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MOT - As a Commercial Proposition

Social welfare is the ultimate objective of any policy and related investment activity by the Government. In pursuance to maximize social welfare through development of road network in the country, Government seeks to supplement requisite investment resources through private sector participation and commercializing the network by bringing the roads in market. But marketability of a specific road section being constrained in terms of potential for revenue generation limits the extent, quantum and nature of private investment in the sector. In other words, investment in the sector may have higher social rate of return asking for large volume of investments but lower financial rate of return restricts the possibility of supplementing the investment in the sector through private participation. The alternate to commercialize the network as well as benefit from the relative professional efficiency that private sector brings is to go for MOT mechanism. Keeping in view the higher social rate of return, executing agencies should arrange the first tranche of investment (that already being done by NHAI) in the sector and bring the road in market through MOT mechanism. Roads, themselves, will generate funds for required successive investments.

Model conceptualizing MOT as a business proposition in the paper is based on the following premises:

Road is to be built by the executing agency. In other words, capital investment and other associated risks are born by the executing agency.

- Road is conceptualized as a marketable product consisting of core road facility bundled with extra value adding quality wayside amenities. Even core road facility may also be a bundle of two or more road sections having different potential for revenue generation.
- Concession to exploit the business potential of the road as marketable product is to be awarded to the private concessionaire. Such concession is to be awarded not only for O&M or toll collection or generating the business from wayside amenities, but for the a comprehensive value proposition consisting of core facility as well as associated value additions.

The above premises have the following implications:

- As discussed earlier, capital investment in roads is a risky proposition because of large investment outlays, long gestation period, uncertain revenue stream and other associated risks. Such a risky proposition does not make sense to the private investor who has got other alternate avenues to invest and earn. Executing agency by investing capital it self bears all such risks except revenue risk that depends more or less on the traffic generation potential of the facility and its hinterland.
- Conceptualization of road as a marketable value bundle provides the leverage to operator in maximizing his revenue by devising an optimum mix of core facility and diverse type of value additions. Simultaneously, it provides the leverage to executing agency in commercializing the lesser lucrative components/sections of the value bundle by combining these with cash cows of the bundle. In other words, such value bundling is a win-win situation for both the stakeholders, i.e. operator and executing agency.

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- Private sector is credited with comparatively better managerial efficiency and pragmatism. In addition to generically preached efficiency, private operator is also best suited to bring the right mix of expertise not only to operate and maintain the core facility but other value adding components of the complete value bundle in an innovative way. Therefore, assigning the O&M of road to private operator means ensuring the operational efficiency and thus, quality and value to consumers also.

Further, contrary to the BOT Scheme where concessionaire either keeps the entire collected revenue (under shadow tolling) or gets annuity payment (under annuity payment scheme) from the executing agency, MOT Scheme will generate cash to the executing agency. The concessionaire will have to pay appropriate annuity amount to the executing agency after meeting the cost of O&M and his normal profits. In fact, MOT concession may be awarded to the highest annuity bidder and that per se means exploiting the business potential of 'road as a marketable product' optimally.

MOT Scheme in the Indian Context

Road user charges (i.e. commercialization through simple postulate of use and pay) and optimal investment, though often treated separately by policy analysts, are facets of the same problem. Both are aimed at minimizing the total costs of building, maintaining and using a road system. Although the investment pertains to the design and construction of a road and user charges pertain to ongoing user and maintenance activities, the two are interdependent. Commercialization of roads through BOT Scheme (that combines the concepts of road user charges and optimal investment) in India has limited scope because very few road sections that carry large volume of traffic are lucrative to private investors. Contrary to it, through MOT Scheme maximum network of roads can be commercialized. In other words, executing agencies can generate cash flows not only by awarding busy sections to BOT or MOT concessionaires, but comparatively less busy sections can also be maintained and operated through private participation. The only implication will be somewhat lower annuity receipts by the executing agencies. Thus, whatever business potential the road network has that can be exploited to the maximum through MOT mechanism.

Further, commercialization on MOT model will generate enough funds that can be utilized to get back the current investment with adequate social rate of return and finance the future up gradation of the road network.

