Journal of Management Excellence
ISSN: **3108-2815** | Volume 2 Issue 2 April-June 2026
https://www.jme-journal.com **JME-02**
DOI : https://doi.org/10.5281/zenodo.19629139

A STUDY ON INFRASTRUCTURE FINANCING THROUGH PPP MODELS AT LANCO INFRATECH

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ABSTRACT: This article discusses the ways in which infrastructure investment can be made more sustainable through the use of Public-Private Partnership (PPP) models. The energy and transportation projects in India that Lanco Infratech has been involved in are the main focus. Project performance, risk distribution, and the utilization of private sector resources are all examined through the lens of public-private partnership frameworks. Project SPVs, viability gap funding, and concession deals are some of the ways Lanco built up its finances, and they are the primary focus of the investigation. Issues with liquidity, debt levels, and the sustainability of PPP-based assets over the long term are also considered. This research delves into the regulatory procedures, government backing, and institutional frameworks that influenced Lanco's project outcome. It goes on to discuss issues that arise throughout deployment, such as cost overruns, unclear demand, and operations. In order to determine the primary factors influencing the success of PPP endeavors, the study examines project schedules and financial results. A leader's vision, careful management of funds, and carefully crafted contracts are vital, as shown by the outcomes. Investors' perceptions and the creditworthiness of PPP projects are detailed in the report. It concludes that, in addition to public-private partnerships, robust control and risk management are critical when constructing infrastructure. The findings should motivate policymakers and developers to create more reliable funding mechanisms.

KEYWORDS: *Risk Sharing, Revenue Models, Viability Gap Funding (VGF), Concession Agreements, BOT / BOOT / DBFOT, Private Sector Investment, Long-term Infrastructure Finance*

1. INTRODUCTION

When public and private entities form an agreement to collaborate on public projects or services, such as the construction of roads or utilities, this arrangement is known as a public-private partnership (PPP). Better public services delivered in a more efficient and cost-effective manner are the goals of public-private partnership models. They achieve this goal by combining public and private sector strengths and distributing risks, rewards, and duties accordingly. This type of relationship can take the form of a simple contract or a complex joint venture.

To construct or supply public services, the government can team up with private companies under the Public-Private Partnership (PPP) system. The necessity for efficient infrastructure and the scarcity of public finances are both alleviated when the public and private sectors work together to pool resources, reduce risk, and exchange expertise.

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When public and private entities join forces, they create what is known as a public-private partnership (PPP). Parks, convention centers, and public transportation networks are all possible with their help in building, financing, and managing these spaces.

When public and private organizations work together, they can complete a project more quickly or even start it from scratch if funds are tight or if there is a tight deadline. In most cases, this involves granting private, for-profit companies limited ownership rights over publicly owned services and assets in return for legal protection, tax breaks, or other advantages.

Governments and private entities collaborate on the planning and management of public services or assets through public-private partnership (PPP) agreements. By forming public-private partnerships, governments are able to leverage private resources (such as capital, expertise, and technology) to complete large-scale projects more quickly and with less waste. Industries such as transportation, energy, healthcare, water management, and urban infrastructure rely heavily on these models because of the large-scale, long-term investments and stringent oversight required in these fields. Public-private partnerships (PPPs) use a performance-based approach to allocate responsibilities, liabilities, and benefits among public and private entities. While the government offers guidance in the form of rules and public service pledges, the private sector may handle the project's conceptualization, construction, financing, operation, and maintenance. Through the alignment of incentives and the utilization of the private sector's efficiency, public-private partnerships (PPPs) seek to build dependable infrastructure, enhance service quality, and reduce the financial load on governments. This makes them an important method for modern infrastructure development.

