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A Case Study On Profitability Analysis Of Vijayawada Tollway Private Ltd (Vtpl).

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Abstract: The economic development of any country road infrastructure plays a vital role. Originally public infrastructure like roads has been financing from central budgetary recourses. Because of revenue deficit state and central governments are unable to fund for construction of road infrastructure projects. To a given period of time,the private sector has been increased the financing and construction of road infra projects. The development of road infrastructure projects various forms of Public-Private Partnerships(PPPs) have been used extensively. For implementation of any infrastructure toll road projects financial feasibility or sustainability has been a leading issue. This case study is based on project financial risks at public-private partnership delivery, especially under a build operate transfer (BOT) model. The main purpose of this study is to undertake an integrated profitability appraisal of an existing PPP toll road project in the South Indian state of Andhra Pradesh by using the Cost-Benefit Analysis (CBA) method.

Keywords: Toll Road, Cost-Benefit Analysis, Infra Projects, Financing**.**

INTRODUCTION

The National Highway Authority of India (NHAI) granted a Letter of Intent to the consortium of IJM Infrastructure Ltd and Gayatri Projects Limited joint endeavor (JV) for the improvement, activity and support and reinforcing of the current 2-lanefrom Km. 355.000 to Km. 434.150 length 82.5 km thruway and augmenting it to a 4-path National Highway between Vijayawada – Chilakalutipet in the territory of Andhra Pradesh on Build-Operate and Transfer (BOT-Toll) premise on DBFO (Design Build Finance and Operate) Pattern Under NHDP(National Highways Development Project) Phase – V. The venture stretch interfaces the chronicled urban areas/towns of Chilakaluripet, Guntur and Vijayawada. The extent of the task included execution and execution by the organization of all plan, building, financing, obtainment, development, fruition, and support parts of the interstate. The venture was to be finished inside a time of 25 months from the date of the concession understanding. This task development was startsApril-2001 and finished by November-2002.Concession period was for 15 years(2001-2015), including the development time frame. For this reason, the Special Purpose Vehicle (SPV) was shaped for the sake of Vijayawada Tollway privateLtd (VTPL). The concession understanding was marked between the IJM-Gayatri JV Company and NHAI.

Project Implementation Schedule

The primary achievements and the relating basic dates for the usage of the undertaking are summed up in the accompanying table 1.1.

Table 1.1Process and implementation Timeline of the Toll road project.

Particulars	Timeline
The signing of Concession Agreement	October 31, 2000
Financial Closure	January 30, 2001

Construction Commencement Date	April 01,2001
Construction Completion Date	November 30, 2002
Tolling Commencement Date	January 1, 2003
End of Concession Period	March 31, 2016

Source: IJM India, completed projects.

PPP structure of the project

The IJM Group in consortium with Gayatri ventures restricted was granted the task contract. A SPV with the name Vijayawada Tollway private Ltd (VTPL) was shaped for the execution of the task. The development (extension) of the street was started in the long stretch of April 2001 and finished in the period of November 2002, about following a three-month outreach occurred because of the slacking during the time spent giving over the land by NHAI. The expense of the whole undertaking was almost Rs. 175 crores.

The IJM – Gayatri had accomplished the undertaking contract so as to create, work, and furthermore to keep up the street for a 15 years concession period which again incorporates the development time of 20 months. A SPV - VTPL was framed for the executing technique of the venture in which the IJM bunch had a 75% stake whereasthe Gayatri Projects constrained had a 25% stake.

VTPL had likewise participated in a State Support Agreement that was dated in the long stretch of March 2001 with the Andhra Pradesh state and the NHAI, underneath which the Government had concurred for expanding the proceeded with help and furthermore to give certain rights, experts for the assistance, usage, and activity of the venture, which incorporates all infrastructural offices, pertinent authorizations, a devoted group of police staff, an interstate watch's and furthermore to by and large help the task execution systems.

VTPLwill have all the rightsregarding the cost income assortments and for exacting charges or remittance of some other sorts of advancements or for promoting choices out and about. The cost is considered as the main income source that is gotten from the venture for the designer. Howbeit, NHAI doesn't have any privilege for demanding and gathering cost or expense or allowing any ads.

The VTPL had likewise joined an activities and upkeep concurrence with the Gayatri Projects Limited (O&M Contractor) for working and keeping up and furthermore for taking the most extreme consideration for the venture. For giving the O&M offices VTPL had paid an O&M expense of Rs. 1.00 Crore every year though there is no occasional installment.