A Case Study

The case study tests the conceptualized model by analyzing it in the context of upgrading the Cochin Port Connectivity i.e. N H- 47 and NH-47A.

Project Domain

Ports are important links in the chain of surface transport and play an important role in the economic development of the country. Majority of the export and import trade of the country is handled by the ports, which provide an interface between sea transport and surface transport. With the new economic liberalization there has been a spurt in the industrial activities resulting an increase and in productivity and its export which has triggered off an urgent demand for the provision of sufficient road infrastructure in the transport sector especially port cargo traffic. Consequently, to catalyze the economic and overall development as well as to sustain the accelerated growth, the NHAI has planned to strengthen and upgrade the existing road transportation linkage network including creating new feasible high speed corridors in the needed directions for major ports. To provide adequate connectivity to the ports various alternatives are studied to handle future port cargo traffic for a period of 20 years (i.e. year 2020) and with a broad outlook plan for 2050 (i.e. for 50 years).

The Project Domain falls in district of Ernakulam of which Cochin is the major town. Cochin, known as the 'Queen of Arabian Sea' is the biggest city along the west coast after Mumbai and functions as the nerve center for distribution of the goods due to its proximity to the all-weather port of Cochin. The present seat of Cochin port, occupies an area of nearly 365-hectare land. The port is of considerable economic importance among the Indian harbors as it is on the direct route to Australia and Far East. It is one of the finest natural harbors of India and provides a safe anchorage even during the roughest monsoon months.

Description of the Project Corridor

The road corridor under study consists of sections of NH-47 and NH-47A. NH-47A is a link road that connects NH-47 to Willington Inland. It is the only main highway for Cochin Port for dispersal of traffic. Two other entries are from Mattencherry across old bridge over a bay that is closed for heavy vehicular traffic and from Ernakulum town, a very busy business centre. Thus, NH-47A is the lifeline of Cochin Port for the movement of its traffic. Its length is 5.90 Km from Mattancherry junction to Kundannoor junction. It passes through plain terrain and crosses three major water bodies, a railway line and one minor water body. These water bodies are all backwaters of Arabian Sea.

NH-47 is the main highway, which goes to Salem on one side and to Kanyakumari on the other side. This National Highway is a major carrier of cargo from Cochin Port through a link road NH-47A. NH-17 and NH-49 connect with this road at Edapally and Kundnnoor junctions. Thus, this highway alone carries traffic from Madurai and Mangalore side towards Kanyakumari through Trivendrum and is a very busy road link.

The length of the sections of NH47 covered under this study is about 9.92 Km. There are a number of small roads on either side of the highway to serve and connect local residential area and factories that are located in the interior on either side of the highway. The highway also crosses a natural waterway; three major and a minor water body that are backwaters of Arabian Sea. The road consists of bridges of length 1260m.

Base Year (2000) Classified Traffic Volume

| Road Section | Jeep/Car /Taxi | Mini Bus | Bus | LCV | Truck | MAV |
|------------------|----------------|----------|------|------|-------|-----|
| NH-47 Section-I | 8817 | 570 | 1249 | 3001 | 4773 | 169 |
| NH-47 Section-II | 5565 | 313 | 751 | 2333 | 3584 | 141 |
| NH-47A | 2202 | 65 | 42 | 638 | 1766 | 189 |

Source: Study for 'Development of Adequate Road Connectivity to Cochin Port in Kerala' (Package-IV) Traffic Growth Rates Adopted

Based on past trend, likely future growth in independent variables such as population, State Domestic Product, export and import of commodities likely to be routed through Cochin Port, the demand elasticity for traffic and growth rates based upon it adopted in the study range between 4.5 percent per annum to 8.2 per annum for various categories of vehicles.

Project Cost

Capital Cost of the project for widening the road network to four lanes comes to Rs. 2301.50 Million comprised of Rs. 1273.00 Million for NH-47 and Rs. 1028.00 Million for NH-47A. Routine and periodic maintenance costs have been estimated as Rs. 0.045 million and Rs. 1.24 million per 2-lane km respectively. Cost of operating and maintaining the Toll Plaza has been considered Rs. 4.76 million per year.

