

**FINANCING OF TRANSPORT  
INFRASTRUCTURE & SERVICES:  
ISSUES IN THE CONTEXT OF  
REALIGNMENT OF STATE & MARKET**

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**1. Introduction**

The critical role of infrastructure in sustaining high rates of economic growth and overall development has been receiving renewed attention in recent years. The World Bank's major annual publication on development imperatives, the World Development Report 1994, is addressed to infrastructure for development. The rapid pace of globalization in many parts of the developing world has brought with it both a demand for more and better quality infrastructure and services, as well as new opportunities in the new climate for private foreign investment. The transportation sector is a key component of the infrastructure sector, and shares many features common to infrastructure generally. At the same time, transportation has distinctive characteristics which distinguish the sector from other infrastructure, and even within transportation, there are major differences between alternative modes. These differences have a close bearing on the manner in which transportation infrastructure and services can be financed.

Traditionally, the state has played a key role in the setting up of social overhead capital in most countries. In developing

countries, the recent interest in encouraging both domestic and foreign private sector participation has been evident since mid 1980's. The major reason for this is the fact that by this period most developing states had begun to experience budgetary difficulties. The preceding two decades had seen the assumption of myriad developmental responsibilities by governments, together with stagnating tax revenues and increasing debt. In these circumstances, it has been difficult for developing states to keep pace with the requirements for infrastructural finance. In fact, during periods of macroeconomic adjustments a common pattern has been for governments to cut back on social overhead spending as the politically more palatable option. These circumstances have led to inadequate expenditure on maintenance, resulting in deteriorating efficiency of systems which were already inadequate. The gaps in infrastructure are extremely large both due to growth in demand and inadequate supply. Estimates of resources required to meet the gap in infrastructure show extremely large financial requirements. For example, it has been estimated that in Latin America, through the 1990's, as much US \$ 40 billion would be needed annually, amounting to 4% of the GDP of Latin American countries. ( Guasch).

Such a scale of finance is generally outside the current direct financial capacities of the governments concerned. This type of situation is hardly atypical. At the same time, many countries have begun to experiment with innovative methods of infrastructure financing and operation, ranging from privatization to leases,

concessions, management contracts, and 'build-operate-transfer' arrangements. Such innovations have taken place in most parts of infrastructure, including transportation, e.g. airlines, bus systems, railroads, ports, urban transit and roads. These experiments have yielded useful lessons which may pave the way for more efficient methods of finance and operation in the developing countries.

## **2. Institutional Considerations in Transport Organization & Finance**

In assessing the emerging role of the state and market in transportation, special features of this sector have to be considered. The question of how financing of these sectors can be improved cannot be divorced from the organizational and institutional reforms that are needed. Hence, both these aspects should be viewed together. In transportation, the following characteristics are important:

- Transportation has some natural monopoly characteristics, network structures and common carrier features, which imply that the extent of competition possible is to that extent circumscribed. This means that a regulatory framework is necessary for efficient functioning.
- Typically, the physical infrastructure component of the sector requires very large investments, and the flow of returns is relatively low and extend over a long time period.

- Because of externalities, as well as for reasons of susceptibility to populist pressures, there are difficulties associated with identifying and levying adequate charges from the beneficiaries of transportation investment.
  
- Much of transportation belongs to the category of nontradeable activities. Consequently, this poses constraints from a macroeconomic standpoint to foreign financing.

As far as the implications for financing is concerned, these characteristics indicate that:

- Capital costs are large relative to maintenance and operating costs;
- Sunk costs are substantial, because of the need for irrevocable commitment of a large fraction of total costs before the project becomes operational;
- Costs of entry and exit are, in general, high. This limits competitiveness and contestability of services;
- Gestation periods are long, payoffs are delayed, and revenue flows are irregular. This tends to lead to high debt-equity ratios, and the need for debt with long term maturities.

( A. Chandavarkar)

With the government no longer able to play its traditional role in this sector by itself, the essential task of ensuring essential finance in these activities therefore revolves around finding mechanisms for improving risk sharing, and in 'unbundling' of investment so that the lumpiness of investment is replaced by a modular structure. Such restructuring will permit wider participation in the infrastructure sectors, and bring in economic agents hitherto unwilling to or excluded from engaging in such activities. This involves finding arrangements appropriate to each subsector with regard to ownership, management, financial instruments and insurance. Differences in the technical and economic character of subsectors of transport make it imperative to adopt a 'case by case' mode, rather than seeking a uniform approach.

