provided by the public authority are provided by the private entity under a contractual arrangement (concession, licence or management contract) containing well-defined terms and conditions. Under this arrangement, the obligation to provide such services and consequently be accountable to users continues to vest with the public authority, though it chooses to deliver them through a private entity best suited for the purpose.

A point that needs reiteration in the current Indian context -- where PPPs are often seen as the solution to the country's huge infrastructure deficit and where the bulk of investment in many infrastructure sectors is expected to come by way of private investment -- is that PPPs are not an end in themselves but constitute one of the several means of achieving an end. Internationally, the bulk of infrastructure investment, even in countries that have a significant involvement of the private sector in the provision of infrastructure services, is made by the state, with the level of private investment rarely

exceeding 20-25 percent of the aggregate capital formation in the infrastructure sector. This fact would assume even more importance in India where access to basic infrastructure services for the poor and marginalised sections of population would continue to remain a concern during the next few decades.

2. Why use PPPs

Sometimes PPP programmes are pursued because it is fashionable to do so and because they are the season's current flavour. Most often, though, the PPPs are used simply because the state lacks the financial resources required for huge investments. Such use in itself is not unjustified, given the high savings rate (36 percent) of the economy, the liquidity in the banking system and the risk appetite of equity investors – both strategic and financial. In the prevailing economic environment, it has become possible to significantly leverage private funds around limited public resources, especially for infrastructure services where commercial returns are possible with either little or no government support. This has the added benefit that it would also allow for channelising scarce public resources for social infrastructure.

PPPs have been successfully used to unlock the commercial value of various public assets and services e.g. hotels and tourism assets, real estate, rail terminals and telecom services. For these types of projects, return to the government in the form of an upfront premium, a concession fee or royalty is the key driver. However, the most important reason for using PPPs is the efficiency gain that it brings to the system – achieved by the equitable transfer of risks and responsibilities to the entity best suited to manage them. This is expected to result in value for money for the users or for the public entity, depending on the payment structure and a gain in efficiency – in terms of higher service and maintenance standards, improved access, better project management and project cost control mechanisms, and so on.

3. Types of PPPs

PPP projects may be classified on the basis of how public funds are made available for these projects. Financially free standing projects are those where the role of the public sector is limited to initial project development, land acquisition, and securing critical approvals, such as preliminary environmental clearances. The private entity undertakes the project on the basis that costs and profits would be entirely recovered through charges for services to the users of these services. On the other hand, the public entity can also purchase these services on behalf of the users and pay for the services delivered by the private entity – either by way of a unit charge or by way of a periodical payment. It is also possible to have hybrid structures where, in order to enhance the viability and commercial attractiveness of the project, the public entity may provide a viability gap support by way of a capital grant or through payments spread over the project life.

In joint ventures, while the government also participates in the equity capital raised for the project as an equal or minority partner, the overall project control generally rests with the private sector. However, this is not the case so far as joint ventures in the railways are concerned. In their case, the overall control rests with the railways. As a matter of fact, the railways perform various roles, namely, that of an investor, a concessioning authority, an operator and manager as also a contractor handling engineering procurement and construction. Multiplicity of government roles makes such a joint venture less optimal than a pure private sector structure. There is also the issue of basic conflict of interests of the stakeholders.

Therefore, the key issue that must be addressed in the PPP model is of evolving an approach to satisfy the varying interests of multiple stakeholders – governments, private players, users, financial institutions, etc. It is also important to ensure that risk allocation and pricing are in the context of long-term consequences. There is also a clear and felt need for transparent and stable government policy, especially in the context of projects of public importance where the externalities cannot be captured by project revenues alone and which deliver significant economic benefits, as distinct from mere commercial returns.

It is heartening to note that a policy for financial support to PPPs through the provision of viability gap funding up to 20 per cent by the central government and an additional 20 per cent by the state government or the line ministry has now been formulated. The strategy is to leverage scarce budgetary resources for addressing critical gaps in private sector financing. The projects qualifying for such funding are normally those that have long gestation period and where levy of higher user charges is not possible.

The Government of India has also prepared a number of important guidelines/schemes to promote public-private partnerships. These include model concession agreements, guidelines for pre-qualification of bidders, guidelines for preparation of RFP, guidelines for formulation, appraisal and approval of PPP projects, scheme for financing infrastructure projects through India Infrastructure Finance Company (IIFC), etc. IIFC provides up to 20 per cent of the capital cost as long-term debt, which is generally absent in the debt market.

For providing financial support for quality project development activities to the States and the Central Ministries, a corpus fund titled 'India Infrastructure Project Development Fund' (IIPDF), with an initial contribution of Rs.100 crore is being set up. Although it is envisaged as a revolving fund and would get replenished by the reimbursement of 'investment' through the fees earned from successfully bid projects, should there be a need, it can be supplemented in subsequent years through budgetary

support. The IIPDF would ordinarily assist up to 75 percent of the project development expenses. The assistance from IIPDF would ordinarily be in the form of an interest-free loan. On successful completion of the bidding process, the project development expenditure would be recovered from the successful bidder.

In the absence of past experience in the handling of PPPs, the initial transition largely requires negotiated and often opaque deals, which are sometimes driven by private beneficiaries. However, as both the government and the private sector gain experience and understand the risk and mechanism of the entire PPP deal, PPPs gain acceptability as a tool for enhancing welfare and efficiency. With the passage of time, the process becomes more transparent, competitive and fair. Since it is driven by the government, good governance becomes the key issue as the objective is to attract private capital in public projects.

4. The Indian Railways and PPPs

The Indian Railways, it needs recalling, is not new to PPPs. Indeed, in the 19th and early 20th century, a number of railway lines were built via PPPs. After a lull of about 50 years after 1947, PPPs were revived in a small way in the mid-1990s, primarily with the object of supplementing the government resources. At that time, harnessing of private sector efficiency was not the consideration. But due to lack of response and several inadequacies, these early PPP initiatives failed.

BOLT scheme was launched in 1994-95, which came a cropper. 'Own Your Wagon' scheme was launched to augment the wagon fleet. A private freight terminal was built in the National Capital Region. Efforts continued and the BOLT scheme was rehashed as BOT with track access charge payment (similar to annuity in the road sector). Viramgam-Mehsana Gauge Conversion project was executed through this model.

Later, the Railways began to focus on schemes that would supplement and complement existing capacity as private funding was attracted to them relatively more easily. For example, a port keen to have a rail link would be willing to contribute to the capital cost of such a link. Similarly, the developer of a steel plant, or a cement plant, or an export house could be persuaded to help fund a linking railway line. These private investors, the Railways have found, are willing to provide traffic guarantees by signing of a take-or-pay agreement, which works as an anchor for non-recourse project finance by lending institutions.

Drawing on the potentiality of this arrangement, a private railway line to provide rail linkage to Mundra Port was developed on BOO basis. Permission was also given for the construction and operation of a railway line to connect Dhamra Port on East Coast of the country. Several joint venture SPVs were formed with participation of strategic investors to execute a number of port connectivity projects. Pipavav Railway Corporation

Limited, Hasan Mangalore Rail Development Company Limited, Kutch Railway Company Limited were the initial SPVs, which successfully commissioned the projects that have now become operational.

These SPVs not only mobilized private financial resources for equity and debt funding of the projects but also brought about significant efficiency in operation and maintenance by adopting benchmark practices evolved by Konkan Railway Corporation. Kutch Railway Company has even gone a step further and has evolved processes and practices which further enhance efficiency. The SPVs have emerged as focused business units and, with the freedom available have adopted innovative practices, which bring significant gains. Most importantly, the loss-making lines have become profitable entities.

To institutionalize the process of absorption of private capital and borrowings in the development of fixed rail infrastructure projects, Rail Vikas Nigam Limited (RVNL) was set up. The organization was given requisite powers and mandate to develop suitable projects involving private sector and to commission such projects in an expeditious manner. As a follow-up, RVNL has already structured 8 port connectivity projects through joint venture SPVs.

In addition, Railways have identified a large number of areas for PPP. These include container train business, development of world-class passenger railway stations, multimodal logistics parks, rail-side warehousing facilities, commodity-specific freight terminals, agri-retail hubs and outlets, budget hotels and commercial complexes. In several areas, the underlying objective is to leverage the railway land resources to develop much-needed facilities.

It is nevertheless important to keep in view a crucial factor, without which the efforts could fail once again, as they did in the mid-1990s. For example, the Railways have to grasp that the more the risk is transferred to the private sector, the greater will be the overall cost. The private sector will build the perceived risks into the prices so that its profit margins are not affected. This also means that in order to provide comfort to private investors and lenders, the Railways need to take up a significant stake in the project and also have contingency plans for stepping in if the deals fail. Thought also needs to be given to options, such as whether the existing deals can be re-negotiated, or a new private partner can be brought in, or whether the Railways should themselves take control.

5. PPP experiments

Fixed infrastructure-railway line: This is an excellent model for initiating the process of PPP in railway fixed infrastructure. It is suitable primarily for strategic investors, who have vested interests in early completion of the project line, as their main business is heavily dependent on rail transportation. However, it does transfer significant risk on to

the investor for the simple reason that almost all the activities are in the hands of the railways. It is indeed very unusual to have the same agency playing all the roles – roles of the concessioning authority, project promoter, construction contractor, operator, collector of user charges and tariff regulator.

The main advantages that have accrued through this structure are related to financing (more efficient financing structure ensuring that adequate funds are available in a timely manner for the project), availability of equity funds from other sources and more intense monitoring of the project through contractual obligations placed on the Indian Railways through Construction and O&M contracts. In such a structure, however, the key areas of private participation i.e. construction and maintenance are not being tapped fully.

The case studies of the Pipavav Rail Corporation Limited, the Hasan Mangalore Rail Development Company Limited and Kutch Railway Company Limited reveal that defining the actual scope of the project in terms of various facilities may remain blurred and become a contentions issue between the SPVs and the Railways. This can lead to escalation in the project cost, which requires intense coordination and understanding on the part of both sides to contain the costs within the desirable limits. Calculation of O&M cost, adhering to the number of staff members agreed to in the agreement, timely payment of apportioned revenue and marketing freedom through tariff concessions, still remain contentious. The whole concept being new to railways, it is hoped that with the passage of time and with enhanced internal communications these issues would get resolved.

While on paper the whole arrangement has significant advantages viz. construction on cost basis (no profit), O&M using benchmark practices and leveraging IR's strength for quick restoration of disruptions in actual practice, on account of conflict of interests, the partnership is loaded in favour of the railways on account of sheer size and strength of the partner. For any company, lien on revenue is of utmost importance. Its commitment to lenders and maximization of value for the shareholders depends solely on the timely realization of revenue.

One of the major contributions from the Railways has to be in actions that generate trust. For example, they control the rolling stock and if they deprive the SPV of its availability, it could spell disaster for the experiment. In the absence of non-compete clause, railways are free to rationalize movement of traffic via alternative routes or move traffic via alternative routes even without rationalization, thereby depriving the SPV of its legitimate revenue. Such risks build serious constraints to the replicability of the model in areas where strong strategic investors are absent.

There is also the need to identify debt payment structures that are more definite and closely linked to construction and maintenance performance and are not dependent on traffic. The lenders and developers/contractors cannot be made to bear traffic risk as they are not involved in operations or management of traffic. The enforceability of agreements is also an area deserving attention. These agreements could pertain to equity contributions by the investor, traffic guarantees, etc.

Finally, it has been observed that the process of SPV creation and finalization of agreements is long and tardy. There is a clear need for standardizing agreements and putting them in public domain. As far as possible, all the agreements should be signed, before the financial closure and beginning of construction activity. As is the case in any long-term relationship, the success of a PPP depends on how the spirit of partnership is implemented in practice. Given the background of traditional contracting where the public and private proponents often take an adversarial position, there is the need for a mindset change in the way PPP contracts are administered. Since the success of the project is equally critical to both parties, the focus of discussions should always be on how the project could be successfully implemented. Arrangements, such as the provision of an independent engineer for each project, could bring in objectivity and fairness to the process of implementation – this arrangement has been used with a reasonable degree of success in the roads and ports sectors.

Sustaining the momentum and scaling up of the portfolio of PPP requires a pool of trained manpower, which has deep understanding of all related aspects. PPP concessions are long-term contracts and most of the projects are still 'work-in-progress'. Each project will provide learning which is valuable. It is, therefore, important that the team of personnel in-charge of PPP transactions should be provided stability and retained for future transactions so as to gain from the learning and valuable experience. Frequent changes in the concerned personnel may jeopardize the success of PPP.

It is sometimes seen that the processing and decision-making of a PPP transaction involves people requiring exposure and understanding of the PPP structuring. Absence of such knowledge at decision-making level may lead to a structuring which is sub-optimal or unattractive. It is, therefore, important to create a mechanism of approval through an institutional set-up. From the present deficit of infrastructure and requirement of huge financial resources, it is certain that PPP is here to stay and will play a long innings. The policy environment must ensure that long-term interest of the private sector is addressed and PPP heralds renaissance of infrastructure building in the country.

Multimodal transport: The experience of having a private container train operator has so far had a mixed outcome. It is still in a nascent stage of evolution and requires a

little more time to stabilize. Initial experience has shown that despite teething problems, the initiative has been showing desired results and meeting the stated objective. As per the initial planning, the 14 new operators are adding about 65 rakes in the container fleet against the fleet size of 150 rakes owned by CONCOR. This is a significant capacity addition in container transportation. Another noticeable feature is significant inroads made by these operators in tapping the domestic container volumes. New circuits have been evolved, which ensure both-way traffic, with little empty haulage of containers. It is hoped that through these private operators significant capital investment will be made in the creation of rail infrastructure viz. ICDs and rolling stock.

Another major issue being confronted by all the operators is the building of inter-modal terminals and logistics parks. It requires a lot of land in the close proximity of railway stations. As all the operators are competing with each other for traffic in the same area, land prices have gone up. Having multiple rail terminals in the same and nearby locations is bound to create serious logistics problems in train aggregation/ disaggregation, not only for the railways but also for the users who will need to keep container inventory at more points. Even provision of staff by customs and railways at multiple locations would be a problem. A third problem area is the shortage of wagon manufacturing capacity. Industry sources predict a 12-15 month time-lag for delivery of wagons. It is hoped that the market will adjust to the demand and in future as demand for wagons becomes more predictable, the time-period will get reduced.

There are various regulatory issues which need to be addressed, like the clauses relating to increase in the haulage charges by railways at its discretion. The haulage charges have been revised in recent past almost thrice in a year. Another serious issue is regarding the fixation of these charges vis-à-vis the general goods tariff rates of Indian Railways, as there are apprehensions about container operators trying to wean away railway's genuine traffic due to differential rating principles employed for the two streams. As the investments are large and gestation period long, the commodity to be carried by train operators cannot be left to uncertainties. Also, there are issues related to payment of haulage charges for empty wagons and transit time. The agreement needs to have some service level guarantees, in terms of transit time and train examination in the ICD premises.

Ground realities tell us that development of separate ICDs or Multimodal Logistics Park by each of the operator in the same zone of influence will lead to sub-optimal use of facilities leading to inefficiency. The way forward, therefore, is to have common user facilities at the terminals. The land cost is prohibitive and the highest level of efficiency can only be achieved by the development of such facilities (to the extent possible) on railway land. An appropriate policy framework will have to be developed for this purpose. Presently, in the NCR region, ICDs at Loni and Ghari Harsaru are being

used on common user principle. This requires coordination and involvement of the concerned state government for change in land use and provision of other infrastructure facilities. Rail connectivity to such facilities can be provided on PPP basis.

There has to be a mechanism that protects the train operators from frequent hikes in haulage charges, which is detrimental to the growth of this sector. Container transportation has profitability issues. In some of the European countries, government provides subsidy to container operators, with a view to ensuring their competitiveness vis-à-vis road, so as to divert traffic from road to rail and keep the roads free from congestion. The objective of the government should be to ensure that the container business really grows from 20 MT to 100 MT in five years and the government gains by way of larger volumes, rather than through higher tariff.

Rail-side warehousing facilities: Firms that transport goods and services must necessarily provide warehousing services as well, if they are to increase their market shares and maximize the return on capital invested in the main activities. Recognising the need, the Indian Railways have formulated a scheme for setting up warehouses at their goods terminals with private sector participation. Such facilities are provided on a purely public utility concept without any discrimination.

The evaluation studies of two locations viz. Bangalore and Bhopal have shown mixed results. While the project at Bangalore has realized the anticipated benefits, the same cannot be said about the project at Bhopal. In the latter case, most of the traffic is moving directly to the stockists with the result that the warehouse at the rail-head has lost its utility. This underscores the need for studying the city-specific logistics requirements well in advance of undertaking the projects.

Another aspect which should be kept in view while planning the facilities is that either part of the line serving the facility should be left for direct loading on truck or a separate line may be earmarked for this purpose. In the absence of such a planning, the rail-side warehousing may have adverse effect on unloading and transportation by rail.

The CWC is primarily a warehousing company. Its interest is to maximize occupancy of the warehouse, rather than to increase the turnover and maximize traffic by rail. It is a link in the logistics chain, but does not have focus on the entire chain. Gains can be maximized by the CWC either by itself becoming a logistics operator or warehouse being developed by a logistics provider. CWC has since created a new subsidiary in the name of Rail-Side Warehousing Corporation Limited, which will act as a logistics provider.

Metro rail projects: PPP in Metro Rail projects has recently been introduced. It is too early to evaluate the models or examine their efficacy. Hyderabad Metro Rail (MRTS)

project is based on the simple BOT toll model with viability gap funding. The fare structure is much more rational compared to the suburban fare charged by railways. The concessionaire has also the right to develop commercial area as part of the project. One such concession has already been given in Mumbai and Hyderabad will be the second one on the same principle. Phase I of Hyderabad MRTS, which was completed on the basis of a 50:50 partnership by MOR and Government of Andhra Pradesh can be termed as a success. First time a combined bus-cum-rail ticket has been issued, which is leading to a kind of road-rail integration. The total project cost has been about Rs.160 crore. The project has facilitated the transportation of about one lakh commuters every day. It also envisages underwriting of operational losses by the Andhra Pradesh Government.

Passenger railway stations: The existing railway stations at major cities in the country suffer from a number of inadequacies. Lack of space in circulating areas, cluttered platforms and poor connectivity with other modes of transport often make rail travel an unpleasant experience. The stations are located in the prime areas of the cities and, therefore, offer potential for redevelopment by leveraging the associated land and air-space for commercial activity, thereby saving the public resources.

In order to exploit this potential and with a view to improving the services, IR has drawn up plans to develop 24 world-class stations involving private sector participation. The term 'world-class' connotes both content and aspiration. Redevelopment of each station would require huge resources. For example, the total expenditure required for the New Delhi station alone would be in the range of Rs. 7,000 crore. In addition, about Rs. 3,000 crore will be required for development of commercial facilities. Not long ago, this amount was the railway's capital budget for the whole year.

Executing a PPP project in this particular area is, however, a challenging task. Clear specification of outputs, segregation of services to be carried out by the private concessionaire from the ones to be retained by the Railways and a credible system of managing the interface are pre-requisites that must be necessarily met. Measurability and verifiability of the concessionaire's responsibilities are essential to provide strong incentives for good performance and penalties/disincentives for failure to perform. These areas need to be addressed in the project.

A welcome development is the attention received from the public and the investing community alike with regard to the redevelopment of railway stations. It may be pointed out that the request for pre-qualification for New Delhi Station has received overwhelming response. The process of selection is likely to be completed by June 2008. Thereafter, short-listed bidders/consortia would be invited to submit their financial bids. Meanwhile, the work relating to preparation of architectural concept plan, feasibility report, etc. is in progress.

6. Key issues

Conflict of interests: The current PPP structure has inherent contradictions in terms of large conflict of interests between the key stakeholders and project objectives. For instance, Railways through various entities is a shareholder, construction contractor, O&M contractor as well as the concessioning authority.

Financing risk: Given the fact that very often the Railways are the largest shareholder in SPVs, indirectly it is they who bear the financing risk. The lenders may be comfortable with this arrangement as by experience they would expect Railways to fulfil any financial liabilities that may come onto the SPV. Also, as discussed above, the numerous roles being played by the Railways would only add to such thinking amongst the lenders.

Construction and maintenance optimization: From a project-structuring perspective, financing, construction and maintenance are the only key activities where private sector participation and efficiency gains can be incorporated. To further optimise the gains, construction could be broken down into components wherein large value procurement/supply items could be directly routed through RVNL and other work items could be handled by the contractor. This structure would not only reduce the cost by eliminating profiteering by the concessionaire on such items but would also capture efficiency gains in procurement through economies of scale.

Service levels: Service levels in all PPP agreements should be laid down to the extent possible. For example, transit time could be specified with regard to container train operations. This would benefit both the stakeholders and the users of the service. Alongside, a compensatory mechanism in terms of penalty charges and related tariffs needs to be evolved.

Revenue risk: Transfer of revenue risk to SPV and its mitigation by way of traffic guarantees and making users of the project line as partners in the venture helps the railways in a significant way. However, the risk of diversion of traffic needs to be mitigated, by having non-compete clause in the concession agreement. Further, there is need for an independent arbitral tribunal or authority to redress grievances on this account in a timely manner.

The railways have been making significant changes in tariff fixing and freight categorization, which affect the revenue stream of the SPVs. The SPV can be insulated from vagaries of such decision-making by introducing levy of 'access charge'. However, such a charge will have to be fixed in a manner so as to ensure bankability of the project, as is the case internationally. It requires different treatment for each project depending upon its level of viability – high, medium, low.

For example, projects having comfortable assurance of traffic, such charge can be directly related to the traffic moved. In other cases, where the traffic materialisation is uncertain, it could be based only on the availability of track capacity. In both the cases, however, the principles have to be laid down before hand, and have to be so defined as to maintain the viability and bankability of the project.

Revenue model: Railways have made changes in the revenue models in the successive concession agreements. Genuine concern regarding limiting the profitability of the SPV has been addressed by capping of equity return by early termination of the concession. Experience gained so far reveals that the SPVs face a serious debt servicing problem in the initial years. This highlights the need for providing support at that stage.

The revenue model, therefore, should ensure bankability of the project and reduce the risk perception. Enhanced risk perception will lead to charging of higher rate of interest by the lenders. This would neither help the SPV nor the Railways who are joint venture partners. Having addressed the issue of windfall profit, no further reduction in the revenue in any other manner is considered desirable, particularly in a scenario where almost all the activities are being undertaken by the Railways either directly or through its agencies.

Price discovery: Prices play the most critical role in all economic activity and price discovery of a project through competitive bidding, harnessing of private sector efficiency, timely delivery of quality infrastructure and determination of subsidy through a transparent mechanism are the cornerstones of public-private partnership. The Indian Railways have, however, been quite conservative in exploiting the real gains. There is a general impression that cost of railway projects can be reduced by more efficient designs and construction methods. Future PPPs, therefore, will have to capture these elements.

Another evolution of the above model could be to have SPV with strategic investors, which would award a Design Build Finance and Maintain (DBFM) concession through competitive bidding on annuity basis. The concession will exclude the major supply items viz. rails & sleepers. Traffic guarantees will be secured to ensure cash flows adequate enough to pay annuity. The equity shall be utilized for financing of supply items i.e. rails & sleepers. This model will harness the private sector efficiency in construction and maintenance, thereby making the model more robust.

Enforceability of agreements: To ensure the fulfillment of equity contribution obligations by the non-railway shareholders, the shareholder agreement should have the provision for issue of partly paid share certificates, till such time the full equity contribution is made. Enforcement of take-or-pay agreement remains an issue, which defies an easy solution. One way out could be the pledging of equity shares against the annual traffic guarantee penalty amount, as a security. This approach would provide

comfort upto the level of equity amount. Realization of penalties beyond equity amount will, however, continue to be an issue.

An alternative could be to make the default in the payment of traffic guarantee penalties, as a default condition in the Concession Agreement. It will provide protection to the lender as such default can result in the termination of concession and the lender could recover debt through the termination payments made by MOR. It will, however, cause loss to the equity investors. In case of multiple investors and traffic guarantors, the default by one could cause loss to all of them.

Handholding by government: It has to be understood that PPP is an unchartered territory and therefore it will require mid-course corrections. Such flexibility should be built not only in the system administering such projects but also in the agreements. It is also to be recognized that many of PPP projects may require hand-holding by the government in the initial stages, as rail infrastructure projects sometimes take a little longer period to ramp up the traffic at the desired levels.

Legal status of SPVs: There is need to have clarity on the legal status of the SPVs. These SPVs are 'railway' and 'non-government railway' under the definition given in Section 2 of The Railways Act 1989. They are also fully covered under the definition of 'Railway Administration'. The SPVs need authority and power of Railway Administration as enshrined in the Act for the purpose of efficient construction and also for running of the business, particularly in relation to the powers for marketing of traffic. Other powers available to Railway Administration in relation to operation and maintenance are not required as the same are exercised by the concerned Zonal Railways. Even if these SPVs are not notified as Railway Administration, the relevant powers need to be transferred to them through the Concession Agreement.

Land resources: There is need to have a closer look at the requirements of land for the projects. It would have to take into account the true cost and economic value of the land, and the need to minimize displacement and choose the least displacing of available alternatives, as required by recent judgements of the Supreme Court. Proposed amendment in Land Acquisition Act which has significant focus on resettlement and rehabilitation of project-affected persons, will have cost and time implications for the project.

To conclude, it may be said that public-private partnership model is here to stay. It is in the national interest that the Railways master all aspects of this model so that capacity additions are carried on apace to prevent capacity becoming a major bottleneck in the pursuit of high growth rate, without which poverty removal will remain a distant dream.

PUBLIC-PRIVATE PARTNERSHIPS IN INDIAN RAILWAYS

Cherian Thomas* **and P.V. Ravi@**

INTRODUCTION

A public-private partnership (PPP) is an arrangement between a public (government) authority and a private (non-government) entity by which services that are the obligation of or which have traditionally been provided by the public authority are provided by the private entity under a contractual arrangement (concession, licence or management contract) containing well-defined terms and conditions. Under this arrangement, the obligation to provide such services and consequent accountability to users continues to vest with the public authority; though it chooses to deliver them through an entity best suited for this purpose.

A point that needs reiteration in the current Indian context where PPPs are often seen as the solution to the country's huge infrastructure deficit and where the bulk of investment in many infrastructure sectors is expected to come by way of private investment is that PPPs are not an end in themselves but constitute one of the means of achieving an end. Internationally, the bulk of infrastructure investment, even in countries that have a significant involvement of the private sector in the provision of infrastructure services, is made by the state, with the level of private investment rarely exceeding 20-25 percent of the aggregate capital formation in these sectors. This fact would assume even more importance in India where access to basic infrastructure services for the poor and marginalised sections of our population would continue to remain a concern in the next few decades.

WHY USE PPPs

Sometimes PPP programmes are pursued because it is fashionable to do so and because they are the season's current flavour. Most often, though, the reason for using PPPs is simply because the state lacks the financial resources required for these investments. This in itself is not unjustified, given the high savings rate (30 percent) of the economy, the liquidity in the banking system and the risk appetite of equity investors – both strategic and financial. It is possible to significantly leverage private funds around limited public resources, especially for infrastructure services where commercial returns are possible with either little or no government support. This would also allow for channelising scarce public resources for social infrastructure.

