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Failure of Operational PPP Projects in India Leading to Private Developer's Apathy to Participate in Future Projects: A Case Study Based Analysis

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Abstract
The goal of this study is to examine the failure of operational public-private partnership (PPP) infrastructure projects in India. The case study based analysis is done of eleven operational PPP projects from infrastructure subsectors like roads, metro rail, seaports, and power projects to investigate various risks faced during the life cycle of projects. The construction risks like land acquisition delay, change in scope, delay in financial closure resulting in time and cost overrun, revenue risk of not getting adequate revenue during operation phase and legal disputes between the authority and the concessionaire are prominent risks observed in these projects. Mitigating these risks through efficient life cycle contract management and appropriate allocation of risk creates adequate risk-adjusted financial returns to the private developers and value for money for the government. The study concludes that failure in contract and risk management in case of the majority of operational projects resulting in disappointing financial returns is the major reason for the private developer's apathy towards participation in a once successful PPP program in India.

Keywords: PPP Projects in India, Financial Returns, Contract and Risk Management, Value for Money, Sponsor Risk, Dispute Risk.

1. Introduction
Before the advent of PPP, the government provided infrastructure services in India through public procurement, financed by the government budget. The PPP model was introduced in India in the year 1999 with great enthusiasm and expectations. A large number of concessions were signed in all the subsectors of infrastructure. By 2010, India became one of the largest markets of PPP projects in India, according to Infra scope Report 2015. But after 2015 onward, the number of PPP projects reduced drastically. A large number of already started projects were delayed, stalled, and terminated. The data analysis from the government database (www.pppindia.gov.in) suggests that only 48% of PPP projects were operational out of 1500 PPP projects initiated during the last two decades. Even the operational projects disappointed the private developers due to its failure in providing adequate financial returns which made them shying away from participating in PPP projects and even the lenders had restrained themselves from lending to PPP projects. All this resulted in zero participation by private developers in the year 2019 even if the government's desire to initiate new PPP projects. The objective of this research is to do the case studies based empirical study of operational PPP projects in India to understand the underlying economic, financial and institutional constraints faced by PPP projects and their life-long contract and risk management and to investigate the causes of the private developer's apathy toward participation in PPP program which makes once successful PPP program comes to standstill.

The rest of the paper is structured as follows. The first section proposes a review of the literature on the relationship between financial success and risk and contract management of PPP projects. The second part describes the research design and applied methodologies. The third part discusses case studies. Finally, the last section summarizes the main findings.

2. Literature Review
The modern theory of incomplete contracts is discussed by Grossman and Hart (1986) and Hart and Moore (1990). In classic Principal-Agent theory, contracts are assumed to be complete as contingencies are expected for all states. In case of incomplete contracts, information is asymmetric leading to problems such as the moral hazard and adverse selection. A moral hazard problem occurs when the agent's action cannot be verified, or when the agent receives private information after the relationship is established. In the case of informational asymmetry, the principal cannot check and control the actions of

the agent after signing of the contract. An adverse Selection happens as the agent possesses private information before the contract is signed. The PPPs are long term contracts wherein anticipating every contingency affecting the relationship over the contract period is impossible and even if all contingencies could be predictable, it will be costly to include all that in the contract. Hence the PPP contracts are incomplete. The renegotiations occur due to the incomplete nature of contracts (Grout, 1997; Bettignies & Ross, 2004).

The incomplete contract theory described in detail by Grossman and Hart (1986), Hart and Moore (1990), Hart 1995) is used for the analysis of contract design and risk transfer in PPPs. The complexity in contracts results in contractual incompleteness leading to underinvestment in projects due to the threat of ex-post hold-up. Grossman and Hart (1986), and Hart and Moore (1990) discuss asset ownership which gives residual rights of control over assets. Asset ownership motivates agents to invest due to the bargaining power ex-post since they retain control over assets they own in case of dispute and thus higher financial return on their investment.