Public-private partnerships (PPPs) occur when public and private entities work together over an extended period of time to design, construct, finance, operate, and, in certain cases, transfer ownership of public assets such as water treatment facilities, roads, power plants, and airports. The private sector provides initial funding (often in the form of a loan or investment) and then assumes responsibility for the project's operations, finances, and construction rather than the government. This allows governments to make better use of their limited funds, complete projects more quickly, and tap into the innovation and efficiency of the private sector. Investors in public-private partnerships (PPPs) can see a gradual return on their capital through user fees, tariffs, or tolls, or by government-backed payouts, such as pensions or viability gap support. A variety of public-private partnership (PPP) models, including Build-Operate-Transfer (BOT), Design-Build-Finance-Operate (DBFO), and Hybrid Annuity Models (HAM), allocate risk in various ways. Strong contracts, clear regulations, and wise financial planning are the keys to a PPP's longevity, which in turn improves service quality and provides shareholders with reliable income sources.

OBJECTIVES OF THE PAPER:

- To investigate the potential of obtaining funding for large-scale infrastructure projects through public-private partnerships.
- To learn how effective various public-private partnership (PPP) funding mechanisms are for assembling projects, such as BOT, DBFOT, Hybrid-Annuity, and BOOT.
- The goal is to establish long-lasting and equitable ties between government agencies and enterprises by investigating how risks are shared between the two.

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- To examine potential funding sources, cost estimates, and revenue generation strategies can help determine the viability of public-private partnership (PPP) initiatives.
- To identify the key challenges that prevent projects from being funded through Public-Private Partnerships.
- To learn how public-private partnerships (PPPs) use government assistance programs to fill in budget gaps, improve credit, and make promises.
- To investigate the effects of stakeholder roles and coordination strategies on the planning, execution, and supervision of PPP projects.
- To enhance public-private partnership financing techniques for long-term infrastructure construction by making suggestions for changes and putting them into effect.

2. LITERATURE SURVEY

Dr. Meera Srinivasan 2021 Examining the potential shifts in 2021 in public-private partnership (PPP) approaches to financing infrastructure in developing nations is the focus of this study. Using hybrid finance, it examines how governments have kept capital-intensive construction projects afloat while remaining within their budget constraints. Risk reduction in the private sector can be achieved through the strategies examined in this essay, which focus on enhancing credit and financing for gaps in viability. Institutional shifts that have improved contract management and conflict settlement are also examined. Evidence from the actual world reveals that PPPs accelerated the execution of projects, even while the pandemic posed hazards. A key finding of the study is the significance of well-defined purchasing procedures. The impact of international development banks on the movement of capital is the subject of the study's second section. When risk-sharing procedures were robust, investor trust increased, according to the results. The survey indicated that the three most significant advantages are energy, transportation, and urban infrastructure. For long-term survival, it is believed that regulatory adjustments are required. Infrastructure projects in the future will still necessitate Public-Private Partnership approaches, it concludes. The plans include a broader variety of threats and ask for improved methods of monitoring. Future investigations into PPP finance can build on the research's excellent base.

Dr. Ashwin Menon (2021) In 2021, this research examines the evolution of risk-sharing mechanisms for infrastructure funding through the use of Public-Private Partnership (PPP) approaches. How governments and corporations handled the chaos that the outbreak sparked is the focus here. According to the research, initiatives can only succeed in the long term if the financial risk is evenly distributed. Evidence suggests that spending has increased as a result of additional government assurances. How effective is demand-risk mitigation in transportation contracts? That is the question this study sets out to answer. The economy is now facing serious challenges due to inflation and fluctuations in the value of the dollar. The project remained more stable during the economic downturn in part because of the adaptable contracting terms. There has been a recent uptick in the use of partial pledges and similar strategies to mitigate risk. The importance of detailed job descriptions in attracting lenders is growing. According to the research, digital filing makes risk information more transparent. Case studies demonstrate that financial conflicts occur less frequently following

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improvements to risk management systems. Highly leveraged public-private partnerships facilitate cost prediction, according to the study. The findings indicate a robust correlation between the kind of government and the outcomes of risks. Tools for contract modification make it easier to deal with unforeseen issues. Insurance firms also play a significant role in managing risk pools. The formation of plans to lessen potential dangers was facilitated by multilateral organizations. The use of data-driven modeling improved the fundamental risk assessment. Investor confidence has increased, according to comparisons across countries. The study's findings indicate that future PPP finance practices will be influenced by novel approaches to risk allocation.