While much that is new in institutional terms is emerging, it is useful to have a historical perspective on the trends. As economic historian Barry Eichengreen remarks, recent innovative suggestions on infrastructure financing have a "back to the future" quality.

Indeed, the history of investment in transportation, particularly in the establishment of railways in the 19th century, shows that considerable efforts were made to induce private investment (including foreign investment) through such state supported devices as guarantees and provision of collateral (land grants). The degree to which these attempts work depends a great deal on the overall

development of financial markets in a given country. Where this has developed to a reasonable extent, the informational requirements for efficient private and commercial finance are more likely to be present. In countries where these informational and contractual preconditions for private financing are absent, appropriate (perhaps transitional) institutions would be needed to provide information, monitor the progress of projects and to discipline management. These are necessary for success in switching to private sources of investment. The major lesson which history provides in this regard, is that when governments seek to compensate for informational asymmetries through guarantees, without appropriate regulatory safeguards, there is a danger of "sweetheart deals" that ultimately shift costs to taxpayers. Such failures in the past, rather than esoteric economic theoretic argumentation on the merits of state participation, had caused governments to assume direct responsibility in the ownership and management of infrastructure. Thus, parallel development in institutions to ensure accountability, including bodies which supervise and monitor, as well as the promotion of domestic financial markets is required.

Over the past decade or so, for reasons already mentioned, several low and middle income countries have experimented with alternative institutional options and financing mechanisms for infrastructure construction and provision. These experiments, some successful and



many not so, hold pointers for the future. Two emerging trends are worth noting. The first is that in several areas, technological developments have eroded the natural monopoly characteristics of infrastructure. These have made multiple supplier provision feasible, implying the greater scope for competition and market provision. Also, they have reduced the costs of collection of user charges, allowing greater scope for pricing. In transport, for example, new electronic methods of vehicle identification have made road tolls charging similar to any metered public utility service. Though their incorporation into infrastructure systems is still small, the trend portends the future. The second trend worth noting is the rise in the flow of private long term international capital flows into LDC's. In 1993 it was estimated to be US\$ 112 billion, of which infrastructure is believed to have constituted an important component. Private investments in infrastructure have been increasing in the LDC's, and is around \$ 15 billion per year. (WDR 1994). In spite of these trends towards markets and private participation, however, the role of the public sector remains preponderant and will continue to be so. Private investment in infrastructure is only around 7% of the LDC total. Even in cases where, for example, tollways collection has been privatized, or are under BOT arrangements, the basic responsibility for management and provision of remains with the government.

The World Development Report 1994 provides a useful classification of institutional options for infrastructure. It distinguishes between: (a) public ownership and public operation; (b) public ownership and private operation; (c) private ownership and private operation, and (d) community ownership and user provision. Within each of these broad categories there are finer variations possible.

For example, within option (a), the institutional form can vary from a government department, public enterprise which is either 'traditional', or corporatized and commercial, or is operated under a management contract or with a service contract. Under option (b), we have both leasing contract as well as concession contracts.

The financial implications of these institutional forms naturally differ. Thus, the financing of fixed assets, as well as current financing under a government department or traditional public enterprise comes directly from the government, either as budgetary transfers or from subsidies and loans. With corporatized public enterprises and those operated under management or service contracts, capital financing can be shifted onto market based financing, and current financing made to rely on internal revenue generation. Under a publicly owned, privately operated systems the extent of private participation can be higher. In the concession contract both capital and current financing becomes private. The risk bearing responsibilities under alternative institutional forms are also different. Under option (a),

commercial risk is borne by the government directly in the case of departmental enterprises and traditional public enterprises, but by the enterprise directly in the other variants. Under options (b) through (d), the bearing of risk is private.