In PPP contracts, sharing of project risks among stakeholders is significant for the success of projects. The initial allocation of risk among the partners should be managed over the whole life of the project and modified when unforeseen risks arise ensuring that all partners would manage the risks effectively (Chan, Yeung, Yu, Wang, & Ke, 2011). The basis of achieving higher efficiency in a PPP project is to pass on the risk to the partner who can handle it effectively (Irwin, 2007). The project team should monitor the situation, balance the expectations of all stakeholders, and initiate proactive communication with all partners to ensure the success of the project. The inefficient monitoring of the contracts and failure in the contractual obligations results in loss of trust resulting in court cases reducing the intended public benefits and value for money for the government. Hence Sound contract management is crucial for the success of a PPP (Grimsey & Lewis, 2004).

The government entity transfers risks to the private sector as they are experts, technically competent, and experienced in managing complicated projects (Cheung, Chan, & Kajewski, 2012). The private partner manages and sufficiently price the risks assigned to them and the public authority mitigates risks that cannot be assigned to the private partner (Cheung, et al 2012; Zhang, 2005). The allocation of risks among the stakeholders and associated compensation is decided and contracted during the project development and procurement phase (Abd Karim, 2011).

The private sector investors prefer to invest in PPP projects wherein revenue risk is mitigated through certainty of the cash flow to cover the project's construction cost and generates the risk-adjusted returns while the government attempts to lower the cost of building infrastructure by transferring some of the risks to a private party (Grimsey & Lewis, 2004). The risk should be managed on the project life cycle basis by identifying risks in the initial stages of the project and proactively managing them by the partner who can control and manage them continuously (Zou, Wang, & Fang, 2008). In the Indian context, Indian authors Baruah and Kakati (2016), Laksmanan (2008), Mathur (2017), Pai, Patnaik, Mittal, and Anand (2018), Rajeswari (2014), Gupta (2015), Iyer and Zha (2006), Pathan and Pimpalkar (2013) have analyzed various issues of risks and contract management of Indian PPP projects like land acquisition delays, permission delays, disputes, litigations, and financially weak sponsors.

Based on a thorough review of existing literature following hypothesis is constructed and shall be tested in this study.

There is a positive relationship between operationally and financially successful PPP projects and their project lifelong efficient contract and risk management as PPP contracts are inherently incomplete due to a long time, substantial work to be provided, significant complexities, and high uncertainty of future events and occurrences.

3. Research Design

The conceptual model is developed based on the literature review. The data of all operational PPP projects in India is collected from government databases. Financially large projects with project cost more than USD 7m$ and having revenue history available for at least three years are selected for the study. A hypothetical financial model is developed to calculate the lifelong returns of the projects (PIRR and EIRR) based on which the projects are categories into the financially successful and failed projects. From each category information-rich cases selected to test the hypothesis.

3.1 The Conceptual Framework

The basic underlying economic theory for this study is the incomplete contract theory along with agency theory and property rights theory. The operational success of PPP projects depends on how various issues in PPP model such as adverse selection, moral hazard, asymmetry of information and hold up due to contract incompleteness and agency problems are addressed by project participants through the strong contract and risk management and ability to create value for money for the government, risk-adjusted returns for the private investors and creation of world-class infrastructure for the nation.

3.2 Hypothetical Financial Model

The Capital Asset Pricing Model (CAPM) of Sharpe (1964) is used to calculate the cost of equity, which is in line with the corporate financial theory to calculate financial returns on investment (Graham & Harvey, 2001; Treasury, 2012). The cost of debt is calculated by adding a risk premium to the yield of government security of the ten-year maturity of the year when financial closure of the project is achieved. Having got the cost of debt and the expected return on equity, the weighted average cost of capital (WACC) is calculated. The equity betas of listed infrastructure companies reflect the systemic risk of those companies. Hence, these betas are un-levered to calculate betas of an individual project as per their capital structure.

The WACC is used as the discount rate of the project. This is standard practice for evaluating PFI projects in the UK (National Audit Office, 2012). The model calculates the free cash flow of a project to calculate project IRR and free cash flow to equity to calculate equity IRR. In the case of Toll/fee-based projects, assumptions are made for growth in revenue and operational cost based on past available time-series data of the same project and other projects in the sector.