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PPPs have been successfully used to unlock the commercial value of various public assets and services e.g. hotels and tourism assets, real estate, and telecom services. For these types of projects, return to the government in the form of an upfront premium, a concession fee or royalty is the key driver. However, the most important reason for using PPPs is the sheer efficiency gain that it brings to the system – achieved by the equitable transfer of risks and responsibilities to the entity best suited to manage them. This is expected to result in value for money for users or the public entity, depending on the payment structure and a gain in efficiency – in terms of higher service and maintenance standards, improved access, better project management and project cost control mechanisms, and so on.

The value for money gains usually comes from the benefits of combining innovative asset design, construction, and operations. A vivid example of lower costs to users through PPPs is the telecom sector which has seen a substantial reduction in STD[1] call charges (from Rs. 16/- per minute to less than a rupee) and costs of mobile telephony. Consequently, even the poor have access to affordable telecom services and usage has grown manifold.

TYPES OF PPPs

PPP projects may be classified on the basis of how public funds are made available for these projects. *Financially free standing projects*[2] are those where the role of the public sector is limited to initial project development, land acquisition, and securing critical approvals, such as preliminary environmental clearances. The private entity would undertake the project on the basis that costs and profits would be entirely recovered through charges for services to the users of these services. On the other hand, the public entity may *purchase these services on behalf of users*[3] and pay for the services delivered by the private sector – either by way of a unit charge or by way of a periodical payment. It is also possible to have *hybrid structures* where, in order to enhance the viability and commercial attractiveness of the project, the public entity may provide a viability gap support by way of a capital grant or through payments spread over the project life.

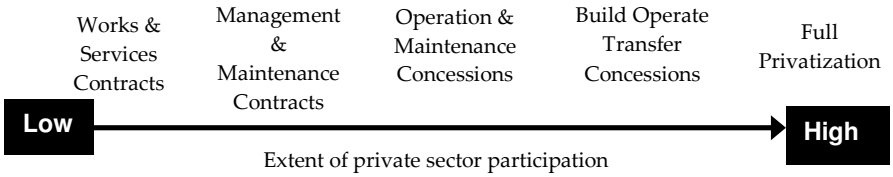
In joint ventures[4], while the government also participates in the equity capital raised for the project as an equal or minority partner, the overall project control rests with

1. Subscriber Trunk Dialing.
2. For example, road projects implemented by the private sector involving direct tolling, where no capital grant is payable by the public entity.
3. The DBFO road programme in the UK involving payment of shadow tolls or the road projects using the annuity method in India are examples of this type of project.
4. The new international airports at Bangalore and Hyderabad and the airport modernisation projects at Mumbai and Delhi also incorporate this approach.

the private sector. The initial railway PPP projects[5] have been implemented through dedicated Special Purpose Vehicles (SPVs) where the Ministry of Railways (MoR) has either an equal or a controlling stake in the projects[6]. Under this structure, there is a basic conflict of interest in the role of MoR as a concessioning authority, investor and EPC[7]/ O&M[8] contractor, which does not allow for objective and speedy decision-making. Unless the Directors nominated by MoR have the necessary understanding of PPPs and have the ability to take unbiased decisions, a joint venture structure is always less optimal than a pure private sector structure. Recently, MoR has awarded concessions to a few private investors for operating container train services across various sections of the network. It is, however, rather early to judge the efficacy of these concessions and their financial viability.

In implementing PPPs, governments have a range of options to choose from, as set out in Figure 1 below. While at one end of the spectrum – full privatisation – and at the other end – works/services contracts – both do not constitute PPP contracts, there are different PPP options to chose from – management contracts (of the entire or bulk of the facility), O&M concessions and build-operate-transfer (BOT) concessions, depending on the specific need/requirement. The challenge is in using the right kind of PPP structure for a particular project since most projects can be made amenable to PPP structures in one form or the other.

Figure 1: Range of options



Several variations of the BOT structure have been used both in India and abroad with acronyms such as BOOT, BOO, BOOST, BOLT, OMT and DBFO[9]. The BOT structure

5. The rail connectivity projects serving the ports of Pipavav, Mangalore, and Kandla.
6. Even without a controlling stake, it is possible to exercise control *and* capture financial returns through provisions in the shareholders' agreements executed for these projects. Participation in an SPV is not a *sine qua non* for this purpose, though it is frequently thought to be so.
7. Engineering, Procurement, and Construction.
8. Operations and Maintenance.
9. Build Own Operate Transfer – where ownership of underlying land is with the private entity, Build Own Operate – power plants and urban infrastructure like parking lots, Build Own Operate Share Transfer – where the framework involves a share of the revenue, Build Own Lease Transfer – used by the railways, Design Build Finance Operate – where very little design inputs are provided by the public authority – used for roads in UK and now by NHAI in India and Operate Maintain Transfer – where the initial implementation is undertaken by the state – as in the Mumbai Pune Expressway

is most widely used in India across various sectors. The BOLT model of the Railways was used mainly as a structure for financing and does not capture the O&M benefits in any significant manner. The applicability of various PPP options to different types of railway projects has been subsequently discussed in this paper.

ESSENTIAL FEATURES OF PPPs

In order to derive the best out of PPPs there are a few essential features that need to be incorporated in the PPP framework governing the project. These are given below:

Genuine risk transfer: Risks need to be allocated between the public and private entities – to the party best able to manage them to ensure best value for money. Over the last two decades, the private sector in India has successfully executed large projects in core sectors of the economy – cement, steel, power generation, oil refining, petrochemicals, roads, bridges, ports and industrial infrastructure – and has thereby acquired strong project management skills. All risks pertaining to design, construction, operations and maintenance, renewals and replacements can, therefore, be safely transferred to the private entity. The degree to which demand (traffic) risk can be transferred varies with the extent to which there is a natural monopoly characteristic or where the quality of the services can directly affect demand.

Output-based specifications: PPP contracts would need to specify the service outputs required from the private entity rather than the configuration of the capital asset itself or how the service is to be delivered. The emphasis is on defining the type of service and performance standards required. No unnecessary constraints are placed on the private sector's discretion to deliver these outputs through innovation in the design, financing, and construction of the physical assets, or in the method of subsequent O&M, the proviso being that the output standards – whether pertaining to design, construction, or O&M – are fully met.

Whole life asset performance: The PPP contract would require the private entity to take responsibility and assume risk for the performance of the asset over the whole life of a project. This provides strong incentives to the private investor to optimise costs, both in construction and in O&M, to realize the efficiencies arising from long-term asset management.

Performance-related payments: Payments to the private entity under the PPP contract – whether as fees collected from users, or where the public entity purchases services – would be subject to performance in accordance with the specific and quantified criteria laid down in the contract. These are derived from asset standards as well as standards of service and so the relationship and inter-operability between the output specification and the payment mechanism should be clearly set out in the contract. Typically, payments are made for the availability of the asset to deliver the agreed

outputs, and/or for the performance of the private sector in terms of outputs achieved, and/or for the volume of usage of the asset.

PRE-REQUISITES FOR SUCCESSFUL PPPs

Successful implementation of PPPs usually requires a comprehensive overhaul of the existing legislative, policy, and institutional frameworks, putting in place processes for adequate project development, equitable risk allocation, and inevitably a change in the existing mindsets in dealing with the private sector. Some of the broad issues in the context of railway projects are discussed below.

Enabling frameworks: At a fundamental level, the public entity should have the enabling powers under the existing statute to transfer its responsibility under a contract. In most sectors, either legislative amendments need to be carried out or new laws have to be enacted to allow for widespread private participation in the respective sectors. While the Indian Railways Act, 1989 (Railways Act) allows for the operations of the railways by a non-government railway, it may be useful to have a section explicitly allowing for the grant of concessions. Interestingly, historically the Indian Railways started off as a collection of private railway "companies," which were later amalgamated into the 'Indian Railways' as a nationalised government entity. The earlier Indian Railways Act of 1890 therefore had this 'PPP' provision. Similarly, the Indian Tramways Act of 1902 had the provision of private tram (rail-based urban transport) system.

Right regulation: There is an inherent conflict in the role of MoR as the concessioning authority (regulator) under a BOT concession and as a competitor – moving cargo on sections that could serve as alternative routes – in projects where the traffic risk is taken up by the private entity. This has been an issue for MoR's fully owned subsidiary – Konkan Railway Corporation – and two of the SPVs. As more and more projects are sought to be implemented through PPPs, this issue would need to be addressed through an appropriate independent institutional structure that would ensure fair competition.

Another issue of relevance is the exercise of setting tariffs – the powers for which vest with the Central Government and which get reset from time to time. Since there is no certainty about how tariffs would be set over the concession period, this issue could also dampen investor interest in these projects, unless tariff setting is also addressed through an independent regulatory mechanism.

Project development: PPP projects require far more rigorous project preparation than is currently undertaken for departmental construction. Where project development has been entrusted to Rail Vikas Nigam Ltd. (RVNL), this aspect has been substantially addressed through the preparation of detailed project reports and bankability reports. However, given the plans to develop facilities such as stations, freight terminals, hotels

and other commercial real estate through PPPs, it is crucial that the rigour of adequate and comprehensive project development on a format suitable for PPP projects, is systematized within the railways. Apart from providing accurate estimates of project costs, this would also be critical for the *ex-ante* value for value-for-money (VfM) analysis before the award of projects.

Equitable risk sharing framework: A risk is any factor, event, or influence that could threaten the successful completion of a project in terms of time, cost or quality or its subsequent operations. The process of project development is, therefore, expected to identify and highlight the major risks to which the project would be subjected. Some of the risks that could affect a project are set out below:

- Project development or planning risks, including the risk of obtaining various permissions;
- Design risks – the risk of designs being deficient and the attendant consequences;
- Construction risks – risks of price, quantity and time variation (overruns) leading to increase in the project cost; land acquisition delays/failures, unexpected technical hindrances, for example, unforeseen ground/sub-soil conditions, quality of construction being inadequate and contractor failure, among others;
- Environmental and social risks – statutory action due to non-compliance with environment legislation, possible project delays due to protests by those dispossessed of their land or by environment activists for perceived non-compliance of environmental laws;
- Force Majeure risks – risk of physical damage to the asset due to natural Force Majeure events, for instance, from natural calamities like floods or earthquakes and events beyond the control of both the parties.
- Financing risks – adequate funds are made available for the project in a timely manner.
- Commercial risks – revenue risks such as demand (traffic), tariff level and indexation, costs of operations and maintenance, other operations period risks (quality of road or safety of users).
- Regulatory risks – change in law, early determination of the contract, expropriation and other general regulatory risks

These risks would need to be addressed in the concession design. A key principle, as indicated earlier, is that risk should be allocated to the party best able to

manage it. A typical risk allocation framework for railway projects is set out in the table below:

Table 1: Typical Risk Allocation Framework for Railway Projects

Risk category	Allocation	Comments
Planning Risk	Outline planning and related permissions may be retained by the public authority. Detailed planning and related permissions are normally passed on to the private entity.	There may however, be occasions where transfer in whole or part is appropriate or unavoidable.
Design & Construction Risk	Transferred to the private entity.	Private partner bears risk of cost and time overruns. The public authority retains the risk of changes in output specification/change of scope.
Operating Risk and Risks of Technological Obsolescence	Transferred to the private entity.	Penalties (suspension of payments/revenue sharing or tariff collection rights) for failure to meet service requirements.
Demand Risk	May be retained by public authority, shared, or transferred depending on the nature of the project. It would be possible to transfer this risk to the private partner under a concession contract where the private partner can influence demand and/ or forecast revenues with reasonable accuracy.	Demand risk transfer is done typically by permitting the private partner to recover costs through a revenue share arrangement or levy of tariffs on users.
Residual Value Risk	Could be transferred to the private partner under concession contracts to ensure fitness of purpose throughout the duration of the contract.	In the initial concession contracts, there is a payment for the assets transferred back to the Railways at the end of the concession at the book value.
Financing Risk	Usually, the project financing risk is fully transferred to the private partner under concession contracts.	-
Legislative Risk	Often retained by public authority in part or full. The government or its agencies are best placed to control regulatory and legislative risks. Discriminatory regulatory risks are usually fully absorbed by the public authority.	In many cases, a key issue to be addressed could be whether a particular legislative/ regulatory change is discriminating against the project, sector, or the individual private partner.
Inflation and Force Majeure risks	These are usually shared depending on the nature of the risks.	Insurable risks can be fully passed on to the private entity

If a risk is transferred inappropriately, the public authority could end up paying a premium either by paying the private entity too much for a risk that it can manage

more efficiently by itself, or by retaining a risk that the private entity is in a better position to manage. On the contrary, in case the authority tries to load inappropriate risks on to the private entity, there could be either high risk-loading or loss of interest in the project. Inappropriate risk transfer in either case could lead to a "PPP failure."

Reliable revenue sources: Under the tariff collection mechanism in the Indian Railways, it is not possible for concessionaires to collect freight directly from users for projects. This is because commercial operations would still remain with the Indian Railways. Direct collection could be possible only for projects like the container train concessions, or where both fixed infrastructure and train operations are concessioned for a closed circuit.

For the initial projects, revenue to the concessionaire would be in the form of a proportionate share of the freight revenue, suitably reduced by a proportionate share of the cost of train operations and other overheads incurred by the railways. This is a cumbersome exercise and requires operating costs to be re-worked year after year. Since standard costing techniques are not used by the railways, this adds a lot of uncertainty to the expected cash flows. Further, there could be delays on account of reconciliation of the figures, which could result in delayed remittance of the concessionaire's share of the freight revenue. This system passes on the operational inefficiencies of the Indian Railways to the concessionaire – throughout the concession period. It is also inequitable to the concessionaire – though the railways is a service provider in some sense (as an operator), it "holds the purse strings" and gets the first right for revenue collection and appropriation of expense.

It would be far more relevant to use a parameter, such as access charge for the use of the section – standards (per ton km or per train km) could be developed for different cargo types in various geographical zones. Such an arrangement together with the agreed basis for increases, could be set out upfront in the bidding documents. This would enable passing on of the demand risk to the private investor in a far more efficient manner. Where demand risk cannot be passed on, the access charge could be a fixed periodical amount – fixed for different levels of operations (slabs could be based on tonnage carried or number of trains), so that there is the right incentive to adequately maintain fixed infrastructure to the required standards.

Transparent selection process: The selection of a private operator could be through an open competitive bidding process, using objective bidding parameters for evaluation of bids. A two-stage process, involving Qualification and Proposal stages has been used successfully across the various sectors where projects have been implemented under PPP frameworks. A set of standard documents[10] is being developed by the Planning

10. The pre-qualification document has been released.

Commission for BOT projects which could serve as a useful guideline. What is important is that the evaluation criteria at each stage should be unambiguous, objective and quantitative so as to avoid any challenge after the award of the project.

Since most of the initial projects have been undertaken on the basis of needs of strategic port investors, the departmental capacity in the Railways to manage these processes is limited. Given MoR's intentions to develop PPP projects in different areas of the railways, it is important that standard documents are developed for different types of projects and necessary capacities built up to manage various processes efficiently for PPP projects.

Value for money: A detailed review of the costs and benefits of private sector involvement versus public alternatives must be undertaken to ensure that a PPP enhances the public benefit. This analysis is the financial test that compares the cost (or net return) to the public sector of implementing the project by itself with the cost of buying the service from the private sector (or the opportunity lost from not undertaking the service).

This could be done by computing the present value of the cash flows for each alternative with suitable public sector efficiency benchmarks based on past experience. These benchmarks would need to be based on a costing framework incorporating assumptions that are reasonable, transparent, and consistent with both current and expected efficiencies the public sector could attain. This would call for an initial identification and costing of risks in a way that is often unfamiliar in much of the public sector.

It is often argued that the benefits of private sector involvement do not always offset the higher borrowing cost and equity return expectations of private investors. Alternatively, the methodology of benchmarking the cost of a privately financed project against a conventionally financed public sector one may be contested. From a political perspective, the problem is not that there are no satisfactory answers to the challenges of this sort (invariably there are), rather it is that the answers are complex and may not be easily understood in public debate or by the media. Issues are often trivialized or distorted. It is, therefore, important to not only invest political capital in sponsoring PPP projects/programmes, but also to ensure that these are successfully implemented.

Partnership in practice: As is the case in any long-term relationship, the success of a PPP depends on how the spirit of partnership is implemented in practice. Given the background of traditional contracting where the public and private proponents often take an adversarial position, there is a need for a mindset change in the way PPP contracts are administered. Since the success of the project is equally critical to both parties, the focus of discussions should always be on how the project could be successfully implemented.

Arrangements such as provision of an independent engineer for each project could bring in objectivity and fairness to the process of implementation – this arrangement has been used with a degree of reasonable success in the roads and ports sectors.

FEATURES OF A CONCESSION AGREEMENT

The framework for risk allocation and transfer would need to be suitably embodied in the PPP contract between the public authority and the private partner for each individual project. As mentioned earlier, the most common structure used is the BOT concession. A concession is a licence i.e., a bundle of rights conferred on the private entity in return for certain specified obligations to be undertaken (risks that are transferred). Each project is usually implemented by a dedicated company – an SPV – set up for this express purpose. The rights and obligations to the private entity under the PPP contract therefore wholly vest in the SPV set up for the project.

Railway projects, like most infrastructure projects, involve the creation of assets that have little use except for the purpose that they are created and so have little resale value. The bulk of the financing of these projects comes by way of debt and equity from financial investors – banks, financial institutions, equity funds and other capital market investors, with the private sponsors bringing in not more than 20-30 percent of the total requirement of funds. The financing structure used is project financing which relies on the future cash flows of the project as the primary source of its servicing and repayment, with the rights and interests in the project being the main security.

The main reason for implementing projects through SPVs is one of risk transfer – the existing operations of the private sponsor are insulated from the vagaries of the project and the exposure of the private sponsor is limited to the equity funds that are brought into the project. This structure is considered necessary with the increase in the size of projects in relation to existing operations. From the point of view of the government or financial investors in the project, there is comfort that the vagaries of the existing operations of the private sponsor cannot affect the project – rendering the SPV a "bankruptcy remote" structure.

Of course, where warranted, financial investors may seek additional comforts from the sponsors in the form of financial guarantees and undertakings – but these are not easily forthcoming. Hence, the focus is exclusively on appraising the project, evaluating the risks based on the risk allocation framework set out in the PPP contract, and estimating the cash flows that the project is likely to generate over the period of the concession.

A well-designed PPP contract or concession agreement is, therefore, necessary to attract private investors for implementing projects and for these projects to find financing at optimal costs. As more and more projects get implemented under PPP structures and

as different categories of railway projects have the same basic common characteristics, it would be possible to develop a template for these transactions in the form of standard bidding documents and model concession agreements (MCA).

Such a document would also set out detailed and standardized 'output-based specifications' in respect of the obligations (risks transferred) of the concessionaire (private partner). This would allow for a common understanding of the risks involved, consistency of approach in pricing risks and would reduce the time and cost of negotiations by bringing all parties to a common understanding early in the procurement process. Needless to say, a MCA would need to be flexible enough to allow for specific differences in projects, risks, project and financing structures, partner profiles and other contractual arrangements.

The key sections that are normally contained in a concession agreement are set out in Table 2 below:

Table 2: Key Sections of a Concession Agreement[11]

Section	Coverage
Definitions and Interpretation	Clarity of terms used and basis for interpretation
Concession Structure	Grant of Concession, stipulation of Concession period and acceptance of Concession
Project Site	Procedure for hand over of site, warranties as to rights, title and use of the project site, peaceful possession and receipt of clearances
Concessionaire's Obligations[12]	Performance security, financing arrangement, preparation of designs and drawings, project implementation, operation & maintenance, insurance, shareholding commitments and various general obligations
Concessioning Authority's Obligations	Specific and general obligations, depending on the nature of the project
Change of Scope	Applicability and procedure to be followed
Concessionaire's Rights	Procedure for payment of revenue share / access charges, payment mechanisms, payment of bonus and conditions for payment, if any
Mode of Payment	Payment mechanisms such as escrow arrangements, if any
Capacity Augmentation	Procedure for capacity augmentation of project and its consequences
Force Majeure	Listing and classification of Force Majeure, obligations of parties in the event of Force Majeure, termination and liability for losses and damages
Events of Default and Termination	Listing of various events of default of either party, rights and obligations of parties, process of termination and termination payments
Hand back of Project Facilities	Procedure for hand back, rights and obligations of parties in the event of hand back, and basis for determining transfer payments, if any

11. A 'Concession Agreement' is frequently mistaken to mean that something is being 'given away' as a concession. In this context, it just means that a sovereign/government entity is giving a certain right to a private entity to operate a public service.
12. Based on detailed output-based specifications for each of the obligations

In addition, the Concession Agreement would include provisions for dispute resolution, representations, and warranties by each party, and other standard provisions (assignment and charges, interest and right of set off, governing law and jurisdiction, waiver, survival, amendments and notices, among others).

AREAS FOR PPPs IN RAILWAYS

In a sense, all projects could be amenable to implementation under PPP structures. The challenge is in using the right structure to get an optimal risk-reward formulation to the stakeholders, and economical and efficient services to the users. Construction of new lines (new alignments), conversion projects (broad-gauging), capacity augmentation (doubling of lines or providing additional lines), re-development of stations and terminals, hospitality and commercial real estate projects, and operating of dedicated trains are some of the areas where private investment can come in. It is important though to develop the right cost standards in an objective and transparent manner that allow for sharing of facilities or levy of capacity (access) charges for use of infrastructure, so that some of these projects can be implemented. Benchmarking on the basis of international standards and practices could be a useful input in this effort.

Where the network can operate as a closed system, it would be possible to have the entire operations – fixed infrastructure and train operations – passed on to the private sector. Based on the confidence level with respect to traffic growth potential, demand risk can be passed on incorporating the right payment structure. It is also important that the sizes of the projects chosen are large enough to get credible investors as well as benefit from the increased efficiencies in operations.

CASE STUDY – HASSAN MANGALORE BROAD-GAUGING PROJECT

Background: The Hassan-Mangalore rail line commenced its operations in December 1979 as a meter gauge (MG) track, constructed by the Indian Railways. In 1996, the Government of India (GoI) decided to convert the MG line into a broad gauge (BG) line as a part of its uni-gauge policy. However, though the MG line was dismantled, the conversion work was very slow, and by 2004 only a part of the gauge conversion between Hassan and Sakleshpur (47 Km) had been completed. The remaining portion – Sakleshpur-Mangalore stretch (142 km), still remained to be converted. MoR and the Government of Karnataka (GoK) decided to expedite the project by setting up a dedicated SPV for the implementation of this project. Participation was sought from strategic investors (primarily mining companies), as well as the New Mangalore Port Trust (NMPT), who would benefit from the implementation of the project.

Shareholding & Management: The Hassan Mangalore Rail Development Company Limited (HMRDCL) was set up on July 1, 2003, with an authorised capital of

Rs. 125 crore, of which Rs. 112 crore has been subscribed and paid up. MoR and GoK each have the right to appoint 3 directors on the Board of HMRDCL, K-RIDE – one nominee, and the strategic investors – two nominees. The chief executive officer of the company, an experienced railway officer, would be a wholetime director appointed by the Board. Sources of finance for the project are given in Table 3 below:

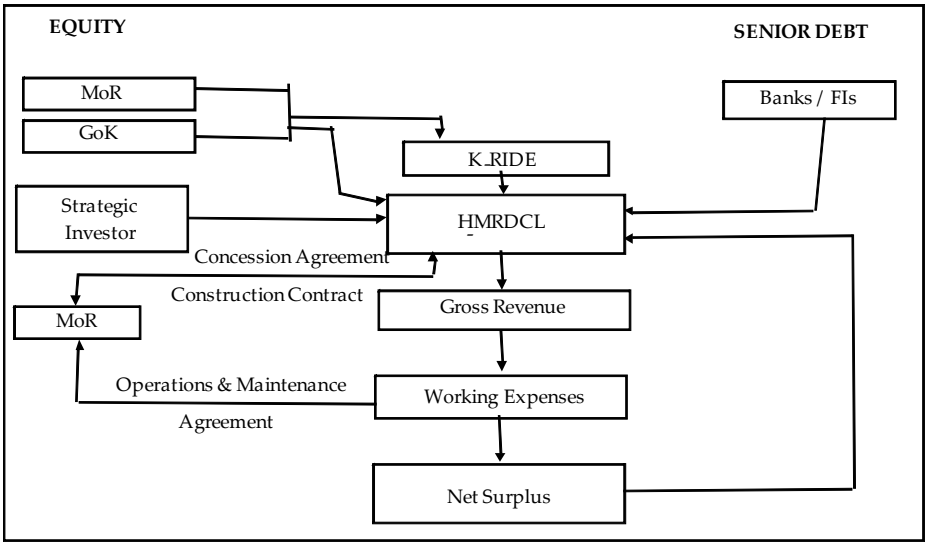
Table 3: Sources of Finance for the Project

(Rupees in crores)

Source	**Amount**
A. Equity	
- MoR	39.50
- GoK	39.50
- K-RIDE	2.00
- Strategic Investors	31.00
Total Equity Funds (A)	112.00
B. Debt	
Banks and Financial Institutions (initial amount raised -Rs. 40 crore, revised upward to meet cost escalations)	70.00
C. Subordinate Debt from Indian Railways	
This was the amount expended till HMRDCL took the project over, and is treated as subordinated debt. This amount has also been revised upward by about Rs. 4 crore	145.00
Total Project Cost	**327.00**

Figure 2 below sets out the framework for HMRDCL's operations.

Figure 2: Deal diagram for HMRDCL



Status: The project was to be completed by December 2004, but shortage of sleepers, delays caused by landslips, and associated construction delays pushed the commercial operations date to May 5, 2006. Passenger operations are not within the purview of HMRDCL, and are to be undertaken by the Railways. As on date, the Commissioner of Railway Safety has not cleared the line for passenger operations. During the 11 months of operations in FY 2007, about 1.6 million tons (MT) of freight was moved, as against the forecast of about 6 MT. It has been a major accomplishment to complete the line even if there was a delay from the originally estimated timelines – the general impression being that it would have taken much longer if construction depended on the railway budget allocations. However, there are certain key learnings that come out of this experience. Without meaning to detract from the accomplishments of HMRDCL, it would be useful to understand some of these issues while implementing similar railway projects under PPP structures.

KEY LESSONS

Positioning conflict of the Indian Railways: While Indian Railways is the concessioning authority, it is also a service provider (construction contractor and O&M contractor) to HMRDCL. This gives rise to a contractually piquant situation where HMRDCL is liable for various contractual obligations and problems and delays arising therefrom to Indian Railways; though construction delays and/or O&M service standard shortcomings would be mainly caused by slippages by the Indian Railways in its dual roles as construction contractor and O&M contractor. Till date, such a "liability call" has not seriously occurred, but this always remains a contractual possibility. From the point of view of risk transfer, it is most unusual to have the same agency playing all roles – concessioning authority, promoter of the concessionaire, construction contractor, operator, collector of user charges, and tariff regulator!

The main advantages that have accrued through this structure are related to financing – more efficient (though somewhat costlier) financing structure ensuring that adequate funds are available in a timely manner for the project; the availability of equity funds from other sources; and more intense monitoring of the project through contractual obligations placed on the Indian Railways through construction and O&M contracts.

Commercial limitations: Tariffs are collected by the Indian Railways at various loading points, and then passed on to HMRDCL after deducting operating expenses. In some sense, Indian Railways has "first lien" on cash flows – again an unusual situation. Further, there is some delay in making payments to HMRDCL, while the calculations are finalised in the Indian Railways.

