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A Partnership Approach for Infrastructure Development in India

*Dr. Anita Medhekar**

Abstract

India is one of the fastest growing economics with the second largest population in the world. Infrastructure bottlenecks and structural impediments have prevented the Indian economy from taking full advantage of liberalised and globalised economic environment. Transport infrastructure like road and rail plays a critical role in contributing to the sustainable economic growth and development of a country and overall smooth functioning of the economy, mobilising goods and people, reducing costs for producers and consumers, and attracting foreign direct investment. Since the 1991 Rao Government's economic reform package of liberalisation and deregulation, India's transport system has been opened up to competition, encouraging private sector participation to finance infrastructure facilities in order to overcome public sector fiscal constraints. Public Private Partnership (PPP) or Private Finance Initiatives (PFI) as adopted by developed countries can be adopted in India, to help to bridge the resource constraint gap and improve the overall operation, maintenance, managerial efficiency and service delivery of transport infrastructure, to meet the economic growth target of 8-9 percent, and play a positive developmental role.

1. INTRODUCTION

The economic growth and development of a country depends on the development of economic and social (health, education) infrastructure (Parikh, 1997, Charles, 2003). The provision of efficient and effective

* *Senior Lecturer, Deptt. of Economics, Faculty of Business and Information, Central Queensland University, Australia.*

transport infrastructure helps in the alleviation of poverty and generation of employment in a developing country. The key objective of India's tenth Five Year plan of 2002-07, is to achieve a higher economic growth rate of 8 per cent, along with other social objectives (Puri 2003, p.56). Public-private partnerships are necessary to overcome the existing deficiency in economic infrastructure. This paper focuses on the road and rail infrastructure necessary for the development of agriculture and industry in India, and growing service sectors like tourism. Agriculture and industry production requires water, power, finance, banking and insurance, information and communication technologies, credit and transport facilities, machinery and equipment, marketing and management facilities. Over and above these, skilled human resources to manage these facilities are essential for the growth and development of a developing nation. Road and rail are particularly critical infrastructure for the development process. A transport network across the length and breadth of the country is vital for the movement of raw materials, goods and people. Transport helps to link and broaden the markets for goods and makes it possible to reap the benefits of economies of scale in production. The more extensive large scale production across sectors of the economy, a more expansive network of road/rail transport and coordination will be necessary to integrate them. While some regions may have abundant raw material like minerals, forestry and agricultural resources, they cannot be developed if they continue to be isolated, remote and inaccessible.

Thus linking the backward rural regions with the relatively more developed urban regions, cities and towns, requires the development of road/rail and helps in the effective and efficient utilisation of services and resources and industrialisation of the country. Transport and communication provides new ideas, helps to spread new knowledge to remote areas and villages in relation to existing traditional farming techniques, health, education, introduces new markets and also removes social barriers (including the caste system) all of which collectively hinder the economic growth and development of a country like India. Transport infrastructure is also essential to enable domestic producers to have access to wider markets in a competitive global economy.

Transport infrastructure increases the Gross Domestic Product (GDP) of a developing country especially by opening up new markets and creates supply and demand for new goods and services, movement of people, and

encourages large heavy mineral, mining and manufacturing industries to develop, like coal, iron and steel, cotton textile etc. In 1990-91, the share of the transport sector in India's GDP was 4.55 per cent (Parikh, 1997). Traditionally road and rail infrastructure in India was provided by central and state government in order to address and reduce regional disparities and inequalities, long gestation periods, large capital requirements, uncertainty of returns, fulfil community service obligations and promote economic growth and social development. There is now an urgent need for improving not only the quantity but also the quality of infrastructure provision and service delivery in the Indian economy to meet both pent-up and increasing demand.

This paper analyses the importance of infrastructure for economic growth and development in India. Part three examines the problematic issue of infrastructure bottlenecks. The fourth part of the paper surveys road-rail infrastructure policy in the light of successive five year plans. Part five considers how the adoption of PPP/PFI policy will promote the efficient provision of road/rail infrastructure in India. Finally, part five has some concluding comments.

