Cash Flow Projections, Project Growth and Economic Parameters Comparison of Toll Operated Road

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Abstract: National Highway projects requires huge capital investments by the road and transport ministry and government agencies, builders, private contractors and other participants involved in the construction project. All this involvement makes the evaluation of the best project delivery system very essential. The study involves the comparison of the project delivery systems for an existing Build-Operate-Transfer (BOT) type of Toll project on a National Highway. The important objective of this study is to analyze and formulate the cash flow projections from the perspective of the contracting company and the government agency involved and to conclude the best project delivery system by differentiate the cash flow projections and growth of the project and economic boundaries. There are three types in project delivery system of Public-Private Partnership (PPP) as following-I) Build Operate Transfer (BOT) II) Engineering procurement Construction (EPC) III) Hybrid Annuity Mode (HAM) These three Public-Private Partnership (PPP) types of project delivery system based on the significant parameters involved in the highway project and also generates project profitability for the construction company.

Keywords: Public Private Partnership, Cash Flow Statements, Build Operate Transfer, Engineering Procurement Construction, Hybrid Annuity Model, Input Tax Credit.

1. Introduction

Indian Infrastructure fields involve 3main or major project delivery systems for constructions and development of highways in the Public Private Partnership (PPP) mode:

- 1) Build-Operate-Transfer (BOT)
- 2) Engineering-Procurement-Construction (EPC)
- 3) Hybrid Annuity Model (HAM)

In this study, we will be studying these three Public Private Partnership project delivery systems and comparing them for a case study.

This model will also be compared on the basis of Project Growth and Economic Parameters such as Unit Cost of Development of Project, Cost Growth, Project Design and Construction Speed, Construction Time, Scheduled Growth and Project Development Intensity.

1.1 Build-Operate-Transfer Mode

It is a form of project financing, wherein a private entity receives a concession from the private or public sector to finance, design, construct, own, and operate a facility stated in the concession contract. This enables the project proponent to recover its investment, operating and maintenance expenses in the project.

 BOT finds extensive application in infrastructure projects and in public-private partnership. In the BOT framework a third party, for example the public administration, delegates to a private sector entity to design and build infrastructure and to operate and maintain these facilities for a certain period. During this period the private party has the responsibility to raise the finance for the project and is entitled to retain all revenues generated by the project and is the owner of the regarded facilities. The facility will be then transferred to the public administration at the end of the concession agreement,^[4] without any remuneration of the private entity involved. Some or even all of the following different parties could be involved in any BOT project:

- 2) The host government: Normally, the government is the initiator of the infrastructure project and decides if the BOT model is appropriate to meet its needs. In addition, the political and economic circumstances are main factors for this decision. The government provides normally support for the project in some form. (provision of the land/ changed laws)
- 3) The concessionaire: The project sponsors who act as concessionaire create a special purpose entity which is capitalised through their financial contributions.
- 4) Lending banks: Most BOT project are funded to a big extent by commercial debt. The bank will be expected to finance the project on "non-recourse" basis meaning that it has recourse to the special purpose entity and all its assets for the repayment of the debt.
- 5) Other lenders: The special purpose entity might have other lenders such as national or regional development banks
- 6) Parties to the project contracts: Because the special purpose entity has only limited workforce, it will subcontract a third party to perform its obligations under the concession agreement. Additionally, it has to assure that it has adequate supply contracts in place for the supply of raw materials and other resources necessary for the project
- 7) A BOT Project (build operate transfer project) is typically used to develop a discrete asset rather than a whole network and is generally entirely new or greenfield in nature (although refurbishment may be involved). In a BOT Project the project company or operator generally obtains its revenues through a fee charged to the utility/ government rather than tariffs