Marketing: HMRDCL has no say in the key aspects of placement of rakes, availability of wagons, and their movement. If HMRDCL can provide no comfort to the customers, it can "market" only to a very limited extent. Customers have to make regular wagon indents and wait – as far as they are concerned, HMRDCL has little role, except that of limited facilitation and monitoring.

Operational issues: Once rakes are loaded, their movement is completely under the operational purview of the Indian Railways. Inter-divisional and inter-zonal issues, availability of motive power, availability of crew, and even train routing is not under the control of any one nodal office. Since the line is in a ghat section, operational issues get further compounded, and HMRDCL can only monitor and request. For instance, because of a combination of such reasons, only 1-2 trains are being moved each way, as against the possibility of moving 4-6 trains.

SUGGESTIONS FOR BETTER PPP STRUCTURES

Given these key learnings from the HMRDCL experience, the following changes may be appropriate for future projects of this type:

Role of the Indian Railways: The role of the Indian Railways need not be all-encompassing, leading to conflicts arising from the multiplicity of roles played. While Indian Railways has to be the concessioning authority by virtue of its sovereign function, it need not own any part of the concessionaire company. Construction should be undertaken through qualified construction contractors – this would ensure more comprehensive project preparation and development.

With regard to train operations, it appears improbable that this service can be provided by any party other than the Railways. However, the Railways as a "service provider" should be in a position to maintain certain prescribed standards for operations and maintenance, and accept penalties and receive incentives for its performance, measured against these standards.

Non-compete and traffic diversion: It is understood that in many cases (such as the Konkan Railways, or HMRDCL), the Railways is in a position to unilaterally divert traffic at its convenience, to the possible detriment of the special purpose companies. There should be clear contractual understanding of how traffic matters will be handled by policy and by exception. This should not be left to the decision of day-to-day railway divisional/zonal administrations.

Returns to concessionaire: In the case of HMRDCL, a 'revenue share' arrangement is in place. However, as mentioned in the previous sections, HMRDCL has virtually no control over commercial or operating issues. HMRDCL, being a company with largely

Government (Railways and State Government) may be able to handle the situation, but it would probably be difficult for a private sector entity to do so. There are also issues of tariff fixing, and freight categorization, which are completely outside the purview of the SPV.

Therefore, 'revenue share' does not appear to be an appropriate model for Railway PPPs, at this juncture. There are other models of ensuring returns to concessionaires, which are probably better suited to the situation of the Indian Railways. For instance, payments could be in the form of an "access charge," which could be suitably structured. In lines where the assurance of traffic is greater, such charge could be paid on a formula related to traffic moved, and in cases where the traffic is uncertain, it could be based on "availability" of track-kilometers to a certain specification. Bidding could also be based on formats, such as "Least Present Value of Revenues" (LPVR), used successfully for road concessions in Chile or appropriate modifications thereof.

WAY FORWARD

Projects can be undertaken on PPP formats, if they are seen as win-win situations for both parties and if they can be implemented as true "partnerships". At the current stage of market maturity vis-à-vis Railway projects, there is not much on the table to be able to judge/forecast the future with any degree of confidence. The few projects that have been done on a PPP basis, or through an SPV, seem to be encountering certain problems in their operations. Only time will tell how these problems are resolved, and whether the PPP format as practiced in the past has been successful.

There also seems to be an impression in the Railway administration that "viable projects" will be carried out by the Railways. However, if that were the case, the private sector would certainly be wary of the "unviable ones". Finally, as far as funding is concerned, states like Karnataka are also willing to work under a "cost share" (50 percent to 66 percent as state contribution) structure, which appears to be a more welcome option to the Railways, compared to the effort needed for true PPP projects.

In the circumstance, there is ample room for discussion, and the following points highlight certain areas where such discussion would be fruitful.

- Each 'type' of railway project (commercialization of land, new lines, dedicated freight/container operations, etc.) would need a completely different approach, and adequate thought should go into the formulation of the initial projects.

- As NHAI did for the road sector, and continues doing even today, there may be a need to experiment with different approaches to PPP, till a certain maturity is reached in the market.

- Revenue share formats may not be appropriate for railway lines, in the context of railway operations, and the ability of the private sector to handle certain risks. Access charges or availability charges would be a much better structure for the recovery of costs and returns by the Concessionaire. As mentioned earlier, the LPVR structure, suitably modified could be used as the basis of the bids.

- There is great need to go into the PPP format with a lot of thought. As was the case in the power sector, a single failure could set the entire process back by many years. Thorough project preparation is the need of the day and the atypical basis of railway operations means that it is not easy to directly transplant experience from other sectors. All stakeholders should understand the risk allocation and reward frameworks properly, before venturing into substantive contracts.

PORT CONNECTIVITY PROJECT STRUCTURE: NEED TO MOVE BEYOND

Nripesh Kumar*

PUBLIC-PRIVATE PARTNERSHIPS

The aim of this paper is to review the public-private partnership (PPP) structure currently used by the Railways for port connectivity projects and suggest improvements with a view to enhance their effectiveness. The concept and scope of PPPs has evolved over the years. Initially, the concept was primarily looked upon as an infrastructure creation model through infusion of private finance. Hence, other aspects, such as service levels and their delivery did not receive adequate emphasis.

However, there has been a gradual realization that the real issue is service delivery and not just infrastructure/asset creation, since the users are directly or indirectly paying for such facilities. For instance, commercial users of a railway line are more concerned with the service levels provided by the rail operator to enable them to meet their commercial objectives or commitments (say an exporter of iron ore has to ship its consignment of ore to the port to catch an incoming ship at a pre-determined time and delays can be both costly as well as detrimental to his business) rather than how the line is built or who operates it.

Therefore, in recent times, the primary objective and focus of PPPs has shifted from financing to performance, the argument being that in case of viable projects financing should not be a major concern or that, at least theoretically, governments may be better placed at procuring cheaper finance. Private sector involvement is considered to be better suited for achieving efficiency gains and providing better service.

The focus has, thus, clearly been shifting from an asset-based approach to a service-based approach, wherein, PPPs are increasingly seen as means to deliver service to users under performance-based payment mechanisms. The review of the current PPP practices and models would therefore focus on two aspects:

- The objectives for involving private sector and using the public-private partnership structure, and whether these objectives have been achieved.
- The risk allocation under these project structures and assessment of the scope for improvements.

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CURRENT PPP STRUCTURES

At present, there are three successful models of public-private partnership adopted in the railway sector:

SPV model: This partnership model has been used for providing connectivity to Pipavav Port in Gujarat. This port lacked an effective transport network with the hinterland. Therefore, the main aim of the partnership was construction of a 270 km railway link from Pipavav to Surendranagar. Under this model, Railways entered into a 50:50 joint venture agreement with the Gujarat Pipavav Port Ltd. (GPPL) to form an SPV, called Pipavav Rail Corporation limited (PRC).

PRC was formed as a multimodal logistics company, which also owned the new railway line. The equity financing was done on a pro-rata basis by the Railways and the port company and debt was raised domestically. The construction, operations and maintenance of the line was entrusted to the Railways under a contract with PRC. GPPL, on its part, provided minimum traffic guarantees to PRC.

Revenue sharing model: Under this model, Gujarat Adani Ports Limited (GAPL), the promoters of Mundra Port (a joint sector port in Gujarat), have constructed 60 km rail link from Mundra port to Adipur. GAPL owns the land, the track and other assets and maintains the line, whereas Railways have provided the rolling stock and operate the trains on the line. The Railways and GAPL have entered into a revenue sharing agreement for this railway line.

BOT-Annuity model: The BOT model was adopted for undertaking conversion of metre gauge line between Viramgam and Mahesana into broad gauge. The structure of this model is almost similar to the Annuity model used in the highway sector. The private bidder (selected after quoting the lowest annuity amount) gets a fixed semi-annual annuity in the form of access charges from the railways for a pre-specified number of years termed as the concession period. During the concession period, all the assets including the railway line (excluding the land) and the operational rights are vested with the private developer/concessionaire. After the completion of the concession period and payment of all annuities, the ownership of the railway line gets transferred to the Railways.

As would be observed, in the above models, the roles and responsibilities and the corresponding risk and return sharing for the railways and the private sector is quite different. The model that is being currently used for port connectivity projects is similar to the SPV model described above.

CURRENT PPP STRUCTURE FOR PORT CONNECTIVITY

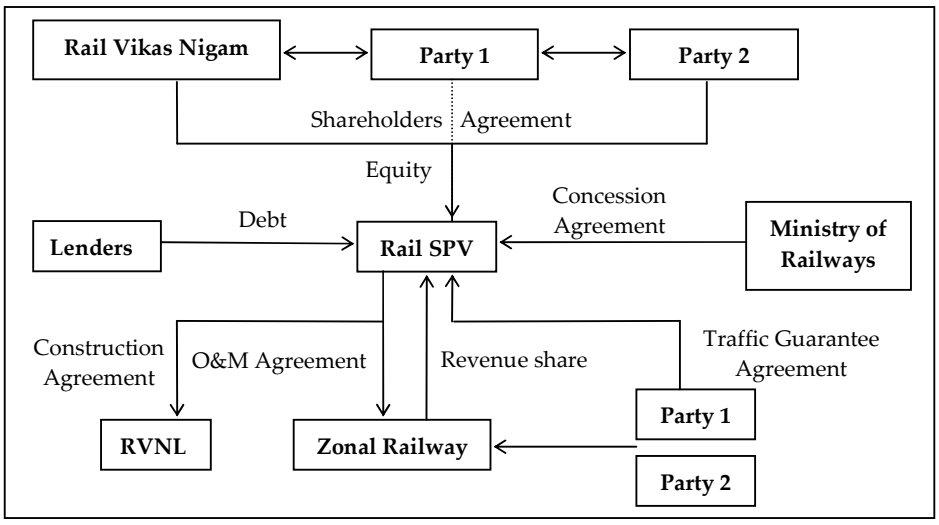
Rationale and Objectives

The port connectivity projects are essentially to provide connectivity between the industries in the hinterland and the ports situated on the coast of the country. From the perspective of the industries, this connectivity is critical to their business. For the railways, such projects provide near captive traffic for the system over the long term. Therefore, the current project structure brings together diverse but complementary interests and provides a platform for mutually beneficial partnership. The industries and ports provide the traffic (and get the critical business link) and Railways provide the expertise to build and operate the rail infrastructure on which the traffic is carried. The cost and financing for the project is shared and hence the risk element for individual stakeholders comes down significantly.

Project Structure and Risk Allocation

The figure below depicts the project structure that is currently being used for implementing port connectivity projects.

Existing PPP Structure being Used for Port Connectivity Projects



Rail Vikas Nigam Limited (RVNL) is the key agency that is mandated and involved in initiating as well as coordinating the development of identified port connectivity projects. Based on the experience gained over the years, it has developed model documents and agreements that are used to develop new projects. The key

agreements and the salient features of the project structure developed by RVNL are described in the following paragraphs:

RVNL, based on its project assessment, identifies the key stakeholders in the project (industries, ports, state governments, etc.) and, depending on the role they can play, brings them together to set up a rail company (SPV) and invest in this SPV through equity. The share of each of the stakeholders is negotiated between the parties. Upon successful completion of these negotiations (coordinated by RVNL) a shareholders agreement (SHA) is signed between the parties which spells out their equity and other financial commitments, the role and responsibilities of each member as also the governance structure of the SPV. As laid down in the SHA, RVNL is entrusted with the responsibility of construction of the project.

Once the SPV has been formed and necessary documentation is in place, the Railways appoints the SPV so formed as the concessionaire of the project and, through a concession agreement (CA), entrusts to it the responsibility of design, development and financing of the project as well as lays down the associated rights and obligations. Though the SPV has little or no operational role to play, once the rail line is constructed, for all practical purposes, the ownership of the line vests with the SPV. The concession term is flexible as it depends on the equity holders receiving a 14 percent return on NPV basis on the equity invested.

In line with the rights and obligations spelt out in the shareholders agreement and the concession agreement, the SPV is responsible for achieving financial closure of the project. For the purposes of design and construction, the SPV appoints RVNL as the agency responsible for the same. A separate construction contract (CC), which is primarily EPC-based, is signed between the SPV and RVNL. The terms of the construction contract are based on the designs and cost estimates prepared by RVNL earlier and payments to RVNL are based on these estimates as per the terms of CC.

Similarly, to handle the operations and maintenance of the assets, SPV appoints the respective zonal railway (ZR) as the entity responsible for operations and maintenance of the project through a separate operations and maintenance contract (OMC). OMC provides for quick evacuation of traffic against payment of pre-determined O&M charges to ZR by SPV. The O&M tariff is based on a two-part principle, wherein one part is a fixed cost that is borne by the SPV and paid to ZR irrespective of the usage, while the other part is the variable charge that is paid by the SPV to ZR based on the usage levels. On the other hand, ZR pays to the SPV its share of the traffic revenues after deducting the O&M charges (using best practices). In case the traffic levels are lower than committed, the SPV pays as per break-even volumes to cover the shortfall, if any, in the committed traffic levels.

To further strengthen the commercial relationship between the SPV and the users, the users (the parties) provide minimum traffic guarantees to the SPV for carriage of goods on the project line to guarantee minimum revenues to the SPV through a Traffic Guarantee Agreement (TGA) signed between the users, SPV and the zonal railway (ZR). This agreement is aimed at ensuring that the volumes planned and committed by the users individually before the start of operations of the project, are honoured and, in case there is a shortfall, the individual party pays the default penalties basically equivalent to the traffic not delivered or forgone by ZR/Railways. The key aspects of the structure along the project development and operations value chain are given below:

Design and cost estimation: At the project conceptualization and planning stage, RVNL carries out technical and financial viability analysis of the identified projects internally or through external consultants. The design and cost estimates prepared at this stage form the basis for finalising the project cost estimates as well as financial parameters of the project. Usually, the cost estimates finalised at this stage form the basis for estimating the overall financial requirements of the project as well as for awarding the construction contract to RVNL as per shareholders agreement.

Construction and completion: Based on the project design and cost estimates prepared by RVNL and agreed to by the SPV, a contract for construction and completion of the project is given to RVNL. The contract is primarily EPC in nature and makes RVNL responsible for managing the construction either through the ZR or through appointing private contractors or both. RVNL is also made responsible for commissioning the project by procuring relevant certifications for freight and passenger operations. However, the contract allows for cost escalations, which have to be borne by the SPV and the promoters in proportion to their shareholding. This could lead to uncertainty and higher risk perception for this key activity.

The current process of appointing RVNL as the construction contractor and the project designer, as described above, could be sub-optimal in terms of achieving competitive and efficiency gains. However, there are some key advantages in this structure. These advantages are tax savings (as RVNL is a Railway entity, incidence of tax is minimal as compared to a private entity), availability of railway expertise for design and construction of project and faster commissioning through coordination with the respective ZR/Commissioner of Railway Safety.

Operations and maintenance: As would be observed from the preceding analysis, once the project has been commissioned, it is operated and maintained by the respective ZR. And, for all practical purposes, it is the notional owner of the line, as long as it continues to evacuate the traffic provided by the SPV and also continues to pay SPV's

share of revenues net of O&M charges. As per the CA and OMC, cost of any accidents or any asset replacement is also to be borne by the zonal railway.

There are two key issues during the operations stage, namely, calculation and computation of O&M charges and service levels. The OMC provides for a two-part pricing for the O&M of the project. However, the basis for stipulating the fixed and variable charges is the existing cost and operational structure of the ZR, which may not be the optimum or efficient way of pricing. Also, the mechanism of price fixing relies on the concept of joint 'Survey Teams' across a number of items and involving various independent technical and financial advisors, who are supposed to inspect a number of ZR cost components and arrive at realistic figures. While the intention behind using the existing ZR costing and moving towards a more efficient costing structure and having more participatory price-fixing mechanisms would be appreciated, such mechanisms may result in delays and possible disputes leading to increased uncertainty and risk perception with regard to O&M costs.

As mentioned above, the second issue pertains to service levels provided by ZR to the users. The OMC and the TGA do not provide an effective framework for providing a minimum level of service to the users on an end-to-end basis. For instance, TGA only provides for supplying rakes within 10 days of indent by the user and the OMC provides for 'prompt' evacuation without defining any timeframe. Moreover, it does not specify the timeframe for delivering traffic at the destination-station or port. While Railways is a monopoly operator and would remain so in the foreseeable future, an increased service orientation would make the project more effective and beneficial to the business of the users and stakeholders.

Financing: The responsibility of procuring finances for the project and achieving financial closure lies with the SPV. The equity comes through the contributions made by the users/stakeholders as per the SHA. As per the CA, the term of the concession is dependent on equity-holders achieving 14 percent return on their investments on NPV basis. Hence, there is adequate comfort for the equity holders.

However, current agreements do not seem to contain adequate measures to ensure debt repayment to lenders. None of the events of termination provides for any specific payment of outstanding debt to lenders. For instance, termination payment in case of default on the part of railways would be 130 percent to 110 percent of Depreciated Replacement Value (depending on the timing of default), which normally should cover the outstanding debt (though there could be instances where such payments may not cover the entire debt due). More importantly, under concessionaire's event of default termination payment would comprise only 50 percent of the book value of assets, which would definitely be inadequate for debt repayment in most cases. Also, there is no

provision of any escrow arrangement nor do the agreements provide any precedence to payment of outstanding debt as compared to equity.

Besides, the income of SPV, which is the only source for debt repayment, is entirely dependent on the traffic committed to it by the users and the revenue flow net of operations and maintenance charges. Current agreements do not provide adequate security in case there are defaults by the users in providing committed traffic. The default penalty structure in TGA is quite complex and does not seem to be adequate to take care of the debt repayment. Moreover, there are issues of conflict of interests as the users (as well as Railways) are also shareholders in the SPV, which is supposed to compute and impose penalties. Such issues would become critical even if one of the users defaults.

The only recourse available to lenders in case of defaults under financing documents is the 'step-in' rights provided under CA. However, this right seems to be just notional and does not really address lenders' concerns. For instance, it provides for lenders' right to replace existing concessionaire with another concessionaire in the event of default. In a situation where the entire project is executed for two or three users and only one of the users has defaulted, replacing the existing concessionaire does not really address the issue.

Therefore, purely from the perspective of structuring, bankability seems to be a major issue in the present set of arrangements. However, the experience till date suggests that in most cases SPVs have been able to achieve financial closure without any major problems. This has happened because, in these cases, government (including Railways/RVNL, state governments and other government companies) has been a majority shareholder with RVNL being the largest or one of the largest shareholders.

KEY ISSUES IN THE CURRENT STRUCTURE

Based on the preceding analysis, following key issues emerge in the current structure that need to be further discussed and addressed.

Conflict of interests: The current structure has inherent contradictions in terms of conflict of interests between the key stakeholders. For instance, Railways through its various entities is a shareholder, construction contractor, O&M contractor as well as the concessioning authority. This conflict increases the risk profile of the structure especially for the lenders.

Financing risk borne by railways: As highlighted in the financing section, given the fact that very often railways is the largest shareholder in these SPVs, indirectly it is bearing the financing risk. The lenders may be comfortable with this arrangement as by experience they would expect railways to fulfil any financial liabilities that may come

onto the SPV. Also, as discussed above, the numerous roles being played by the railways would only add to such thinking among the lenders.

Construction and maintenance optimization: From a project-structuring perspective, financing, construction and maintenance are the only key activities where private sector participation and efficiency gains can be incorporated. Therefore, from a long-term perspective, it would be advisable that these activities are combined, awarded through competitive process and carried out by a third party preferably reputed developer/ contractor.

To further optimise the construction and maintenance activities and take advantage of the central role of RVNL, construction could be broken down into components wherein large value procurement/supply of components could be directly routed through RVNL and other local components could be handled by the contractor. This structure would not only reduce the cost but also capture efficiency gains.

Operations costing and service levels: Similarly, on the operations side, a new pricing structure could be evolved (keeping in view the two-part pricing principle) wherein the fixed and variable costs could be specified upfront along with escalation provisions. This is important as it would provide certainty and better appreciation of cost, revenues and penalties thereby reducing risk. Also, service levels in terms of delivery schedules could be defined, which would help the users better manage their inventories and thereby reduce their costs.

Revenue risk and bankability: One of the key characteristics identified in the current structure pertains to revenue risk and bankability. These two elements are intrinsically linked (as most of the project financing would be towards financing the project cost). Therefore, there is a need to identify debt payment structures that are more definite and closely linked to construction and maintenance performance and not dependent on traffic. The lenders and the developers/contractors cannot be made to bear traffic risk as they are not involved in operations or managing traffic. Such an arrangement would make the structure more bankable and reduce financing risk.

KEY DRIVERS FOR OPTIMIZING CURRENT STRUCTURE

The preceding section highlighted the key characteristics of the current structure being used for developing port connectivity projects on PPP basis. This section aims at identifying the options that can improve the current model. Some of the key drivers in this regard are:

Traffic and revenue: Quantum and reliability of revenues is central to the success of any PPP project. In case of port connectivity projects, there are basically two market scenarios: one, where there are large and clearly identifiable users for whom development of railway line is a critical part of their business plan and, two, where there

may or may not be large users but there is a large number of small/retail users for whom rail line may or may not be critical but would result in large savings.

For instance, in the first scenario, it is very likely that large users would be willing to invest and support the project financially. On the other hand, in the second scenario, the small users would not be willing to support the project financially but may be more amenable to commit traffic under take-or-pay or similar structures. PPP structuring under these two scenarios would need to recognise these important differences and design structures wherein these two scenarios are dealt with appropriately.

Rationalizing the role of railways: It would be advisable that railways restricts itself to being an equity investor and being part of the shareholders. The key objective of this role would not only be to provide financial support but more importantly by being part of the SPV, the railways would be better able to handle other key aspects, such as construction, commissioning and operations, which would provide higher level of comfort to other key stakeholders.

Capturing efficiency and competitive gains in construction and maintenance: Construction and maintenance activities need to be combined under a Design-Build-Finance and Maintain format and awarded to private contractors/developers on a competitive basis. Though in the short term there could be costlier bids, but over medium to long term substantial savings can be expected. Also, this structure would be amenable to performance-based payments as described below.

Annuity-based payment for financing construction and maintenance: As highlighted in the previous section, the key areas where private sector efficiencies can be captured pertain to construction and maintenance. Accordingly, definitive financing mechanisms such as annuity-based structures should significantly reduce financing risk as well as allow the SPV to make payments to the contractor/developer based on his performance. In addition, this would allow financing to be done at the developer/contractor level and thereby reducing the risk at the SPV level.

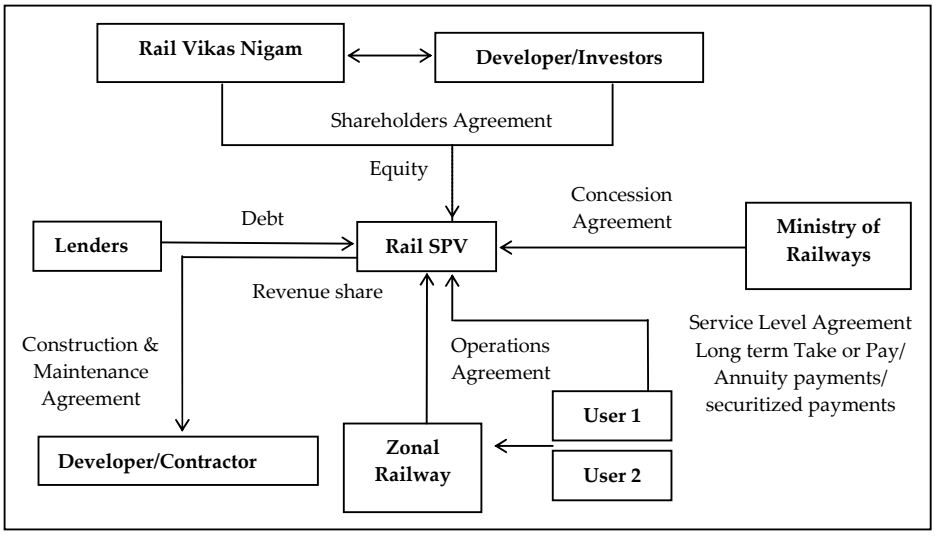
Increasing bankability through escrow and reserve fund mechanisms: Additional security mechanisms, such as first charge on SPV income and creating an annuity reserve fund should further increase the bankability profile of the project thereby further reducing the financing costs.

Operations through service- level agreements and simplified O&M pricing: The O&M charges need to be simplified and based on first principles and determined upfront as well as combined with minimum service guarantees. These charges could be lower initially and the same could be compensated through incorporating take-or-pay provisions.

SUGGESTED STRUCTURES

Based on the above discussion, there are two options that can be used for port connectivity projects. These are primarily based on the market situation in terms of the type and quantum of demand and user profile. There are basically two demand scenarios. The first one comprises large users who would generate large traffic with medium to long-term commitments (large mining companies, power plants, steel plants etc.) and are willing to invest in the rail connectivity project as investors, since the rail line is critical to their overall business plan. The second scenario may comprise a large number of small users who may be willing to sign take-or-pay contracts only over short to medium term without any financial commitment.

The suggested model is presented in the figure below and described subsequently.



As would be observed from the figure above the basic relationships are similar to the earlier model. However, in line with the drivers for change, key changes have been made relating to the construction, financing and user payments aspects.

Under this model, a developer would be selected through open competition based on an 'annuity' or a fixed payment based structure. RVNL would do the project preparation, incorporate the SPV and sign long-term take-or-pay agreements or similar agreements that are based on two-part payment mechanisms: capacity charge and usage charge. The capacity charges can be in the form of fixed annuities to be paid by the users irrespective of usage levels and usage charges would be paid on actual usage. Another

structure based on securitization model can also be used wherein the large users can pay upfront access charge to buy capacity on a long-term basis from the SPV.

Thereafter, RVNL would run a competitive process to select a developer/investor who would design, build, finance and maintain (DBFM) the project and invest in the SPV based on its bid and partner with RVNL. As such, under this model, RVNL would function only at the SPV level and would assist the SPV in awarding the DBFM contract for construction and maintenance of the line as well as coordinating with the railways and ZR for matters related to commissioning and operations.

The share capital of the SPV can be fixed upfront thereby allowing a cap on RVNL's financial commitment as the bid and agreed project cost and annuity amount quoted by the developer would be known upfront (after the developer is selected). The selected developer would bring in the equity financing, arrange debt financing, construct and maintain the project line and alongwith zonal railway provide operations to the users.

The annuity payment would be made by the users to the SPV through a Special Reserve Fund to be created and managed under the project structure. The share of annuity payment to be made by each user could be based on his capacity requirements/other criteria. As the annuity payment to be made by the users would be known upfront, it would also help them better plan their finances and reduce their upfront financial burden through capital investment. However, the reserve fund should have higher payments in order to cater to any defaults.

Further, the revenue/income generated by the SPV can be routed through an escrow account with the first charge on debt repayment obligations. Also, the amount of annuity to be paid by each user can also be related to its usage. For instance, greater the usage and consequently higher the income for SPV, the lower would be the annuities to be paid by the users into the annuity reserve fund. This should further incentivize the users to bring more traffic. Secondly, a service-level agreement can be signed between the SPV and the user and the annuity payment to the developer could be based on pre-determined performance parameters.