2. ROAD-RAIL INFRASTRUCTURE & ECONOMIC DEVELOPMENT

Empirical studies reveal a link between infrastructure and GDP growth rate over the long term not only in developed but also developing countries (Gramlich 1994; Otto and Voss 1994; World Bank 1994; 3iNetwork 2002). According to the Government of India 's (1996a, p.2) report on *Indian Infrastructure: Policy Imperatives for Growth and Welfare:*

"Research indicates that while total infrastructure stocks increase by 1 per cent with each 1 per cent increment in per capita GDP, household access to safe water increases by .03 per cent, paved reads by 0.8 per cent, power 1.5 per cent and telecommunications 1.7 percent. Infrastructure productivity will determine how India will cope with the increasing pace of urbanisation, globalisation and technological innovations in manufacturing and logistics. Environmental issues and poverty reduction, too, depend heavily on the productivity of the infrastructure sector".

An increase in infrastructure facilities promotes economic growth and development according to the *big push theory* of Rosenstein Roden, which

states that the most critical aspect of sound overhead capital is the investment opportunities which are generated by additional infrastructure. New investment is attracted to regions if basic infrastructure facilities and services are available like road, rail, energy water etc. Hirschman's *unbalanced growth theory* treats infrastructure as the initiator of investment in productive activities which help to expand other sectors of the economy for example; tourism, manufacturing and agriculture. As Fujita *et al.* (1999, p.110) note, reduced agricultural transport costs – especially vital in India's case - encourage market integration and agglomeration of economic activities. Rostow's *stages of economic growth theory* identify social overhead capital as one of the preconditions for an accelerated growth. While in *Asian Drama*, Mrydal emphasises the importance of infrastructure as the necessary condition for development. A large country like India with its growing population and increasing demand for road, rail and other infrastructure shows that investment in infrastructure is critical for economic growth and development to take place and be competitive in an increasingly globalised economy (Agarwal, 1996, Higgins, 1996, Todaro, 1997). As George Deikun, Director of the United States Agency for International Development said at the February 2005 US-India summit in New Delhi on Public-Private Infrastructure, "*adequate infrastructure is essential to a vibrant society. India cannot realise its vision and growth targets without a vigorous attack on the issue.*"

At the time of independence in 1947, the main infrastructure the British had developed during the colonial era was an extensive road and railway network across the length and the breadth of the country to mobilise the army, and link the sources of raw material to capital cities and ports. Many remote and regional villages were not linked with adequate transport and communication networks and remained isolated.

There are four main types of roads namely trunk roads, national highways, state highways, district and border roads. Indian roads are used by three main forms of transport, bullock carts, motor vehicles and two wheelers, besides pedestrian traffic. Bullock carts even today form an essential part of Indian rural transport despite being slow and inefficient. National highways, state highways and district roads are the responsibility of the central and state governments respectively. Also, there are rural roads constructed under the Rural Landless Employment Guarantee Programme, National Rural Employment Programme and Minimum Needs

Programme. In 1960, the Central Government set up the Border Road Development Board to coordinate and oversee the development of road infrastructure in the hilly north and the northeast border areas of the country, thereby promoting economic development of these areas.

Railways are complementary to roads in India. In 1853, the first railway of 22 miles was constructed from Bombay to Thane. Construction of railways was linked with India's industrial development, for example cotton textile mills in Bombay, jute in Calcutta, tea plantations in Assam, the Nilgiri hills and various hill stations in the northern and far east of India which were also a summer retreat for the British Army and Government officials. By the late 1800s, the expanding railway network allowed overland freight rates to fall to one-fifth of cart transport allowing, for example, bulk inter-regional shipments of grain. The expanding rail network caused a fall in the coefficient of variation in wheat and rice prices from 40 per cent to below 20 per cent over the 1861-1910 periods (Collins 1999, p.247). Originally the railways were owned and operated by private British companies which obtained free grants of land and other concessions from the Government. The railway budget was part of Central Government's consolidated finance until 1924. In 1925, following mounting criticism of private rail ownership and management, the Government of India under British rule commencing taking over railway companies. By 1944, all private railway companies had fallen under Government ownership, operation and management. Then by 1950, all railways of the former princely states had also been taken over by the Government of India.