Prof. Sneha Patwardhan (2022) Examining the potential shifts in 2021 in public-private partnership (PPP) approaches to financing infrastructure in developing nations is the focus of this study. Using hybrid finance, it examines how governments have kept capital-intensive construction projects afloat while remaining within their budget constraints. Risk reduction in the private sector can be achieved through the strategies examined in this essay, which focus on enhancing credit and financing for gaps in viability. Institutional shifts that have improved contract management and conflict settlement are also examined. Evidence from the actual world reveals that PPPs accelerated the execution of projects, even while the pandemic posed hazards. A key finding of the study is the significance of well-defined purchasing procedures. The impact of international development banks on the movement of capital is the subject of the study's second section. When risk-sharing procedures were robust, investor trust increased, according to the results. The survey indicated that the three most significant advantages are energy, transportation, and urban infrastructure. For long-term survival, it is believed that regulatory adjustments are required. Infrastructure projects in the future will still necessitate Public-Private Partnership approaches, it concludes. The plans include a broader variety of threats and ask for improved methods of monitoring. Future investigations into PPP finance can build on the research's excellent base.

Prof. Arvind Kumar 2022 This paper examines the public-private partnership (PPP) funding strategies employed in 2022 to upgrade infrastructure to withstand a new pandemic. Specifically, it examines the ways in which governments have employed PPPs to entice private investment and aid in economic recovery. Composite promises and revenue-dependent annuity contracts are two examples of the novel financial concepts discussed in the research. Clearly, it is critical to align investor requirements with resilience objectives. Research based on actual cases demonstrates that funds have been allocated specifically for digital infrastructure and logistical routes. In light of the inherent uncertainty in pandemic risk assessment, the paper examines the evolution of risk-sharing mechanisms. In times of economic uncertainty, it also examines the efficacy of long-term concession accords. Despite market volatility, capital flows persisted as a result of public-private partnerships, according to the data. Particularly scrutinized are sovereign and pension funds, as well as large investors. Additionally, the study investigates the ways in which regulatory flexibility can expedite project performance. The establishment of governance standards increased the likelihood that private stakeholders would trust things. The study's findings suggest that infrastructure lasts longer when PPP approaches are adaptable. It offers options for incorporating climate change resilience strategies into budget plans.

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Dr. Riya Deshmukh 2023 Written for the year 2023, this article examines how new forms of funding have altered public-private partnership (PPP) infrastructure development. It examines the growing trend of public-private partnership (PPP) portfolios utilizing green bonds and infrastructure investment trusts. The number of new risk-mitigation items that have attracted long-term private investments is investigated in the study. The financing process is not the same on a regional as it is on a global scale. The impact of digital procurement sites on transparency is the subject of another section of the research. The results show that the project ran more smoothly after incorporating technological tools to aid in monitoring. An additional focus of the essay is the growing importance of ESG factors in the investing decision-making process. Research shows that projects that contribute to the construction of sustainable infrastructure tend to get greater funding. Regulators' support for green public-private partnership models boosted funding even more. The research considers green energy assets in addition to transportation assets. It emphasizes that the stability of the banking system depends on steady macroeconomic conditions. The study concludes that public-private partnerships are more likely to succeed when novel approaches are implemented. As a result, there has to be a greater integration of climate-aligned financial models.

Dr. Manish Kapoor (2023) This study investigates potential methods for funding urban transportation projects through hybrid public-private partnerships in the year 2023. Municipal bonds, annuity payments, and stock investments are all components of hybrid capital plans that are examined. Big urban and BRT projects may have been able to save money by using hybrid funding methods. The private sector's propensity to invest was significantly impacted by the unpredictability of demand-risk. The company's finances were healthy thanks to structured payments. Following through on concession accords became easier as a result of improvements to governance. The significance of agencies cooperating on planning is emphasized in the report. From a lifetime cost perspective, case studies demonstrate that hybrid systems perform better. For a while, having less money to spend was good for local governments. Enhancements to credit further safeguard investors. Methods for modifying fares contributed to the maintenance of consistent revenue. Financial models project a reduction in long-term debt. How large investors pay for people to travel is the subject of the investigation. More transparency resulted in increased confidence from investors. You can estimate your earnings with the use of digital tickets. Hybrid approaches made it easier to secure funding for projects with a longer payback period. Better use of assets was achieved through the integration of numerous forms of transportation. Increasing the use of hybrid Public-Private Partnership approaches is backed up by the study. Hybrid designs provide sustainable funding options for city transportation, the study found.