3.3 Case Study Based Analysis

The qualitative studies using case studies are often viewed by academia as "non-scientific" due to alleged subjectivity and difficulty in generalizing the results. But as Bent Flyover quotes, "A social science should be problem-driven and not methodology-driven and should apply methods to investigate the research problem." The case studies are used in this research to study the PPP model of building infrastructure within its real-life context while explaining the mechanism and outcome of PPP phenomena.

One single case study may blame as subjective since it disallows the use of analysis based on the comparison of multiple cases hence additional cases are selected till the point of redundancy. The case studies are selected based on the requirement of information needed to address every aspect of the research problem and how detailed analysis can be done at the level of each case. The cases containing useful insights in explaining the research problem, diversified with a high variation of causes, results, and contextual conditions of PPP phenomena and allow easy access to a large number of rich information are selected for the study. The case studies are selected by purposeful sampling method where an iterative approach of sampling and resampling is applied to draw an appropriate sample to make theoretical saturation based on the conceptual framework and addressing the research question for drawing clear inferences and credible explanations to generalize the conclusion of the study.

The cases are selected to achieve literal replication which takes place when at least two cases give similar results and theoretical replication when at least two cases give contrary results. A pattern-matching approach to describe two patterns, one closely fitting the research hypotheses and an alternative one constituting a rival explanation is used. Then research data are compared to both patterns to see which explanation matches the data better.

The basis of these case studies is a theoretical framework based on "Theory of incomplete contract" which guides the analysis and interpretation of the research topic. The quantitative data for case studies such as Project IRR is collected from a hypothetical financial model developed by author and qualitative data is collected through interviews, observations, newspaper articles, and the government official records. After analyzing individual case studies, the key findings and takeaways from all case studies are clubbed together connecting it back to the literature and theory and discussing how it fits into wider patterns or debates.

3.4 Sample Size and Sources of Data

Two cases from the category of financially successful operational PPP projects and nine cases from financially failed operational PPP projects are selected for this study. The data for the case study is collected from sources such as the annual report of the project sponsor companies and project SPVs, credit rating reports of project SPVs, corporate database Capital Line, Government of India's database of PPP projects www.ppinindia.gov.in,web sites of project authorities like NHAI, articles in periodicals and publications and filing by project sponsors on stock exchanges.

4. Case Study Analysis

CaseI: Mumbai International Airport Limited
(A case of financially successful operational PPP Airport project)

Contractual and Financial details of Mumbai International Airport Limited	
State	Maharashtra
Project Specification	International airport
Commercial Operation Date	February 2014
Concession Ending Month	May 2037
Project Cost in INR crore	12300
Credit rating	CRISL AA
PIRR	**13.00%**
EIRR	**9.00%**

- **Excellent Project economics reduce revenue risk:** The airport is strategically located in the heart of a key metro city, thereby attracting a strong flow of both domestic and international passengers. The attractive location and a large catchment area ensure strong traffic growth.
- **Strong Monitoring by Authority:** Efficient Supervision by The project authority, Airport Authority of India (AAI) with its board presence, for strategic decisions and related-party transactions.

- **Mitigation of bankruptcy risk: The** presence of an escrow account with a payment waterfall mechanism ensuring debt repayment on time. The cash flows are ring-fenced.
- **Key Take away:** The privatization of the Mumbai International Airport project is a success in the light of productive efficiency, the governance and financing of the airport. But significantly negative impact is observed on airlines and passengers due to higher charges.

Case 2: Mumbai Nasik Expressway PPP Road Project
(A case of financially successful operational PPP national Highway project)

Contractual and Financial details of Mumbai Nasik Expressway

State	Maharashtra
Project Specification	National Highway Road 100 km
Commercial Operation Date	May 2010
Concession Ending Month	April 2026
Project Cost in INR crore	770
Cost Overrun in %	15
Credit rating	ICRA AA
PIRR	**17.00%**
EIRR	**12.00%**

- **Time and Cost overrun mitigated by excellent toll revenue:** Even though the project delayed by 24 months and cost overrun of 15%, the project has given good financial returns due to excellent toll revenue during the operation phase.
- **The takeover of project By Brookfield from Initial sponsors:** Brookfield Asset Management Company acquired the Mumbai Nasik Expressway from initial sponsors Gammon Infra in 2015. The deal was part of the selling of a bunch of assets by debt-laden Gammon Infrastructure. The deal could happen because the cabinet committee on economic affairs permitted 100 percent equity divestment after two years of construction/completion for all BOT projects, irrespective of year of the award.
- **Key Takeaway: Various** Risks were observed during the life span of the project which resulted in cost and time overrun which impacted the economics of the project. Most of the risks were transferred to the concessionaire who managed the risks adequately due to sound toll revenue. The acquiring of this asset by Brookfield allows the debt-laden initial sponsor to offload its equity and the project is saved from bankruptcy.