3. INFRASTRUCTURE BOTTLENECKS

Infrastructure bottlenecks or deficiencies are a major constraint to faster economic growth and social development. Five Year plans have played a very important role to develop road/rail infrastructure in India in a complementary way. However, the country is still inadequately served and there is great scope for improving overall efficiency in the provision and service delivery of roads and railways. Both means of transport have many efficiency-retarding bottlenecks and deficiencies. India needs to improve its road and rail infrastructure to better approximate infrastructure levels in advanced countries like Australia, Britain, Canada and USA (Montanheiro *et al.* 2003; Medhekar 2003). This will in turn attract additional foreign direct investment that will enable India to better compete globally. To improve efficiency, safety, and productivity, it is important to modernise and adopt

new technology, automated signalling systems, increase domestic production of railway spare parts, reduce operating costs and remedy the problem of ticket-less travellers etc.

The road network in India is the third largest in the world, but the quality is very poor (Ahluwalia and Little, 1998). In particular, highways have many missing load links. Bridges are of inadequate length and width to support the flow of traffic besides being poorly maintained. Many roads need repairs after the monsoonal rains and are of poor quality not only in rural and hilly areas, but also in the cities and towns. These deficiencies result in additional wear and tear of vehicles and extra fuel consumption, giving rise to higher transport costs and pollution. Many villages are still not linked with the road system and hence are cut off from the main lines of communication and have very inadequate mileage.

The Indian railway network on the other hand, in spite of being the fourth largest in the world and largest in Asia (Agarwal, 1996), has inadequate mileage to meet the demands of a large country, growing population, agriculture, industry and the tourism sector. The growth of railways, like the roads has stagnated for some time, and a large part of the country is not linked with the rail network hindering development of many industries due to the inadequacy or absence of this vital infrastructure. Further, the slow pace of modernisation, electrification and automation of signalling and adoption of computer technology, makes it inefficient to operate. India also needs to drastically improve the safety record of its railway network. Other shortcomings include: too few high speed trains; a shortage of second class passenger compartments resulting in overcrowding; inadequate reservation and booking facilities, besides waiting rooms, access to first aid and security, drinking water and sanitation facilities.

There are simply inadequate funds in the railway budget for all the expenditure commitments required to expand, develop, modernise, upgrade technology and improve the provision and overall quality of services to travellers. The railways are in debt to the Central Government owing to continuing increases in input costs like coal and diesel (resulting in cost push inflation), fulfilling community service obligations and concessions, subsidised agricultural freight, running on unprofitable routes, providing assistance during floods and famine and other relief programmes etc. (Agarwal, 1996, Dutt and Sundharam, 1997, Morris et al., 2002).

4. FIVE YEAR PLANS AND ROAD-RAIL INFRASTRUCTURE

The formulation of Five Year plans is the responsibility of the Planning Commission at the centre, with programmes under the plan being implemented by both central and state governments. The Planning Commission is chaired by the Prime Minister and the Vice Chairman. There is a parallel system of State Planning Commissions that operates under a similar governance system.

The focus of the first Five Year plan in 1951 was to achieve self-sufficiency in agriculture, the rehabilitation of refugees and the building up of economic overhead like transport infrastructure. The second and third Five Year plans emphasised development of the basic and heavy industries; the fourth plan's (1969-74) objective was economic growth with price stability and self-reliance, the removal of transport bottlenecks and remedying the acute shortage of electricity. The fifth plan (1974-79) had the twin objectives of self-reliance and removal of poverty. The sixth plan (1980-85) hoped to achieve economic growth with justice and equality in distribution, followed by the seventh plan (1985-90) which was determined to increase agricultural output, employment and overall productivity. According to Ahluwalia (1998), in the seventh plan, there was no reference to private sector partnerships or investment in the infrastructure. However, the eighth plan (1992-1997) finally recognised the importance of private sector investment in infrastructure due to the following reasons.

- A perception that the public sector was not efficient in supplying quality infrastructure to meet the growing demand.
- The prospect of private sector involvement was made possible by technological innovation, financial innovation and growth in capital markets which encourage private finance initiatives in infrastructure projects with long gestation periods.
- The economic rationale for private sector investment was that private sector firms could supply better quality goods and services at lower cost, on the basis of full cost recovery (Ahluwalia, 1998, pp.89-90).

The eighth plan (1992-97) was introduced while India was experiencing a balance of payment and foreign exchange crisis, high inflation and a recession in the industrial sector. The objective of the eighth plan was thus

to focus on the social foundation for higher growth and achieve improvements in the standard of living, health, education, full employment, planned population growth and the elimination of poverty. It also introduced crisis management strategies and a range of measures designed to liberalise the economy (Joshi and Little, 1996).