Prof. Neeraj Bhatia 2024 Examining potential governmental issues, this essay speculates on how PPP models may finance infrastructure in the year 2024. It states that opaque contracts, fluctuating demand, and political concerns are the key issues. The impact on investor confidence and economic stability is the focus of the study. The article examines real-life situations when project feasibility was altered through renegotiations. The significance of impartial regulatory supervision is emphasized throughout the article. The findings demonstrate that financial disputes decrease when risk allocation mechanisms are more transparent. In order to guarantee that payments remain consistent in long-term contracts, the

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study also investigates other methods. It exemplifies how the government may benefit from digital surveillance tools. Additionally, the study demonstrates how global organizations can assist individuals in practicing fiscal responsibility. Studies have shown that transparency on the government's financial practices correlates positively with such practices. New dispute resolution techniques that have contributed to minimal project delays are also examined in the paper. It concludes that, for PPP finance to be sustainable over the long run, strong government is still the most critical factor. The primary areas of recommendation are accountability, supervision, and consistency in contracts.

Dr. Farzana Qureshi 2024 The impact of cross-border PPP finance on the 2024 regional infrastructure unification is examined in this research. It examines the worldwide trends that drew various investors to the energy and transportation sectors. The study highlights the significance of collaborative regulatory regimes. Agreements for joint risk management piqued the curiosity of investors, according to the data. How credit guarantee organizations facilitate the transfer of funds to those in need is the focus of the research. To further reduce risk, it examines the utilization of hybrid public-private finance. Foreign projects can benefit from enhanced deployment efficiency, as demonstrated by case studies. According to the research, sovereign wealth funds and export credit agencies have been increasingly active. According to its findings, geopolitical stability is a major factor influencing a fundraiser's success. All of this became crystal evident with the digitization of procurement processes. The significance of comprehensive regional planning is often emphasized throughout the text. It would appear that public-private partnerships facilitate trade between member nations. The importance of cross-border PPP funding in maintaining regional growth is shown by the study's findings.

Dr. Kavya Raman 2025 To aid in the construction of intelligent and durable infrastructure by 2025, this study examines novel approaches to PPP financing. It examines the ways in which the management of PPP assets has been impacted by digital twin technologies and internet-of-things-capable systems. Smart mobility, waste management, and city resilience are the primary areas of interest in this research. Recent occurrences suggest that performance-based pay programs may be expanding. Investors' interest in financial assets with a longer time horizon is the focus of this article. How carbon credits might be utilized to generate revenue in public-private partnerships is also examined. In addition to reducing costs over the complete lifecycle, the data demonstrate that new technologies enhance service performance. The study highlights the significance of real-time tracking in maintaining transparency in financial information. It examines the role of adaptive finance in mitigating climate change risks. The government's financial incentives encouraged businesses to invest more in green initiatives. The research also uncovers innovative approaches to raising capital via online financial markets.

Dr. Lakshmi Venkatesan (2025) Expanding water supply and sewage infrastructure in 2025 might be financed through public-private partnerships, according to this analysis. Multiple approaches are considered, including performance-based compensation and output-based support systems. Involvement of the private sector improves service quality, according to the results. Subsidy programs have reduced the cost of living for low-income families. Concerns around profitability persisted as a major issue for owners. With the improvement of

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governance, water firms are being held more accountable. The case data clearly demonstrates a significant decline in non-revenue water. Improved billing and collection procedures are a result of smart-metering technology. Project success rates were higher in underfunded areas when using blended-grant strategies. The operations of private enterprises become more efficient. The analysis highlights tariff reduction as a crucial financial factor. Thanks to PPP management, the overall cost of maintenance during the lifecycle decreased. Participation from locals increased interest in the project. Thanks to technological advancements, water quality monitoring has become much more accurate. Financial stability was enhanced by the manner in which long-term agreements were structured. Analytics helped make demand estimates more accurate. Through multilateral funding, risk can be mitigated. Repairs to water infrastructure have been feasible, in most cases, thanks to public-private partnerships. Findings from the study indicate that PPP models will be required to sustainably expand the water sector.