Case 3: Mumbai Metro One Private Limited
(A case of financially failed operational PPP Metro Rail project)

Contractual and Financial details of Mumbai Metro One Pvt. Ltd.

State	Maharashtra
Project Specification	Metro Rail
Commercial Operation Date	June 2014
Concession Ending Month	May 2042
Project Cost in INR crore	3012
Cost Overrun in %	25
Credit rating	ICRD D
PIRR	**-4.00%**
EIRR	**-2.00%**

- **Time and cost overrun:** The project was delayed by 39 months due to frequent and substantial changes in project planning and timelines on account of uncontrollable factors such as a highly constrained Right of Way.
- **The dispute between the Concessionaire and project authority about fair fixation:** The High court of Bombay directed the constitution of the Fare Fixation Committee (FFC) for recommending the fare to be charged to passengers. The FFC recommended the metro fare in the range of INR 10 to INR 110.MMRDA challenged the recommendations of the FFC in the High court of Bombay to retain the fares as per the provisions of the

concession agreement. The High Court of Bombay set aside the recommendations of the FFC and allowed the company to continue with the present fare structure (INR10 to INR40).

- **The legal dispute between the concessionaire MMOPL and project authority MMRDA:** MMOPL has filed various claims against MMRDA on account of damages incurred due to delays by MMRDA in handing over of unencumbered Right of Way and land, and additional cost incurred due to various changes in design to accommodate project encumbrances. The number of claims filed against MMRDA as on March 31, 2019 aggregate INR 1,766.25 Crore. MMRDA has not accepted the said claims filed by MMOPL and hence MMOPL has initiated arbitration proceedings as per the provisions of the Concession Agreement.
- **The weak financial position of the Sponsor-Reliance Infrastructure Ltd.:** In June 2019, rating agency India Ratings downgraded the sponsor of the project Reliance Infrastructure's long-term rating to default grade. The Reliance group incurred a net loss of₹2,426.82 crores during the year ended 31 March 2019.
- **Bank loan classified as NPA:** The bank's loan of INR 2500 of MMOPL is classified as a non-performing asset (NPA) in 2018. The lead bank of the consortium Syndicate Bank is planning to seek legal advice for the resolution of its loans to MMOPL.
- **Material Uncertainty Related to Going Concern: The** auditors of MMOPL have commented on the material uncertainty related to going concerned in respect of MMOPL in their audit report.
- **Key takeaway: The** delay in the land acquisition had resulted in high time and cost overrun of the project during construction. The revenue of the project even though increasing every year but not sufficient enough to pay the interest and principal of the high debt taken which resulted in the lenders declaring the project as NPA. Due to a weak financial position, the sponsor Reliance Infrastructure Ltd. is not in a position to financially support the MMOPL. The dispute between the project authority and the concessionaire had added to the problems of the project.

Case study 4: IRB Surat Dahisar Tollway Pvt. Ltd.
(A case of financially failed operational PPP National Highway project)

Contractual and Financial details of IRB Surat Dahisar Tollway Pvt. Ltd.	
State	Maharashtra-and Gujarat
Project Specification	239 km road
Commercial Operation Date	Feb-09
Concession Ending Month	Apr-20
Project Cost in INR crore	2537
Cost Overrun in %	49
Credit rating	IND BBB+ stable
PIRR	**-0.10%**
EIRR	**-21%**

- **Time and Cost overrun: The** project observed cost overrun of 49% due to due to delay in handing over right of way by project authority NHAI which severely impacted the project economics.
- **Revenue Sharing Dispute: There** had been a dispute between the NHAI and the concessionaire over the sharing of the toll revenue. According to NHAI, the concessionaire was to pay over INR32 crore as part of its "revenue share", which the concessionaire was unwilling to do. As per the Concession Agreement, the concessionaire was supposed to share 38 percent of the revenue in the first year of the contract which would increase by a percent every year.
- **Key Takeaway: The** project has generated negative IRR both in terms of Project (PIRR) and Equity Investors (EIRR).The major risk the concessionaire observed was revenue risk which severely impacted its Equity Irate Company had lower-than-expected traffic growth and in turn, the toll collections subdued on the company's project stretch. The unrealistic traffic projections during the pre-bid stage phase of the project failed the project in terms of negative project IRR and Equity IRR.