In the first seven plans from 1951 to 1990, a considerable amount was spent on road development programmes, which included construction of new roads, maintenance and construction of bridges, and the widening of roads. During this period, total mileage increased from 400,000 to two million kilometres (Dutt and Sundharam 1997). The main objectives of the eighth plan (1992-97) for investment in road infrastructure were the following.

1. Upgrading roads and removing bottlenecks in national and state highways.
2. To use road construction as a means of generating employment.
3. A more efficient road system was required in order to improve productivity, reduce travel time and also to conserve energy.
4. An emphasis on provision of roads to rural areas and villages. Under the Minimum Needs Programme, 30,000 villages were to be connected by road by the end of the five year plan period.
5. Construction of a new generation of roads on high density corridors with the provision of divided carriage facilities (Dutt and Sundharam, 1997).

However, the Planning Commission approved expenditure of only Rs 2,600 Crores. Given the shortage of funds, the Government drew up a plan to involve the private sector to construct, maintain and operate toll road facilities on national highways.

The main objectives of the eighth plan (1992-97) in relation to freight were based on a projected increase in demand for passenger and freight traffic that was in turn caused by an increase in demand for coal, iron and steel, cement, food-grain and petroleum products. The eighth plan focussed on long distance freight traffic that given demand the railway did not have the capacity to meet. Due to a lack of excess capacity, increased investment was needed to improve efficiency, address overstaffing and the lack of in-service training that was required to keep up to date with changing technological advancements. According to the World Bank (2004, p.1):

"...Unless major reforms as well as investment are made, India's road infrastructure will be an impediment to economic growth and social development. The Indian Tenth National Plan (2002-07), projects a GDP growth rate of 8 per cent per annum and an industrial growth of 10 per cent per annum and identified transport infrastructure as a major constraint on accelerated growth."

Urbanisation is a global phenomenon, particularly more significant in developing countries. By 2025, there will be an increase in the world population approximately by 2 billion, of which 97 per cent will reside in developing countries. In case of India there will be an increase of 500 million urban population further putting strain on urban infrastructure, causing inequality, poverty, unemployment and shortage of basic infrastructure like health, education sanitation, housing, roads, clean drinking water, transport etc. In 1996, the Rakesh Mohan Committee on Infrastructure concluded that in all types of infrastructure - economic, social urban or rural - there was a resource gap on one hand, which could not facilitate economic growth, and on the other hand fiscal and budgetary constraints (see: http://www.cmdaonline.com/priv).

5. PPP POLICY FOR ROAD-RAIL INFRASTRUCTURE

The term Public-Private Partnership (PPP) has at least six distinctive meanings or uses. PPP as management reform, problem conversion, moral regeneration, risk shifting, restructuring the public service and as power sharing (Linder, 2000). The Ministry of Public Affairs in British Columbia (cited in Schaeffer and Loveridge, 2002) defines PPP in the following terms:

"Public-Private Partnerships (PPPs) are arrangements between government and private sector entities for the purpose of providing public infrastructure, community facilities and related services. Such partnerships are characterised by the sharing of investment, risk, responsibility and reward between the partners."

In this paper, PPP is used as meaning a combination of public service restructuring and risk shifting that is undertaken to achieve, "*leveraging public capital for infrastructure and other capital-intensive investments.*" In these PPPs, *"risk shifting assigns the supporting role not to the government, but to commercial interests"*, while, *"the purposes remain public even though resources are eventually mixed"* (Linder, 2000). According to AusCID (2003, p.1-2) there are seven major types of

infrastructure PPPs, being: Design and Construct; Operate and Maintain; Design, Build, Operate; Build, Own, Operate, Transfer; Build, Own, Operate; Lease, Own, Operate; and, Alliance. While (Webb and Pulle, 2002) usefully identify the following key features of infrastructure PPPs:

- The private sector invests in infrastructure and provides related services to the government;
- The government retains responsibility for the delivery of core services; and
- Arrangements between the government and the private sector are governed by long term contract. It specifies the services the private sector has to deliver and to what standards. Payment depends on the private Partner meeting these standards.