User Fee Rates

From the 'willingness to pay' (WTP) and 'Ability to pay' (ATP) toll surveys, it appeared that basic toll rates for truck, bus, L.G.V and car will be Rs.50, 40, 20 & 8 respectively.

Ministry of Road Transport & Highways has capped the toll fee rates for various categories of vehicles for using 4 laned divided carriageway facilities and linked them to the wholesale price index determined on yearly basis. These rates (1997 prices) were Re., 0.40/km. for car/jeep/van, Re. 0.70/km for LGV, Re 1.40/km. for truck or bus and Rs. 3.0/km. for heavy construction machinery and earth moving equipment.

Toll rates for car, as per guidelines and those determined by the toll rate surveys are comparable. The toll rates for LGV, bus and truck determined on the basis of toll rate survey are higher than the norms of MRTTH.

Unfit for BOT Scheme

Various funding options with different sets of input parameters such as concession period, debt-equity ratio, likely cost of capital etc. were analyzed considering base cost of the project as well as expected risks related to the project. Considering the capped toll rates proposed by the Ministry and the annual revenue stream based upon these rates the proposed four laning of the road under study does not seem financially viable and fit for financing through BOT mechanism.

An Alternate - Commercialization through MOT mechanism

The proposed four laning of road sections under study, it being a crucial link to Cochin Port, carries very high social rate of return on the investment but high capital cost on account of large bridges falling on the road makes it financially unviable and thus unfit for up gradation through BOT mechanism. Under such a scenario, executing agency will have to finance the up gradation activity from its own resources. Yes, road under study can be brought in the market through MOT mechanism. The following propositions set the business model for commercialization of NH-47 and NH-47A as a value bundle through MOT Scheme:

- The road under study is a value bundle consisting of core facility i.e. Section 1 and 2 of NH 47 and NH47A, and value addition in terms of wayside amenities. Section 1 of NH-47 has substantial potential for revenue generation while Section 2 of NH-47 and NH47A are comparatively low revenue potential. Value addition in terms of wayside amenities has been conceptualized to include bus lay-byes, arboriculture, rest areas, weigh stations and truck parking.
- As discussed earlier, considering the toll fee rates capped by the Ministry, the four laning of road does not provide acceptable financial returns (subjective assessment based on current business sentiments and market conditions) on capital investment. Present value (PV) of the revenue stream under such scenario at 16 percent rate of discount is Rs. 1097.15 Million, which is substantially lower than capital cost i.e. Rs. 2301.50 Million. On the other hand, toll fee rates estimated on the basis of WTP and ATP surveys paint a different picture. In this case PV of revenue stream comes to Rs. 5059.82 Million, which is substantially higher than the capital cost. Difference between toll fee rates under two scenarios has two contextual issues. First, the capped toll fee rates are applicable universally for all NH sections irrespective of the nature of traffic plying on these sections. The road under study carries heavy goods traffic meant for export or import through Cochin Port. Nature of goods traffic plus monopoly of this link to Cochin Port has resulted in higher WTP of users of road for goods traffic. The same is evident, as discussed earlier; from the comparison of capped toll fee rates with WTP based rates. Toll rates for car, as per Ministry guidelines and those determined by the toll rate surveys are comparable, but the toll fee rates for LGV and truck determined on the basis of WTP survey are higher than the norms of Ministry.

Thus, operation and maintenance of the project road under study on MOT basis is an appropriate mechanism to commercialize the road with its existing business potential. Revenue being higher than the O&M cost, bidding criterion to be adopted for MOT concessions should be the highest amount of annuity that a concessionaire promises to pay to the executing agency. In other words, unlike under BOT mechanism, under MOT scheme the flow of funds will be towards the executing agency. The competition in the bidding process will ensure the optimization of annuity paid to the executing agency. Here it is notable that competition to get the concession under MOT will be higher in comparison to BOT scheme because of lower amount of initial investment required to enter in to a MOT concession.