Case 5: PNG Tollway Private Limited
(A case of Terminated National Highway Operational PPP project)

Contractual and Financial details of PNG Tollway Private Limited	
State	Maharashtra
Project Specification	60 km road
Commercial Operation Date	May-14

Concession Ending Month	March 2016 (Termination)
Project Cost in INR crore	840
Cost Overrun in %	25
Credit rating	ICRA D
PIRR	**NA**
EIRR	**NA**

The project had recorded weak toll traffic volumes since the achievement of partial COD in October 2012 due to local protests and diversion of traffic near Nasik. The protests had continued in the form of political agitations demanding stoppage of tolling for local users. Despite the Maharashtra state government being a party to the tripartite State Support Agreement, there was no support for additional security to toll plazas which would have aided full tolling. According to the Writ Petition filed by the project SPV, the Bombay High Court had directed the District Administration to ensure law and order at the Toll Plaza and on the Project Highway. The said Directions of the court had not been implemented by the District Administration and the project SPV was forced to continue offering the discounted rates. Further, given that the toll rates notified post the partial COD in Oct-2012 were at ~30% of the applicable rates, the average daily revenue collections were significantly weaker than the initial estimates. Even after the revision in toll in May 2014, the average daily revenue collections had witnessed a sizable deficit vis-à-vis company's initial forecasts. As a result, the company had stopped paying the committed revenue share to NHAI. The concessionaire faced a revenue loss of almost INR100 crore.

In March 2016 the concessionaire, the consortium of Ashoka Buildcon and L&T Infra served a termination notice to NHAI on the grounds of prevailing Force Majeure conditions in the absence of requisite State support citing "lack of State support" as a reason and the toll and maintenance operations was taken over by NHAI. In case the default is not cured and Termination notice is served, this is expected to be classified as an Indirect Political Event as per the Concession Agreement and the SPV will be eligible for termination payments to the extent of Debt Due & 110% of Adjusted Equity. In the event this is decided as an Authority Event of Default, the termination payment would be to the extent of Debt Due & 150% of Adjusted Equity. A payment of INR4.2b was made by the NHAI, which has been disputed and the same is under arbitration.

Case 6: L&T Halol Shamlaji Tollway Limited
(A case of terminated State Road operational PPP project)

Contractual and Financial details of L & T Halol Shamlaji Tollway	
State	Gujarat
Project Specification	173 km road
Commercial Operation Date	Apr-12
Concession Ending Month	September 2028
Project Cost in INR crore	1303
Cost Overrun in %	61%
Credit rating	ICRA D
PIRR	**NA**
EIRR	**NA**

Since the beginning of tolling operations, the traffic volume had been significantly lower than the initial estimates, due to the presence of a significant alternate route. This has resulted in lower-than-anticipated cash accruals. As per the concession agreement, the company has to share a part of the revenues generated from toll collections with the project authority Gujarat State Road Development Corporation Limited (GSRDCL). However, due to lower toll collections, the company was not able to pay the same.

The Government of Gujarat had exempted car/jeep/van/state transport buses from the toll on state highways starting August 15, 2016. It planned to compensate revenue loss incurred from such toll exemption by way of monthly reimbursements for exempted vehicles. The toll exemption resulted in disputes as the quantum of compensation was not agreeable to the concessionaires. The project SPV served a termination notice to GSRDC in April 2016. The lenders had converted part of the outstanding debt into equity, post which the lenders hold a 51% stake in the company.