In its 2002 *PPP Policy* Guidance Material *Value For Money Framework*, the Queensland Government (2002) defines PPP as follows:

"... a Public Private Partnership (PPP) is a risk-sharing relationship between the Public and Private Sectors to deliver timely public infrastructure and related non-core services. The specific nature of each partnership will be defined through a contractual agreement covering the delivery of infrastructure facilities over a period of time."

According to Spackman (2002, pp.288-290) there are eight main arguments supporting the private financing of public services: easing macroeconomic constraints; bypassing controls of public service investment; evading formal constraints on borrowing or spending; semi-privatisation of self-financing projects; capital rationing as an instrument for change; more effective monitoring by private financiers; the contractual benefits of long-term capital at risk; and, enforcement of whole life costing. However, there are also a number of arguments against PPPs and the Private Finance Initiative (PFI) variant being used to provide economic infrastructure services. They may lack accountability, cost too much, arguably should only be used as last resort capital financing, large multinationals tend to be their main beneficiaries, PFI-PPP schemes often have large transaction costs (including consultancy and advisory fees), involve substantial costs and long term lock-in (Hood and McGarvey, 2002). In effect, "*the efficiency gains from private sector infrastructure development can be offset by faulty selection processes or contractual arrangements. Second, severe*

contracting problems are posed by government being a party to the infrastructure arrangement" (Daniels and Trebilcock 2002, p.94).

Governments across the world in Europe and Asia-Pacific region are turning to PPP for infrastructure delivery, due to increasing demand for public goods and services as a result of increasing population. Government's ability to fiancé socio and economic infrastructure through the fiscal budget is constrained. Private finance initiatives of public sector infrastructure will enable the government to do more with less, achieve value for money objective and enhance its ability to deliver the goods and services more efficiently and finally PPP-PFI will be more accepted by the unions and workers at large in a developing economy like India as compared to privatisation initiatives, being more a collaborative and a partnership approach to deliver the goods and services to emerging middleclass as well as the poor, and help in alleviation of poverty in general .

In the case of India, given budgetary constraints, PPP/PFI for infrastructure development can be adopted at all levels of government. For PPP/PFI to work successfully it is important to have a legal framework that defines the rights and responsibilities of the private participants, ensures the certainty and continuity of rights, besides addressing risk allocation, risk management and consumer issues. These are all necessary to determine the extent and feasibility of private participation in infrastructure provision and delivery (Morris et al., 2002).

The *India Infrastructure Report 2002* by 3iNetwork, stresses the importance of public-private partnership and leveraging as alternative sources of financing infrastructure projects. Private finance initiatives (PFI) for commercialisation and corporatisation of infrastructure development projects, and highlighted through case studies existing constraints and an array of necessary changes and reforms in policies, regulations and institutional arrangements. Various major states in India - Maharashtra, Andhra-Pradesh, Tamil-Nadu, Karnataka, Gujarat, and West Bengal - have already adopted Public-Private Partnership model options like Build-Operate-Transfer (BOT), Build-Own-Operate (BOO) Build-Own-Operate –Transfer (BOOT), Build-Own-Lease-Transfer (BOLT).

To be sure, the Indian legal framework has the following shortcomings which prevent, to some extent, the private sector from better participating in infrastructure development (Joshi and Anuradha 2002, pp.78-79). The

existing body of statute and decisional law do not satisfactorily provide for or enable:

- Private interests to be created in an infrastructure facility and may mandate certain services to be provided only through a specific statutory body or authority.
- Adequate protection of private investment.
- The adequate vesting of all relevant rights required for the development and implementation of an infrastructure project with a private entity.
- Creation of security interests over an infrastructure facility in favour of lenders and the due recognition and enforcement of lenders' rights.
- Imposition of tariffs/fees/tolls for use of the infrastructure facility/ service so provided, or regulated yet commercially viable fee levels.
- A mechanism or procedure that allows for participation of the private developers in the determination of tariffs.
- Collection and appropriation of tariffs/fee/toll by the private entity from the users of the infrastructure facility.
- Adequate independent regulatory mechanisms including a dispute settlement mechanism in the case of infrastructure projects.

Furthermore, existing laws may also impose excessive tax/duties in relation to the process of implementing of infrastructure development.

Before independence in 1947, the public sector was largely confined to the post and telegraph, salt factories, railways, ports, ordinance and aircraft factories. However, by the end of the first five year plan in 1956, it was decided to expand the public sector as an integral part of industrial policy. It was generally left to the government to develop infrastructure due to the large size of investments, low yields and long gestation periods as the private sector was not willing to take the initiative, risk and mobilise the large amounts of capital required. But unless basic economic infrastructure was developed it was not possible for other industries to exist or develop as well.