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charged to consumers. A number of projects are called concessions, such as toll road projects, which are new build and have a number of similarities to BOT. In general, a project is financially viable for the private entity if the revenues generated by the project cover its cost and provide sufficient return on investment. On the other hand, the viability of the project for the host government depends on its efficiency in comparison with the economics of financing the project with public funds. Even if the host government could borrow money on better conditions than a private company could, other factors could offset this particular advantage. For example, the expertise and efficiency that the private entity is expected to bring as well as the risk transfer. Therefore, the private entity bears a substantial part of the risk. These are some types of the most common risks involved:

- 8) Political risk: especially in the developing countries because of the possibility of dramatic overnight political change.
- 9) Technical risk: construction difficulties, for example unforeseen soil conditions, breakdown of equipment
- 10) Financing risk: foreign exchange rate risk and interest rate fluctuation, market risk (change in the price of raw materials), income risk (over-optimistic cash-flow forecasts), cost overrun risk



Figure 1: Structure of BOT Project depicting all agencies involved



Figure 2: Structure of BOT Project representing all agencies involved

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1.2 Engineering Procurement Construction Mode

It is a prominent form of contracting agreement in the construction industry. The EPC contractor will carry out the detailed engineering design of the project, procure all the equipment and materials necessary, and then construct to deliver a functioning facility or asset to their clients. Companies delivering EPC Projects are commonly referred to as EPC Contractors.

Normally, the EPC Contractor has to deliver the project within an agreed time and budget, which places the risk for schedule, and budget on the EPC Contractor.

Key points of EPC Mode:

- In an EPC project, a government grants no concession period to the private consortium. Instead it pays a Lump Sum amount to the EPC Contractor and then the government generates revenue from the facility from its operation and commercial exploitation of the project. The facility is transferred to the government right after completion of its construction.
- 2) The Government makes the complete payment for the construction of the facility to the EPC Contractor as soon as the construction is completed. So the Government guarantees the return of payment.
- 3) Due to the fact that direct fund from the public budget are required, the government will experience increased pressure on public borrowing, while not allowing the transfer of the individual risks and new technologies to the private sector. Furthermore, since the project is built and then transferred by the EPC Contractor the government gets no benefit of private sector expertise in these areas.
- 4) Here in EPC Contracting the risk of the performance of the facility is completely on the Government.
- 5) The government has to furnish all the land required for the construction of the project to the EPC Contractor. Many EPC Projects have to be financed by the government on their own or acquire financial assistance for completion of them.
- 6) An explicit national development policy that clearly commits the host government to promote private sector participation in infrastructure projects.
- 7) A credible legal and regulatory formwork to facilitate an EPC strategy that bounds the Contractor on the basis of budget and time.
- 8) A credible administrative framework to expedite the implementation of EPC projects and to support such projects when they encounter the problems inherent in all large projects no matter how they are financed.
- Incentives in various forms of government support to encourage the private sector to participate in BOT projects and a pragmatic approach to risk-reward issues.
- 10) A clear government commitment to conclude EPC deals within a reasonable time.

1.3 Hybrid Annuity Model

Hybrid-Annuity Model is combination of BOT and EPC models. It is considered to be a win-win situation for the government and developers. The government is expected to fund up to 40% of the project cost while the remaining 60 percent to be funded by the private player and thus easing

the financial burden on the exchequer as well and to address the various concerns felt by the stakeholders.

Key points of Hybrid Annuity Model:

- 1) **Bid Parameters**: Project life cycle cost defined as Net Present Value (NPV) of the quoted bid project cost plus NPV of the operations and maintenance (O&M) cost for the entire operations period is the bid parameter. Bid is awarded to the developer quoting the lowest NPV for the project life cycle cost.
- 2) **Cash Construction Support**: 40% of the bid project cost shall be payable to the concessionaire by the authority in five equal installments linked to physical progress of the project. Concessionaire shall have to initially bear the balance 60% of the project cost through a combination of debt and equity.
- 3) Escalation Clause in the Project Cost: Project Cost shall be inflation indexed, which is the weighted average of Wholesale Price Index (WPI) and Commercial Price Index (CPI) in the ratio of 70:30. The bid project cost adjusted for variation between the price index occurring between the reference index preceding the bid date and reference index date immediately preceding the appointed date shall be deemed to be the bid project cost at commencement of construction. Bid project cost shall be changed to variation in PIM on monthly basis till the achievement of commercial operations date (COD).
- 4) **Stable Cash Flow of Annuity Payments**: Semi-Annuity payments shall be made to the concessionaire by the authority on the completion of the project for the balance 60% of the final bid project cost. The annuity payments have been aligned with typical revenue profile for highway projects. Along with the annuity payments, interest shall be paid in the form of annuity on reducing balance of final construction cost. Interest rate for the same shall be Bank Rate + 10% per annum.
- 5) **Assured O&M payouts by Authority**: The Authority shall make O&M payments to the concessionaire along with the annuity; in accordance with the amount quoted which will be inflation indexed. Concessionaire shall remain responsible for the maintenance of the project till the end of the concession period.
- 6) **Revenue for Authority**: Toll collection shall be the responsibility and revenue to the Authority.

2. Methodology

The project compares the Cash Flow Statements for the project of Strengthening, Improving, 4-Laning, Operation and Maintenance and Tolling for a stretch of 80kms. Actually the project was taken on BOT basis for a concession period of 20 years.

The SPV created for the completion of project had a 90% shareholding of the Contractor Company and 10% shareholding of the Bank providing financial support.

The project schedule is shown in Fig 2.

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| Milestone | Date |
|-------------------------------------|-------------------|
| Signing of Concession Agreement | September 23,2007 |
| Commencement of Concession Period | March 22,2008 |
| Commencement of Construction Period | March 22,2008 |
| Scheduled Project Completion Date | September 22,2010 |
| Commencement of Operations and | September 23,2010 |
| Tolling | |
| End of Concession Period | March 22,2028 |
| Figure 2: Project Sche | dule |

The total project cost was evaluated to be Rs.535 Crore out of which Rs.465 Crore was the EPC Cost.

Certain assumptions were made while evaluating the Projected Cash Flow Statements:

- 1) Base Year Traffic: 100%
- 2) Traffic Growth Rate: Rate as described in Fig 3.
- 3) Annual Escalation in Wholesale Price Index: 5.0%
- 4) Annual Escalation in O&M Expenses: 5.0%
- 5) Number of Operating Days in a year: 365
- 6) Interest on Cash Balances: 8.0% per annum
- 7) Interest on Loan: 11.0% per annum
- 8) Annual Repair and Maintenance Cost: Rs. 3.333 Lakh per km per annum
- 9) Annual Toll and Operation Expenses: Rs. 2.255 Crore per annum
- 10) Major Maintenance Cost: Rs. 42.81 Lakh per km

| | 2005-10 | 2011-15 | 2016-20 | 2021-25 | 2026-30 |
|-----------------|---------|---------|---------|---------|---------|
| Car/Jeep | 7.2% | 6.5% | 5.9% | 5.4% | 5.4% |
| Mini-Bus | 4.8% | 4.6% | 4.6% | 4.2% | 4.2% |
| Bus | 4.8% | 4.6% | 4.6% | 4.2% | 4.2% |
| LCV | 8.4% | 7.8% | 7.2% | 5.4% | 5.4% |
| 2-Axle Truck | -6.0% | 2.6% | 2.0% | 1.8% | 1.8% |
| 3-Axle | 10.8% | 8.4% | 6.5% | 4.2% | 4.2% |
| Truck | | | | | |
| MAV | 8.4% | 7.2% | 6.5% | 4.2% | 4.2% |

Figure 3: Traffic Growth Rate as suggested by Independent Consultant

The traffic growth rates as assumed for the concession period helps in evaluation of the traffic to be encountered in the future.

The traffic analysis data is depicted in Fig. 4.