The above arrangements should make it easier for the developer/contractor to optimize the construction and maintenance cost and access cheaper finance. At the same time, it should make the project highly bankable by linking construction and financing with dedicated and assured payments, which are not linked to traffic or operations risk. As RVNL will not be a majority shareholder, it will reduce RVNL's liability, at the same time meeting the Railways' objectives. This model can also be used in the second scenario, where there is a large number of small users.

INVESTMENT FRAMEWORK FOR RAILWAY PROJECTS

(With Special Reference to Viramgam-Mahesana Project)

Sanjay K. Parida*

BACKGROUND

Indian Railways (IR) is one of the largest railway systems of the world. It has traditionally operated as a vertically integrated organisation. It is a multi-gauge system having 49,820 km of broad (1,676 mm) gauge, 10,621 km of metre (1,000 mm) gauge and 2,886 km of narrow (762/610 mm) gauge rail routes. The broad-gauge network generates 99 percent of freight and 93 percent of passenger output. Besides providing freight, long and short distance passenger services, IR also provides commuter services in the metropolitan regions.

Railways' Future Growth Requirements

In the year 2003, in terms of transport output (ton kilometres), the railways of China and India occupied the third and fourth positions in the world after US and Russia. With respect to the passenger traffic, as measured in terms of passenger kilometres, Indian Railways ranked first in the world and in terms of passengers carried, its position was next to that of the Japanese Railways.

Rail transport demand is closely related to the economic activity in the country. With India aiming at a GDP growth of more than 8 percent per annum, it is important to ensure that the railway infrastructure does not act as a hindrance in the nation's growth. Taking into account the anticipated growth rates of the economy, the traffic projections for the railways for the periods 2007-11 and 2011-20 are shown in the table below:

Actual Traffic (Year 2002)		GDP Year 2002 (Million USD)	GDP Growth (percentage)		Growth Elasticity of Rail	Projected traffic (Traffic Units in million)		
PKM (Million)	TKM (Million)		Period 2007-10	Period 2011-20		2006	2010	2020
493,489	333,228	510,241	7.0	6.5	0.75	1,008,713	1,237,816	1,992,397

Source: Best Practices for Private Sector Investment in Railways, Report of Consultants prepared for ADB.

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Note: The views expressed in this article are personal and not intended to reflect the views of UTI Bank.

Recognising the projected traffic demand, the Eleventh Plan proposes to increase investment in the railways to about US$63 billion at 2006-07 prices, from an actual investment of about US$21 billion in the 10th Plan.

PRIVATE SECTOR PARTICIPATION

Private Sector Participation (PSP) is a general term used to describe involvement of non-government entities in the investment in and/or operation of productive facilities that create an economic output, i.e. goods or services, which have a market demand. The degree of involvement may range from complete absence to full presence of the private sector. Numerous variations in-between the two extremes exist where the public and private entities collaborate in investment and/or operation of productive facilities. These collaborative arrangements are referred to as public-private partnerships (PPP).

PPP constitutes a sustained collaborative effort between the public sector and the private enterprises. It brings the best of each partner's competencies to optimize the achievement of the common objective. However, the public sector will always have its role in financing infrastructure. The key issue is not whether financing should be public or private, but how the public and private sectors could share the risks and rewards in a way that works for both sides. Success of PPP depends upon the optimum risk-sharing mechanism between the public and private entities within a proper legal framework made in tandem with the reality and broader social goals.

Objectives for PPP in the Rail Sector

- Leverage new resources for the rail sector with the usage of private funds.
- Optimize global investment in construction of infrastructure and lower cost for the community.
- Work out proper sharing of risks involved in construction, operation and maintenance amongst the parties according to their respective expertise.
- Accelerate the development of the national rail network by completing more projects in lesser time.
- Improve competitiveness of the rail mode.

Challenges for PPP in Railways

- Geographic and functional unbundling in the railway sector is a complicated task since joint facilities are used for different types of services (passenger, freight, and container) and the network is spatially interconnected, making separation difficult. Separation of regulation from operations which addresses the private sector concerns is slow and difficult.

- The speed with which technological improvements are introduced in the rail sector is slower than high-tech sectors like telecommunications and other industries in which private sector involvement is a pre-condition for successful introduction of innovation to maintain competitiveness. This coupled with the political imperatives in the railway projects reduces the incentive for the government to accelerate the PSP in railways.
- Scale of operations and average size of investment in the rail sector is higher than in most other industries, thus limiting the number of potential private sector partners.

Factors Determining PPP Structure in the Railway Sector

Economically remunerative projects	**Projects not financially viable on a Stand-alone basis**
High-priority and short-gestation projects able to generate enough returns for the investors (debt, capital) on stand-alone basis.	Socially relevant projects, but not commercially viable on stand-alone basis in the medium term.
PPP Structure ***BOT/BOOT*** – Ownership, management and investment responsibility is of the private party. – Negative Grant ***JV*** – Responsibility of ownership, investment and management to be shared in a pre-determined manner – Sharing of profits between IR and the private party ***Service Management Contracts*** Result in high operating and maintenance efficiency in certain activities	**PPP Structure** ***BOT/BOOT*** – Ownership, management and investment responsibility is of the private party – Positive Grant / Annuity ***JV*** – Responsibility of ownership, investment and management to be shared in a pre-determined manner – IR to render equity support – IR to provide subordinate debt ***Service Management Contracts*** Result in high operating and maintenance efficiency in certain activities

Sharing of Responsibilities in PPP

Development of the railways around the world in the past two centuries was made possible by governments which provided appropriate incentives and risk coverage to the private sector on terms that were comparatively more favourable than the alternative investment opportunities. The large size of networks that were built through PPP is a testimony to the success of this model. It is imperative that IR and the Indian Government create the necessary conditions for private participation and offer products for investment in infrastructure, services and management of operations in such a way as to make them attractive investment opportunities for the private investor.

There are many varieties and degrees of PPP in the railway infrastructure investment and operations. The approach used in each situation is unique, reflecting the requirements of the task to be undertaken on PPP basis. The following table depicts the major differences in the various modes of PPP.

Particulars	**Service Management Contracts**	**Joint Venture**	**BOT – Concession (Annuity or other manner in which traffic risk is with public sector)**	**BOT – Concession (Traffic Risk with private sector)**	**Full Privatization**
Planning	IR to be responsible for planning the development of Indian Railway network as a whole and integrate individual PPP projects into the Railway Plan.				
Permits / Approvals	IR to be responsible for obtaining and maintaining necessary environmental and similar permits, making necessary land available, monitoring and supervision.				
Passenger, cargo and general security	IR to be responsible for undertaking necessary security related measures for its own network and for ensuring that the private operator who has been assigned the facility on concession basis also undertakes adequate security measures. IR to monitor and supervise all security-related measures.				
Risk of Project Cost Escalation	Provision for cost escalation is built in.	SPV to be formed and the project cost escalation risk to be mitigated by signing an EPC contract.	With the developer. To a great extent mitigated through EPC contract to a third party.		
Sharing of major risks	Risk with IR. The contractor only responsible for execution of work assigned to him.	Risks to be shared between IR and private operator.	Sharing of risk between IR and developer on the basis defined in the concession agreement (CA).		Risks with private operator.
Financing	IR has to arrange the funds.	SPV to be formed and the same will arrange the finance on a non-resource basis for IR.	Lower cost of financing and higher leveraging possible due to certainty of revenue stream.	Relatively higher cost of lending and relatively lower gearing for project SPV.	Developer to arrange funds, pricing dependent on the credentials of the developer and the project cash flows.
Design Risk	High level of monitoring required, as it is	Design details are decided by mutual	Low chance of change in project design as design specification detailed in the CA. The maintenance		With the developer. However, IR to

	the responsibility of IR to ensure that the contractor has performed the work as per the specifications.	agreement between the IR and the private party.	of facility is to be done by developer hence less incentive to go for an inferior design.		ensure that the safety criteria are met.
Construction	Done by private sector.	May be entrusted to private party on EPC basis.	Done by developer, an EPC contactor may be involved. Normally the EPC contractor may also be one of the sponsors of the project.		
Operation	To be undertaken by IR	To be undertaken either by IR or private party depending on the nature of facility for which the concession is awarded.			To be undertaken by private party.
Maintenance	To be undertaken by the private party.	SPV to carry out routine maintenance and major maintenance, etc.			Entire responsibility with the private sector, better repair and maintenance impacts the revenue generated from the infrastructure.
Traffic / Market Risk	Upfront payment and certain for developer.	Risk can be borne by IR or SPV.	Risk borne by IR	Risk is with the developer.	
Upside Potential	With Government/IR	Can be made available to IR or the SPV and may differ on case-to-case basis.	With IR	Available to developer, in case of better than expected traffic, the private sector can benefit. Here IR can include provisions which restrict the upside and limit the downside by incorporating a provision of increase or decrease in concession period depending on the actual traffic realized.	With developer

IR to Continue to Play a Major Role

Capital investment in the new railway infrastructure to facilitate socio-economic development in the less developed but resource rich regions of the country would be justified as part of the government's macro-economic development strategy. However, traffic during the initial years would not be large enough for profitable operations. As such, the capital investment and coverage for operating losses during the initial years of the operation must be borne by the public sector/IR. IR has to ensure that it operates the routes that are critical for the development of the country.

ROLE OF RVNL IN PPP

Rail Vikas Nigam Limited (RVNL) is a Special Purpose Vehicle created to undertake project development, mobilize financial resources and implement projects as envisaged under the National Rail Vikas Yojana (NRVY). RVNL is a wholly government-owned company under the provisions of the Companies Act. The authorized capital of RVNL is Rs 30 billion and paid up capital Rs. 16.65 billion.

RVNL became operational in September 2003. Primary mandate of RVNL is time-and-cost-bound implementation of National Rail Vikas Yojana through largely non-budgetary financial resources, such as international financial institutions (World Bank, ADB), private participation model of Build-Own-Transfer (BOT), equity participation by strategic and financial investors, debt from bankers, financial institutions, etc. and market borrowings. The mandate of RVNL is briefly described below:

(i) Strengthening of high-density corridors of the Golden Quadrilateral and its Diagonals comprising around 10,000 km by implementing all or some of the following.
   - Upgradation of track, signalling, bridges, rolling stock, junctions/terminals and level crossings to enable running of freight trains at 100 kmph.
   - Provision of 2nd, 3rd or 4th line in selected sections to remove capacity bottlenecks.
   - Electrification of the missing links.

(ii) Port connectivity and development of rail corridors to hinterland.

(iii) Involving the private sector in financing the construction of these projects.

(iv) Development of efficient models of public-private partnership.

(v) Completing the programme in a time-bound manner.

PPP Projects under RVNL

RVNL has broadly identified 46 projects for implementation on PPP basis. Out of these, 41 have been sanctioned, including a Private Port Railway project. Funding of 38 projects has already been tied up. RVNL has identified the following projects for PPP on BOT/BOOT basis.

Name of Project	Type of Project	Length	Estimated Cost	State(s)	Purpose	Model of Implementation
Panvel-Jasai-Jawaharlal Nehru Port Trust (JPNT)	Doubling	28 km	Rs. 900 million	Maharashtra	Port connectivity	BOT
Bharuch-Samni-Dahej	Gauge Conversion	62 km	Rs. 2.00 billion	Gujarat	Port Connectivity	SPV-BOT
Surat-Hazira	New Line	130 km	Rs. 1.2 billion	Gujarat	Port Connectivity	SPV-BOT
Obullivarepalli-Krishnapatnam	New Line	129 km	Rs. 7.32 billion	Andhra Pradesh	Port Connectivity	SPV-BOT
Delhi-Rewari	Gauge Conversion	72 km	Rs. 2.12 billion	Delhi & Haryana	Port Connectivity	BOT/EPC
Delhi Jn. Cabin-Palwal	4th Line & 3rd Line	34 km	Rs. 1.23 billion	Delhi	Strengthening of Golden Quadrilateral	BOT/EPC
Panskura-Kharagpur	3rd Line	45 km	Rs. 1.82 billion	West Bengal	Strengthening of Golden Quadrilateral	BOT/EPC
Bhopal-Bina	3rd Line	139 km	Rs. 6.60 billion	Madhya Pradesh	Strengthening of Golden Quadrilateral	BOT/EPC
Daund-Gulbarga	Doubling	225 km	Rs. 7.62 billion	Karnataka	Strengthening of Golden Quadrilateral	BOT/EPC
Arsikeri-Hasan-Mangalore	Gauge Conversion	236 km	Rs. 3.12 billion	Karnataka	Port Connectivity	SPV
Salem-Cuddalore via Vriddhachalam	Gauge Conversion	193 km	Rs. 2.61 billion	Tamil Nadu	Port Connectivity	SPV
Ajmer-Phulera-Ringus-Rewari	Gauge Conversion	295 km	Rs. 7.16 billion	Rajasthan	Port Connectivity	BOT/EPC
Bhildi-Samdari	Gauge Conversion	225 km	Rs 4.79 billion	Rajasthan	Port Connectivity	SPV

Upto March 2007, RVNL completed ten projects covering 276 km of doubling of railway lines, 795 km of gauge conversion, 954 km of railway electrification and 155 km

of new lines. Some of the important projects under execution include second bridge over the river Mahanadi near Cuttack in Orissa, doubling of line from Panvel to Jawaharlal Nehru Port in Mumbai, gauge conversion of the second line on various sections like Delhi-Rewari, Pakni-Sholapur, etc.

IMPORTANT PPP INITIATIVES IN THE PAST

Projects Undertaken on Build-Own-Transfer Basis

This model of private investment allows private sector participation in design, building and financing of the project. On completion of construction, the project is handed over to IR for operation and maintenance. Details of the key project executed on BOT basis are given below:

Name of project	Length	Scope of work	Concession period	Project cost	Stakeholders	Status
Viramgam-Mahesana	65 km	Metre gauge to broad gauge conversion	13.5 years	Rs. 830 million	DS Constructions	Completed

Projects Undertaken on Build-Own-Operate-Transfer (BOOT) Basis

Under this model, the private sector is involved in designing, construction, financing, maintenance and operation of the project. This model is normally adopted for projects where it is easy to identify the customers who are largely and directly benefited from the project.

In most of the cases, railway connectivity between the port and existing rail infrastructure was accomplished in partnership with a private port developer through the BOOT route. This is a win-win proposition for both parties as the capital burden on the railways gets reduced while access to the rail network enables better connectivity for the port. The key projects executed under this route are presented in the table below:

Name of project	**Length**	**Scope of work**	**Concession Period**	**Project cost**	**Stakeholders**	**Status**
Pipavav Railway Corporation Limited	270 km	Gauge conversion project-rail connectivity to private port of Pipavav	33 years	Rs. 3.73 billion	50:50 Joint Venture Company of Indian Railways and the Gujarat Pipavav Port Ltd. (GPPL)	Operational

Hasan Mangalore Rail Development Company Limited	191 km	Gauge conversion project-rail connectivity to Mangalore Port.	32 years	Rs. 3.11 billion	Ministry of Railways, Govt. of Karnataka, Rail Infrastructure Development Company Ltd. (Karnataka), New Mangalore Port Trust and Mineral Enterprises Ltd.	Fully operational since May 2006.
Kutch Railway Company Limited	301 km	Gauge conversion project along Gandhidham-Bhildi and Palanpur, rail connectivity to Kandla and Mundra Ports.	32 years	Rs. 5.0 billion	RVNL, Government of Gujarat, Kandla Port Trust and Gujrat Adani Port Limited.	Operational
Haridaspur-Paradip	82 km	New line-rail connectivity to Paradip Port.		Rs. 6.0 billion	RVNL, Government of Orissa, Paradip Port Trust, Jindal Steel & Power, ESSEL Mining and Inductries Limited and Rungta Mines Limited	Tendering stage

Other Initiatives

Private Freight Terminals: Under this policy, the entire financing, construction and operation of freight terminals is done by the private developer. For instance, a private terminal has been developed at Garhi Harsaru near Gurgaon by Gateway Distripark Ltd. Many more such terminals are in the offing.

Private Warehouses at Railway Freight Terminals: Under this policy, construction of private warehouses at existing railway freight terminals is being encouraged. This helps

provide storage and distribution facilities at the rail-head and avoids double handling. One such warehouse has been constructed at Whitefield near Bangalore.

The Wagon Investment Scheme: This is yet another innovative means to enlist private sector participation. By providing incentives to private sector customers to invest in rakes, the Railways have achieved additional rolling stock with minimum capital expenditure.

Handling of the catering, luggage, and parcel services by private sector parties significantly reduced the losses incurred by Railways in this area while improving operating efficiency and quality of service.

The MOR has announced a policy of granting permission to the private container train operators for the movement of international and domestic container traffic. These operators will invest in container flats and construction and operation of private inland container depots.

Future Projects of IR on PPP Basis

The potential opportunities for Public-Private Partnerships (PPPs) in railway projects are set to take a quantum jump due to their identification as a thrust area by the Railways for future growth. The seriousness in this regard can be gauged from the formation of an Advisers Group to frame the PPP roadmap in the Eleventh Five Year Plan as well as a dedicated PPP cell to ensure a transparent policy framework. The major plans of IR where significant private participation is anticipated are given below.

Dedicated Freight Corridors (DFC)

As per IR's plan, Phase I of the DFC will cover stretches from Mumbai to Delhi (approximately 1500 km) on the Western side and Ludhiana to Son Nagar (approximately 1200 km) on the Eastern side of the country. The project entails an investment outlay of US$ 6.5 billion.

Mumbai-Delhi Freight Corridor: Mumbai- Delhi freight corridor is envisaged as a part of a bigger regional development plan known as Mumbai-Delhi Industrial Corridor. It is proposed to develop 20 industrial nodal points within a distance of 50-100 km of the freight corridor on either side, which would be connected to the main line by feeder lines. Some such nodal points are Delhi-Noida-Ghaziabad, Meerut-Muzzafarnagar, Faridabad-Palwal, etc.

IR also proposes to develop six freight logistics parks along the corridor in places like Navi Mumbai, Vapi, Gandhidham, NCR, etc. It proposes to provide land for the development of such parks. Since the present Mumbai-Delhi line is much overutilized,

the turn-round time for the container trains coming to/going from JNPT has increased substantially. The proposed Mumbai-Delhi freight corridor will go a long way in reducing the turn-round time and providing better access of the port cargo (JNPT, Mundra, Pipavav, etc.) to the large Northern hinterland.

Ludhiana-Son Nagar Freight Corridor: The Eastern freight corridor (Ludhiana to Son Nagar) would open the gateway for the cargo destined to/originating from Northern hinterland from/to the countries located in the East of India, i.e., Malaysia, Singapore, Indonesia, Japan, etc. It would bring down the cost along the supply chain. At present, a lot of East-bound cargo is still being evacuated through the ports in the Western coast of the country thereby increasing the logistics cost along the supply chain.

Looking at the economic potential of each corridor, Mumbai-Delhi freight corridor could be developed through the BOOT route. The entire stretch of 1500 km could be suitably divided into 4 packages which may be awarded to private developers on competitive bidding basis. The developers can be given the concession for designing, financing and maintaining the allotted stretches for the entire concession period, i.e., typically 30 years, which could be increased by 2 years in a single block till 20 percent return to the equity is obtained. IR would have the responsibility for land availability, approvals and permits, route planning and specifications, security, electricity availability, unbundling of commercial use of facilities of corridor, etc.

The private corridor developer would lay the railway lines as per route specifications mutually decided or decided by IR alone. IR along with other private carriers would run their trains on the track thereby providing revenue to the private corridor developer on the ton kilometre basis. During operation, the critical job of IR would be the traffic control of all trains (along with the locomotives). While the developer can award the regular maintenance contract of the stretch to IR, it can carry out periodic maintenance all by itself. The private corridor developer would pay the fees/ revenue sharing to IR in lieu of the operation/ regular maintenance services offered by it.

Four other freight corridors comprising of about 8,000 route kilometre are also envisaged in the later phases.

Port Connectivity Projects

Port connectivity projects' outlay depends upon the operational status of the port. In a port like JNPT, it requires doubling of the present line from JNPT till Panvel, while in case of a greenfield port like Dhamra in Orissa, it requires laying the new line to connect the port premises to the main existing railway line. While the former type projects can be implemented on BOT basis (transfer of the assets just after the completion of construction) for a relatively shorter concession period, the latter type projects can be

implemented better on BOOT basis for a relatively longer concession period. New port connectivity for ports like Gangavaram, Krishnapatnam, Cudddalore can also be implemented using the BOOT model.

Modernization of Stations

IR has identified 19 stations for development through the PPP route by leveraging on the potential of the real estate that IR possesses. Such projects are best implemented through the BOOT route. IR's responsibility would pertain to land and site availability, approvals and permits, capacity planning, core activities like traction, operations, signaling, communications, security, etc. The private developer's responsibility would pertain to designing and modernization in line with the capacity plans, construction and development, operation and maintenance of station complex, general amenities, real estate and commercial development of air-space and station city-side space, in-station commercial activities, commuter services and paid amenities.

Locomotive/Coach Manufacturing

In view of the high growth of port traffic, privatization of container train operation and increasing movement of domestic cargo within the country, the demand for locomotives/coaches has gone up substantially. According to an estimate, railways will require around 2,000 passenger cars and 350 locomotives per annum over and above their own capacity to meet the future traffic needs. Locomotive/coach manufacturing can be done through JV route or through complete privatization. IR's responsibility would pertain to demand guarantees, purchase commitments along with pricing on mutual agreement basis, guidance on factory planning and safety and security of premises. The private developer's responsibility would pertain to land, civil construction, electrical and mechanical set-up, operation and maintenance of manufacturing facility, fulfilling demand orders of IR on priority basis, innovation in design based on IR requirements and financing the project.

High-speed Rail Corridors

Plans are afoot to study the feasibility of high-speed passenger corridors between major destinations to improve connectivity and slash travel time. It has been decided to undertake pre-feasibility studies for four high-speed passenger corridors covering a distance of about 2,800 kilometres. High-speed passenger corridors are best implemented on BOT basis where the private developer, after construction, hands over the assets to IR. The pricing of services can be done at a higher level. The revenue thus generated would enable IR to pay the private developer in the form of annuity, of course, with support from the budgetary support fund.

Container Train Operation

With a view to increasing the IR's share in the growing container freight market, Ministry of Railways (MoR), in January 2006 issued policy guidelines permitting private agencies to run container trains for the movement of both international and domestic freight. Operators who have obtained permission under the said guidelines shall be allowed to operate container trains on specified routes with the haulage, operations and maintenance of the rakes to be carried out by IR. Fifteen entities, including CONCOR, having interest in logistics business, have obtained permits to operate container trains under the said policy. The operator is required to enter into a concession agreement to operate container train running business for 20 years (could be extended by 10 years) with IR before start-up of operations.

Category of Licence and Routes

Category of Licence	Route
I	JNPT/Mumbai Port to National Capital Region (NCR) rail corridor and beyond
II	Rail corridors serving JNPT/Mumbai Port and its hinterland other than NCR and beyond
III	Rail corridor serving the ports of Pipavav, Mundra, Chennai/Ennore, Vizag and Kochi and their hinterland.
IV	Rail corridors serving other ports like Kandla, New Mangalore, Tuticorin, Haldia/Kolkata, Paradip and Momugao and their hinterland.

Sharing of Key Responsibilities

Indian Railways	Private operator
Operation by IR - Container trains will be dispatched on a 'first come first served' basis.	Procure his own rolling stock/containers according to RDSO approved design.
IR shall undertake maintenance of the fleet and supply the locomotive.	Land and other related facilities required for railway operation and the track connecting the ICD to the nearest railhead will have to be provided by the operator at his own cost.
IR's Freight Operation Information System (FOIS) will also cater to the private party's requirements for an integrated management and operations information service	The operator will provide all relevant data as required by FOIS and will be provided 'read only' access to this system at reasonable cost.
The operator will pay haulage charges to the railways.	The operator will charge his customers for rail haulage, terminal handling, ground rent, etc. on a market determined basis and the railways will not exercise any control over such pricing.

Current Status

While some operators have commenced operations and forged tie-ups for utilizing terminal facilities in the interim, most of them have initiated measures to build infrastructure and add wagons fleet. Reasons for delay in the start of operations are given below:

- Delay in the signing of the model concession agreement.
- Private container operators have faced difficulties in acquiring their own rakes due to paucity of some critical components like wheels and axles.
- Issues of terminal operation and management have not yet been satisfactorily resolved. Theoretically, all private operators are supposed to have their own terminals. But it is not a smooth process, the acquisition of land being the most difficult, costly and time-consuming process.
- Since putting up the new ICD facilities is expected to take time, the private operators have urged CONCOR and CWC, for example, to allow them to use their terminals.

In the meanwhile, operators have been pooling their resources together or turning to players who are setting up terminals.

Excess Land Use

IR has set up a new Rail Land Development Authority (RLDA) to spearhead commercial exploitation of surplus land through PPP. Indian Railway Catering and Tourism Corporation (IRCTC) is in the process of developing a chain of 100 budget hotels through PPP on the surplus land available to it. Licences for 20 such hotels have been awarded. Such projects are better implemented through BOOT route with the provision of revenue sharing with IR.

The Railways is also planning to set up warehouses and Integrated Logistics Depots, using existing railway land to cater to the supply chain requirements and multi-modal transfer of cargo. The retail industry is planning massive investments in setting up the supply chain and logistics system, which would be an important part of such plans. IR has signed an MoU with the Central Warehousing Corporation to set up rail-side warehouses at 23 locations.

Hospitality and Tourism

With an explosive growth in the in-bound tourism, IR is seeking to enhance its profile and presence in this lucrative sector. Recognizing the superiority of the private sector in providing and maintaining passenger amenities and services, IR is encouraging

private players in the field of marketing and operation and maintenance (O&M) of luxury tourist trains.

VIRAMGAM-MAHESANA GAUGE CONVERSION PROJECT

A case study of the Viramgam-Mahesana Gauge Conversion project has been carried out to draw lessons for the future. The project, which was the first Railway BOT project in India, involved the conversion of the 65 km long Viramgam-Mahesana metre gauge section into broad gauge. The project was completed in 12 months at a cost of Rs.830 million. The new track provides connectivity between major ports on the West coast to North India and is handling heavy passenger and goods traffic volumes between Gujarat and North India.

A critical analysis of the contents of the concession agreement pertaining to the project shows that it could have the following features which would have enhanced its creditworthiness.

- Maintenance is usually the responsibility of the developer in case of BOT road projects; however, it has not been given to the developer in this particular case. After the COD, Railways itself assumed the responsibility of maintenance activities with the developer only receiving annuity payments for the rest of the concession period. This kind of arrangement is a point of contention as to who will share the responsibility in the case of a mishap as construction and O&M operators are different. It is felt that developer could have been given the responsibility of maintenance as well.

- There was a possibility of allowing the developer to collect access charges from the rake operators (primarily Railways at present) instead of fixed annuity. In this way, Railways could have shared the traffic risks with the developer rather than assuming the entire traffic risk.

- Competitive bidding could have been based upon revenue share percentage, where the bidder quotes a fixed percentage of revenue share with the concessioning authority over the life of the concession period. If the revenue collection falls short of projections then the agreement would have a provision to extend the concession period till the developer recovers a pre-defined level of return. In this way, the concessioning authority would have participated in the upside of the project as well as provided for a downside to the developer.

- Another major area where Viramgam-Mahesana Project concession agreement could be worked upon in future is defining required broad

output specification rather than the detailed process and design specifications, which was given by IR. Specifying the broad output requirements will give the developer much more flexibility in implementing the project in an efficient manner, thereby reducing its capital and operating expenditure.