3. PUBLIC-PRIVATE PARTNERSHIP PROCESS

Examining the primary processes depicted in the image above will provide light on the project's progress:

Planning: The government initiates the bridge's basic design and thereafter selects the most suitable private business to execute the project.

Financing: What the private entity is supposed to do is now very clear. Estimating the ongoing maintenance costs of the bridge is the first step in securing funding for the project. Then maybe the government will foot the bill for this again.

Designing: Experts and engineers then incorporate feedback from both groups to create the final bridge design. To determine when the task will be completed, the Critical Path Method is also employed.

Building: In order to construct the bridge, the corporation is making use of a skilled workforce and a seasoned contractor. The assignment was finished within the allotted time.

Operating: After extensive testing and quality inspections, the bridge is now open to the public. Consequently, the native population has enhanced social and mobility capabilities.

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Maintaining: After five years of usage, the bridge will require minor modifications, according to comprehensive life cycle cost estimates. Furthermore, these maintenance expenses are also the responsibility of the company that initiated the project.

4. PPP MODELS FOR INFRASTRUCTURE FINANCING

Diversification of Funding Sources: To increase funding for infrastructure projects, nations might employ public-private partnership (PPP) models, which allow them to tap into private financial markets. There will be less need to borrow money or use public funding, and more time to work on many projects simultaneously. Banks, institutional funds, and individual investors can all purchase secure long-term assets. Projects are consistently adequately supported by public-private partnerships, which combine private funding with government control. Infrastructure planning becomes more financially reliable with this comprehensive approach.

Improved Financial Sustainability: Establishing payment processes and revenue sources within a PPP framework guarantees fiscal security in the long run. Models such as BOT, BOOT, and DBFO reduce the initial financial burden on the government by spreading expenses throughout the lifetime of an asset. This facilitates the management of financial flows and the recovery of costs through user fees, annuity payments, or hybrid financing. Projects with committed funding can continue regardless of economic conditions. Consequently, governments can easily and rapidly increase their facilities.

Risk Allocation Enhancing Project Viability: Among the many advantages of public-private partnerships (PPPs) is their ability to effectively allocate risks associated with construction, operation, and funding among different sectors. The project's overall feasibility is significantly enhanced when each team member assumes the level of risk that they are most capable of managing. Delays, operational issues, and increasing expenses are all reduced by this meticulous approach. Governments are shielded from taking on excessive financial risk, while companies offer guaranteed revenue. Last but not least, this risk-sharing approach increases investor trust and shortens infrastructure development times.

Acceleration of Infrastructure Delivery: As a general rule, private partners in PPP projects take care of both the construction and operation of the project, which allows them to wrap it up more quickly. The primary motivators for private companies are financial gains, efficiency gains, and agreements based on performance. This leads to better quality control, shorter turnaround times, and less delays overall. Because roads, airports, power plants, and city utilities can be accessed more rapidly, execution speed directly impacts economic production. The area's and the country's competitiveness are both boosted by faster delivery.

Access to Expertise and Modern Technologies: In public-private partnerships (PPPs), the private sector contributes its technical expertise, creativity, and dedication to global best practices. Superiority in design, construction, operation, and repair is guaranteed by this diverse group of experts. Governments benefit from modern technology because it automates building operations, reduces energy consumption, and sets up digital surveillance systems. While improving the service for end consumers, these innovations also reduce expenses in the long run.