The O&M expense and the intermittent charge are heightened by 2% per annum, 1 year from the date of initiation of activities. Toward the finish of the concession time frame in March 2016, the concessionaire (VTPL) will handover the venture resources liberated from cost to NHAI.

Information about financing:

The authorized cost of the undertaking was Rs. 175 crores. The venture had accomplished a monetary end in the long stretch of January 30, 2001. The task was additionally supported on an obligation value proportion of 10:7.5. The segment of the term credit was around Rs. 90 crores, though the non-convertible debentures part was Rs. 10 crores and the value segment was Rs.75 crores. Out of this value capital, IJM gives the 52.50 crores, which is equivalent to 70%and remaining gives by Gayatri ventures restricted i.e., 22.50 crores, which is equivalent to 30%.The point by point capital structure is clarified beneath table 1.2.

Table 1.2 Detailed capital structure of the project

Particulars	Amount in crores	Capital structure in %
Debt Component	90crores Term loan 10crores Debentures	57.15%
Equity component	75 crores equity	42.85%
Total	175 Crores	100%

Source: PPP Toolkit, Government of India.

SBI Bank was the lead banker and the loaning consortium incorporated a few open part banks, for example, State Bank of Hyderabad, Union Bank of India, Indian Overseas Bank, Punjab National Bank, UCO Bank, Punjab National Bank, and the Industrial Investment Bank of India. The normal expansion of the credit was

gone from 11.5% to 12.05%. What's more, the residency of the credit was about 13 years, and furthermore incorporates a development time of 20 months.
The value subsidizing for the undertaking was started through the issue of inclination shares. In July 2001, the VTPLhad raised further obligation of measure of Rs.100 crores from a consortium of loan specialists by the securitization of things to come cost receivables over a time of thirteen years and gathering resources of IJM restricted and Gayatri ventures constrained. These assets were raised at an expense of 11.58%, which is 5% more noteworthy than the expense of general obligation instruments.
VTPL named a turnkey contractual worker for the advancement of the venture. The temporary worker was a partner of Gayatri ventures constrained. The development of the street began in April 2001 and finished in November 2002 after a threemonth invade because of postponements in giving over of land by NHAI. According to the concession understanding, NHAI consented to grant an augmentation of 90 days to the beginning date to remunerate against the loss of time for postponed hand over of venture land. The real expense of the undertaking was in the end Rs.175 crores as against a visualized venture costing for Rs. 192.5 crores.The quote for works and oversight of the chose choice depends on definite structure, as the works offered. The land buy was completely finished. The quote depended on steady prices of the 2000 year (Base year).

Table 1.3 Cost estimates of the Annuity road project.

Investment cost component	**Total cost (Rs.Crores)**
Design & Planning cost with technical support	**1.3**
Purchase cost of Land	**5.8**
Construction cost :	**164.42**
Soil works	2.75
Work cost of Vegetation	1.95
Road construction cost	128.15
Bridge construction cost	24.0
Cost of various safety barriers	1.38
General utilities cost	2.03
Pathway information system cost	1.23
Building construction cost	1.27
Other expenses	1.66
Plant and equipment cost	0
Advertisement cost :	**0.30**
Monitoring cost :	**3.18**
Total amount of investment without contingencies	**175**
Various contingencies (10% of construction cost)	17.5
Total cost with contingencies	192.5
Recoverable value added tax	25.46
Total invested cost with VAT	217.96

Source: IJM India, completed projects.
The complete venture speculation cost appeared in the table above 1.3 is viewed as qualified with the exception of the VAT, which is recoverable. Assessments incorporate all expenses brought about for arranging at the

practicality stage and during the usage time of the undertaking, while the expense of every single primer movement (pre-plausibility examines, reviews did before the possibility study) are treated as a sunk expense and are hence excluded. The cost from cargo vehicles is gathered for the benefit of the NHAI by a cost assortment organization VTPL, through the previous electronic cost assortment framework dependent on a mix of GSM innovation. There is no physical venture important to expand the ringing on new areas, the motorway administrator pays an expense for each cost exchange made on his street and gets the gathered cost.

Revenue of the project

This project is having the only source for revenue that is tool collection. A toll is collected from goods vehicles and all four-wheelers: for light products vehicles (counting vehicles) RS 0.30/km; for substantial merchandise vehicles RS 0.50/km. The accepted portion of light merchandise vehicles (counting transports) is 58 %, for overwhelming products vehicles it is 42 %.