PIPAVAV RAILWAY CORPORATION: A CASE STUDY

Mohd Jamshed*

PUBLIC-PRIVATE PARTNERSHIP IN RAIL PROJECTS

The Indian Railways, at the advent of the 21st century, realized that financing constraints were holding up urgent rail projects of connecting ports to hinterland, strengthening the high density routes like the Golden Quadrilateral and other essential capacity expansion works. Consequently, the Ministry of Railways launched a programme for undertaking these rail projects through public-private partnership, thereby achieving the dual objective of early completion of important projects and infusing much-needed funds from the private sector. State Governments, Port Authorities and private beneficiaries were encouraged to participate in these projects through cost-sharing, equity participation and joint ventures.

The first project undertaken through this route was the gauge conversion of the 250 km long Surendranagar - Rajula metre gauge line and its extension by 20 km to connect the Pipavav port. The existing metre gauge railway line was incurring annual losses of over Rs. 20 crore because of the operation of a limited number of passenger trains and negligible freight movement. Despite being a sanctioned project, financial constraints had prevented its timely execution even though Pipavav port was keen for the project completion since its own viability was dependent on rail connectivity. The already ongoing projects coupled with an ever-growing number of new sanctions in the case of railways results in a thin spread of resources, delaying the completion of the projects by several years. It was, therefore, decided to implement the Surendranagar – Pipavav project through public-private partnership.

PIPAVAV RAILWAY CORPORATION LIMITED

Pipavav Railway Corporation Limited (PRCL) was the first joint venture of Ministry of Railways, formed in partnership with Gujarat Pipavav Port Limited (GPPL), which emerged as the first private sector port company in the country. In the absence of a rail connection, the port could not be adequately developed. GPPL therefore proposed a joint venture with the Ministry of Railways which would undertake this project and provide rail connectivity to the port.

The setting up of the joint venture and executing a host of agreements between various stakeholders was a long-drawn process. A Memorandum of Understanding

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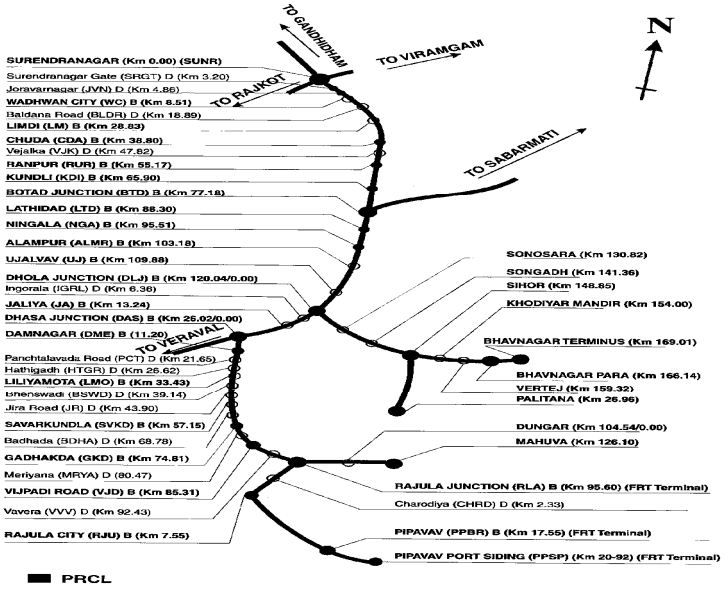
(MoU) between MoR and GPPL was signed on 20th January 2000 followed by a Shareholders Agreement on 28th March 2001. The Concession and Lease Agreement between MoR and PRCL was signed on 28th June 2001, stipulating a concession period of 33 years, inclusive of three years of construction period. The existing railway assets, including the formations, bridges, yards, station buildings, etc., were leased to PRCL.

The Construction Agreement with the Western Railway was signed on 13th March 2002 for design, drawings, engineering, construction and commissioning of the project by the Western Railway with supply of P-way materials by PRCL. The construction of the project line was completed in March 2003 and the traffic started moving on the line from May 2003. The project was completed without any time or cost overrun.

Before the commissioning of the line, the Operation and Maintenance Agreement was signed in January 2003 between PRCL and Western Railway. The agreement covers the scope of operations and maintenance of the project line. Immediately thereafter in February 2003, the Transportation and Traffic Guarantee Agreement was signed between PRCL and GPPL. The agreement provided guarantees to PRCL for one million tonne of freight traffic in the first year, two million tonnes in the second year and three million tonnes from the third year onwards. Similarly, MoR gave transportation guarantees to PRCL to timely evacuate the freight offered by GPPL on the project line. This take-or-pay agreement extended comfort to lenders providing non-recourse debt.

PRCL Railway Network



FINANCING THE PROJECT

The project cost was Rs. 369 crore funded through equity of Rs. 196 crore and debt of Rs. 173 crore. The equity funding for the project was shared equally by Ministry of Railways and Gujarat Pipavav Port Ltd while the debt of Rs. 173 crore was raised by PRCL through a consortium of financial institutions (banks) on a project finance basis.

Ministry of Railways	Rs. 98 crore
Gujarat Pipavav Port Limited	Rs. 98 crore
Financial Institutions	Rs.173 crore
Project Cost	**Rs. 369 crore**

The term loan of Rs.173 crore had a moratorium period ending 31st March 2005 with repayment over a 7-year period starting from 1st April 2005. However, the Company renegotiated with the lenders, achieving a further extension of moratorium period up to March 2007 with reduced interest rates. This loan is being repaid in 28 quarterly instalments commencing on 1st April 2007.

PIPAVAV PORT

Gujarat Pipavav Port Limited (GPPL) was set up in 1992 for the development of Pipavav Port as the first private sector port in the country located on the west coast of Gujarat. The port was promoted by Sea King Infrastructure Limited, in strategic alliance with the Port of Singapore Authority and Maersk Sealand. In the year 2005, Maersk Sealand took overall control of the Pipavav port by acquiring the stake of Sea King Infrastructure Limited.

The port has a capacity to handle 18 million tonnes of cargo per annum, including container and liquid cargo. The port development works will be fully completed by March 2009 with four berths, two for containers and two for bulk vessels, with a handling capacity of 1 million TEU containers and 5 mt of bulk cargo. The first phase of dredging to accept vessels with 12.50 metre draught has been completed. GPPL has tied up with three shipping lines, namely, Mitsui, Hyundai and NYK. With these arrangements, it is expected that the container volumes will significantly go up.

TRAFFIC PERFORMANCE

This project primarily provides broad gauge rail connectivity between the hinterland and the Port of Pipavav. The freight traffic originating and terminating from/to other terminals of Bhavnagar Division of Indian Railways also moves on this section. Presently, there are no major industrial or agricultural centres on the project line. The mainstreams of traffic are therefore to and from the Port of Pipavav.

At the time of the conceptualization of the project, detailed feasibility studies and traffic projections indicated a high growth of traffic on the project line from the first year of its commissioning itself. As the entire viability of the project line depended largely on the guaranteed traffic to and from Port of Pipavav, a Traffic Guarantee Agreement was entered into between the Railways, GPPL and PRCL, as mentioned earlier.

The growth of traffic at Pipavav Port was entirely dependent on commissioning of various facilities and completion of major developmental works, including additional berths, dredging to achieve a draught of 14 metres and commissioning of cargo handling equipment. There were delays in the completion of the on-going works at the port during the initial years, resulting in sluggish growth of traffic on the project line.

To tide over the situation, intensive marketing activities were undertaken, which soon paid handsome dividends in terms of additional traffic. New terminals were set up which generated traffic to the extent of 0.5 mt during 2006-07. It may be pointed out that the revised projections given by GPPL predict a steady growth of traffic on port account, to a level of 2.50 mt in 2007-08, 4 mt in 2008-09, 5.30 mt in 2009-10 and 7.40 mt in 2010-11.

The traffic performance during the period 2003-04 to 2006-07 is given in the table below:

	2003-04	**2004-05**	**2005-06**	**2006-07**
Number of trains run (including empties)	266	703	1165	1838
Container trains	124	633	802	1153
Cargo: million tonne	0.39	0.88	1.57	2.29
Approx. Apportioned revenue (Rs. crore)	5.16	9.30	18.98	40.69
Number of passenger trains	5 pairs	9 pairs	9 pairs	11 pairs

ORGANIZATION & MANAGEMENT

From the very beginning it was ensured that PRCL should set new benchmarks in terms of having a lean and thin set-up. A small set-up has been created in the corporate office headed by the Managing Director who is assisted by half a dozen officers looking after marketing, operations, technical, financial and human resource functions. A few part-time consultants are also associated from time to time with the organization. A satellite office at Bhavnagar coordinates with Bhavnagar Division railway establishment and with the port authorities.

To bring about efficiency in operations and maintenance of the project line, it has been ensured that benchmarked best practices are followed in O&M and only a minimum

number of staff is deployed. Currently, the section with 22 stations is being managed with less than 700 railway staff from all disciplines. It compares well with the figure of 1600 deployed on the 250 km long MG section prior to the gauge conversion. This fact amply showcases the benefits of the public-private partnership SPV model.

EXPERIENCE AND LEARNING

The SPV mechanism met the primary objective of commissioning the project on schedule. It, however, faced difficulty in mobilization of equity funds as GPPL after making a contribution of Rs. 50 crore towards its equity share, faced financial problems which resulted in the delays in its complying with the cash call for the balance amount. To bridge the gap, equity funds to the tune of Rs. 10 crore each were assigned to IL&FS and GIC. The fund requirement was further met through short-term market borrowing. GPPL compensated PRCL for the interest liability on account of this borrowing. Finally, after some delay, GPPL fulfilled its obligation towards its committed equity funding.

The SPV also faced serious financial problems after commissioning of the line on account of non-materialization of projected traffic. Even though the business plan at the time of SPV formation had projected negative cash flows (inadequacy to meet the debt servicing requirement) for the first two years, the actual shortfall was much higher. The main reason for this shortfall was delay in commissioning of the Pipavav Port. The delay could also be attributed to the change in the promoter of the Port with attendant delay in investment in the development of the Port. The Port also initially did not comply with the obligations of traffic guarantee agreement. This put the SPV in a perilous financial state requiring MoR to do a lot of hand-holding.

Currently, PRCL is facing issues of timely transfer of revenue from the Western Railway. The delay in obtaining the legitimate share of the revenues affects the viability of the SPV. There are also issues of proper coordination between Railways and the SPV. These are problems which need to be resolved on a long-term basis.

It needs to be mentioned that SPV achieved significant reduction in O&M cost by adopting the benchmark for maintenance practices being followed in Konkan Railway. It was the first time that the good work done by Konkan Railway was recognized and replicated. Notably, the same practice has been adopted by other subsequent SPVs. In view of the financial constraints, as enumerated above, the SPV was forced to undertake marketing activities to capture additional traffic and also to diversify into other activities to improve the bottom-line. Some of these initiatives are explained in the ensuing paragraphs.

DOUBLE-STACK CONTAINER TRAIN

PRCL realized much earlier that double-stack container operation on the project line would benefit the financial viability of the organization. This kind of operation is being carried out regularly and successfully in several developed countries. It, therefore, undertook the initiative for introducing double-stack container trains between Kanakpura (Jaipur) to Port of Pipavav. The operations commenced in March 2006 as Phase I of the initiative.

Double Track Container Train

In the second phase, it is planned to run double-stack container trains with high cube container (9.5 ft) right up to the NCR region. For this, a number of infringements on account of fixed structures have to be removed first. These identified structures are being modified and gauge conversion of Phulera-Ringus-Rewari section with double-stack clearance is in progress. It is expected that, by March 2009, it will be possible to run double-stack container trains from Port of Pipavav to the national capital region. This will greatly facilitate evacuation of containers from the port, bring down the unit cost of operation and reduce congestion on the existing single-line route.

Diversification in other areas

In addition to its core business, PRCL has diversified its activities in several other areas. It has acquired a licence to run container trains and has worked out a detailed business plan for this purpose. Besides, it has undertaken a number of feasibility studies for railway projects both for Indian Railways and internationally, which include feasibility study for a new broad gauge line connecting Kathmandu with Birgunj in Nepal.

On behalf of Indian Railways, PRCL has successfully carried out trials for transport of double-stack containers (carrying automobiles) on electrified rail routes. Further, it has helped to design special low height containers which permit double-stack operation in the electrified territory and even permit triple-stack operation on diesel routes. The double-stack container trains would be able to transport three times the number of automobiles compared to the current car carriers on the electrified routes.

LESSONS

The following lessons emerge from the public-private partnership venture set up for a specific purpose.

- The setting up of the joint venture and executing a host of agreements between various stakeholders turned out to be a long-drawn process. There is enough scope for reducing the period.
- This public-private partnership has resulted in converting a loss-making railway line into a viable and forward-looking business venture that has also diversified into other profitable areas.
- The staff strength has been significantly rationalised following benchmark practices adopted in Konkan Railway and elsewhere.
- The joint venture experienced cases of defaults on the part of the stakeholders in fulfilling their respective obligations particularly with regard to equity contribution and traffic guarantees. Steps need to be taken to avoid such situations in future.
- There need to be some effective provisions for enforcing the traffic guarantee agreement. Equally necessary is the setting up of an independent authority to resolve issues pertaining to enforcement of agreements.

KUTCH RAILWAY COMPANY: A CASE STUDY

Devendra Singh*

Indian Railways, faced with constraint of funds for timely completion of projects of capacity enhancement or for providing connectivity to ports, perforce had to opt for some alternative financing options involving private entrepreneurs, state governments and project beneficiaries. The railways adopted the structure of public-private partnership, as operationalised through various formats like build-operate-transfer (BOT).

In the initial phase, the process was given shape by setting up joint ventures for stand-alone projects. In the next phase, Rail Vikas Nigam Limited (RVNL) was specially constituted as a wholly-owned public sector enterprise to undertake projects of rail connectivity, capacity upgradation and gauge conversion. The entity was also to function as an umbrella special purpose vehicle authorised to set up downstream SPVs to achieve the objective.

Kutch Railway Company Ltd. (KRCL) was the first SPV established by RVNL for undertaking gauge conversion of the 301 km metre gauge line from Palanpur to Gandhidham. This case study is an attempt to assess how far this initiative has been successful and also to draw lessons for the future to make railway projects more attractive for private sector participation.

PROJECT PROFILE

Development of new ports in Gujarat and saturation of the existing broad gauge routes serving the west coast ports compelled Indian Railways to consider development of alternate rail corridors. It was in this context that it was decided to convert the existing metre gauge line between Gandhidham and Palanpur into broad gauge with a view to providing an alternate route to serve these ports.

In January 2004, Kutch Railway Company Ltd. was set up as a joint venture company to execute the project in partnership with various stakeholders and beneficiaries. The equity holding of the SPV was shared by RVNL (50 percent), Kandla Port Trust (26 percent), Gujarat Adani Port Ltd. (20 percent) and Government of Gujarat (4 percent).

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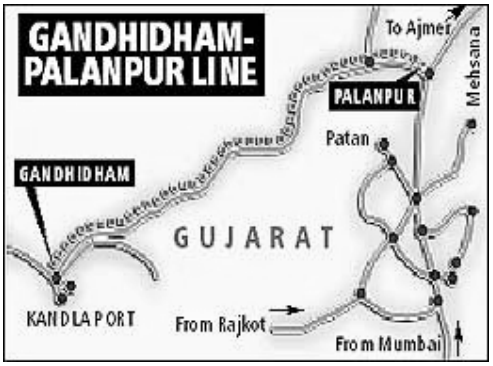
The project was executed at a cost of Rs. 500 crore with an equity contribution of Rs. 200 crore by the shareholders and a debt component of Rs. 300 crore obtained from the banks. Under a concession agreement signed on 8th November 2005, the Ministry of Railways leased all the assets of the project line for a period of 32 years and authorized KRCL to finance, construct, operate, maintain and manage the section.



The gauge conversion of the project line was executed in two phases. The first phase involving 248 km was opened for traffic on 24th March 2006 and the balance section of 53 km was commissioned in November 2006. The project line has 31 railway stations and 2 freight handling terminals. It is gratifying to note that in the very first year of its operation, there has been a movement of 7.5 million tonne freight traffic generating a revenue of approximately Rs. 100 crore.

AN APPRAISAL

It is, perhaps, one of the first projects in the railways to attract sizeable private capital for development of fixed rail infrastructure. The outcome and the performance of the project have so far been encouraging, despite some hiccups. The equity stakeholders are likely to get reasonable returns on their investments. In addition, with the expeditious and timely commissioning of the project, the industrial units in North India have immensely benefited because of the availability of a direct and shorter route to the ports in Gujarat.

Importantly, the traffic carried by the Kutch Railway surpassed the projections in the first year itself by a substantial margin. This is particularly noteworthy, as the section was commissioned in parts in the first year of its operation. The increasing trend has continued in the following years.

KRCL was able to effectively reduce the project cost from the estimated Rs. 550 crore to Rs. 500 crore and commissioned the project successfully ahead of time. As a result, there was substantial saving on interest cost during construction and the revenues started accruing ahead of schedule. Thus, a period of expenditure was turned into a period of earnings. Railways, in turn, were able to complete the project by investing only Rs.100 crore while the project cost was as much as Rs.500 crore. This example shows the possibilities of leveraging funds for project development.

CONSTRUCTION OF THE PROJECT

Construction of the project was carried out by the Western Railway under a contract. Experience in this regard has been mixed. Railways completed the project in time but the project estimate has not been closed and there has been an additional demand on the SPV for payment of Rs.44 crore, the scope of which is beyond the construction agreement with the Western Railway. There has also been an effort on the part of the railway to include other small works in the project scope at a later stage without the consent of KRCL.

FINANCING OF THE PROJECT

Financing of the project did not pose any problem since the full equity was contributed by all the shareholders right in the beginning, thereby removing any uncertainty about non-fulfilment of obligations by the shareholders. KRCL was able to market the project well. It created significant competition among the lending institutions and bankers for debt funding. The financial closure was done at the coupon rate of 7.9 percent, with three years reset clause for a 15-year loan with a 2-year moratorium considered, which is commendable for a non-recourse borrowing. The moratorium period is now over and the company is able to service its debt on time.

OPERATION AND MAINTENANCE

Operation and maintenance of the line is currently being done by the Western Railway under an agreement with KRCL. The agreement could only be finalized and signed after considerable delay, since every agreement needs to be approved by the MoR. Till such time as the agreement is signed, the company is not paid its apportioned share of revenue from the operations by the Zonal Railway, putting unnecessary financial pressure on the company. This process in its present form is time-consuming and can become a deterrent to the future joint ventures since it would affect their financial viability. A mechanism, therefore, needs to be evolved, wherein the O&M agreement is signed before the completion of the construction of the project.

Any joint venture company is expected to adopt the best practices in operation and maintenance. KRCL management worked out its staffing pattern and maintenance schedules on the basis of the systems obtaining in the Konkan Railway Corporation. However, in actual practice, the Zonal Railways are inclined to demand O&M staff as per their prevailing practices. This tends to defeat the very objective of a PPP enterprise that is to bring about efficiency in operation and have a commercial focus in its working.

Even after signing of the agreement and building up of common understanding, it has been experienced that the calculation of O&M cost by the Zonal Railway is quite at variance with the figures worked out by the SPV. Reconciliation is time-consuming and

problematic. Such difficulties in arriving at agreed figures of O&M cost on a month-to-month basis directly affect the calculation of net revenue share payable to the company. In this case, the company faced a serious financial problem on a month-to-month basis, which even led to a default in interest payment to lenders and was actually close to being declared as an NPA.

MARKETING OF BUSINESS

KRCL has estimated that it can move two train loads of freight by utilising the wagon capacity in the empty flow direction. To facilitate this movement, a proposal has been submitted to the Ministry of Railways to extend appropriate discount within the proclaimed policy. In this context, it may be mentioned that in actual practice, this would be a traffic diverted from road.

KRCL has also diversified into the consultancy business, leveraging the experience gained in the implementation of the joint venture project. The assignments are primarily connected with the development of related rail infrastructure, which, if implemented, will further boost traffic on the project section.

CONCLUSIONS

The project was completed ahead of schedule and that too with a saving of Rs. 50 crore in project costs. Besides, substantial savings were achieved due to reduced interest payments during the construction period. KRCL, besides mobilizing equity funds, was able to raise non-recourse debt of Rs.300 crore from banks at competitive rate, thereby making the project a successful business enterprise.

The manpower requirements were carefully rationalized by adopting the best practices prevailing elsewhere. The total number of staff stands reduced to 1000 against 1600 deployed in the erstwhile metre gauge system. This is despite having seven additional stations on the section and handling a larger volume of traffic.

Timely implementation of the project has provided the much-needed rail capacity to the Indian Railways. It has helped the organisation maintain its growth momentum. In the first year of operation itself, about 7.5 million tonne of traffic was carried on the project line. Importantly, the project line has provided a shorter route from Gujarat ports to northern hinterland, thereby saving the transportation cost by 5 to 10 percent.

LESSONS

Each PPP project provides its own learning and experience. KRCL experience has provided some of the following lessons for taking appropriate corrective action in similar future ventures.

- PPP is comparatively a new concept in the railways, hence its specific dynamics are still not fully appreciated at various levels of the railways. Hopefully, greater exposure to the new imperatives of development of rail infrastructure will bring about the desired change in the mindset.

- In the present format, the SPV has little elbow room in important areas of functioning. Its only freedom lies in the area of providing finances for project construction. Within this bind, a high-level sensitivity is required to address the various issues relating to the working of the joint venture. It is felt that adequate representation of the railways on the Board of Directors of the SPV may provide the desired ambience.

- There needs to be a grievance redressal mechanism to sort out differences between the SPV and the concerned Zonal railway, especially in view of the fact that time is of great essence in such joint ventures. An independent body is required to take speedy decisions and resolve the issues on an urgent basis.

- Transport projects are highly sensitive to external environment like changes in the government policy and procedures, shift in transport demand or development of alternative routes. It is, therefore, necessary to foresee the significant risks and mitigate the same through various agreements among the stakeholders. Indeed, risk mitigation and its equitable apportionment are the essence of a successful public-private partnership.

- PPP has been appropriately adopted by the Indian Railways at this juncture as it can bridge the gap between availability of resources and demand for infrastructure in the country. A successfully managed SPV model through public-private-partnership can be beneficial for accelerated infrastructural growth in the country.

- The existing procedures for reconciliation of the cost components relating to operations and maintenance on a month-to-month basis between the SPV and the concerned zonal railway is proving to be time-consuming and problematic. Delay in the flow of funds to the SPV may even lead to default

in interest payment to lenders, a situation that was experienced by KRCL at one stage.

- Executing a host of agreements between the SPV and the railways has turned out to be a long-drawn and time-consuming process. It is particularly so in case of agreements signed with a zonal railway, since the latter has to get the same approved by the MoR. There is need for bringing about necessary improvements in this process.

PPP INITIATIVES IN MULTIMODAL TRANSPORT

Anil Gupta*

The main object of this article is to analyse the progress of multimodal transport in India against the backdrop of various public-private partnership (PPP) initiatives in this sector, beginning from the ports in the early 1990s to the opening up of transportation of container train operations to the private sector in 2006. An attempt has also been made to specifically assess the effectiveness of PPP initiatives in the Indian Railways for promoting container transport across the country.

INDIAN ECONOMY AND TRANSPORT DEMAND

Indian economy is the third largest in Asia, after Japan and China. Like the other two, it has also been witnessing a rapid growth in transport demand which has, as expected, always exceeded the GDP growth[1]. In the recent past, this demand has shifted in favour of road transport, which is estimated to be carrying around 65 percent of the freight in the country. Currently, rail continues to be second largest player, primarily because of its policy of concentrating on the rake-load bulk traffic, particularly since the early 1990s.

Fundamentally, the entire transport system remains over-utilised and poorly maintained, thereby providing low quality services. The system has continued to be supply-oriented. It is only after liberalization in the early 1990s that market perspective has started dictating the developments. This period has also seen good progress towards the development of a viable and efficient multimodal transport system involving ports, airports, railways and roads, which holds the promise of a major transformation in the Indian transport and logistics services industry.

OPENING INFRASTRUCTURE TO PRIVATE SECTOR PARTICIPATION

One of the significant developments of the last 15 years has been the steady opening up of infrastructure development to private investors so that the Indian transport and logistics services industry can transform in the way it has been transforming worldwide. These efforts were first initiated in the mid-1990s with the

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1. During the 1970s and 1980s, total demand for freight transport in India grew at an average annual rate of over 5.3 percent, while GDP grew at an average of 4.2 percent. During the 1990s, freight transport demand grew at 10 percent per year, while the economy grew at 6 percent to 7 percent. Since 2000, transport demand has been further accelerating.

Ministry of Surface Transport issuing guidelines for promoting private participation in the port sector for (a) creation of infrastructure in ports for serving public interest, and (b) provision of competing services by private operators with the intention of improving efficiency as per international benchmarks. The guidelines (issued in 1996) enabled Port Trusts to lease facilities to private operators and to award competitive BOT contracts for the construction of new facilities on port lands.

Later, the government offered various tax incentives and encouraged foreign participation. At the same time, it set up Tariff Authority for Major Ports (TAMP) as a regulator for providing, *inter alia*, level-playing field to the potential private investors. Overall, the government policies in respect of PPP programmes have had a great success in the port sector. There has been a major expansion of the port infrastructure, with several new container terminals developed by private operators. Much-desired modernization of facilities and better management by the private sector has augured well for public sector facilities as they have responded to the challenges.

The same cannot be said for the road sector where efforts have largely been confined to the provision of infrastructure on PPP basis. Road projects so far carried out with the participation of private operators represent a fraction of the overall road investments. It is only recently that the PPP model has shifted towards roads, although it has remained confined largely to improving the condition of roads and stimulating associated institutional developments.

In the Railways, the PPP story is relatively recent and still evolving. In the field of multimodal transport, it first created a separate corporation, the Container Corporation of India Ltd (CONCOR) which started its operations in 1989 as a 100 percent subsidiary and concentrated on (a) creation of infrastructure, i.e. intermodal terminals, and acquisition of rolling stock for hauling containers; and (b) provision of intermodal services for carrying cargo in containers between inland locations and ports for EXIM (export-import) traffic, and between important trade centres within India for domestic traffic. CONCOR has by now evolved as a mixed private-public company, with a significant private equity (37 percent).

CONCOR was a recipient of World Bank assistance with an emphasis on PPP initiative which essentially aimed to improve efficiency in rail transport of containers to serve both domestic and international traffic. This was followed by the creation of other ventures like Pipavav Rail Corporation Ltd. (PRCL) and Kutch Rail Corporation Ltd. (KRCL) as SPVs essentially with a view to developing alternative intermodal routes, to divert traffic from the saturated Mumbai-North India rail route. The latest initiative on this front is the policy for running private container trains on IR network under which as

many as 15 players (including CONCOR) signed a Concession Agreement with IR in January 2007.

The decisions of IR to create Dedicated Freight Corridor Corporation of India Ltd. (DFCIL) and develop freight terminals and logistics parks on PPP basis are some of the other major noteworthy steps in this regard. These steps are rather recent, and one will have to wait for some time before the gains arising from these measures can fructify and can be evaluated.