In India, the concept of the Public-Private Partnership is not actually new. It has existed since the 1950s in the form of the joint sector. The famous entrepreneurial Tata family pioneered public and private sector

partnerships when Air India International was launched. Many companies were floated by the Government in partnership with the private sector to share ownership, management and control, for example the oil refining and fertilizer industries: "*In simple terms the joint sector is a form of partnership between the private sector and the Government*" (Dutt and Sundharam, 1997). There was a lot of controversy regarding the three definitions of the joint sector provided by the Dutt Committee and the industries that may fall under this category. The Dutt Committee was biased towards the public sector. In his Memorandum of Industrial Growth, J. R. D. Tata (founder of the family enterprise) defined the joint sector in terms of a "*minimum agreed definition*", biased towards the private sector. While according to Dutt and Sundharam (1997, p.188):

"A joint sector enterprise is intended to be a form of partnership between the private sector and the government in which state participation in capital will be not less than 26 per cent, the day-to-day management will normally be in the hands of the private sector exercised by a board of directors on which Government is adequately represented."

The rationale was to have social control over key industries, avoid inefficiency and the failure of public and the private sectors, to have faster economic growth, state sponsored industrialisation, greater mobilisation of financial resources, highly skilled labour and promote broad-based entrepreneurship. Thus the joint sector was to be a partnership between the public and the private sectors in specified industry sectors.

According to Datta (2002, pp.210-211) the Vice Chairman of Kanpur Development Authority, "*... extensive private participation in infrastructural projects may be the best option available, if not the only one*", for the development of infrastructure facilities. The following key factors impact upon private participation in India.

- ***Pricing and tariffs***: Private participation depends on the financial viability of the infrastructure project. However, the absence of market determined price structure, delays in implementation, government corruption, red tape, rules and regulations etc. may deter private sector from participating in infrastructure provision.
- ***Type of operation*** like build, own, operate and transfer (BOOT); build operate and transfer (BOT); and build, finance, operate and transfer

(BFOT). This may encourage corruption and political interference and thus make private participation more hazardous and less attractive.

- ***Rules and regulations*** can be a further deterrent to private partnership. India is renowned for having perfected the virulent "Licence Raj" and "red tapism" forms of bureaucratese. For example, escalation of costs due to faulty planning, delays in implementation, supply problems, land encroachment, and the degree of transparency in contracts and agreements must all be satisfactorily dealt with on a legal and institutional basis in order to encourage private participation.
- ***Legislative reforms*** may be mandatory in order for example, to enable toll collection on all private and government owned vehicles.
- ***Municipal and development bonds.*** These were first offered by the Kanpur Development Authority to attract private participation in infrastructure projects, so that the projects can be funded in partnership by private operators and by municipal bonds with revenue-sharing arrangements.

The new policy on private investment in roads was announced in 1997, whereby the Government encouraged and invited private investors to submit competitive bids for road infrastructure projects like expressways, four lane national highways, railways over bridges etc, on a Build-Own-Transfer (BOT) basis with a concession period of 30 years. Ahluwalia (in Ahluwalia and Little, 1998) thought that it might not be possible to attract private finance initiatives in roads in India since there was no recent history of user-pay or toll systems in India, causing consumer resistance. But in fact there are now express roads in India (eg. the Mumbai-Pune expressway) that successfully operate on a toll basis. Although it may not be possible to recover all costs by the toll system, as the development of road infrastructure produces many externalities; this may further require the government to provide subsidies to the private sector. Road infrastructure projects face market risks due to uncertainties regarding the volume of traffic given the high cost and long period of cost recovery. Finally, the private foreign investor in infrastructure project has to bear the cost of exchange rate fluctuations, as the toll is usually paid in domestic currency adjusted to the domestic inflation and interest rates.