The toll to be collected is calculated on the basis of the National Standardized Toll Rates and the traffic analysis data.

| | 2007 | 2012 | 2017 | 2022 |
|----------------------|--------|--------|--------|--------|
| Normal Traffic | | | | |
| Car / Jeep / Van | 1,049 | 1,367 | 1,852 | 2,444 |
| Mini-Bus | 5 | 6 | 8 | 9 |
| Bus | 35 | 42 | 53 | 65 |
| LCV | 326 | 445 | 641 | 877 |
| 2-Axle Truck | 693 | 645 | 724 | 797 |
| 3-Axle Truck | 2,523 | 3,640 | 5,258 | 6,896 |
| MAV | 323 | 436 | 609 | 799 |
| Local Traffic | | | | |
| Car / Jeep / Van | 166 | 216 | 293 | 387 |
| Mini-Bus | - | - | - | - |
| Bus | - | - | - | - |
| LCV | 4 | 5 | 8 | 11 |
| 2-Axle Truck | - | - | - | - |
| 3-Axle Truck | - | - | - | - |
| MAV | - | - | - | - |
| Monthly Pass traffic | | | | |
| Car / Jeep / Van | 287 | 374 | 507 | 669 |
| Mini-Bus | 1 | 1 | 2 | 2 |
| Bus | 105 | 126 | 158 | 196 |
| LCV | 58 | 79 | 114 | 156 |
| 2-Axle Truck | 54 | 50 | 56 | 62 |
| 3-Axle Truck | 82 | 118 | 171 | 224 |
| MAV | - | - | - | - |
| Daily Pass Traffic | | | | |
| Car / Jeep / Van | 152 | 198 | 268 | 354 |
| Mini-Bus | - | - | - | - |
| Bus | - | - | - | - |
| LCV | 36 | 49 | 71 | 97 |
| 2-Axle Truck | 36 | 33 | 38 | 41 |
| 3-Axle Truck | 133 | 192 | 277 | 364 |
| MAV | 17 | 23 | 32 | 42 |
| Total Traffic | | | | |
| Car / Jeep / Van | 1,654 | 2,156 | 2,921 | 3,853 |
| Mini-Bus | 6 | 7 | 9 | 11 |
| Bus | 140 | 168 | 211 | 262 |
| LCV | 424 | 579 | 834 | 1,141 |
| 2-Axle Truck | 783 | 728 | 818 | 900 |
| 3-Axle Truck | 2,738 | 3,950 | 5,706 | 7,484 |
| MAV | 340 | 459 | 642 | 841 |
| GRAND TOTAL | 6,085 | 8,047 | 11,140 | 14,493 |
| TOTAL PCUs | 14.812 | 19,640 | 27.277 | 35,305 |

3. Results

The Cash Flow Statements are evaluated for both BOT as well as EPC model of project delivery system.