EFFECTIVENESS OF PPP INITIATIVES IN MULTIMODAL SECTOR

The overall effectiveness of PPP initiatives can be gauged by the success achieved in certain individual projects in various sub-sectors. The first project is of the JN Port which set the ball rolling for tackling the problem faced on shipping and port front in the late 1980s. Almost the entire international trade passed through the country's 11 major ports run by the Port Trusts, which provided services under close central government jurisdiction. The constant growth of trade tonnage was putting these ports under severe pressure.

Increasing attention was given to inviting private participation, introducing modern management, and removing government budgetary constraints through the PPP. The first project was the development of Nhava Sheva International Container Terminal (NSICT) by P&O Ports (now DP World) followed by the Gateway Terminal (GTIL) by a Maersk-CONCOR JVC. Today, the port is regularly handling over 300,000 TEUs (20-foot equivalent units) per month at the three terminals combined (including the initial public sector container terminal operated by JN Port itself). NSICT, and subsequently GTIL have succeeded in maintaining highly even and predictable levels of service (such as curbing preberthing delays and ship turn-round time) and high operating efficiency. The private sector terminals performance has also motivated the old JNPCT to improve its practices and increase productivity compared with its output in the earlier years.

The successful NSICT experiment has spurred further private investments in the port sector by globally renowned container terminal operators like the Port of Singapore Authority (PSA) at Tuticorin port in 1998[2]; P&O Ports (now DP World) at Chennai and Mundra ports; APM (AP Moller Terminals) in Pipavav port; APM/CONCOR combine for the third private sector terminal in JN Port, Dubai Ports International and JM Buxi combine at Visakhapatnam (in the form of Visakhapatnam Container Terminal Pvt. Ltd. (VCTPL)); and, most recently, the DP World-led consortium for a potential hub port on an island off Cochin (at Vallarpadam).

2. PSA have also obtained the rights for developing second container terminal in Tuticorin and Chennai ports.

It is significant to note that the model used has not been uniform. It has varied from original NSICT model which still continues to be followed in JN Port, Tuticorin and Chennai (second terminal). Subsequently, there have been other models, involving the development of private port terminals on leased land provided by the state governments with partnership leading to development of ports like Pipavav and Mundra in Gujarat.

Another variant of PPP has been tried out in Chennai, where one of the existing terminals has been handed over to P&O Ports Ltd (now D.P. World) for operation and further development. Yet another model of development has been at Ennore as a corporatized port instead of a traditional entity under the Port Trust. This has been an important move towards decentralization and increased local authority.

In all, the various PPP initiatives have ensured that the estimated capacities of around 25.5 million TEUs will be available at all the ports by 2015-16, including 15.5 million TEUs at Western Region ports, 3.5 million TEUs at South Western Region ports, 5 million TEUs at South East Region ports and 1.5 million TEUs at Eastern Region ports. Besides, more capacities are likely to be made available at Dhamra and Kulpi on East Coast and Dahej and Rewas on West Coast, which may also come on stream during this period and add to the capacities. In sum, the model has resulted in the likely creation of substantial container handling capacities at ports in advance. It is significant to note that the initial thrust on PPP in this sector is still continuing. Building on successful experience with private berths at major ports, the government is planning to develop 76 new berths by 2012 of which 53 are to be undertaken through PPP. An investment programme of Rs.50,000 crore by 2012 is envisaged, in which PPPs are expected to play a dominant role.

The above developments have also spurred advancement in the related hinterland logistics of containers. In tune with this and the positive economic developments over last 15 years, multimodal transport in India has seen a virtual transformation. During the same period, container traffic in India has increased substantially on account of economic reforms initiated in the early 1990s, with an increased focus on international trade. Container traffic grew from 0.683 million TEUs in 1991-92 to over 6.1 million TEUs in 2006-07, at a compounded annual growth rate (CAGR) of over 15 percent, or approximately 2.5 times the average GDP growth rate during this period. Still, the country lags behind as (a) the containerised cargo ratio to overall general cargo continues to be only around 47 percent against a plausible 70 percent, and (b) only around 25 percent of the total containers handled at ports move in the hinterland against the potential of around 75 percent.

The abysmal low shares as indicated above, combined with the bright prospects of further rise in container traffic on account of rapid economic growth and increasing

trade intensity, present a favourable picture for further development in the field of multimodal transport. Specifically, in the timeframe of the Eleventh Five-Year Plan (2007-12), the port throughput is likely to be of the order of 12 million TEUs in the terminal year of the plan – 2011-12[3]. This translates into moving 9 million TEUs from ports to destinations in the hinterland and for this purpose the following measures would need to be taken.

- Development of substantial capacities at the gateway ports to enable seamless handling of vessels and minimise handling and transport related costs, besides facilitating faster evacuation.
- Creation of matching transport capabilities for evacuation of consignments including containers principally by rail and road, in an optimum mix, where movements of, say, over 250 km are rail-centric, with road serving the arteries on the last mile basis at either end.
- Strengthening and developing suitable intermodal terminals as integrated hubs in the hinterland, which would ultimately emerge as the logistics hubs and facilitate transfer of containers from one mode to another for final connectivity with the actual points of origin/destination of cargo.

To achieve all these three objectives there is need for coming together of both the public as well as private sectors. IR has now taken further initiatives for public-private participation for enabling (a) development of intermodal infrastructure in the hinterland, and (b) provision of multimodal services.

DEVELOPMENT OF INFRASTRUCTURE ON PPP BASIS

Towards the development of infrastructure, the recent initiatives taken by IR include the following:

(a) Award of licences to 15 new operators (including 13 private sector operators) for running container trains, which is likely to attract substantial investment in flat wagons for carrying containers and construction of terminals over the next few years. This move has already resulted in the induction of as many as 45 additional container rakes (over 2,000 wagons)[4] creating substantial additional capacities for moving containers over IR network. This move is also likely to make available around 15 additional

3. As per INSA Annual review for 2005-06, the container traffic at the major ports is projected to grow at a CAGR of 15.57 percent to reach 15.1 mn TEUs by 2013-14 accounting for 25.67% of the total cargo. With non-major ports projected to handle additional 2.88 mn TEU (34.56 mn. tonne), the total container traffic at major and other ports together is likely to be 17.98 mn TEUs (215.76 mn. tonne).
4. Likely to reach over 5,000 wagons by the end of fiscal 2009.

intermodal terminals in the next two years, thereby supplementing terminal network in the hinterland. This will augment intermodal capacities at competitive cost[5].

(b) Permission to Central Warehousing Corporation (CWC) for developing the rail-side warehousing complexes at 23 important railway locations and providing comprehensive terminal facilities for efficient aggregation and faster evacuation of cargo.

(c) IR is also planning to modernize and upgrade various freight terminals across the country through PPP initiative. It is reported to have identified 16 such terminals which will be initially put up for bidding for converting them into state-of-the-art terminals. This will help IR in reducing wagon turn-round time and facilitating quicker material handling at these terminals[6].

(d) Exploration of PPP with the object of developing agro retail outlets and supply chains, and construction of warehouses and multimodal logistics parks[7]. IR is contemplating the development of food courts, vegetable marts, banks and shopping-cum-office complexes, etc. on unused land along and around railway stations which may generate a revenue of about Rs 5,000 crore. IR is already in talks with some big business houses for setting up fruit and vegetable marts/retail stores.

(e) Railways also propose to develop logistics parks along selected major stations in the country through public-private participation. These parks will be set up on the land leased to private sector and will have allied facilities for repairs, banking, warehousing, etc. They will be near the national highways and in metros. Because big cities are also virtual major economic zones, these parks would cater to the growing demand of commercial activities in the cities. This will facilitate private maintenance and will also stop encroachments. It is difficult to maintain the vast tracts of unused land.

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5. PPPs are useful only if they assure augmented availability of quality supply at reasonable cost. Otherwise, the PPP mode has a danger of creating monopolies as against a public monopoly that railway is supposed to be.
6. This has thrown up huge business opportunities for the private sector whereas IR sees the PPP model as an effective way to quickly modernize these terminals.
7. Ministry of Railways is in the process of framing policy, regulatory and institutional framework of PPPs in infrastructure. It has constituted a PPP Cell to develop the policy framework to provide non-discriminatory level playing field to investors, prepare the bankable projects and set up the procedure for awarding concessions through open tendering system. It reflects a strategy for leveraging the competencies and capabilities available with the private sector. These moves will help IR find resources for the projected expenditure of Rs. 2.5 lakh crore in the 11th Plan, against an estimated actual expenditure of Rs. 80,000 crore in the Tenth Plan.

The revenue earned through the effective use of land can be utilized for developing world-class stations, improving amenities for passengers and building more terminals.

ISSUES AFFECTING THE PACE OF DEVELOPMENT

While development has been along the expected lines, some important issues have cropped up which need to be addressed for ensuring that all stakeholders optimally realize the gains of PPP. These issues are given below:

(a) The building of intermodal terminals and logistics parks would require lot of land in the close proximity of such rail stations as are considered important from the point of view of intermodal business. IR would not have the land resources of adequate size available at all such locations. Therefore, this issue will require to be given a serious thought in association with the state governments and town and country planners[8]. IR will also have to find a way out to handle competing demands for the same piece of land by multiple players. Already, parties are blocking each other's efforts to develop container terminals on railway land, wherever available. Private land owners near rail locations have substantially increased their land prices which has retarded the development of inland terminals.

(b) Having multiple rail terminals in the same and nearby locations will create serious logistics problems in train aggregation. The users will have to keep container inventory at several points. Even provision of staff by the Customs and railways at multiple locations would be a problem. Therefore, serious scrutiny of proposals needs to be done by the Inter-Ministerial Committee (IMC)[9] while clearing the proposals for setting up of ICDs. The operators need to jointly create or expand physical infrastructure for synergising their relative strengths, and use each other's assets to their mutual benefit.

(c) It is essential that the traffic is diverted to new rail corridors, away from the super-saturated Mumbai-North India route which carries the bulk of

8. Building world-class infrastructure in a country like India will also critically depend on the cooperation and support of respective state governments on many aspects such as law and order, land acquisition, rehabilitation and resettlement, shifting of utilities besides forest and environment clearances.
9. The Inter-Ministerial Committee clears the proposals for setting up of ICDs. Representatives of Ministries of Commerce, Finance and Railways are members of IMC which scrutinizes the project reports before granting LOI for an intermodal terminal. No such requirement exists for developing a domestic container terminal which can be set up with the consent of IR in case it is proposed to be rail-connected.

container traffic today. This was perhaps the logic behind having varying premium for routes in the container train policy[10].

(d) There are apprehensions that, in the absence of service level guarantees in the model concession agreement (MCA) between Indian Railways and the container train operators, optimal gains accruing from the arrangement will remain elusive. In order that the industry acquires requisite confidence and credibility, involving as it does international trade expectations of reliability and efficiency in intermodal services across the supply chain, service level guarantees need to be determined and mutually accepted.

(e) Shortage of wagons may well be a serious issue that may act as a major constraint. Industry sources predict a 12-15 month time-lag for the delivery of wagons. Key bottleneck is the shortage of wheels and axles. Most of the wagons are being imported.

(f) Alongside, there are various regulatory issues which need to be addressed, like the clauses related to increase of haulage charges by Railways at its discretion. A critical issue in this respect is related to fixation of these charges vis-à-vis IR's general goods tariff rates.

In the context of the differential rating principles, there is a distinct possibility of the container operators weaning away the traffic ordinarily moving on railways. Apprehending this, the railways have taken steps to bar movement of some categories of bulk cargo in containers.

10. Only 15 percent of IR network supports almost 65 percent of containerized freight traffic. With the addition of 15 new players, who have received licences, the existing rail lines will become even more congested requiring new container corridors to be promoted.

RAIL-SIDE WAREHOUSING FACILITIES

Ranjan K. Jain*

It often happens that along with the main development, there is a subsidiary development as well, without which after a time the main development itself either slows down significantly, or even comes to a halt. For instance, production requires distribution. In economics, when applied to goods and services, the concept that emerges is of complementarity.

Transport is no exception to this rule. Without the development of warehousing, which is the subsidiary or consequent need, firms that transport goods would find themselves severely handicapped. Even in the IT business, which has made the transportation of disembodied services so easy, servers perform the function of warehouses.

In other words, firms that transport goods and services must necessarily provide warehousing services as well, if they are to increase their market shares and maximize the return on capital invested in the main activities. The best part of this complementarity in the transport business is that the cost of setting up a warehousing facility is only a fraction of the investment in the main transportation business.

Warehousing was not always a complementary need. When loads used to be small, for example, headloads, mule-loads, or even cartloads, the buyer of the goods could store his purchases at a relatively low cost. But with the development of technology and the emergence of large-scale production, it became possible for the transport firms to move goods in ever-increasing loads. The railways, for example, have the advantage of moving goods in large parcels at competitive rates.

This explosion in scale has changed the requirements of the services provided by transportation firms. In case they cannot provide warehousing facilities, their customers turn to the competitors who can. In India, for instance, where the railways are the bulk movers, the failure to provide adequate warehousing facilities has meant that customers have shifted to trucks which provide door-to-door service.

Recognising this need, the Indian Railways have formulated a scheme for setting up warehouses at their goods terminals with private sector participation. Such facilities are provided on a purely public utility concept without any discrimination. These

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facilities include the provision of direct unloading of rakes into road vehicles on one side and of unloading rakes directly into warehouses on the other side.

The scheme is based on the expectation that it will make the rail transport attractive for the customers by reducing the overall cost of transportation by eliminating one leg, thereby increasing the railways' share of goods business. At the same time, it will lead to faster release of rakes at the terminals since another critical element, i.e. instant availability of trucks, is obviated. Faster release of rakes at the terminals would mean availability of these assets for the next round of loading in a shorter time.

THE SCHEME

The Railway Board issued policy guidelines for setting up of rail-side warehousing facilities in the year 2001, the salient features of which are given below:

(i) Railways would provide land for the construction of warehouses alongside their goods sheds' loading/unloading line, as well as for other ancillary facilities, circulating area, etc.

(ii) The size of the plot shall have a direct relevance to the minimum level of traffic guaranteed.

(iii) Railways will charge a nominal land licence fee of Re.1 per sqm per annum.

(iv) From the third year onwards or from the date of the operationalisation of the warehouse, whichever is earlier, in addition to the nominal lease rental, the promoter will share with the railways a mutually agreed percentage of gross revenue from all activities arising out of the business at the location leased to the promoter.

(v) Loading/unloading facilities at the terminal will be developed by the promoter for smooth operations.

(vi) Free time of loading/unloading will be as per the railways' rules and the rakes detained beyond this time-span will incur demurrage charges. No wharfage, however, will be levied.

(vii) The common facility areas like road parking, etc. will be developed by the promoter and used commonly with the railways. The repair and maintenance cost of these areas shall be borne by the promoter. However, no lease rent will be payable in respect of such areas and no commercial activity will be allowed on this tract.

(viii) The promoter will be required to give preference to the rail-borne traffic; he will earmark at least 70 percent of warehousing space for rail-borne traffic.

(ix) The cost of the commercial staff which will be posted at the goods shed to issue RR and supervise loading/unloading will be borne by the promoter.

(x) The warehouse promoter would be allowed a maximum period of two years from the date of signing the agreement as the gestation period within which he will ensure construction and operationalisation of the warehouse.

(xi) The lease agreement will be for 20/30 years which may be extended further, subject to satisfactory performance, for a specified period and on such terms and conditions as may be mutually agreed between the railways and the promoter.

MoU with Central Warehousing Corporation

In December 2003, the Railway Board signed a Memorandum of Understanding (MoU) with the Central Warehousing Corporation (CWC) for setting up of rail-side warehouses at the following locations in the country.

1.	Alamnagar (Lucknow)	9.	Kandla	17.	Roza (Shahjahanpur)
2.	Badnera (Amravati)	10.	Kanhan/Kalumna	18.	Sambalpur
3.	Bangalore-II	11.	Koodalnagar(Madurai)	19.	Sanathnagar(Hyderabad)
4.	Burdwan	12.	Mysore	20.	Saswad Rd. (Pune)
5.	Dankuni (Kolkata)	13.	Naini (Allahabad)	21.	Shakurbasti (Delhi)
6.	Dehri-on-Sone	14.	Nasik Road	22.	Tambaram/Korrukupet
7.	Ghaziabad	15.	Navalur (Hubli)	23.	Yamuna Bridge (Agra)
8.	Hatia (Ranchi)	16.	Nishatpura (Bhopal)		

The MoU with CWC has the following specific features:

(i) Railways reserve the right to construct additional godowns, goods sheds on its own or to authorize any party to do so at the terminals where CWC has been permitted to construct warehouses.

(ii) CWC will provide and maintain all ancillary facilities and other services required for the smooth operation of the warehousing complexes, such as fully computerized air-conditioned office complex, separate office space for various customer organizations/handling operators/clearing and

forwarding agents, canteen facility, public conveniences, weighbridges, power supply with back-up arrangements, etc.

(iii) CWC will also provide total logistics solutions through storage, delivery and distribution by road to the doorsteps of the users both of inward and outward cargo. It will charge a tariff for storage, handling and road transportation services that is competitive so as to attract additional traffic for railways.

(iv) While making full use of logistics services and infrastructure available at the warehousing complexes, CWC will act as a marketing partner of the railways to improve the share of the railways in transport sector by a) aggregation of piecemeal traffic for outward movement in block rakes; and b) storage, handling and road bridging /distribution of inward traffic received in block rakes.

(v) CWC, in addition to the payment of lease rental, will also pay to the railways 5 percent of the gross receipts from all activities arising out of the business at the locations leased to them. It will have a minimum floor level of 6 percent of the market value of the land at the time of agreement evaluated as per extant rules of the railways in this regard, which will be revised upward by 10 percent every three years. At the end of six years, these rates will be reviewed and again fixed depending on the market conditions at that time. This cycle will be repeated every three/six years.

(vi) The percentage of gross receipts from warehousing operations payable by CWC to the railways will be reviewed every three years after the date of operationalisation of the warehousing complex or from the sixth year after the execution of agreement, whichever is earlier.

(vii) Acting as a strategic partner of the railways, CWC will take all possible steps to promote rail-borne traffic to and from the warehousing complexes.

DEVELOPMENTAL ACTIVITIES

In pursuance of the MoU, CWC has been developing rail-side warehouse facilities at different locations. For each of these locations, a separate agreement is entered into, based on the policy laid down.

It may be mentioned that much before the formal signing of MoU between the two organizations, CWC had been entrusted with the development of rail-side warehouse facilities at Bangalore, now termed as Phase I. Indeed, the experience gained in this regard was used for formulation of the policy as well as for the development of facilities in other parts of the country.

EVALUATION OF EXPERIENCE

More than five years have elapsed since the scheme was formulated. During this period, rail-side warehouse facilities have been developed at several locations. To evaluate the overall benefits, case studies of two locations, viz., Bangalore and Bhopal, have been carried out, the results of which have been used for determining the way forward.

Case Study: Bangalore

In Bangalore, warehousing facilities were developed in three different phases. Phase I, having a storage capacity of 14,200 tonne, was completed in February 2002 with a capital expenditure of Rs. 4.5 crore. Phases II and III, with a storage capacity of 15,500 tonne and 13,000 tonne respectively, were completed in December 2004 and December 2007, respectively, at a cost of Rs.8 crore and Rs. 6 crore.

The facilities have fulfilled the anticipation. The inward traffic has shown an increase of 300 percent during the last six years. During the same period, the number of wagons requiring storage at the warehouses has also shown a quantum increase. The table below shows the position.

Year	Number of wagons released at the terminal	Number of wagons requiring storage	Wagon loads requiring storage as percentage of the wagons released
2001-02	45480	-	-
2002-03	65915	11273	17.1
2003-04	79145	14855	18.8
2004-05	95235	19143	20.1
2005-06	96510	20365	21.1
2006-07	108476	24530	22.6

Another significant benefit has been the realization from the licence fee which has increased from less than Rs. one lakh in 2001-02 to more than Rs.10 lakh in 2006-07. Indeed, the picture has changed dramatically; inasmuch as the percentage income from the storage charges is now more than the percentage charges of the land value as was the case hitherto.

The average storage period at the warehouse varies between 5 and 6 days which enables high turnover of the use of facilities. The storage charges compare favourably with the charges levied by the private entrepreneurs. With the decline in the incidence of handling, there is less wastage of the cargo. The interest of the smaller customers has been taken care of by not reserving more than 50 percent of the available storage space for long-term large users.

Case Study: Bhopal

The railways have a goods shed in Bhopal to cater to the needs of its users. The shed has two short spurs which together can accommodate 40 BCN wagons. This involves shunting operations while placing a rake in two parts. The shunting operations are cumbersome and time-consuming since the goods shed is located in a congested area.

Keeping in view these constraints, Central Warehousing Corporation built a modern warehouse at Nishatpura about 3 km from Bhopal with two unloading lines, each of which can accommodate a full rake. The warehouse was commissioned on 22 August 2006 with necessary ancillary facilities.

For handling the loading/unloading operations, CWC has appointed agents selected on the basis of competitive bidding. In this arrangement, the handling agents are also responsible for payment of demurrage charges, if any, for delay in release of the inward wagons. The handling charges at Nishatpura are, therefore, higher than the comparable charges at the goods shed at Bhopal. This is due to the additional risks having been passed on to the service providers.

With adequate warehousing facilities available in the city and its suburbs and given the handling charges structure, about 80 percent of the inward traffic is presently moving directly to the stockists after unloading at the goods shed at Bhopal. Besides, the facilities at Nishatpura do not permit direct removal of goods by truck after unloading from the wagons.

As a consequence, the newly developed facilities at Nishatpura are not being patronized. Ironically, this is despite the fact that the railways stand to gain in terms of placement of a full rake without any shunting operations. Besides, the wagons get released expeditiously since the handling agents do not wish to incur any demurrage charges for any delay.

CONCLUSIONS AND THE WAY FORWARD

(i) The two case studies indicate mixed results. The project at Bangalore has abundantly realized the anticipated benefits. In comparison, the project at Nishatpura has not so far shown comfortable results. At Bangalore, there is significant storage component in the logistics chain and storage at the CWC warehouse eliminates one extra handling and transportation. On the other hand, 80 percent of the traffic at Bhopal is moving directly to the stockists. In such a scenario, the warehousing at the rail-head has no utility and makes the logistics chain inefficient. Railways, therefore, while planning for rail-side warehousing, need to properly study the logistics requirement.

(ii) The scheme provides for leaving one line at the goods shed without warehouse to facilitate direct transportation from wagon to the truck and further to the stockists. Every location has a mix of direct transportation and transportation through the warehouse. Therefore, while planning the warehouse, either part of the line should be left for direct loading on truck or a separate line may be earmarked for this purpose. In the absence of such planning, the rail-side warehousing may have adverse effect on unloading and transportation by rail.

(iii) The CWC is primarily a warehousing company. Its interest is to maximize occupancy of the warehouse, rather than to increase the turnover and maximize traffic by rail. It is a link in the logistics chain, but does not have focus on the entire chain. Gains can be maximized by the CWC either by itself becoming a logistics operator or warehouse being developed by a logistics provider. In such a scenario, while designing the warehousing facilities, the local requirements will have to be taken care of. The focus of the logistics provider then will be to make the logistics chain more efficient and more economical. CWC has since created a new subsidiary in the name of Rail-Side Warehousing Corporation Limited, which will act as a logistics provider, catering to warehousing, loading/unloading and local transportation.

(iv) The experience of Bangalore indicates that railways can commercially exploit the railway land in such a way that they not only get more return from the land but are also able to increase the rail-borne traffic and thereby generate more revenue from transportation.

PRIVATE PARTICIPATION IN CONTAINER TRAIN OPERATIONS

Sachin Bhanushali*

PUBLIC-PRIVATE PARTICIPATION IN CENTRAL AND STATE SECTORS

In India, at the central level, PPP structure has been used in telecom, ports, airports, highways, railways and power sector. At the state level, this model has been used in roads and urban infrastructure. In both cases, the outcome has shown varying degrees of success. The partnership structures that have been followed are licensing-cum-revenue sharing, Special Purpose Vehicles (SPVs), Build-Own-Operate-Transfer (BOOT) or Build-Operate-Lease-Transfer (BOLT) or Build-Operate-Transfer (BOT) under a concession model. The mode of award of such projects has normally been international competitive bidding or domestic limited tender bidding combined with negotiations.

The BOT model has been used in the case of ports and airports by permitting private operators to build and operate terminals at the ports and, lately, also at the airports. This has not only created top-class terminals like the P&O Ports terminal in J N Port but has also become a source of revenue to the exchequer. The PPP model in the case of development of highways has also followed the BOT route. The model is based on four key elements, viz., traffic volumes, user fee, concession period and capital cost. The model generally follows fixed concession period and a uniform user fee all over India.

PUBLIC-PRIVATE PARTNERSHIP IN RAILWAYS

In railways, BOT model has generally been adopted for development of fixed rail infrastructure like new railway lines, gauge conversion of existing lines, etc. Pipavav Rail Corporation Ltd. (PRCL), Kutch Railway Company Ltd. (KRCL) and Hassan-Mangalore Rail Development Company Ltd. (HMRDCL) are some of the joint ventures recently set up adopting the BOT model. HMRDCL is jointly owned by the Indian Railways, Karnataka Government, Rail Infrastructure Development Company of Karnataka (a Karnataka State Enterprise) and some other strategic investors, viz. Mangalore Port and Mineral Enterprise Ltd.

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CONCESSION AGREEMENT

A Concession Agreement is signed by the railways with the joint venture companies. The agreement includes the rights and obligations of the concessionaire as also those of the concessioning authority/MoR. It also stipulates the period of the concession, and terms with regard to the transfer of assets to MoR on expiry of the concession period. Besides, it lays down, among others, the provisions with regard to revenue apportionment as also those which will apply in the event of default/failure.

The agreement has undergone major changes over a period of time. Ironically, all such changes are one-sided and in favour of the railways. For example, the concession agreement signed with PRCL granted the entity the status of a railway administration as laid down in the Railway Act, 1989. This status has, however, not been extended to the subsequent joint ventures and a clause to this effect has been deleted.

As regards the return on equity, in case of Kutch Railway Company the same has been capped at 14 percent, unlike the PRCL, where there is no such stipulation. Further with a view to ensuring that returns on capital are not achieved in the early period of the concession, the agreement in case of Angul-Sukinda new line project has the following provisions:

- The concession would be in terms of the revenue apportionment with a concession period of 30 years of operation or till the NPV payback equal to the equity investment at pre-determined rate of discount of 14 percent is reached, whichever is earlier.
- The apportionment will be made at 80 percent of the revenue normally accruable to the SPV in terms of inter-railway apportionment in case of non-originating traffic and 90 percent of the revenue in case of originating traffic.
- Zonal Railway will have the right to impose inflated kilometerage for the non-originating traffic and such revenue would be solely retained by the Railways.

It would be seen from the above that in all cases the effect of amendments has been to safeguard the pecuniary interests of the railways by adopting different methods like capping the return on equity or limiting the period of concession through the methodology of calculating net present value. Apparently, the interests of the joint ventures have been given a short shrift.

THE CONTAINER TRAIN OPERATION EXPERIMENT

The implications of intermodal movement of different types of shipping line containers need to be appreciated for understanding the related infrastructural and operational needs.

Laden containers for international trade: This involves transport of containers by rail from a container terminal to a port (or another terminal) as the hinterland part of international journey. The operator needs access to a port and at least one hinterland container terminal to provide this service.