Financial and Economic Analysis

The investigation is performed utilizing a 12-year reference time of Chilakaluripet - Vijayawada National Highway Toll street venture which is from 2003 to 2014. The money related and monetary investigations have been to utilize steady costs. A genuine markdown pace of 4.0 % is utilized in the budgetary computations, while a 5.0 % social rebate rate is utilized in the monetary examination, in accordance with the money related organization wide benchmark set by the Reserve Bank of India. Tank is reimbursable and accordingly prohibited from the investigation.

Table 1.4 calculation of co-financing rate (Debt) of the annuity road project.

Particulars		Amount	**2001**	**2002**	**2003**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**	**13**	**14**
		Construction			**Operation**											
Investment Cost (Excluding contingencies)	crores	175	95.7	79.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIGIBLE COST (EC)	crores	175														
CO-FINANCING RATE (CF)		57.14%														
Financial Institutions Debt grant	crores	100														

Source: IJM India financial statements, completed projects.

The above table 1.4 explains the co-financing rate (Debt) of the toll road project. This project's total eligible cost excluding contingencies was Rs.175 crores. Out of this eligible cost,this toll road project gets the debt grant of Rs.100 crores by financial institutions. It is exactly 57.14% ofthe total eligible cost.

Table 1.5 Profitability Analysis of the Annuity road Project.

Particulars	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Net Toll Revenue	10.75	12.39	14.66	15.82	16.49	20.83	24.92	31.48	39.73	45.84	48.82	56.36
Less: O&M and other expenses	1.95	2.19	2.98	3.01	3.57	3.82	4.64	5.28	4.81	3.17	3.82	3.10
PBDIT	8.80	10.20	11.68	12.81	12.92	17.01	20.28	26.2	34.92	42.67	45.00	53.26
Less: Depreciation	10.98	10.98	10.98	10.98	10.98	10.98	10.98	10.98	10.98	10.98	10.98	10.98
Less: Interest on Debt	11.95	11.95	11.95	11.95	11.95	11.95	11.95	11.95	11.95	11.95	11.95	11.95
PBT	-14.13	-12.73	-11.25	-10.12	-10.01	-5.92	-2.65	3.27	11.99	19.74	22.07	30.33
Less: Tax	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PAT	-14.13	-12.73	-11.25	-10.12	-10.01	-5.92	-2.65	3.27	11.99	19.74	22.07	30.33

Cumulative profit after tax	-14.13	-26.86	-38.11	-48.23	-58.24	-64.16	-66.81	-63.54	-51.55	-31.81	-9.74	20.59

Source: Financial statements, VTPL.
Above table 1.5explains the profitability analysis of the toll road project. This analysis has been measured based on the actual yearly expenses spend by the project deductedfrom actual toll collections of the project between 2003 to 2014 years. The above analysis shows that the toll road project earned the net profit of Rs20.59 crores by the year ending of 2014 which is 15 months before the completion of the concession period.

Table 1.6 Calculation of IRR and Cost of the capital.

Particulars	**2001**	**2002**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**	**13**	**14**
Total cash Outflows	95.7	79.3												
PBDIT			8.80	10.20	11.68	12.81	12.92	17.01	20.28	26.2	34.92	42.67	45.00	53.26
Net cash Inflows	-95.7	-79.3	8.80	10.20	11.68	12.81	12.92	17.01	20.28	26.2	34.92	42.67	45.00	53.26
IRR of the Project	12.97%													
Cost of the capital	11.38%													

Source: Financial statements, VTPL.
In the above table 1.6 shows the IRR and cost of capital estimations dependent on the incomes produced from the genuine cost assortments and afterward it is contrasted and the all out speculation of the undertaking. Further the IRR is contrasted with the expense of capital with measure the money related allure of the venture. The expressway venture hasa higher IRR than the expense of capital. Here we can see that the IRR of the undertaking is 12.97% which is more prominent than the expense of capital of the task which remains at 11.38%. Thus, we can decide that the task is having the 20.59 crores benefit constantly end of 2014.