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| | | | | | Projected Ca | sh Flow Sta | tement for l | BOT MODE | : | | | | | | | | |
|---|--------|--------|--------|--------|--------------|-------------|--------------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--|
| CASH FLOW STATEMENT | Mar-09 | Mar-10 | Mar-11 | Mar-12 | Mar-13 | Mar-14 | Mar-15 | Mar-16 | Mar-17 | Mar-18 | Mar-19 | Mar-20 | Mar-21 | Mar-22 | Mar-23 | Mar-24 | |
| Sources of Cash | | | | | | | | | | | | | | | | | |
| Cash Accruals from Operations | 0 | 0 | 12.36 | 20.87 | 32.41 | 42.87 | 55.63 | 68.89 | 79.32 | 99.02 | 116.89 | 136.56 | 153.19 | 171.03 | 191.81 | 212.49 | |
| Add: Equity | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Add: Debt Addition | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Add Sub Debt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Add MMR Utilised | 0 | 0 | 0 | 0 | 0 | 0 | 24.26 | 25.65 | 0 | 0 | 0 | 30.86 | 32.32 | 0 | 0 | 0 | |
| Total Cash Inflow | 0 | 0 | 12.36 | 20.87 | 32.41 | 42.87 | 79.89 | 94.54 | 79.32 | 99.02 | 116.89 | 167.42 | 185.51 | 171.03 | 191.81 | 212.49 | |
| Applications of Cash | | | | | | | | | | | | | | | | | |
| Senior Debt Repayment | 0 | 0 | 0 | 2.48 | 6.32 | 13.58 | 15.2 | 19.62 | 27.62 | 35.87 | 48.36 | 49.34 | 53.5 | 53.5 | 54.79 | 0 | |
| Sub-Debt Repayment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Construction Period Capex Payments | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Major Maintenance Expenses During Operation | 0 | 0 | 0 | 0 | 0 | 0 | 24.26 | 25.65 | 0 | 0 | 0 | 30.86 | 32.32 | 0 | 0 | 0 | |
| Total Cash Outflow | 0 | 0 | 0 | 2.48 | 6 | 13.58 | 39.46 | 45.27 | 27.62 | 35.87 | 48.36 | 80.22 | 85.82 | 53.5 | 54.79 | 0 | |
| Cash Avail for Reserve Accounts | 0 | 0 | 12.36 | 29.34 | 46.34 | 66.3 | 96.28 | 133.82 | 164.34 | 191.68 | 190.22 | 189.89 | 193.56 | 197.35 | 194.56 | 245.85 | |
| Less : Transfer to DSRA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Less : Transfer to MMR Account | 0 | 0 | 0 | 6.13 | 8.86 | 9.84 | 11.36 | 12.8 | 12.8 | 12.8 | 12.8 | 14.33 | 16.16 | 16.16 | 16.16 | 16.16 | |
| Closing Cash Balance | 0 | 0 | 12.36 | 23.21 | 37.48 | 56.46 | 84.92 | 113.63 | 128.33 | 122.05 | 103.11 | 93.53 | 79.46 | 57.39 | 35.02 | 67.56 | |

Figure 4: Cash Flow Statement for BOT Mode

| | | | | P | rojected Ca | ish Flow Sta | tement for l | PC MODE | - | | - | - | | | | |
|---|--------|--------|--------|--------|-------------|--------------|--------------|---------|--------|--------|--------|--------|--------|--------|--------|--------|
| CASH FLOW STATEMENT | Mar-09 | Mar-10 | Mar-11 | Mar-12 | Mar-13 | Mar-14 | Mar-15 | Mar-16 | Mar-17 | Mar-18 | Mar-19 | Mar-20 | Mar-21 | Mar-22 | Mar-23 | Mar-24 |
| Sources of Cash | | | | | | | | | | | | | | | | |
| Cash received from Government | 102.3 | 204.6 | 204.6 | 0 | 0 | 0 | 0 | 57.5 | | | | | | | | |
| Cash Accruals from Operations | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Add: Equity | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Add: Debt Addition | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Add Sub Debt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Add MMR Utilised | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Cash Inflow | 102.3 | 204.6 | 204.6 | 0 | 0 | 0 | 0 | 57.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Applications of Cash | | | | | | | | | | | | | | | | |
| Senior Debt Repayment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sub-Debt Repayment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Construction Period Capex Payments | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Major Maintenance Expenses During Operation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Cash Outflow | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cash Avail for Reserve Accounts | 102.3 | 204.6 | 204.6 | 0 | 0 | 0 | 0 | 57.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Less : Transfer to DSRA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Less : Transfer to MMR Account | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Closing Cash Balance | 102.3 | 204.6 | 204.6 | 0 | 0 | 0 | 0 | 57.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Figure 5: Cash Flow Statement for EPC Mode

Comparison of BOT Projects and HAM Projects:

- 1) Concession Period: For BOT Projects, Concession Period is fixed from the appointed date and it comprises construction and operation period. This arrangement reduces the operations period if there is delay in achievement of provisional commercial operations date. For example concession period is 17 years from the appointed date, which also include construction period of 730 days. In this case, the number of annuities to be received by concessionaire reduces from 30 to 29 if there is delay of six months in achievement of PCOD. For HAM Projects, Concession period includes fixed operational period of 15 years from COD. Hence, numbers of annuities are fixed at 30 irrespective of delay in achievement of PCOD. However, Authority can levy damages or withheld performance securities fro the delays attributed to concessionaire. Hence, HAM is positive for developers and lenders as it provides revenue visibility.
- 2) Damages for Delays attributed to the Concessionaire: In case of BOT Projects, if COD does not occur prior to 91st day after scheduled project completion date unless the delay is on account of reasons solely attributed to the authority or force majeure, the concessionaire shall pay

damages to the authority in a sum calculated at rate of 0.1% of the amount of performance security for delay of each day until COD is achieved. In case of HAM Projects, the damage amount increases to 0.2% of the amount of performance security for delay of each day until COD is achieved. Upon Concessionaire failure to pay damages, the same shall be paid with interest of bank rate plus 3% and shall be deducted from the annuity payments till the recovery of entire damages. Hence, HAM Model is positive for authority and more binding on developers to complete the project within stipulated time frame.

3) Bidding Criteria: In case of BOT Projects, Authority mentions EPC Cost in RFP. However, concessionaire can freeze the project cost based on technical viability on its own as it is not the bidding parameter. This results in wide deviations in the cost of the project based on the assumption and margin estimated by the developers. In case of HAM Projects, Bid Project Cost is finalized on the date of declaration of bidder offering lowest project life cycle cost (including Construction Cost and O&M Cost) and hence the project cost cannot be changed except variations in PIM and change in scope. Bid project cost shall be inclusive of construction cost,

interest during construction, working capital, physical contingencies except additional cost due to variations in PIM, change in scope and change in law or force majeure. Hence, HAM is positive for authority and lenders. Nevertheless, this requires in-depth study of project cost by bidder based on the design and specification of scope of work. Emphasis on cost based bidding and availability of recent cost estimates by NHAI is expected to narrow the difference between NHAI cost and bidding cost which can ultimately result in lower funding requirement for developers and lower exposure of banks.

- 4) Obligations for Authority: In BOT Projects, no clauses for rehabilitation and resettlement. In HAM Projects, Authority undertakes rehabilitation and resettlement of persons affected by construction of project and has to bear all cost and expenses therof. Authority is also required to procure forest clearance as a condition precedent to Concession Agreement. Hence, HAM is positive for developers as it shall result in increase in pace of execution.
- 5) **Financial Closure:** In BOT Projects, Financial Closure is to be achieved within 180 days from signing of Concession Agreement. In HAM Projects, Financial Closure is to be achieved within 150 days from signing of Concession Agreement. Hence HAM, is neutral to positive; Lower quantum of debt tie-up requirement combined with annuity based revenue model is expected to ease the Financial Closure process.
- 6) Deemed Termination: In case of BOT Projects, there is no such clause. In case of HAM Projects, appointed date does not occur before the 1st anniversary of the signing of Concession Agreement, the concession agreement shall be deemed to have been terminated by mutual agreement of the parties. Furthermore, if appointed date does not occur for the reasons attached to concessionaire authority shall encash performance security and additional performance security as damages thereof. Hence, HAM Projects protects the developer from inordinate delay in handover of land or regulatory clearances from the authority.
- 7) **Project Milestone:** In case of BOT Projects, Project Milestone is linked to financial progress. In case of HAM Projects, Project Milestone is linked to both physical and financial progress. Hence HAM Projects, positive for authority and lenders as it protect them for the any diversion of funds by developers.
- 8) Release of Construction Grant: In case of BOT Project, Construction Grant, if any can be disbursed in the proportionate form of term loan disbursement after infusion of 100% contribution from sponsors. In case of HAM Project, Authority shall approve construction grant to the extent of 40% of the inflation indexed bid project cost. Construction grant is to be released in the form of five equal installments subject to the achievement of physical progress of 20%, 40%, 60%, 75%, 90% respectively. Hence, HAM is positive for developers and lenders as funding of the 40% of the project cost from the authority is expected to reduce the funding need. Furthermore, alignment of grant release with the achievement of physical progress is also expected to incentivize the developers for timely completion of work.