Which institutional forms are appropriate and feasible for a particular infrastructure sector ( and its subcomponents) in the context of the emerging redefinition of the roles of state and market? The answer differs across infrastructural sectors, and even within transport, across modes. It depends also on the level of development of the country in question. The special characteristics of infrastructure alluded to above mean that there are constraints to the ease with which a particular sector and its subcomponents can be owned and operated through markets. WDR 94 attempts to construct a 'marketability index' of different components of infrastructure. The index is based on a rating of the following aspects: (1) potential for competition, (2) excludability/rivalry characteristics of the good or service, (3) potential for cost recovery from user charges, (4) public service obligations, and (5) environmental externalities. In the transport sector, the WDR overall marketability rating on a 3 point scale (1= least marketable, 3= most marketable), is given below, along with its recommended institutional option. The institutional option for low income countries is indicated first, followed by the expected form as development level increases. These

figures, reproduced below, illustrate the variability which exists across transportation subsectors. While it may be possible to construct other indices based on alternative assumptions and criteria, the main point to note is that the intrinsic economic characteristics of a transport subsector make it suited to differing degrees of 'marketization', with a correspondingly differing role of the state.

TABLE 1: MARKETABILITY & PRIVATE SECTOR PARTICIPATION SCOPE IN  
TRANSPORT SUBSECTORS

A. Railways

Railbed & Stations 2.0

Feasible institutional option:

Commercialized public authority, evolving towards concession  
or lease

Rail freight 2.6

Feasible institutional option:

Commercialized public authority, or private sector with access  
or route regulation only

Passenger services 2.6

Feasible institutional option:

Commercialized public authority, or concession or lease,  
evolving towards private sector with price regulation

B. Urban transport services

Urban Bus 2.4

Feasible institutional option:

Private sector with access or route regulation only

Urban Rail 2.4

Feasible institutional option:

Concession or lease

### C. Roads

Primary and secondary roads 2.4

Feasible institutional option:

Commercialized public authority evolving towards concession or lease with toll

Rural roads 1.0

Feasible institutional option:

Local community and user self-help

Urban roads 1.8

Feasible institutional option:

Commercialized public authority

### D. Ports and airports

Facilities 2.0

Feasible institutional option:

Commercialized public authority or concession or lease

Services (including airlines,  
shipping and cargo handling) 2.6

Feasible institutional option:

Concession or lease, or private sector with route or access  
regulation only

(Source: World Development Report 1994, Chapter 6)

### 3. Forms and Techniques of Transportation Finance

The financial requirements of the transport sector have the following characteristics: (a) large scale financial needs; (b) regular and timely financial flows towards efficient maintenance must be provided, since these requirements are continuing and incremental; and (c) there is a need for availability of contingency funds because depreciation is not smooth and linear, and thus bunched expenditure at a point in time may be required. (A.Chandavarkar).

#### Cost Recovery

A basic issue with regard to the source of financing is whether, and to what extent the financing needs can be met from the users/beneficiaries of investment. There are a number of obvious advantages in user/beneficiary finance. First, there can be closer matching between demand and supply. Second, it is fair because of built-in targeting of the beneficiaries. Third, efficiency features such as congestion pricing can be incorporated. Fourth, this can be a steady source of finance, less vulnerable to the vagaries of the budgetary process.



The potential for full cost recovery through user charges in the case of transport is limited. For example, in the case of roads, short run marginal cost user charges relating to variable cost of road maintenance, traffic congestion or pollution will not cover the total cost of road provision. In the road sector, fixed costs can be in the range of 50 per cent of the total cost. It is possible of course to devise innovative pricing schemes (such as a two part price system whereby there is a fixed annual access charge to join the system, plus a constant price per unit of use).

The first part of the price is targeted at the fixed cost, while the second is related to the variable cost. Yet such schemes may not be feasible in most poor countries, where there may be low demand volumes, and cost recovery objectives may cause excessive prices being charged, beyond the capacity to bear. ( V. Swaroop).

These limitations on user finance have the expected effect of deterring private investment in these activities. Therefore, the need for alternative sources of finance is crucial. This means that the role of government in providing supplemental finance, either through taxes or through other mechanisms will remain fundamental. We shall briefly examine the key approaches and related issues.

#### **4. Government's Role in Transport Financing**

### Earmarking tax revenues

Governments, in successful market based economies, can and do play a variety of roles in the financing of transport infrastructure and services. In so far as tax finance is directly appropriated for transport and other infrastructure activities a key issue is that of "earmarking". Given the propensity to cut into infrastructure spending in the (increasingly frequent) situations of macroeconomic distress, the sector has suffered badly. Road maintenance is a particularly glaring example. One solution is to arrange financing through a direct linkage between certain categories of tax with the end use, rather than via allocations from the general budget. This can take several forms, from single tax - single use, to the setting up of separate tax jurisdictions with limited taxing authority.