Case 7: Ashoka Highways (Bhandara) Limited

(A case of financially failed National Highway Operational PPP project)

Contractual and Financial details of Ashoka Highways (Bhandara) Limited	
State	Maharashtra-Chhattisgarh
Project Specification	80 km road
Commercial Operation Date	Oct-10
Concession Ending Month	Sep-27
Project Cost in INR crore	535
Cost Overrun in %	2%
Credit rating	CRISL BBB+ (SO) Stable
PIRR	**1.00%**
EIRR	**-6.00%**

The project completed on time and within budgeted cost. During the construction phase, the project authority, National Highways Authority of India (NHAI) delinked the last stretch of 7.9 km which is 10% of the total stretch from the scope of work as it was in a forest area, with no clearances from the forest department which became a matter of dispute and arbitration. The concessionaire had received arbitration award aggregating INR 168.01 crores inclusive of interest and declaratory award against various claims filed by the concessionaire before NHAI in January 2019.

The commercial vehicles constituted a major portion of traffic on the road stretch along the Chhattisgarh-Maharashtra border but the traffic volume remained vulnerable to the slowdown in the economy. Traffic growth had been impacted in fiscal 2019 and 2020. Because of lower-than-expected traffic growth and in turn toll collections and subdued toll revenue growth on the project stretch throughput the operations phase. The 100% WPI-linked escalation in toll charges had limited the escalation in toll rates due to the prevailing lower inflation numbers.

Case 8: Tamil Nadu Dindigul Karur Expressways Limited

(A case of financially failed National Highway Operational PPP project)

Contractual and Financial details of Tamil Nadu Dindigul Karur Expressways Limited	
State	Tamilnadu
Project Specification	68k km road
Commercial Operation Date	Nov-09
Concession Ending Month	Oct-26
Project Cost in INR crore	374
Cost Overrun in %	25%
Credit rating	ICRA D
PIRR	**2.00%**
EIRR	**-1.00%**

The project had a time overrun of twelve months and a cost overrun of 24.66%. The project had WPI-linked escalations. The toll collections remained significantly below expectations when compared to initial projected levels. The toll collections remained weak and insufficient to meet overall expenses and debt servicing requirements. The continued underperformance of traffic had constrained the liquidity of the project SPV resulting in default (D) rating.

The concessionaire failed to carry out maintenance of the road due to lack of funds and had approached lenders in February 2018 to raise additional term loans to carry out major maintenance (MM) works. As per the concession agreement, the first major maintenance (MM) was scheduled to happen in November 2014 delayed by 53 months due to poor toll collections and MM had started in January 2019 with an estimated cost of INR 70 crores. The funding for the same was happening through the project cash flows as banks did not sanction additional term loan for MM. This had resulted in a pile-up of debt obligation thereby turning the account into NPA. NHAI had levied penalties of INR 109 crores for the delay in MM activity. The project SPV could not get support from the sponsor, Madhucon Projects Ltd due to a weak financial position. The credit rating agency ICRA had affirmed the default long-term rating of [ICRA] D of Madhucon Projects Limited.

Case 9: GMR Ambala Chandigarh Expressways Private Limited

(A case of financially failed National Highway Operational PPP project)

Contractual and Financial details of GMR Ambala Chandigarh Expressways	
State	Punjab
Project Specification	35 km road
Commercial Operation Date	Dec-08
Concession Ending Month	May-26
Project Cost in INR crore	610
Cost Overrun in %	104%
Credit rating	ICRA BB stable
PIRR	**-4.00%**
EIRR	**-7.00%**

The project had a time overrun of 18 months and a cost overrun of 104% which had severely impacted the economics of the project. The financials of the project SPV were constrained by the significantly lower-than-originally-envisaged toll collection in the project which had resulted in credit risk and dependence on promoter/Group support. The traffic on the project stretch post completion was significantly lower than initially envisaged due to the diversion of traffic to alternate routes. The sponsor GMR Group supported the project by way of fund infusion in the form of preference shares and unsecured loans. Further, the Group supported the funding of the periodic maintenance expenditure.

In February 2010, the project SPV claimed compensation from NHAI on account of losses due to traffic diversion to alternate routes and invoked the arbitration clause in the concession agreement for the same. The arbitration tribunal was formed to resolve the dispute. A prolonged delay in realization of the compensation harmed the company's liquidity and credit metrics as the debt repayments are scheduled to increase sharply from FY2022 onwards.