- 9) Delay in Handover of Right of Way, post appointed date: In case of BOT Projects, Concessionaire is required to complete the work on all lands for which RoW is granted within 90 days of appointed date before scheduled project completion date. Concessionaire can achieve PCOD after completing such work. However, final COD can't be issued even though work is delayed due to reasons attributed to the Authority. In case of HAM Projects, in the event of Authority is unable to provide remaining site within 180 days from the appointed date, the remaining site shall be removed from the scope of work under the provision of change in scope. Hence, final COD can be achieved after completing the 100% work on the site available to Concessionaire within 180 days from the appointed date. Hence, HAM is positive for developers and lenders as it provides better clarity and mitigates the construction risk to a considerable extent.
- 10)Bonus Payment on Early Completion: In BOT Projects, Bonus upto maximum one annuity (six months) shall be paid by authority along with first annuity subject to achievement of final COD (100% completion of work on the entire project length). Furthermore, annuity payment shall commence only after six months from the Scheduled Project Completion Date (SPCD). In HAM Projects, in the event concessionaire shall achieve COD on 30 or more days prior to SPCD, authority shall pay bonus equal to 0.5% of 60% of bid project cost for 30 days by which COD shall preceded SPCD. Thereafter, the bonus shall be calculated on pro-rata basis. Bonus shall be due and payable along with the first annuity payment. Annuity payment shall commence within 15th days of 180th day from COD. Hence, HAM is positive for developers as bonus payment can be received even after completing 100% work on the lands available to concessionaire within 180 days from appointed date. Furthermore, realigning annuity payments to COD as compared with SPCD increases the Internal Rate of Return for the project.

4. Discussions

1) Financing Risk

- a) In BOT Model the financing risk lies with the Private Player
- b) In EPC Model the financing risk lies with the NHAI.
- c) In HAM the financing risk lies with NHAI as well as the Private Player

2) Revenue Risk

- a) In BOT Model the revenue risk lies with the Private Player.
- b) In EPC Model the revenue risk lies with NHAI.
- c) In HAM the revenue risk lies with NHAI.
- 3) Operation and Maintenance Risk:
- a) In BOT Model the O&M risk lies with the Private Player.
- b) In EPC Model the O&M risk lies with the NHAI.
- c) In HAM the O&M risk lies with NHAI or Private Player depending on the conditions of the agreement.

10.21275/ART2020363

774

4) Taxation Aspect

- a) HAM model is considered for construction of Roads. Road being an immovable property comes under the definition of "Works Contract" as per definition of Section 2(119) of CGST Act, 2017.
- b) As per Schedule II, Point no. 6(a), Works contract will be considered as "Supply of Services". So taxation aspects of HAM projects will be judged in the light of GST applicability for supply of services giving consideration to the relevant notifications and rules.
- c) In the HAM Model only 40% payments will be done to the customer during the construction period remaining 60% will be paid as annuity during the maintenance period. Separate contract will be there for maintenance of road between customer and contractor in which customer will pay an annual sum for such repairs and maintenance.
- d) During Construction period, ITC has been accumulated for 100% expenses but Output Liability is to be discharged only on 40%. So treatment of accumulated unadjusted ITC is a big concern.
- e) No GST is applicable on Annuity Payment. It means when payment of remaining 60% will be received post construction period, there will be no "Output Liability". Then how to adjust the unutilized ITC.
- f) Not certainly clear whether entire value will be considered as "Financial Assets" as defined under IND AS 32 or only 60% value will be considered as "Financial Assets".

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