This method has been used widely, and with some success in Japan. Often the taxes function as some kind of proxy for a user charge, as in the case of vehicle taxes for road use. In Japan, the device used was a series of "special accounts". There are, at present, 8 special accounts in the national budget, of which the major ones are the Road Improvement S/A, the Airport Improvement S/A, and the Harbor Improvement S/A. Revenues from specific sources are directly appropriated into the relevant accounts, which are also supplemented from the general account. More than 90 percent of the national road budget is financed from the gasoline tax for

road improvement and from the "automobile weight tax" (three-fourths of which is earmarked for road construction expenditure). (Morio Kuninori).

Another example of successful earmarked taxation is the Colombian "valorization system", where the basic idea is to target potential beneficiaries of a project. The beneficiaries are taxed in the form of "betterment levies" in the property tax in proportion to the potential gains. There are administrative difficulties associated with such a scheme, (identification of beneficiaries of a project, and estimation of gains) which require careful implementation.

While earmarking of taxes has several advantages, there are caveats. The incentive implications of the tax should be examined. Second, even though earmarking of taxes does help insulate the infrastructure budget, it is not foolproof. There are several instances in Latin America and elsewhere, where supposedly earmarked taxes have been diverted to the general budget.

### Earmarking of Loans

The earmarking principle can of course be applied to loans raised under public auspices as well. In Japan, the special accounts are

also financed through the issue of bonds by the government through special legislation (article 4 of the Public Finance Law) which permits the issue of bonds for financing of public works. A rather interesting example of earmarked lending for infrastructure is the interest free lending programme based on the proceeds of the windfall profits accruing from the sale of the stock of the NTT (Nippon Telegraph and Telephone) to the public in 1987. These were distributed to the various special accounts for promotion of infrastructure under construction under separate heads by type of organization controlling the expenditure. Thus, separate provisions were made for toll roads and parking facilities constructed by public corporations; for general roads and ports under local governments; for joint sector infrastructure undertakings and finally , by private corporations. In the last case, there was a low rate of interest, while the others were interest free.

Earmarked borrowing has been tried elsewhere. In several countries, special borrowing by the railways through issue of designated bonds is used. An issue which arises in this context is whether earmarked loans via public channels distorts the choice between projects by biasing it in favour of projects which receive earmarked funds. This is particularly likely when the project is new. It is argued that it might be better to let new projects compete for funds from a general pool, restricting earmarked funds

to necessary maintenance finance. (A.Chandavarkar). It is difficult to resolve this question, since the argument for earmarking arises in the context of vulnerability to (economically) irrational but politically convenient public allocation. Some distortion is inevitable in this second best situation.

### Institutional Mechanisms for Government backed Finance

For efficient mobilization and utilization of funds raised through public auspices, appropriate mechanisms for raising resources and for micro-level appraisal, allocation and monitoring are needed. This is necessary also because of the need to share resources and responsibilities at the central, state and local levels of government. Typically, the resource raising capabilities at lower levels of government are limited, necessitating resource transfers.

### Traditional Development Finance Institutions

A number of countries have therefore evolved special institutions - infrastructure banks, and funds-- to serve as intermediaries in this process. In the traditional format, they generally involve arrangements to refinance local authorities, giving them access to loan funds from resources controlled at the level of the higher level ministry. The supervision is usually done by the higher level ministry. Often these devices allow long term borrowed funds, such as pension funds, insurance, and postal savings

schemes, to flow into infrastructural investment. Thus long term lending and long term borrowing can be matched. With a few exceptions, however, these arrangements have not succeeded in building up long term financing capacity of local governments. Moreover, they remain vulnerable to political interference and inefficient targeting arising from pressures. The success of such development finance organizations depends on the quality of staffing, and on the degree of autonomy enjoyed by them.