Restructuring of term loans in FY2016 helped to ease cash flow pressure over the medium term but the company's cash flows remained insufficient to fund its major maintenance expenses in FY2019. This too is being supported by extension of credit from the sponsor GMR Infrastructure.

Case 10: Karaikal Port Private Limited

(A case of financially failed State-owned Operational Sea Port PPP project)

Contractual and Financial details of Karaikal Port Private Limited	
State	Puducherry
Project Specification	173 km road
Commercial Operation Date	Apr-09
Concession Ending Month	Feb-42
Project Cost in INR crore	2066
Cost Overrun in %	11.66%
Credit rating	ICRA D
PIRR	**-2.00%**
EIRR	**-7.00%**

After getting commissioned in 2009, the port ran into rough weather and struggled to service its debt. The project SPV's term loan was restructured in FY13 with a two-year moratorium. The loans of the port were sold to Edelweiss ARC which currently holds over 95% of the port's outstanding debt. Edelweiss has converted part of the outstanding loan (interest haircut that it took) into equity and now holds around 11 percent stake in the company. Armed with equity stake and majority debt, the asset reconstruction company in September 2017 had taken over the day-to-day operations of the port from the sponsor Marg Ltd.

As per the original concession agreement signed between the initial sponsor and the state government of Puducherry, the former is required to maintain a minimum 26% stake in the project. A change in ownership can be implemented only if the current promoter agrees to exit the project through a substitution agreement duly ratified by the Pondicherry government.

Case 11: Coastal Gujarat Power Limited (Tata Mundra UMPP)

(A case of financially failed operational PPP Ultra mega power project)

Contractual and Financial details of Coastal Gujarat Power Limited	
State	Gujarat
Project Specification	173 km road
Commercial Operation Date	Mar-12
Concession Ending Month	Apr-32
Project Cost in INR crore	12000
Cost Overrun in %	15
Credit rating	CRISIL D
PIRR	**-18%**
EIRR	**-22 %**

Tata Mundra is the first Ultra Mega Power Projects (UMPP) commissioned in India. It has a total installed capacity of 4,000 megawatts. The Project was awarded to Tata Power Ltd on 24th April 2007. The three 800 MW Units were commissioned in 2012. The coal for the project was contracted to source from Indonesia mines. The tariff consisted of 55% non-escalable and 45% escalable fuel cost. In the year 2013 coal prices spiked internationally. The actual increase in coal prices was 150% to $120 from $50 at the time of the bid. It is against this background that the concessionaire requested the Central as well as the State Governments of the procuring states to look into the issues of imported fuels and resolved the issue by review of the PPAs to ensure the viability of the project. The project SPV CGPL had filed a petition with the CERC seeking intervention to establish an appropriate mechanism to offset in tariff the adverse impact of the unforeseen escalation in the imported coal price.

CGPL in its submissions to CERC and APTEL had said that if a compensatory tariff were not awarded the project would lose INR 1,873 crores a year, totaling INR 47,500 crores over its entire 25-year period of expected operation. In 2014, the CERC had awarded compensatory tariffs to CGP. The compensatory tariffs awarded amounted to INR 0.52 per unit for CGP. The award was challenged before APTEL by the discoms. APTEL then ruled that while some compensation was due to CGPL, the legal basis on which the CERC had awarded this was invalid. The order by the Supreme Court, by setting aside the APTEL ruling effectively also set aside the CERC award. The Supreme Court's order implied a huge earnings setback for CGPL. The court order results in a yearly loss of INR800 - INR1000 crores, if the company continues running their power-producing units at the minimum plant load factor, that is, at the minimum level needed for the plant to stay operational. The fact that the Supreme Court set aside the CERC award increases the probability of power plant at Mundra becoming economically unviable.

5. Discussion and Findings

Based on the analysis of two financially successful and nine financially failed project, following risks and contract management related issues are observed in Indian PPP projects;

5.1 Construction Risk and Time and Cost Overrun

In the case of failed operational projects, the key execution challenges during construction were the acquisition of land and right of way, securing necessary clearances, and financial closure. As per model concession agreements, it was the responsibility of the government authority to hand over the required land and right of way to the concessionaire, failure of which resulted in the time and cost overrun of the projects. India is a federal state where land is a common subject for the central and state governments. It is the responsibility of the state government to make available land to central government projects. But there had been incidences where state authorities had not cooperated proactively to make available land or resolved land-related issues.