Laden cabotage containers for domestic trade and empty containers for repositioning: The shipping lines need to balance their containers from port to terminals and vice versa and sometimes between two terminals. These containers can be used for transportation of domestic cargo by the operator to subsidize such repositioning cost under cabotage conventions.

Entry of private operators in container movement

In 2006, a formal policy was announced by the Ministry of Railways for opening the container train operation business to private operators at a one-time licence fee. The advertisements inviting the prospective operators were misleading as these compared rail haulage (a cost component for operator) with road tariff (a price factor to the customer) without any regard to the cost of investment in rail terminals and rolling stock. Nine would-be operators, including a PSU, wrote a Rs. 50 crore cheque each with a great deal of enthusiasm and expectation.

In addition, four business houses paid Rs. 10 crore fee each for a limited version of the licence. In 2007, another PSU was added to the list of the licence holders. The concession agreement was signed in January 2007 after going back and forth on many policy details. The licence is given for four different categories with a high premium on the NCR-Mumbai route as this is the most densely utilized and congested route.

The present model of private participation in container train operations is not in the nature of concession in the traditional sense, since it involves substantial investment in developing terminal infrastructure and in rolling stock required for transportation of containers. The underlying objective of the entire exercise is to provide competitive, efficient and reliable intermodal services across the supply chain.

The progress in this regard for the half year 2007-08 is shown below. The relevant information has been gathered from the operators, both public and private. The table also shows the progress of the alliances and tie-ups forged between the various operators.

Operational Status

Operator	No. of rakes	No. of trains run	Rakes planned	ICDs available	ICDs proposed	Alliances
CWC	NIL	71	NIL	1	NIL	APL (Indialinks), JM Baxi (Boxtrans)
JM Baxi	6	47	6 (Jan.2008)	NIL	2 (Sonepat, Chennai)	CWC at Loni
APL (Indialinks)	1	7	9 (Mar.2008)	NIL	2 (Panipat, Nagpur)	CWC at Loni
MICT (DP World)	NIL	NIL	7 (Dec.2007), 15 (Dec.2008)	NIL	4 (Gurgaon, Ahmedabad, Baroda, Bangalore)	NIL
Hind Terminals	3	NA	10 (Dec.2008)	1 (Palwal)	NA	CONCOR
GDL (Rail gate)	2	1	12 (Dec.2008)	Garhiharsaru, Asoti	Sanewal (Ludhiana), Chennai	CONCOR (CONCOR runs 12 trains a month from Asoti for GDL, full revenue with CONCOR)
ETA	NIL	NIL	2 (Dec.2007)	NIL	Delhi (Sonepat)	NIL
Adani	NIL	NIL	2 (Dec.2007)	Patli (Haryana), Kishangarh (Rajastan)	Ludhiana, Asoti, Mumbai, Coimbatore	NIL
Bothda (B2B Innovations)	7	71	NA	NIL	NIL	CWC at LONI
CONCOR	170	45/day	50 (Dec.2008)	55	NIL	Hind Terminals
Delhi Assam	NA	NA	NA	NA	NA	NA
Reliance Infrastructure	NA	NA	NA	NA	NA	NA
Pipavav Rail	NA	NA	NA	NA	NA	NA
KRIBHCO	NA	NA	NA	NA	NA	NA
SMART	NA	NA	17	NA	4	

It is important to note that soon after signing the agreement, B2B Innovations Private Limited, one of the operators introduced container train operations in the domestic sector while Central Warehousing Corporation was the first concessionaire to undertake such operations (Loni to JNPT) in the international sector.

Issues that have surfaced

Although a number of problems in regard to the implementation of the scheme have been deliberated between Ministry of Railways and licensee operators and some of them have also been addressed in the final concession agreement, several issues still remain unresolved. The industry has particularly referred to important aspects, such as service guarantees, rating and pricing policy, maintenance of rolling stock, commodities which railways may not permit for loading in containers besides the difficulties in acquiring land for intermodal terminals, etc. The container train operators are also concerned at the lack of clarity on basic issues of train operation, for example, use of terminals for carrying out domestic operations.

The Ministry of Railways has held that their traditional traffic, particularly of bulk goods, must not be carried by container train operators. They have tried to achieve this by banning transport of four commodities, viz., coal, coke, ores and petroleum products and have used terminal access charge and ground usage charge to restrict the use of railway terminals for such transport. Some rail terminals have been completely banned for such container-based traffic.

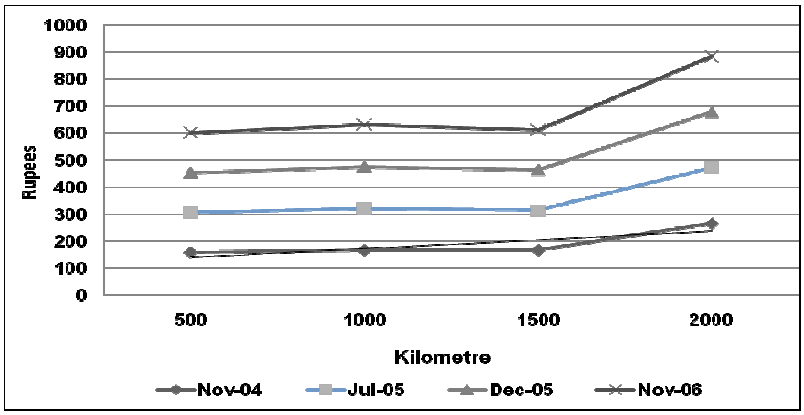
Rating: The rating structure has undergone a major change from a uniform per TEU per km rate for all weight slabs to a telescopic weight slab-based rating structure. In addition, charges have been introduced for haulage of trains carrying empty containers. It is a hefty charge equivalent to almost 60 percent of the basic laden haulage charge. It may be appreciated that some empty haulage is inevitable due to imbalance in trade flows. Heavy incidence of levying empty haulage charges has the potential of making the rail container services uncompetitive as compared to road services. Keeping this in view, there is need for reviewing these charges. Furthermore, the prevailing rating structure discourages the rail operators from taking advantage of short-lead traffic which is often needed for balancing of rakes.

The table below indicates the changes in rail haulage charges since November 2004. It would be seen that there has been an increase of over 50 percent in almost all weight slabs. Furthermore, the charges for transporting containers over short distances have been substantially increased.

Distance Slab (km)	Nov-04	Jul-05	Dec-05	Nov-06	Change Nov-04/06
500	159	167	167	266	167%
1000	306	321	314	472	154%
1500	453	476	463	679	150%
2000	601	631	612	885	147%

The following chart gives graphical representation of the shift in the rail haulage rates for various distance slabs over the last three years. Incidentally, the increase affected in November 2006 was on the eve of introducing the policy of involving the private sector in container train operation.

Change in Haulage Charges



Frequent tariff changes have an unstabling effect. Hence, there is a clear case for adopting a stable rating structure for a longer duration with some built-in escalation so that long-term contracts with customers could be entered into by the operators. In this context, the need for a regulatory mechanism becomes obvious.

Service guarantees: There are no service guarantees in terms of transit time or scheduled container train services under the concession agreement. The service guarantees are defined only in terms of providing a locomotive for the train after it is offered for haulage. It is logical and equitable that IR should agree to lay down transit time between various destinations.

Cost of land: The cost of land at the industrial hubs is astronomical. It costs about Rs. 75 crore to Rs. 80 crore to build a rail-linked terminal of medium size. This makes the new model of private participation in container transport highly capital-intensive. The

revenue model even at the present cost-price structure indicates a long-time horizon for the project to be profitable. In fact, the availability of land for setting up ICDs is a serious problem which has prompted the operators to share the facilities and the concept of access charge has emerged.

The container train operators are seeking support from the railways for providing them land to develop rail-linked terminals. The size of the plot required for a rail-linked terminal is large and, barring a few locations, railways do not hold a contiguous piece of land of the required size where such terminals can be developed. Even at the locations where such land is available; the basis of allotting land to a particular operator or a group of such operators is an issue that cannot be handled easily.

Load factor: The success of any transport project lies in achieving a high load factor on all its service legs. If the number of operators is very high, the probability of each of them achieving a high load factor goes down, as the volumes get divided. This problem has been successfully tackled by the shipping lines by forming route alliances and through the invention of a 'slot' as a tradable commodity. A slot is a position for a container on any given voyage and the slots are booked by carriers and non-vessel-owning-common-carriers (NVOCC) to achieve a high load factor. While it is learnt that train rakes are being shared for each other's benefit, this process could be pushed further by hiring the slots which would ensure high utilization of assets.

Business volume: There is an inherent danger of division of volumes to various terminals as most of the operators are trying to register their presence in the National Capital Region (NCR) by developing their exclusive terminals. The matrix of 14 operator terminals and their independent rail services to 4-5 port terminals would give rise to a large number of permutations. This would most certainly trigger price wars which will benefit no one in the long run. However, it is quite likely that the operators would form alliances and share terminal and train capacity in order to strike equilibrium. The competitor would become the friend and the customer the enemy!

Wagon maintenance: The problems of wagon maintenance too are affecting the pattern of traffic. As the facilities for the maintenance of container flats are available at very few places, the train-sets have to visit these locations even if those are not on the traffic routes. This results in infructuous movement and the cost of transport going up. It is felt that train examination facilities should be provided at the ICD itself with operators providing the necessary infrastructure. The operators could also be given an option to maintain the stock and get compensated through suitable reduction in freight charges.

Centralised payment: The relationship of the railways with a customer is on transaction basis and each loading-unloading activity is treated commercially as a

separate relationship. The private operators who are in a way running a parallel logistics service, have to get the bank drafts prepared for payment of haulage charges to the railways. This is a cumbersome procedure and could be solved by having a centralized payment mechanism or electronic payment gateway.

THE WAY AHEAD

Railways should let private operators set up their own terminals and restrict the number of terminals in NCR, Punjab and Mumbai region to only a few so that there is no division of volumes which will make the business unviable. IR should also resist the temptation of setting up common terminals for the operators as the revenue model of this sector is dependent on both rail transport and terminals. Only if more private terminals are set up by the operators, the railways will be in a position to win over traffic from road to rail through consolidation of cargo and value-addition of services provided by the operators.

Railways should also let the commodities which are traditionally moving by road in large quantities be carried by the container train operators as the purpose of this exercise is to shift these commodities from road to rail by way of consolidation. This may at times result in some of the railway traffic shifting to container operators. But it will still be carried by rail without the use of railways' own rolling stock. The overall economics will thus continue to be in favour of Railways. The fear that these operators will compete with IR for its traffic is ill-founded and may result in a cat-and-mouse game. Railways should wholeheartedly support the private operators to set up their businesses with due emphasis on terminals and let them bring in road traffic to rail.

Annexure

Some Selected Excerpts from

Concession Agreement
between
Ministry of Railways, Government of India
and
Krishnapatnam Railway Company Limited
for
Obulavaripalle - Krishnapatnam New Railway Line Project
on
South Central Railway

And whereas, Obulavaripalle-Krishnapatnam New Railway Line Project is a sanctioned ongoing project of Ministry of Railways and is an identified project to be undertaken under this Yojana; and Ministry of Railways has already commenced construction work on this project;

And whereas, Rail Vikas Nigam Limited ('RVNL'), Government of Andhra Pradesh ('GoAP') and Krishnapatnam Port Company Limited ('KPCL') have signed an MOU on November 22, 2005 for implementing New Line Project between Obulavaripalle and Krishnapatnam through a Special Purpose Vehicle.

And whereas, Rail Vikas Nigam Limited, Government of Andhra Pradesh, Krishnapatnam Port Company Limited and National Mineral Development Corporation Limited have signed the Shareholders Agreement for Krishnapatnam Railway Company Limited ('KRCL') on October 13, 2006 in order to take over the responsibility for implementation of the Project which shall include raising for the Project, completion of Civil Works, installation of equipment and facilities for the Project, testing and commissioning and subsequent operations and maintenance of the railway line for a period as specified in the Concession Agreement.

In pursuance of the aforesaid understandings, the parties have agreed to enter into this Concession Agreement for setting up a suitable framework, under which KRCL can undertake all the activities connected with the development, financing, design, construction, operation and maintenance of the Project;

1.1 **Definitions**

"Maintenance" means all activities associated with standard maintenance procedures on a line similar to the Project Railway as prevalent in the Indian Railways for all aspects concerned with train movement, including but not limited to maintenance practices for track and structures, depots, rolling stock, motive power, signalling and

telecommunications, electrical equipment, etc and any emergency or out-of-course repair or restoration activity and necessary periodic and other inspections regarding maintenance and safety procedures.

"Project Related Agreements" shall refer to all agreements pertaining to the execution of the Project, and shall include: (a) this Agreement, (b) the Shareholders' Agreement between RVNL, GoAP, KPCL, NMDC and KRCL, (c) the lease agreement (the 'Lease Agreement'), which will be a schedule to this Agreement, under which the existing assets and the land will be leased to the Company by MoR, (d) the agreement for Construction entered into by KRCL for Construction, (e) the agreement for Operations and Maintainence entered into by KRCL for Operations and Maintenance.

4. GRANT OF CONCESSION BY MoR TO KRCL

4.2 **Rights of KRCL**

The Concession hereby entitles KRCL, inter-alia, to the following:

(a) to exercise all the rights and authority vested in the Concessionaire under this Agreement;

(b) to have the exclusive right and authority during the Concession Period to implement the Project;

(c) the right to Commercial Exploitation;

(d) the right to develop Additional Facilities in the Project Area;

(e) the right to quote special tariff rates for freight traffic moving within the Project Railway i.e. where origin and destination both are on the Project Railway in terms of the policy instructions issued by MoR from time to time. However, any special tariff rates applicable on other than the Project Railway shall require prior approval of MOR.

(f) the right to receive from MoR its share in accordance with the rules of inter-railway apportionment of earnings, of the tariff collected from the freight traffic originating, terminating and moving on the Project Railway, including haulage charges collected from container operations, after deduction of Operations and Maintenance costs, in accordance with the Project Related Agreements.

4.3 **Obligations of KRCL**

Subject to this Agreement and Applicable Laws, KRCL hereby undertakes to do the following:

(a) to perform and fulfill, at its costs, expenses and charges, all of its obligations under this Agreement;

(b) not to assign or create any lien or encumbrance on the Concession hereby

granted, except as permitted in this Agreement, without the prior approval of MoR;

(j) indemnify MoR against all actions, suits, claims, demands and proceedings and any loss or damage or cost or expense that may be suffered by MoR on account of anything done or to be done by KRCL in connection with the performance of its obligations under this Agreement;

4.4 **Rights of Concessioning Authority/MoR**

The Concessioning Authority/ MoR shall be entitled to the following:

(a) The Existing Assets handed over or leased to KRCL shall continue to be the property of the Concessioning Authority and shall revert to MoR or its nominated agencies or assignees on the Termination Date or Expiry Date.

(b) The right to collect an annual lease rental from KRCL in respect of all the Existing Assets, which have been handed over or leased to KRCL for the Project as per the Lease Agreement between the parties as set out in Schedule 1.

(c) The right to collect tariff from non-container traffic originating, terminating and moving on the Project Railway, and haulage charges from container operations. The due share of KRCL in the freight traffic earnings shall be apportioned and paid to it as per the rules of Inter-Railway Financial Adjustment after defraying the Operations and Maintenance costs in accordance with the Project Related Agreements.

(d) Without in any way adversely affecting the movement of traffic on the Project Railway, or otherwise adversely affecting the functioning of the Project Railway, the right to connect to the Project Railway, at any point along its length, other rail lines which are constructed in accordance with the normal expansion plans of MoR.

(e) The right to modify, suspend or revoke the rights of the Concessionaire under National Emergency during the period of National Emergency, limited for the period of such National Emergency.

4.6 **Period of the Concession**

4.6.1 The concession period would be determined with reference to attainment of the NPV payback benchmark at the rate of return of 14%. The concession period shall be 30 years of operation or till the time the NPV payback equal to the equity investment is reached, whichever is earlier. In case the NPV payback is reached earlier than 30 years, the Concession Agreement would stand terminated and the project line would be re-possessed by Railways. The NPV at the discount rate of 14% shall be based on the

dividend payouts to shareholders and net worth including the termination payment. Schedule III to this Agreement indicates the method of calculation of NPV payback and determination of concession period. The company shall prepare this schedule after COD, on close of the yearly accounts of the company and send it to Ministry of Railways by 30th September of the year without fail.

4.6.2 Upon the expiry of 30 years of operation as provided in Article 4.6.1 above, the Concession Period shall be extended by an equal period of time which corresponds to the period for which material disruption of Operations and Maintenance occurred during the Concession Period. However, such extension will be limited to the provisions of clause 4.6.1 above, i.e., if NPV payback equal to the equity investment is reached earlier than the period so extended, the Concession Agreement would stand terminated.

4.6.3 Upon Expiry/Termination, the Project Assets shall be handed over by the Concessionaire to MoR. Provided however that, if MoR opts to grant a fresh Concession in respect of the Project Railway, the Concessionaire shall, all other things being comparable and performance of the concessionaire being satisfactory, have the first right to be awarded the new Concession.

5. TRANSFER OF ASSETS TO MoR

5.1 Upon Expiry, the Project Assets shall be handed over by KRCL to MoR in accordance with the provisions of Article 8.

7. BREACH OF CONTRACT AND OTHER FAILURES TO PERFORM

In the event of MoR or KRCL being in material default of this Agreement and such default is not cured within the cure period as provided herein, the following provisions shall apply.

7.1 **KRCL Event of Default**

KRCL shall be deemed to have committed an Event of Default if any of the following occurs, unless such event has arisen on account of Force Majeure Event or Concessioning Authority Event of Default;

(a) Unlawful repudiation of this Agreement by KRCL;

(b) Appointment of a liquidator provisional or otherwise, for winding up of KRCL, unless such appointment has been set-aside within 90 days;

(c) Failure to comply with the lawful directives given by Central Government having the statutory rights to issue such directives with respect to the Project Railway;

(d) Breakdown of any of the Project Related Agreements on account of KRCL default, rendering this Agreement inoperable;

(e) Abandonment of the construction of the Project Railway;

(f) A breach of any of its obligation under a material provision of this agreement by KRCL;

(g) Failure on the part of Concessionaire to perform its obligations under any of the Financing Documents which has led to recall of the financial assistance by the Lenders;

(h) Non- payment by KRCL a material amount defined as amount equal to lease charges payable for one year.

11. SETTLEMENT OF DISPUTES THROUGH GOOD FAITH NEGOTIATIONS AND CONCILIATION

11.1 Good Faith Negotiation

11.2 For the purpose of conducting good faith negotiations, each Party shall, within one month of the Appointed Date, designate in writing to the other Party a representative who shall be authorised to negotiate on its behalf with a view to resolving any Dispute (the 'Representative'). Each such Representative shall remain so authorised until his replacement has been designated in writing to the other Party by the Party he represents.

11.3 Unless otherwise provided for in this Agreement, the following provisions shall apply to the resolution of any Dispute:

(a) The Dispute shall not be referred to Arbitration under Article 12, unless and until the provisions of this Article have been complied with.

(b) The Representative of the Party which considers that a Dispute has arisen shall give to the Representative of the other Party, a written notice setting out the material particulars of the Dispute (a 'Dispute Notice').

(c) Within thirty days, or such longer period as may be mutually agreed ('Negotiation Period'), of the Dispute Notice having been delivered to the other Party, the Representatives of both Parties shall meet in person at the registered office of the Company or at any other designated place to attempt in good faith, and using their best endeavours at all times, to resolve the Dispute. Once the Dispute is resolved, the terms of the settlement shall be reduced in writing and signed by the Representatives of the Parties (the 'Settlement').

(d) If a Settlement is not reached within thirty (30) days after the Negotiation Period, such Dispute shall be referred for Conciliation to one conciliator in accordance with the provisions of Arbitration and Conciliation Act, 1996.

12. ARBITRATION

12.1 If good faith negotiation and conciliation under Article 11 has not been able to resolve a Dispute, such Dispute shall be referred to and be finally resolved by arbitration in accordance with the Arbitration and Conciliation Act, 1996 and the rules made thereunder.

Schedule I
Lease Agreement

Lease Rent

4.1 The Lessee shall pay to the Lessor, an annual lease rental in respect of the Leased Assets. This lease rental shall be payable in advance in one single installment payable in first week of January.

The annual lease rental shall be:

(a) For original land of South Central Railway leased to the Company – as per the extant policy of the Ministry of Railways as revised from time to time.

(b) For the new land acquired by South Central Railway for the project @ Re. 1/- per annum.

Schedule III
Calculation of NPV to determine the Concession Period

Equity invested (EQ) = ____

Year	Dividend	NPV of dividend	Cumulative NPV of dividend payouts	Net worth of SPV (reserve, cash balance + Termination Payment + Other asset)	NPV of Pay back (4+5)	Whether NPV of payback (Col 6) equals the equity invested (EQ) (Yes/No)
1	2	3	4	5	6	7
1						
2						
3						
4						
.						
.						
.						
.						
.						
.						
.						
29						
30						

Note:

1. NPV will be calculated with the first financial year of operation as the base year.
2. NPV of dividend payout in Col 3 will be calculated at discount rate of 14% for all the dividend payments to the last year of operation.
3. Net worth is Column 5 will comprise value of SPV assets after project assets have been transferred to Railways on termination of concession, reserves and termination payment received from Railways and other cash balance net of liability which are available for distribution among the shareholders as on 31st March.
4. Other assets will include any other asset which will be available for distribution to equity holder.
5. Sum total of Col 4&5 will be the free cash balance to equity, which will be finally available to equity holders for distribution on winding up of SPV on termination of concession.
6. Assessment of NPV payback will be done every year along with closing of account for the previous year.
7. Termination of Concession and transfer of assets will be subject to the provisions of Clause 9.1.

HYDERABAD METRO RAIL PROJECT

N.V.S. Reddy[*] & Randhir Reddy[@]

BACKGROUND

Financing of metro and suburban rail projects has always defied an easy solution. Full recovery of user charge to make it a self-sustaining and stand-alone business has not been possible due to lack of users' paying capacity. By and large, this is the experience of metro systems across the globe. On the other hand, mass transportation of people in the urban centres and agglomerations for commuting to workplace and for other activities can be done only through an efficient metro rail system.

Wherever large masses are to be moved, rail-based system is the only solution. This is more so in a country of the size of a continent like India with large metropolises and urban settlements. Such projects, however, require large investments and there is an all-round shortage of funds. As a result, the cities have faced unbridled and unplanned growth of other means of transport, creating chaotic congestion and environmental disaster.

A significant step to find a practical solution was taken by the Government of Andhra Pradesh for the twin cities of Hyderabad and Secunderabad. It involved public-public partnership between Ministry of Railways, Government of India, and the State Government of Andhra Pradesh to implement low-investment, high-yielding rapid transit system as phase-I, using existing railway network. This was to be followed by implementation of new corridors as phase-II with public-private partnership. The phase-I of the project has since been successfully commissioned and is operational, and phase-II is in an advanced stage of the award of concession.

An effort has been made in this paper to examine the gains of phase-I of the project and learn lessons therefrom. The paper also gives details of the process of PPP implementation of a Metro Project through PPP structure. It may be mentioned that Hyderabad Metro Rail Project is the second such project that is being implemented through public-private partnership, the first one being the Varsova-Andheri-Ghatkopar Metro Project in Mumbai.

POLICY INITIATIVE

In the present global economy of post-industrial era, cities are the centres of economic growth and there is an intense competition among them to emerge as

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investment destinations. The attraction of a city is decided by its 'quality of life', which, in turn, depends on, *inter alia*, a safe, reliable, quick and comfortable public transportation system. Recognizing this, the National Urban Transportation Policy of GoI (April 2006) laid special emphasis on creation of good public transportation systems and discouragement of private vehicles in Indian cities. GoI announced liberal financial grants in the form of Viability Gap Funding (VGF) for metro rail projects up to 20 percent of the project cost, and allowing up to another 20 percent by the respective state governments.

RATIONALE OF THE HYDERABAD PROJECT

With about 7.5 million population, Hyderabad urban agglomeration is growing at a rapid pace. Apart from being the centre of pharma and other traditional industries, it is now fast emerging as a major IT/ITES, biotech and tourism hub. Its strategic geographical location, image as a multilingual cosmopolitan city, absence of physical barriers for growth in all directions, and the investment-friendly policies of the government are making Hyderabad an attractive investment destination and a buoyant urban settlement.

However, the rapid growth of the city, rising income levels, and lack of good public transportation system is resulting in a phenomenal increase in personal vehicles, causing frequent traffic jams and high pollution levels. Thus, to provide good transportation infrastructure and to address the increasing traffic problems in the city, a phased approach has been adopted.

APPROACH

Phase I of the project is based on strengthening the existing rail infrastructure which passes through densely populated areas. It also involves multimodal integration by developing a feeder network and efficient road services from the major centres in the city to the nearest rail nodes. The project would provide immediate relief and would serve as a precursor to the larger and more comprehensive project to be undertaken in Phase-II.

DEVELOPMENT PLAN

Phase I: The phase I involves optimization of existing rail infrastructure by infusing additional inputs which are pre-requisites for running frequent suburban train services, such as automatic signalling, electrification of track, use of multiple units as rolling stock, etc. Ten new service stations were proposed to be developed for improving the accessibility and reach of the project. New stretches of Lingampally-Hyderabad, Secunderabad-Falaknuma were identified for this phase.

It may be mentioned that an urban/suburban rail transportation project has to face quite a few problems. The project does not generate operating surplus. Further, the benefits accruing to the economy do not flow to the project developer. There is also no rail-road integration, in terms of feeder buses, common ticketing, etc. Furthermore, city planning and location of economic activities do not take into account the availability of transportation facilities, leading to a huge disconnect.

The above issues were addressed while structuring Phase-I of the project. This phase envisaged an investment of Rs. 69.96 crore for development of fixed rail infrastructure and another Rs. 90 crore for acquisition of rolling stock. This investment was to be equally shared between railways and the state government. Subsequently, this investment could be translated into equity stake by both the partners into a joint venture corporation. Most importantly, the state government agreed to subsidize the operational losses.

The multimodal integration was to be achieved with the provision of adequate facilities of bus shelters, bus bays and bus routing for transfer of passengers at the railway stations. A common ticket for bus and train journeys was to be issued. In addition, directed investment was to be made on the road corridor along the rail corridor to spur economic activity in the catchment area, to help increase the transport demand, and to improve ridership and financial viability.

Implementation of the Project

The phase 1 of the project commenced on 1st November 2001 and the first train was run on August 9, 2003. The project design was innovative in the sense that it had been conceptualized as a commuter rail service with the look and feel of a metro. Since finances were the main constraint, and so was the constraint of sharing the infrastructure of the existing railway system, the project design attempted to bring out a fresh look by introducing a low-cost but standardized infrastructure.

Ten new stations were constructed at the following locations: Chandanagar, Borabanda, Hi-Tec city, Bharatnagar, Fatehnagar, Balkampet, Sanjivayya Park, James Street, Necklace Road, and Lakdikapul. All these stations have been built as simple and low-cost stations but functionality and aesthetic principles have not been compromised. Eco-friendliness is another aspect that these stations represent. The stations have been designed on a modular basis and can handle expanded volumes comfortably. Approach roads to stations have been developed/ upgraded to improve accessibility. Circulation areas have been improved at Malakpet, Sitaphalmandi, Jamia Osmania, Yakatpura and Dabripura stations. New stations have been planned with large parking and circulating areas.