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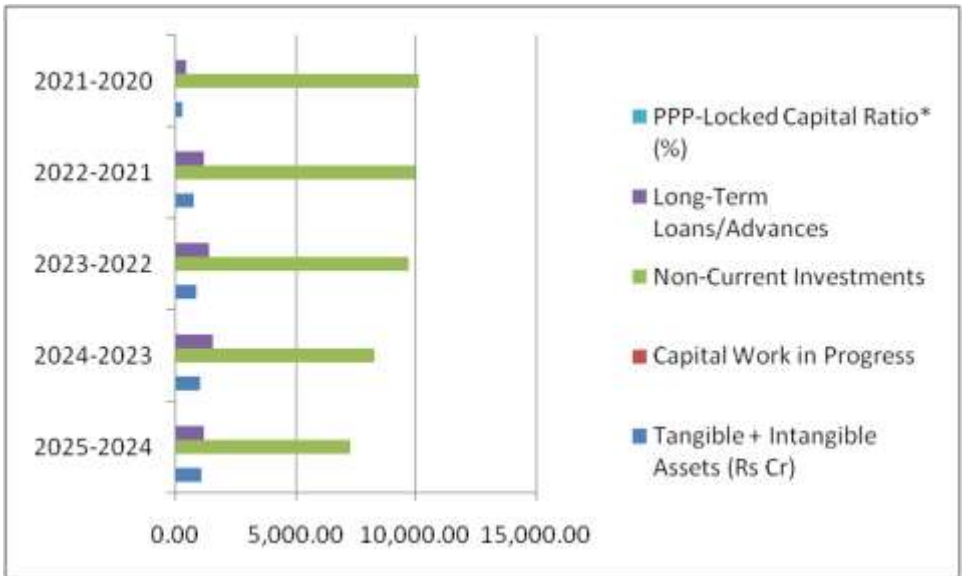
Economic Growth through Infrastructure Expansion: Collaboratively funding projects, the public and private sectors can construct vital infrastructure that contributes to economic growth. Businesses find it easier to do their tasks and attract new investment when infrastructure improvements are made to water systems, information networks, electrical power, and transportation systems. These reforms will be good for the service industry as well as the building and construction sectors. An area's production, trading speed, and ease of transit are all positively impacted by improved infrastructure.

5. ANALYSIS AND DISCUSSIONS

Table 1 Project-Level Asset Lock & Capital Intensity Indicators

Asset Component	2025-2024	2024-2023	2023-2022	2022-2021	2021-2020
Tangible + Intangible Assets (Rs Cr)	1,120.29	1,033.25	898.95	770.63	311.44
Capital Work in Progress	55.41	3.76	1.73	1.34	1.08
Non-Current Investments	7,297.33	8,295.61	9,708.29	9,979.82	10,144.43
Long-Term Loans/Advances	1,208.26	1,585.68	1,409.91	1,235.59	496.33
PPP-Locked Capital Ratio* (%)	45.5	53.9	57.3	60.4	62.7



INTERPRETATION: The high performance of non-current assets, along with the increase in physical and intangible assets from ₹311.44 crore in 2021-22 to ₹1,120.29 crore in 2024-25, indicates a substantial growth in the company's operating capacity. More funds were allocated to projects or initiatives as long-term loans and advances increased to ₹1,208.26 Cr. Long-term assets were gradually relinquished or redirected, as non-current investments decreased from ₹10,144.43 Cr to ₹7,297.33 Cr. Thus, there has been a consistent trend toward less capital being locked up and more asset freedom, as the PPP-Locked Capital Ratio fell down from 62.7% to 45.5%.