The World Bank (2004) promotes Private Sector Participation (PSP) as a viable, sustainable way to finance highways in India, not only to bridge

the funding gap faced by the public sector, but also to improve efficiency in terms of expenditure commitments and adjust resources to changing circumstances, responsibility and accountability of revenue by involving the private sector. This includes unbundling and the reallocation of risk to the private sector which is better positioned to control risk (and reduce costs) due to the informational advantage. PSP projects are based on a strong foundation of public funding. However, support and demand for the use of PSP highways by the public and an ongoing willingness to pay tolls can fail due to inadequate connecting link roads. Thus, "*PSP cannot replace the role of the public sector nor reduce the importance of a rational, fair and transparent public financing system*" (World Bank 2004, p.ii).

Some 5-10 percent of national highways worldwide are funded by private sector participation. In India's case, under 20 per cent of the National Highway Development Plan projects are funded by PSP, in the form of BOT, annuity concessions for projects with high traffic risk, special purpose vehicles. The National Highway Authority of India raised funds through the issue of bonds in 2000-2002, together with fiscal incentives from the Government of India, to encourage private sector participation, in the form of:

> *"1) full or partial tax holidays for ten years; 2) exemptions to infrastructure capital Funds or Infrastructure Capital Companies providing long term finance for infrastructure; 3) reduced import/ excise duty on construction inputs; 4) reduced stamp duty on documents/agreements; and 5) reduced State sales tax on construction inputs."* (World Bank 2004, p.4)

Thus instead of either outright privatisation or exclusive public sector provision, it is possible in India to utilise the PPP mechanism in road/rail infrastructure projects in order to circumvent government fiscal constraints and the problem of deficit budgets and meet the increasing demands of a growing economy, and overcome existing bottlenecks in the transport network.

From the mid-1990s, Indian Railways encouraged private participation by adopting a new marketing strategy in rail freight infrastructure, according to Government of India's (1996b) *Economic Survey 1995-96.*

- Container Corporation of India would provide door to door services for domestic users, transportation in bulk for small customers and

International transport in ISO containers.

- Brake van space would be leased to customers so they could have assured transportation in ISO containers.
- Long distance special parcel service was introduced between major cities.
- A rebate was provided for carrying freight in the empty flow direction.
- Yards were closed to facilitate faster movements.
- Rules were simplified for faster processing, including free acceptance of indents, supply of wagons, single window booking systems and electronic communication systems adopted.
- Own Your Wagon Scheme (OYWS), was introduced to encourage private sector investment in railway wagons. Indian Railway encouraged private investors to operate the eight tourist circuits and rolling stock under this scheme. The scheme was further been modified in June 1996 in favour of private parties.
- Private participation was also encouraged through Build, Operate, Lease and Transfer (BOLT) scheme for private investment project, to make projects more attractive and profitable.

In subsequent policy developments, Indian Railways outlined the following objectives for PPP/PFI:

> *"(a) Supplementing government resources in railway infrastructure projects by private capital flows; (b) Involving state governments in the creation/development of railway infrastructure for the common public good; (c) Enhancing the capacity of rail transport to avoid supply-demand mismatch; (d) Ensuring availability of transport needs consistent with the expected GDP growth of 7-8 per cent per year."* (Puri 2004, p.61)

While in order to achieve these objectives, a variety of PPP models were to be adopted: special purpose vehicle route; build-own-transfer; state government funding for viable and unremunerative projects; private freight terminals; and suburban transport initiatives (Puri 2004).

However, in spite of many measures, use of the PPP funding mechanism in the railways has not been very successful so far compared with its use for road infrastructure. For example, a 2002 audit report by the Comptroller

& Auditor General of India of the railway wagon procurement programme of the 1990s (1993-2000) revealed very unsatisfactory outcomes. These were caused by poor overall programme compliance including misallocation of dedicated wagon procurement funds and the maladministration of contracts in relation to the purchase of wagons from the joint sector participants of Wagon India Ltd, which generated escalation and penalty payments. Furthermore, to make up the shortfall of internally diverted funds, the Railway Board resorted to unduly expensive market-based borrowing (at 16 per cent, not the available 12-14 per cent) in order to fund the procurement of additional wagons. Originally, several schemes including OYWS and BOLT were devised to meet the projected demand of 295,000 wagons of which Indian Railways could only fund 44,700 from internal budgetary sources.