Table1.7 Calculation of Debt Service Coverage ratio of Annuity road project

Particulars	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
PBDIT	8.80	10.20	11.68	12.81	12.92	17.01	20.28	26.2	34.92	42.67	45.00	53.26
Add: Additional inflows to unsecured loans	4.25	3.76	1.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sub -total	13.05	13.96	12.76	12.81	12.92	17.01	20.28	26.2	34.92	42.67	45.00	53.26
Total Debt repayment on loans	11.95	11.95	11.95	11.95	11.95	11.95	11.95	11.95	11.95	11.95	11.95	11.95
DCSR for the loan	1.09	1.16	1.06	1.07	1.08	1.42	1.69	2.19	2.92	3.57	3.76	4.45

Source: Financial statements, VTPL.
Above table 1.7measures the obligation installment capacity of the venture by ascertaining the DSCR for example Obligation Service Coverage Ratio. It alludes to the measure of income accessible to meet yearly intrigue and head installments on obligation, including sinking store installments. This proportion ought to preferably be more than 1. That would mean this venture is creating enough salary to pay its obligation commitments. On the off chance that DSCR is under 1, at that point it would mean a negative income. When all is said in done, DSCR = Net Operating Income/Total Debt reimbursement. As should be obvious that in the wake of making important figurings the Average DSCR comes to 2.12, which is more noteworthy than 1, in this way, we can infer that this expressway venture is agreeable in installment of obligations.

Table 1.8 Calculation of Sensitivity Analysis of Annuity Road Project

Particulars	Option-1 (Actual or existing)	Option-2 (10% Increase in Debt)	Option-3 (20% Increase in Debt)

Debt capital in %	57.15%	67.15%	77.15%
Equity capital in %	42.85%	32.85%	22.85%
Debt Amount in Crores	100	117.51	135.01
Equity Amount in Crores	75	57.49	39.99
Project IRR in %	12.97%	12.05%	11.91%
Cost of Capital in %	11.38%	12.52%	13.87%
Avg.DSCR	2.12	1.31	0.91

Source: Investment Information & Credit rating Agency (ICRA) reports.
The above table 1.8explains the sensitivity analysis of the project towards proportionate of change happened in the existing capital structure. The existing capital structure of the project explained in option-1 after it is compared with the remaining options considering by the unit change in the capital structure. If the debt is increased by the 10% (Debt equity ratio is 67.15:32.85) from the existing capital structure the project IRR will be decreased by 12.05% from 12.97% and the cost of capital will be increased by 12.52% from 11.38%. If the debt is increased by the 20% (Debt equity ratio is 77.15: 22.85) from the existing capital structure the project IRR will be decreased by 11.91% from 12.97% and the cost of capital will be increased by 13.87% from 11.38%.

Key Observation:
The ordinary mode ofFunding& low amount of debenture capital
During the development stage, VTPL raised obligation at an exceptionally high-loan cost by securitizing the cost income receivable from VTPL. This method of financing empowered the concessionaire to reimburse the term advance and gave access to generally significant expense subsidizing. In the total debt capital proportion of debenture,the capital was low.

Findings:
It has been identified that the VTPLreported continuous losses from 2005 to 2011 and started earning profits in later stages. VTPL went up in profits from Rs 3.27 crores in 2012 to Rs30.33 crores in 2016. The losses up to 2011 can be ascribedto the burden of high interest, also leading to shrinking revenues. VTPL moved on to earn profits in later yearsdue to less interest burden and high revenue.
It is observed that VTPL's DSCR is greater than one (>1) during the entire study period and it varied between 1.06 (2007) and 4.45 (2016). It is also seen that the DSCR of VTPL steeply increased from 2010 to 2016. It is also observed that the VTPL approximately cover its debt service obligations with current operating income. During the study period, this project isn't confronting any hard to meet yearly interest and payments on debt.
It has been observed that at the debt-equity ratio of 1.33:1(i.e. 57.15% of debt and 42.85% equity), VTPL's IRR stands at12.97%. If the debt capital is decreased by 5% (i.e. 50% debt and 50% of equity) the project's IRR would be decreased to 12.42% from 12.97%. Contrary to this, if the debt-equity ratio is increased to 3.37:1(i.e. 77.15% debt and 22.85% equity), the project IRR would see a better and stable increase to13.94%.

Suggestions:
VTPL's IRR at 12.97% can be reasoned out as due to the low debt-equity ratio of 1.33:1. To increase the IRR, it is recommended to increase the debt-equity ratio to 3.37:1(i.e. 77.15% debt and 22.85% equity). It is also suggested that VTPL can increase the debt capital by issuing the convertible debentures at a less interest rate of 11.5% than the term loan.
It is also suggested that VTPL can introduce time- differentiated toll rates for users in the place of constant toll rate throughout the day; which is helpful to increase the toll revenues.

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