Among the successful examples are Japan and Colombia. In Japan, the Japan Development Bank played a crucial role in financing infrastructure, including railroads and ports. Its success can be attributed to the fact that it could carry out extensive monitoring, and was able to induce private financing in areas considered desirable in the national interest. Its financing pattern remained flexible, responding to national priorities at the appropriate time, rather than getting 'captured' by any particular subsector. In the case of Colombia, the municipal credit institution functions as an autonomous agency within the Finance Ministry. It has succeeded in mobilizing resources through diverse sources, including the issue of bonds and from bilateral and multilateral international sources. Once again, its political insulation, high quality staff and its ability to involve good local banks account for its record. (Morinori, Chandavarkar)

## " Transitional" Infrastructure Funds

In contrast with the traditional infrastructure banks, which served mainly as a conduit for publicly procured funds, the current trend in special purpose infrastructure funds is to serve as a transitional mechanism on route to more substantial private sector financial involvement. They also help infrastructure financing to become more reliant on debt finance rather than on grants. Some of these could be newly created organizations, but in other cases these could be a realignment of the mode of functioning of pre-existing institutions. There are two categories of new infrastructure funds. The first is made up of publicly sponsored organizations, and the second is made up of nascent private sector funds. Their essential function is to provide better sharing of risk, and to facilitate co-financing through leveraging of public funds.

These specialized organizations are transitional in the sense that they assume the role comparable to venture capital organizations.

They facilitate finance through a variety of means. These include accepting contractors' receivables from public agencies as collateral for advance of short term capital, and providing up to 25% of project startup costs, as in the case of Mexico's BANOBRAS.

This makes it possible for project sponsors to approach other sources. Another mechanism is to use pension funds or other

social security funds to refinance banks for onward lending to private project sponsors. The presence of the fund as intermediary ensures that the social security system only bears the bank risk.

### Government's Role in Private Financing

There exist a variety of forms in which private finance can flow into the transport sector. For reasons alluded to earlier, the government must continue to play a role in this sector, particularly in the transitional period as private participation takes root. The scope of private financing is closely connected with the institutional form of private participation in the activity. It can range from a purely financial interest to one in which the construction, operation and maintenance of the transport activity is in the private sector. At one extreme is privatization proper, with a whole spectrum of forms including management contracts, monopoly franchises, leasing and concession arrangements. In all of these, the activity is a joint sector one. The distinction from our view point rests on the following considerations: (a) Who owns? (b) Who bears the capital cost of the fixed investment? (c) Who is responsible for the cost of operation and maintenance? (d) Who bears the commercial risk of the project? (d) What is the supervisory and regulatory mechanism?



Here it is difficult to generalize. Table 1 above gives an indication of feasible institutional options in the transport sector. The goal of public policy here must be: (1) to ensure that risk is allocated efficiently and is diversified, (2) that where competition is not possible, an adequate regulatory mechanism is in place; (3) where excludability and user charges are problems, or where social conditions preclude charging users, adequate steps to increase the profitability to private entrants should be instituted. In the case of railways, land grants for commercial development by promoters is a well known technique; (4) where macroeconomic considerations are involved as in the case of guarantees given by the government on projects of large size, steps must be taken to ensure that the terms are reasonable, and that overborrowing does not occur. This is particularly relevant where the guarantee is denominated in foreign exchange, since transport is primarily a nontraded activity.

### Project Financing

An issue of some concern here is whether these efforts with transitional forms actually result in the increase in the flow of finance to the transport sector in the scale required, or whether full scale privatization would be necessary to provide the degree of stakes before a greater commitment is forthcoming from the private sector. Here of course the key question is whether the legal, economic and administrative environment is suitable for

privatization. Where this is not yet adequate, and particularly where autonomous institutions for monitoring, insurance, and dispute resolution are not yet developed, the need for transitional mechanisms will remain.

The recent uptrend in private foreign capital inflows into the LDC's has been accompanied by the growth of 'project finance'. This is a financing technique which brings together private sponsors and other equity holders by means of the formation of special purpose corporations'. (WDR 1994, Ch. 5). This is basically a risk pooling device, and a means of leveraging to obtain diversified loan and equity finance. The major problem here is the lack of credit history of the corporations. Funds are raised on the strength of projected revenues, and the assets of the corporation.

Since the project sponsors typically have equity holdings in the range of 30% of project costs, which limits their liability, and the government is also a stake holder, there is a frequent demand that in the event of a failure, the government's tax revenues should be used to provide recourse to the investors. In recent years, toll road construction projects have been a major catchment area for such investment flows, particularly to the middle income developing countries like Mexico, Argentina and Malaysia. China also has some ambitious highway projects in the pipeline, viz, the Guangzhou- Shenzhen superhighway. There are transactions costs associated with project financing. Very sharp definitions of risk

bearing responsibilities are needed. These have to be negotiated among the various contracting parties. The contracts to be entered into need necessarily to be complex, and with provisions for many contingencies. There need to be mechanisms in place to make these contracts credible, including agreements on dispute resolution mechanisms. Since foreign funding is involved, there is an international dimension to these features. An interesting feature is that as the overall level of institutional development and marketization improves, the ease of project financing is reflected in the higher volume and smaller average size of projects.