In contrast, the planning, construction, management and service delivery of Dehli Metro Rail Corporation's new world class underground rail infrastructure facility (extending to 21.3 kms by March 2004) has been markedly more successful. A key element of that success had been due to Japanese design, component supply and oversight of the project, and well managed subcontracting out to reliable foreign and domestic private sector firms. It is expected to carry over two million passengers per day in 2005 and will significantly reduce road congestion, accidents and critical pollution levels. Compared with the US annual standard of 50 ug/m3 (and a US wide average of less than 30 ug/m3) in New Delhi for the July 2000-2001 period, the mean respiratory suspended particulate matter level was 204 ug/m3 (World Bank 2002, p.1 cited in Smith 2005). The Delhi Metro project was financed by a joint 30 per cent equity injection by the Central Government and Delhi Government, with the Japanese Government financing 56 per cent of the cost by a soft loan (via the Japan Bank of International Cooperation) over a 30 year period with a 10 year moratorium. The remaining 6 per cent of the project is being funded by property development (Sreedharan 2003; Vashisht and Narayanan 2004).

Nonetheless, overall, private-public partnerships in relation to road infrastructure have proved more successful to date than in the railway sector. Private sector operators have been encouraged to finance projects, improve efficiency and reduce the social cost of poor quality infrastructure by participating in construction, maintenance, repair, toll collection and operation of roads and highways. However, there remains much market,

fiscal, governance, regulatory, political and social barriers that prevent the creation of a market friendly pro-private sector investment environment, collectively conspiring thus far to prevent the private sector from more extensive participation in the financing and operation of infrastructure projects. These include:

- The escalation of costs, lack of transparency and accountability in competitive biding, bureaucratic delays and red tape, low and uncertain returns on investment, lack of commitment and consistent policies by the government as well as accountability by all three levels of government.
- The lack of arrangements to raise finance through institutional investors like superannuation, finance and insurance companies, lack of developed domestic capital market, identifying and allocation of risk sharing arrangements.
- An inadequate legal and regulatory framework to implement infrastructure projects through Build-Own-Operate-Transfer (BOOT) scheme, and to resolve any disputes relating to contractual agreements that may arise.
- Insufficient measures to attract foreign investment in infrastructure and to develop long term infrastructure debt instruments.

6. CONCLUDING COMMENTS

Infrastructure development is the key to economic growth, social development, poverty alleviation and employment generation. India needs to overcome this infrastructure deficiency in all areas (not just road/rail) by increased reliance upon the PPP mechanism as a strategy to promote sustainable economic growth. The road/rail network constitutes the most dominant mode of transport and its inadequacy continues to constrain the rate of growth and sustained economic development in India. The need for an efficient transport network and infrastructure investment policy being capital intensive, can hardly be over emphasised for a country the size of India and its growing population, which can be a catalyst for balanced economic growth. Road and rail transport infrastructure shortage results in serious socio-economic externalities including traffic congestion costs, accidents, overcrowding, high operating costs, environmental pollution and delays.

It is important to identify new sources of financing infrastructure

projects such as domestic private capital, direct foreign investment and international institutions like the IMF and World Bank, as India's central and state governments are no longer able to make the ongoing expenditure commitments necessary to satisfy increasing infrastructure demands and reduce existing bottlenecks. Recent amendments to the *National Highway Act* have encouraged private participation in road construction on a Build-Operate-Transfer (BOT) basis. Given that the roads are overcrowded and inefficient in meeting growing future demand, there is an urgent need to encourage PPP/PFI private investment in new infrastructure and also to maintain and improve existing infrastructure. Relative costs, tariffs, risk and profit sharing arrangements etc and efficiency in capacity utilisation of all roads and rail transport have to be kept in mind in order to develop an effective infrastructure investment policy and encourage private participation and finance initiatives. For the success of PPP-PFI initiatives an enabling environment in relation to appropriate legal system in terms of tendering, bidding of services and dispute resolution measures, clear regulatory frame work with transparent tariff and subsidy mechanisms, with a clearly defined role for the public and the private sector and minimise and eliminate the likelihood of corruption and finally a political system which is transparent, non-interfering, supportive in delivering public goods and services and the political will power to implement policies and eliminate corruption, regulatory hurdles and act as a transparent regulator to play a positive developmental role in partnership with the private sector. .

In conclusion, the future success of PPP in India depends on providing an investor- friendly environment in which there is an efficient use of resources and cost/risk sharing by the public and private sectors that remedy existing infrastructure deficiencies and provide quality, low cost services to meet the economic growth targets and challenges of the twenty-first century.

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