All access roads to the nearest commercial centres have been substantially improved to increase the comfort of commuting to these areas. Bus bays have been built and relocated to improve multimodal interaction. Robust, convenient and aesthetic seating areas in these stations have been designed as shown in the following illustrations.

Simple, cost-efficient and aesthetic signages have been developed for the station areas. All the station buildings have been designed with platforms made of vacuum de-watered concrete with a band of chequered tiles (with anti-skid properties) in the entraining/detraining areas. Apart from functionality, the red coloured tiles set against grey concrete pavement have an aesthetic appeal. The outside end of the platforms has been left unpaved and hardy flowering plants have been arranged to enhance the ambience.

EMUs as are in use in Mumbai, Chennai and Delhi have been planned, but with an improved look. Interiors have been substantially upgraded with a host of features,

such as comfortable seats, brushed steel interior panelling, audio announcements, etc. Exterior has also been redesigned by doubling the size of windows and with attractive colour schemes. The trains, though not state-of-the-art, have appealed to the people in a big way.

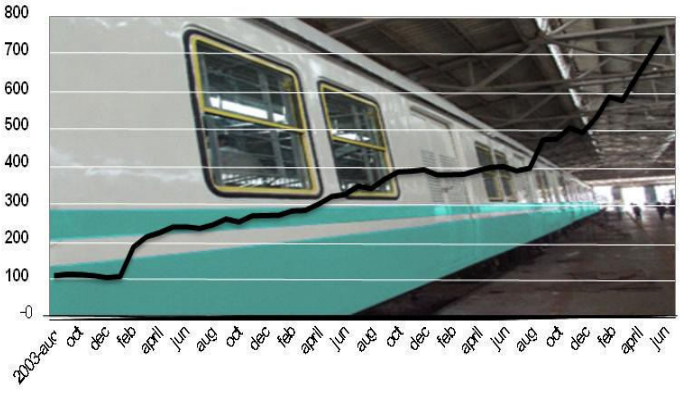
Net effect of these stations and trains is validated by the fact that most of the Telugu movies have at least one scene shot in an MMTS station or train or both.

Post-Implementation Scenario

MMTS services were commissioned essentially on two routes as given below:

Route map

The project had a 'false' start with two critical stations in the central business district (CBD) not being commissioned on the proposed date, with connectivity to few important stations such as Hi-tec city not being in a proper shape, and with only skeletal services being run initially. Also, there was lack of coordination with the bus services and its patronage was far from flattering. Still, the desire and necessity for more services and the satisfaction level with the service, apart from the frequency of service, could not have been more encouraging, as was revealed in a study conducted by Hendrik, a Dutch student from the University of Utrecht.



Notwithstanding the 'false' start, the project has become increasingly popular. The ridership profile vindicates the project concept and the need for more services. It may be seen from the graph above that apart from the general increasing trend, the ridership increases substantially whenever new services are introduced. Right now, there is an expressed need to enhance the services as has been brought out in many forums. However, introduction of additional services has now hit a bottleneck as the originally planned 18 EMU rakes were reduced to 9 rakes as a short-sighted measure on the plea that ridership would be stagnant. Efforts are now on to find additional rakes. Yet again, faulty implementation is hindering the maximization of the potential of this project.

Relative Analysis of Options on Rail-Based Mass Transit Options

Though it would be foolhardy to compare this project with a modern metro, a relative analysis of both as urban transit options can be made to understand the cost benefit of such systems and plan future urban transportation systems in the country, recognizing the prevailing resource crunch.

No doubt, DMRC is a world class facility, but it comes with a heavy cost. Debt servicing obligation of the metro after the moratorium ends is very much a cause for concern, given the current ridership patterns. Replication of such expensive systems in the Indian scenario becomes extremely difficult on account of the strain they cause on the public finances.

Comparison between MMTS, Hyderabad and DMRC, Delhi

Parameters	Cities	
	Hyderabad	**Delhi**
City population in lakhs (2001)	63	138
Commuter trips (in lakhs)	69	110
	MMTS	**DMRC***
Cost (Rs crore)	120*	10,500
Trains per day	87	1000
Commuters (in thousands)	75	385
Occupation per train	862	385
Occupation per coach	143.66	96
Eff.(◎) of Rupee spent (investment per commuter carried (Rs lakhs))	0.16	2.73
Revenue per day (Rs lakhs)	2.5	40

** Study conducted by M. Ravi Babu, GM /RITES*

Economic strength of Indian cities has not yet achieved the required robustness to fund and sustain such huge investments. Given the imperative of rail-based mass transit systems for many of our cities, alternate viable options need to be considered. MMTS Hyderabad is only one step in this direction. Instead of waiting for long periods of time for the fructification of high-cost metros, steps at optimizing the existing rail infrastructure may be thought of as the first stage. In the second stage, building new MRTS alignments with appropriate technology (judicious mix of indigenous and imported technology components) would enable the development of high-quality systems at substantially low costs.

As the capital cost is brought down substantially, there would be a concomitant improvement in viability and hence the systems would become amenable to active proliferation with the least stress on public finances. If the projects are developed in a comprehensive manner duly integrating them with the urban development proposals with the attendant activities such as development of townships bundled in, there is a very good potential for generating financial viability as well.

Phase II: Government of Andhra Pradesh has approved the development of metro rail in three high-density traffic corridors spanning over 67 km, at an estimated cost of Rs. 8,482 crore to be carried out as public-private partnership project. The details of the corridors are:

(1) Miyapur – L. B.Nagar (29.87 km having 27 stations)

(2) Jubliee Bus Station – Falaknuma (14.78 km having 16 stations)

(3) Habisiguda – Shilparamam (21.74 km having 20 stations)

Salient Features of the Project

- It is an elevated metro rail, with two tracks (up and down lines) on a deck erected on pillars generally in the central median of the road, without obstructing the road traffic;
- The gauge (distance between two rails) adopted is standard gauge (1435 mm); rails will be continuously welded to minimize noise levels; power supply will be through third rail bottom collection;
- Stations will be located at an average interval of 1km; elevated stations will have passenger access through staircases, escalators and lifts;
- With a maximum speed of 80 kmph, the average speed of the trains will be 34 kmph – an international standard for MRT systems;

- With a frequency of 3 to 5 minutes during peak hours, the system is expected to carry about 16.75 lakh passengers per day by 2011 and 23.75 lakh by 2021;
- The travel time by metro rail from one end to another would be 45 minutes for line I (Miyapur-L.B.Nagar – 30 km) against 1 hr 50 minutes by bus; 22 minutes for line II (Jubilee Bus Station-Falaknuma-15 km) against 1 hr.10 minutes by bus; and 36 minutes for line III (Habisiguda-Shilparmam-22 km) against 1 hr. 22 minutes by bus;
- Adequate parking space and circulating areas will be provided as far as possible for multimodal integration at the stations;
- Coaches will be air-conditioned with automatic door-closers and many other safety features;
- Signalling system would ensure safety and specified speeds through Automatic Train Control (ATC), Automatic Train Protection (ATP) and Automatic Train Operation (ATO);
- Telecommunication facilities will be state-of-the-art, facilitating continuous communication between the central control, train drivers and station masters;
- Good inter-modal integration will be provided at all the rail terminals, bus stations, and the MMTS (existing joint venture of GoAP and Railways) stations;
- Safety mechanism and safety certification of the project will be as per GoI guidelines based on the recommendations of Committee on Safety Certification of Guided Urban Transit Systems (currently under preparation); and
- The project will be implemented under the Metro Rail Act, to be enacted by GoAP, on the basis of the model Metro Rail Act being prepared by GoI.

Selection Process

On the basis of a global Expression of Interest – cum – Request for Qualification (EOI-cum-RFQ), five international consortia of companies have been short-listed by GoAP. After the "Empowered Institution" of Government of India considering the project for financial assistance under the VGF scheme and allowing GoAP to proceed with "further short-listing of bidders", Technical Proposal documents were issued to all the pre-qualified bidders in May 2007. The last date for receipt of Technical Proposals from the bidders was July 23, 2007. Bids have to be evaluated on 'pass/fail' basis,

depending upon their conformity or otherwise to the performance criteria (mostly output oriented), technical specifications and safety standards indicated in the TP documents.

Those who qualify in the Technical Proposals would be given the RFP (Financial bid documents; Model Concession Agreement; Manual of Specifications and Standards; & State Support Agreement). The Model Concession Agreement is now under final stages of approval. The bidders have to submit their financial bids thereafter. The bidder who seeks the least financial assistance in the form of VGF will be selected as the BOT developer for the project.

Financial Issues

The project cost is expected to be about Rs.8,482 crore. Of this amount, grant/VGF will be Rs. 3,277 crore (39%); equity Rs.1,638 crore (19%); and debt Rs.3,567 crore (42%). In the VGF, with an upper limit of 40 percent of the project cost, 20 percent of the project cost will be borne by the Government of India and the remaining (as decided through competitive bidding) will be borne by GoAP. In the equity, 11 percent will be contributed by GoAP. Thus, the cash outgo for GoAP is estimated to be about Rs.1,818 crore (Rs.180 crore towards 11 percent equity and Rs.1,638 crore for the VGF portion) over a period of about 5 years. However, efforts will be made to get additional grant from the Government of India under JNNURM scheme to reduce GoAP's burden.

To make the project financially viable, the concessionaire will be allowed to develop real estate over the Metro Rail facilities at the three depots and above the parking/circulating areas at about 33 stations, where such development is feasible. The built-up area so developed (constructed by the concessionaire at his own cost) can only be let out for rental during the BOT period. After the BOT period, the developed properties will have to be transferred to GoAP along with other assets of the project, as per the terms of the agreement. It is expected that with property development, the internal rate of return (IRR) of the project will be 10.62 percent and return on equity (ROE) will be 14.06 percent at 100 percent of the projected ridership, i.e., 15.77 lakhs per day in the year 2011.

It may be pointed out that the project is highly sensitive to ridership numbers and the experience world over is that in actual practice the traffic materialization has been short of the projections. While no guarantees are being given for the traffic projections, well structured incentives for public transportation and dis-incentives for private vehicles will have to be gradually introduced to make the metro rail project financially sustainable (as is the practice all over the world).

Legal Issues

(i) ***State support for the agreement:*** The state will provide support to the agreement in a number of ways. It will extend to the concessionaire free access to site for building and operating the project; apart from allowing him access to all necessary infrastructure facilities like water, electricity, etc. at commercial rates. It will give the concessionaire the necessary applicable permits and also provide him police assistance and traffic management assistance on payment of charges. Besides, it will comply with the obligations envisaged in the concessionaire agreement and will not levy any additional toll, fee, charge or tax on MRTS facility.

(ii) ***Fare structure:*** The proposed fare structure is Rs.8/- as the minimum and Rs.19/- as the maximum. The weighted average fare per trip works out to Rs.12/- in the year 2010. Fare escalation will be once in 2 years, with upto 50 percent of WPI linked increase.

(iii) ***Force majeure events*** consist of non-political events (Acts of God etc), indirect political events (war, industry-wide, nation-wide, state-wide strike beyond 7 days, etc.) and political events (change in law, compulsory acquisition of project assets by government, unlawful refusals by the government, etc). While in the case of non-political and indirect political events, the Force Majeure costs are to be borne by the respective parties, in the case of political Force Majeure events, the costs have to be reimbursed to the concessionaire (if the concession period is not extended).

(iv) ***Substitution agreement:*** Substitution agreement envisages the lenders to substitute the concessionaire in the event of his default. The selection of a new concessionaire would need the approval of GoAP. If no substitute is found by the lenders, GoAP can select another concessionaire.

All the clauses in the Model Concession Agreement are being refined by the Planning Commission and the final version of the Model Concession Agreement will be issued to the bidders who get qualified in the Technical Proposals.

PROGRESS SO FAR

Five international consortia have been pre-qualified as prospective bidders for the BOT Project. These consortia are:

(1) Essar Constructions (ECL) + SREI (Kolkata) + Singapore MRT + SEC+STE of Singapore.

(2) Magna Allmore (Malaysia) + Siemens (Germany) + Emirates Trading Agency (ETA - Dubai) + Nagarjuna Constructions (NCC).

(3) Reliance Energy (Anil Ambani group) + Bombardier (Canada).

(4) GVK + Gammons + Alstom (France) + IDFC

(5) Navabharat + Maytas + Ital Thai (ITD – Thailand) + IL & FS

The detailed project reports were prepared by DMRC as Prime Consultants for the project. These reports were reviewed by M/s. Span-Semaly Consultancy Consortium. An SPV by the name Hyderabad Metro Rail Ltd (HMR) has been formed to co-ordinate and monitor the progress of the project. It will be a single-window agency. Meanwhile, the alignment and station locations have been frozen and the land required for the project has been identified. The process for issue of RFP and receipt of financial bids is in progress.

DEVELOPMENT OF RAILWAY STATIONS THROUGH PPP

Sushant Kumar Mishra*

BACKGROUND

There is total unanimity among the policy planners that removal of infrastructural constraints is the foremost challenge to be met for India to continue its journey on the high-growth trajectory of 9 percent plus GDP growth per annum. The Planning Commission has estimated that removal of the infrastructure backlog would require investment of more than US$400 billion and annual investment in infrastructure has to be stepped up from the present level of 4 percent of GDP to 8 percent. Such huge sums are presently beyond the Government's budgetary capacity.

PPPs have emerged as a serious option to leverage limited public funds to attract private investment in infrastructure. Apart from easing the pressure on public finance, PPPs also allow efficiencies of private sector to be harnessed for improved project execution and service delivery.

Like other infrastructure sectors, Railways also require massive investments to augment its carrying capacity and modernize its system. While impressive growth in traffic and revenue over the last three years on Indian Railways (freight and passenger traffic growing at more than 9 percent and 7 percent year-after-year, respectively) has brought applause from all quarters, it has also exposed the problems of congestion and saturation of the network especially on the high-density corridors connecting our four metropolitan cities. The XIth Five Year Plan which is under finalization, has underscored the need to sustain the momentum and attain the projected traffic levels of 1100 million tonnes of freight and 8400 million passengers at the terminal year.

Sizeable investment for expansion of network by way of new lines, doubling and gauge conversion, port connectivity works and augmentation of manufacturing capacity of rolling stock would need to be undertaken to attain these targets. The plan envisages a total investment of Rs.2,51,000 crore. Of this, Rs. 90,000 crore is to be raised through internal generation and Rs.60,000 crore could be expected by way of budgetary support. The rest i.e.Rs.1,00,000 crore is to be raised as extra budgetary resources. Of this, barring Rs. 40,000 crore to be raised by IRFC, most of the rest is to be raised through PPP.

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A number of areas have been identified for PPP. Some of the important ones are construction of dedicated freight corridors (partly with PPP); world class railway stations; commercial utilization of surplus land; manufacture of locomotives, coaches and wagons; port connectivity works and other infrastructure projects through Rail Vikas Nigam Limited (RVNL).

DEVELOPMENT OF RAILWAY STATIONS

Unsurprisingly, of late, redevelopment of railway stations has attracted maximum attention of the public and the investing community alike. The overwhelming response of the infrastructure industry to the request for pre-qualification for New Delhi Station is a strong testimony of the interest of the private sector in developing world class facilities.

It is estimated that share of urban population to total is set to go up from the present 28 percent to more than 40 percent in the next 20 years. Increasing prosperity and rapid urbanization of the country has led to a virtually unlimited and insatiable demand for inter-city and intra-city travel. Even in the supply-constrained rail travel segment, passenger growth has averaged more than 7 percent for the last 4 years.

As most of the passenger demand tends to be concentrated in large cities, infrastructure at the railway stations in these cities has come under great strain. For a quick perspective on the magnitude of the challenge, one needs to realize that while all the airports in the country put together handle about 100 million passengers per annum, railway stations in metropolitan cities like Delhi & Mumbai individually handle numbers much larger than that. However, none of our stations today can claim to be world-class

INADEQUACIES OF RAILWAY STATIONS

The existing railway stations at major cities suffer from a number of inadequacies. These stations are open and porous as they lack access control of any kind. The design of stations is such that there is severe lack of space in arrival/departure concourse and circulating areas. Platform No.1 is mostly occupied by railway offices and the passengers have no choice but to use every inch of the platform as the waiting space. The lack of space is further exacerbated by too many stalls on the platform compounded by a great amount of unauthorized vending.

Handling of parcel and catering on the platform also adds to the congestion. Passenger guidance system is deficient resulting in lack of awareness of the minimal facilities that are available. Information about arrival and departure of trains lacks accuracy and precision. The connectivity to other modes is often haphazard and inadequate.

Our major railway stations are often associated with poor maintenance, lack of cleanliness and absence of sustainable waste management practices and hygienic standards. Further, our station buildings, with rare exceptions, have not been planned with architectural sensitivity to the local styles. The end-result is that the railway stations end up as a poor introduction to the cities they serve. Although their simple design has served the passengers so far, its shortcomings have come to the fore in the recent times.

People who travel abroad naturally tend to compare our congested and chaotic stations to the bright shiny terminals that welcome them at well-designed railway stations elsewhere. This deficiency is now being addressed by the Ministry of Railways. Fortunately, the stations are located in the prime areas of the cities and therefore offer promising potential for redevelopment without draining the exchequer if a part of the real-estate potential is leveraged.

WHAT IS MEANT BY WORLD-CLASS?

The term 'world-class' connotes both content and aspiration. It means that once redeveloped, the stations would be among the world's best. The development and management of stations would, therefore, be grounded in sound systems that deliver these results. In general, this would encompass the following:

(a) *World class station development and expansion comprising:*

- High quality station infrastructure and property development
- Phased development to cater to growth.
- Project conception, execution with minimum traffic disruption.
- Timely completion.
- Synergy and harmony with surrounding urban infrastructure.
- Ease of intermodal transfer.
- Generation of non-tariff revenue and its sharing.

(b) *World class station Management comprising:*

- Managing station during construction and after development.
- Operation and maintenance as per global standards and requirements.
- Passenger services as per global service quality requirements.
- Segregation and management of parcel traffic.
- Traffic management in circulating area.

The redeveloped stations need to take care of the following aspects:

- Spatial segregation of facilities at different floor levels for smooth passenger flow.
- Segregation of incoming and outgoing passengers.
- Major facilities at first-floor or underground concourse level.
- Direct vehicular access to the concourse.
- Escalators and lifts to enhance access to station platforms.
- Walkways to facilitate passenger movement.
- Ticket counters and other amenities at concourse level.
- Platforms to be free of stalls/structures.
- Food plazas, shopping malls, budget hotels, retiring rooms, etc. at air space above or in the basement/subway.
- World class information system for passengers' guidance.
- Transactions for parcel, linen and pantry car services to be shifted to rake servicing area – away from the platform.
- Aesthetics and cleanliness to match the best global standards.

SHOULD WE FOLLOW THE PPP MODEL?

It is often asked whether it is necessary to adopt the PPP model to develop these stations. The plain answer is that it is not. In fact, some of the most impressive station buildings constructed in the recent times have been done with public money (Grand Central, New York, Beijing South and Berlin) and a few partly with PPP (St. Pancreas, London or Spencer Street, Melbourne). The key determinants of the best decision are: availability of budgetary resources (each large station would cost in the range of Rs.5,000 crore to Rs.8,000 crore and we clearly lack such resources), know-how (we have not built such stations and have no exposure) and organizational skills for project execution and asset maintenance (this is an area where private sector clearly scores). In addition to these factors, optimal sharing of risk and attainment of results rather than expenditure in terms of inputs clearly favours PPP mode of execution.

Executing a PPP project is, however, beset with several challenges. PPP rests on clarity in thinking to be enunciated in clear-cut contractual terms. It also calls for redefinition of goals in terms of outputs. This is easier said than done. Clear specification of outputs, segregation of services to be carried out by the private concessionaire from the ones to be retained by the Railways and a credible system of managing the interface are pre-requisites that must be necessarily met. Activities which have a significant bearing on

train operations need to be identified and retained by the Railways. The assets that would, therefore, be managed by Railways (track, signal, OHE etc.) need to be segregated for construction and handover from the ones that need to be maintained by the concessionaire (passenger concourse, parking, the station building, to name a few).

The new model would also entail a complete overhaul and re-engineering of some of our practices. Parcels need to be handled at platform ends only without interfering with the passengers along the platforms. Railway officials would no longer need to occupy almost the whole of platform No.1 Their relocation needs to be clearly planned and specified. Free services (e.g. waiting rooms) and paid services (e.g. AC lounge, cloak room, shower, toilets, parking) need to be listed and specified. A clear method for determination and periodical re-set of the charges that need to be regulated (e.g. parking) needs to spelt out. Presently open and porous stations need to be sealed off for access control. Luggage needs to be screened through scanners.

All these requirements need to be laid down in detail in the Concession Agreement (CA) to be executed with the concessionaire. The Manual of Standards and Specifications and Technical schedules which shall form part of the CA will be important documents as a PPP framework works only if the scope of work, the rights and obligations are clearly set out in the beginning prior to bidding and the concessionaire is given a free hand to accomplish the task. Measurability and verifiability of the concessionaire's responsibilities are essential to provide strong incentives for good performance and penalties/disincentives for failure to perform.

IR's CURRENT PROGRAMME

Altogether, we have more than 50 potential stations for redevelopment or greenfield construction. IR has so far identified 24 stations for development into world-class stations. These are: CST Mumbai (Carnac Bunder), Pune, Howrah (Kolkata), Lucknow, New Delhi, Anand Vihar and Bijwasan at Delhi, Amritsar, Chandigarh, Varanasi, Chennai, Thiruvananthapuram, Secunderabad, Ahmedabad, Patna, Bhubaneshwar, Mathura, Bangalore, Jaipur, Gaya, Agra, Bhopal, Nagpur and Tirupati. Of these, IR has taken up New Delhi, Patna, Secunderabad and Mumbai (CST) for bidding during the current financial year.

A key characteristic of the project development process for PPP is that it entails a lot of hard work prior to the bidding. For the station redevelopment project, it involves the following:

- Constitution of dedicated project teams in zonal railways.
- Preparation of manual for standards and specifications.
- Engagement of Technical, Financial and Legal Consultant.

- Drafting of Concession Agreement.
- Pre-qualification of developers based on technical and financial capacity.
- Feasibility report and bid documentation.
- Financial bid.
- Bid process management.
- Award of concession.
- Construction, commissioning and execution of concession.

The Manual of Standards and Specifications and the Concession Agreement (developed with assistance of the Planning Commission) finalized for New Delhi Station (the first station to be taken up) would serve for others with site-specific adaptations. Similarly, availability of standardized model documents for pre-qualification of bidders and Request for Proposals (RFP) approved by the Committee on Infrastructure (COI) headed by the Prime Minister and notified by Ministry of Finance has been of great help.

For New Delhi, the Architect and Technical Consultant (M/s Terry Farrell, Hong Kong), the Financial Consultant (M/s Grant Thornton, London) and Legal Adviser (M/s MS Mckenna LLP, London) were selected through global competitive bids. The Architect and Technical Consultant have nearly completed their work in respect of preparation of Master Plan, the Feasibility Report and the Architectural Concept Plan for the station. The Financial Consultant and the Legal Adviser have commenced their work.

Meanwhile, the pre-qualification of bidders is in progress and is likely to be completed by June, 2008. Five or six short-listed bidders/consortia would be invited to submit financial bids, which in effect, would ask them to do all the specified tasks (mandatory capital expenditure and O&M of identified assets), spell out the extent and nature of property development, the concession period and the terms of hand-back of the assets created and quote a final financial figure in terms of positive or negative grant expected for the government.

The entire process is likely to be completed for Delhi Station by October, 2008. In parallel, a number of activities, such as obtaining in-principle approval to the plans for a civic authorities, finalization of relocation plans for railway facilities and shops on the outer edges of the station area and development of adequate platforms/terminal facilities at other stations in Delhi area (Bijwasan, Anand Vihar etc.) to tide over the disruption caused during the 5-6 year construction period are being undertaken to meet the challenging target.

For Patna, the selected Architect and the Technical Consultant (M/s Aedas, Hong Kong) have commenced their work. The process for selection of the Architect and Technical Consultant for Secunderabad and Mumbai CST has been initiated. These three stations are targeted for bidding during the current financial year. Once the process and documents are standardized, Zonal Railways will be assisted by the Railway Board to replicate the exercise for other identified stations.

The distinguishing feature of the current exercise is that it regards the Railway Station as an integral, albeit a very important part of the city. Harmony and synergy with the surrounding parts of the city in terms of intermodal integration, linkages between neighborhoods ordinarily dissected by the railway track and contribution of high-quality public space are the guiding principles. Another important aspect of the development is provision of generous high-quality space for passengers in every way possible – the way they arrive or depart, the concourse which welcomes them and the obstruction-free platforms that they use to board or alight from trains. Serving the passengers and citizens holds the centrestage. For this to actually fructify, the following preparatory planning is essential:

(a) *Coordination with local authorities:* A railway station has to mesh with its urban environment through visible linkages like road and invisible linkages like water/sewerage connections and utilities. Normally, civic agencies are wary of adding to the congestion in the city centres. Floor area Ratio (FAR) and development norms allowed for transport functions are, therefore, very restrictive for property development. These concerns need to be addressed by embracing the mitigation measures that not only redress the adverse consequences of traffic gravitation but also enhance the overall quality of the city.

A consensual and teamwork approach with the city authorities provides the only way forward. Without a liberal FAR and relaxation in development control norms in respect of property such development is not possible. Assistance of state government is also of utmost importance in timely shifting and relocation of properties and religious structures as also the removal of encroachments.

(b) Railways themselves have to carefully assess the offices and utilities that need to be relocated, the trains that need to be shifted to other terminals during construction and adequacy of such terminals to handle additional load. One of the first priorities to be settled with the consultant is to freeze the railway yard plan that could be taken as given for architectural planning. Decision on where to house the maintenance facilities in the

long-run and sustainability of the revised pattern of operation is another question that needs to be settled early.

(c) However, a word of caution would be in order. Building stations with energy-intensive designs would be suicidal in the face of heightened fears of global warming. Optimum use of natural cooling and sunlight and conservation of water need to be built into the planning process. India can convert its late start in this area into an advantage and emerge as a pioneer and a world leader.

To sum up, development of world-class stations through public construction itself is a huge challenge; doing so through PPP makes it all the more formidable. But done well, it can yield rich rewards to the Railways and the country at large. The market is excited. It is for the Railways to make the most of the interest of the market and build stations of monumental significance that would serve the nation for years to come.

ASIAN INSTITUTE OF TRANSPORT DEVELOPMENT

The Institute is an independent, not-for-profit organisation devoted to non-partisan research, education and training in the area of infrastructure with special focus on transport sector. Its principal purpose is to promote balanced, equitable and sustainable development for enhancing overall welfare of the community.

The Institute has been granted special consultative status with United Nations Economic and Social Council. It also has a collaborative agreement with UNESCAP for undertaking joint activities. The Institute's membership from south and south-east Asian countries facilitates its well-defined mandate of promoting regional cooperation.

The Institute provides substantive support to various regional initiatives – BIMSTEC, SAARC, Mekong-Ganga Cooperation, etc. It promotes human resource development by organizing training courses for the personnel from the member countries of these groupings.

It also fosters research in universities by awarding scholarships to students pursuing M.Phil, Doctoral or post-Doctoral research. This programme is in the process of expansion with a long-term support of adequate corpus.