The government's role in fostering the environment for project finance lies in gradually evolving mechanisms for monitoring, including the strengthening of financial markets and institutions, in reducing policy induced risks for private investors, developing insurance mechanisms for currency risks with appropriate premia attached; where competition is not substantial, develop adequate performance criteria with incentives for high performance, and penalty clauses for failure, which can be formally incorporated into the project contracts. As mentioned earlier, in situations where cost recovery via user charges is limited, the government may have to induce private participation through 'sweeteners' like land grants or capital grants, or provision of payments of "shadow tolls" based on estimated traffic flows from tax revenues in the

appropriate dosage. Many of these activities may involve the development of special skills in project finance within the government. With respect to the market risk of the project, i.e., that arising from normal fluctuations of demand conditions, the government should shift such costs to the project sponsors or other private parties. In the case of commercial risk arising from cost of production overruns, contractual devices mentioned above, or the practice of subcontracting on turnkey basis can shift and spread the commercial risk efficiently.

In the next section of the paper, we take up two case studies of privatization from two developing countries. The former relates to the Mexican toll roads programme, and the latter deals with the Malaysian container terminal privatization in a port. These provide concrete examples of attempted marketization of infrastructure. They serve to highlight the factors which contribute to success and failure in this type of institutional transition.

## Case Studies of Privatization in the Transport Sector- Mexico and Malaysia

### 1. Mexican Toll Road Programme

The highway toll road sector has been a major ground for private sector participation in developing countries. Of these initiatives, the Mexican case has been one of the most ambitious,

and innovative. Its success has, however, been mixed. For this reason, it provides a useful case study. (W. Emmons)

The Salinas government in 1989 proposed to construct 4000 km of toll roads over a 5 year period at a cost of US\$ 5 billion. In 1991, the target was accelerated to 5330 km, as the government projected it as a high profile investment and privatization project. It became a device for signalling its determination to get the Mexican economy moving again, after recession of the 1980's. Mexico's toll road programme was actually a concession arrangement, with ownership and operation to be returned to government control at the end of the concession period. Initially, this was set within a legally stipulated maximum period of 20 years. Later, for reasons to be mentioned shortly, this was relaxed to a 30 year maximum.

The toll road programme represented a fundamental change in the organizational and financial set up for the road sector. Its main motivation was that the fiscal crisis of the Mexican state had led to a neglect of infrastructure. The preceding de la Madrid government had actually diverted existing toll revenues to the general budget. The Salinas government wished to boost road construction via private investment and involvement. However, even before the concession period, private participation was not new in the road sector. Its form and scope were greatly modified.

In the early system of contracting, the Transport ministry contracted with private construction companies to build individual highways in accordance with specified technical parameters. The financing was arranged by the transport ministry with Finance ministry approval through a combination of infrastructure bonds and tax revenues. Contracts were awarded through a competitive bidding process, on the basis of lowest unit cost.

Under the concession process, potential concessionaires bid for the right to collect toll revenues on a specified route in exchange for constructing and operating a highway within a specified time period. The winning bid was selected on the basis of the shortest time for the concession. The transport ministry provided the detailed technical parameters for each project. In terms of investment, the concessionaire was expected to provide a minimum of 25% of total capital requirements from own resources. The remaining capital was to be raised from banks loans and other debt instruments. In cases of difficulty, public sector equity participation was permitted, but these earned no dividends, being more in the nature of financial transfusions. Before a bid could be submitted, the prospective concessionaire was required to obtain the financial backing of a bank or bank syndicate, which indicated its commitment to provide debt capital to the concession. During the construction phase, the bank established a

trust or escrow account to manage the cash flows relating to the concession.

During the life of the concession, the concessionaire was responsible for operation of the toll facilities and maintenance of the highway according to government specifications. During this period, all revenues flowed into the the trust account, and was used to service the debt, the residual being the concessionaire's dividends.