As observed in the case of Mumbai metro rail and national highway projects, the concessionaire received delayed Right of Way to complete the construction work. A project's inability to acquire all statutory clearances before the commencement of construction activity resulted in construction risk and delay in the completion of the projects. In case of cost overrun, the private developer has to arrange the additional funds which severely impacted the financial returns of the developer and discourage them to participate in future projects.

5.2 Revenue Risk

The major risk observed in the case of most of the failed projects is lower-than-expected traffic growth and in turn, subdued toll/fee collections during the operation phase. The unrealistic traffic projections during the pre-bid stage phase of the project were the cause of this debacle. Although optimism bias is a common phenomenon in most public projects, it is essential to be realistic in assessing the market risk of a project as traffic projection is the key input in projecting tariff during operation has and it is directly linked to the revenues against which project cost and final returns are decided. In the absence of robust project preparation, many projects observed to face revenue risk. Proper attention was not given to the projection of traffic volume.

5.3 Financially Weak Sponsor Risk

The financial strength of the sponsor is critical during financial closure and construction when the cost of the projects overshoots. It is observed that the financially weak sponsor could not support the project SPV in the time of need. Due to aggressive and inadvertent bidding without adequate due diligence in the quest for grabbing the project and subsequent time and cost overrun issues, the balance sheet of sponsor construction companies having a large portfolio of PPP projects became highly stressed. As a result, they failed in funding the mismatched cash flow and equity during construction due to cost overrun and during the operational phase when the revenue of SPVs was insufficient even to carry out major maintenance work as in the case of Dindigul expressway and Mumbai Metro rail project.

5.4 Legal Dispute Risk

The concession agreement enumerates various events like political, indirect political, non-political force majeure event, and the concessionaire event of default which triggers the termination of the concession agreement by both the project authority and the concessionaire. The prominent cause of the terminations of the operational projects like PNG Tollway and L&T Halol state road project was a dispute between the project authority and the concessionaire.

The PPP contracts based on model concession agreements were very rigid and lacked provision to change as per market conditions. Due to long tenure of 20-30 years and a lot of contingencies that cannot be expected ex-ante while designing the contract, PPP contract is an incomplete contract where provision for dealing with all the contingencies in all the states of the world cannot be included. When the emergency occurs which is not defined in the contract, the question arises who and how will deal with that issue and who will bear the cost of managing the issue. Since there was no provision in the PPP contracts for renegotiation and due to fear of blame of a moral hazard, nobody including the contract management team decided to deal with the issues. This resulted in a delay in the projects, cost overrun, and ultimately financial failure of the projects.

5.5 Regulatory Risk

Since a PPP project has a long concession period, an independent regulator is needed to balance the interests between the public authority and the private partner. There is no such independent regulator for the Highway road sector which results in disputes, arbitration, and court cases between NHAI which is an implementation agency and the private concessionaires. As a result, NHAI did not receive any bid for its PPP road projects from the private developers in FY2020. As observed in the case of the Mumbai Airport project, the private operators must be regulated in terms of tariff and other charges to safeguard the stakeholders like passengers and airlines.

6. Conclusion

The case studies based analysis of operational PPP projects reveled in the fact that various risks had emerged and could not be mitigated in many projects in the absence of sound institutional, contractual and risk management framework culminating into negative risk-adjusted returns to the private investors (EIRR) and negative returns to all project stakeholders (PIRR) resulting into depleted value for the money. As a result of the disappointing performance of PPP projects, private developers who earlier enthusiastically participated in the PPP program of building the much-needed infrastructure in India stayed away from it and PPP model in India come to standstill. The results of the study support the research hypothesis that there is a positive relationship between operationally and financially successful PPP projects and their project lifelong efficient contract and risk management as PPP contracts are inherently incomplete due to a long time, substantial work to be provided, significant complexities and high uncertainty about future events and occurrences.

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