The major lessons from the Mexican toll road programme are the following:

1. The technical requirements for the government to design and administer such a complex arrangement proved to be rather high. For example, the determination of appropriate toll levels and traffic guarantees for each concession specification involved difficult problems of estimation of parameters such traffic demand elasticities, in situations where past data were not helpful. In fact, the Transport ministry significantly underestimated demand elasticities. Prices charged were too high, exceeding rates charged even in industrialized countries. Traffic volumes fell below 50% of the guaranteed amount. As a consequence, the government was forced to adopt a "flexible" posture, permitting ex post renegotiation of the concession arrangements. Ultimately, the market risk was therefore shifted back to the government.

2. Even though the government's original target was 100% private financing of the programme, in the end the public sector organizations like CAPUFE (the federal toll authority), BANOBRAS, and state governments were compelled to pump in 20% as non dividend earning equity, into the programme.

3. There was a very significant cost overrun in the programme, though precise estimates are not available given the substantial general inflation rate. The most conservative figure for the cost overrun would be 20%. It is thus doubtful if the concession arrangements have proved to be highly cost saving to the nation as a whole.

4. The programme has succeeded in attracting private investment from both domestic and foreign sources. Private construction subcontractors have made high profits from the construction phase of the concession.

5. The concession programme did not reduce the administrative costs for the government. The design, monitoring and renegotiation processes consumed large amounts of administrative time, and proved to be of a continuing, rather one-shot, nature.



## 2. Privatization of Port Terminal in Malaysia

The Malaysian Government has given high priority to ports on account of the rapid growth in the external trade sector.

The Governmental policy was to develop Port Kelang on the western side of Malaysia as a major container port eschewing transshipment at Singapore port. Privatization was aimed at enhancing efficiency in the port, which had been hampered by difficulties common to many publicly operated facilities.

The three berth container terminal in Port Kelang in Malaysia was operated through a government owned enterprise - port authority and was shifted to private control in 1986. The privatisation was accomplished through the "sale - lease" method wherein the movable assets were sold to the new management and the immovable assets including berths and were leased for a period of 21 years. A lease rent was fixed in the initial stage, and depending on the traffic volume it was agreed that this would go up in the future. The new company had the additional responsibility for covering major repairs of leased facilities.

In the privatization of existing public enterprises, the job security concerns of the existing employees are a typical bottleneck. In this case, the original employees were guaranteed, in the new set up, all their existing pension entitlements, at

least five year job security, higher salary (around 20 % higher than comparable jobs in other port non-private divisions), and ultimately 5 % of the shares in the new set up. In exchange, the private operator was allowed to lay off workers after the first five years and to link promotions to work performance rather than seniority. The workers had an option to move to the new private sector or continue in the Governmental set up.

The privatisation process involved transferring 51 per cent of the shares to the new operator in the beginning and after the port operations were fully stabilized, employees would be offered 5 % of shares, 35 % of shares would be sold to the public, Government would have 20 % and the balance 40 % would be with the private operator. The shares of the new Kelang Container terminal are now listed in the Kuala Lumpur stock exchange. (Hernan Levy & Aurelio Menendez, G. Naidu, G. Naidu & Cassey Lee).

Available data does not permit a comparison of the current functioning of the port terminal with the pre-existent situation. Perhaps, the declared objective of posing a significant competitive challenge to the Singapore facilities has not been met as yet. However, the privatization has succeeded in inducing technology and managerial inflows, and about 10% equity interest in the project from a foreign investor, the Australian P&O. The capital

restructuring plan also induced substantial domestic private equity participation.

### Conclusion

In this paper, we have presented an overview of the principal issues involved in the financing of transport infrastructure and services in developing countries. We have delineated how the role of the state has been evolving in this area, from a situation where it assumed total responsibility for all aspects of transport infrastructure and services to one in which it has taken the lead in inducing greater diversification of equity and debt financing and a greater scope for market processes. We have seen that the special characteristics of transport render the continuing role of the state essential, though its character can alter. Indeed there is a spectrum of organizational and institutional modes on which specific transport sector and subsector activities tend to locate.

Each has its implications for the extent to which the state's responsibilities can be shifted. We have examined the basic principles of how user finance, risk allocation and financial intermediation can be realigned. There is a close connection between the financing, institutional and regulatory mechanisms. The level of development of markets for finance and risk as well as administrative capacity and legal structure are also important.

Consequently, there are no easy general answers or prescriptions.

Careful crafting of institutional modes and financing mechanisms are likely to be required in this transitional phase. The case studies of Mexico and Malaysia provide a glimpse of the detailed considerations that govern success.

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