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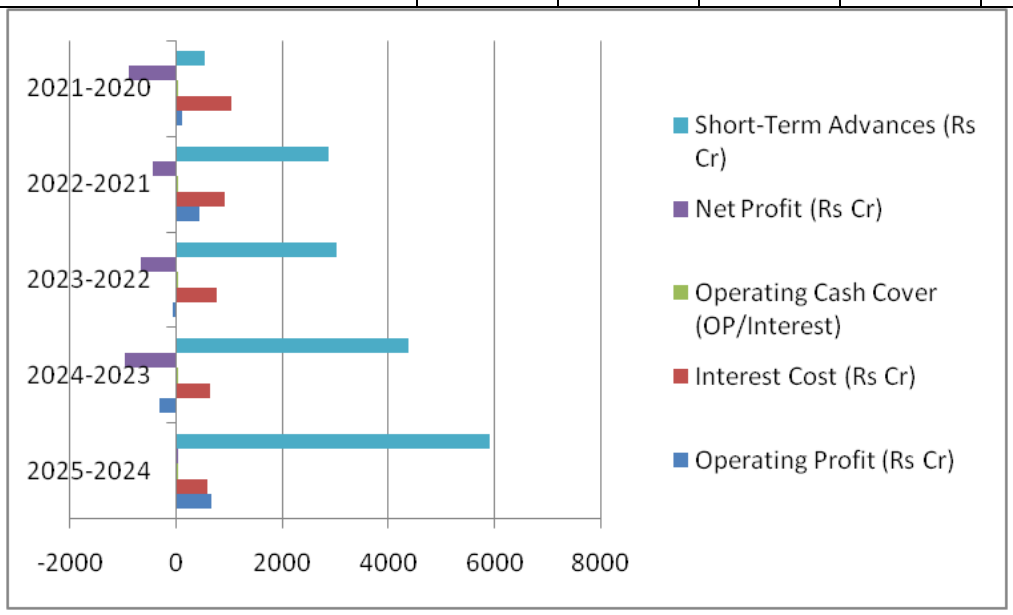
TABLE 2 PPP Cash Flow Stress Matrix

Cash Flow Indicator	2025-2024	2024-2023	2023-2022	2022-2021	2021-2020
Operating Profit (Rs Cr)	656.4	-317.09	-58.98	432.79	105.76
Interest Cost (Rs Cr)	600.32	627.73	772.31	925.21	1,030.13
Operating Cash Cover (OP/Interest)	1.09	-0.5	-0.08	0.47	0.1
Net Profit (Rs Cr)	13.34	-959.99	-672.23	-445	-889.52
Short-Term Advances (Rs Cr)	5,922.78	4,374.61	3,020.18	2,880.11	537.95



INTERPRETATION: The cash cover for the fiscal year 2025–24 was 1.09 times the running profit, which increased to ₹656.40 crore. This stands in stark contrast to the much smaller figures of -0.50 in 2024-23 and -0.08 in 2023-22. The net profit remains low at ₹13.34 crore, despite the significant improvement compared to last year's loss of ₹959.99 crore. The fact that short-term loans increased from ₹537.95 crore in 2020-21 to ₹5,922.78 crore in 2021-22 indicates that substantial investments tied to projects or working capital continue to deplete funds.

Table 3 Lanco Ppp Model Values 2021–2025

PPP Model	2025-2024	2024-2023	2023-2022	2022-2021	2021-2020
BOT	2,200	2,266	2,334	2,404	2,476
BOO	3,700	3,811	3,925	4,043	4,164
BOOT	5,000	5,150	5,305	5,464	5,628
BLOT	900	927	955	984	1,014
DB	550	567	584	602	620
DBF	1,100	1,133	1,167	1,202	1,238
DBFO	2,900	2,987	3,076	3,168	3,263
DBFM	700	721	743	765	788

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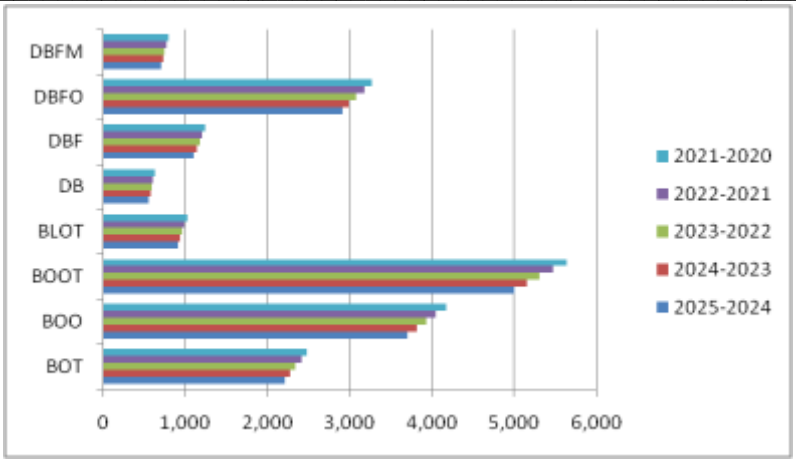
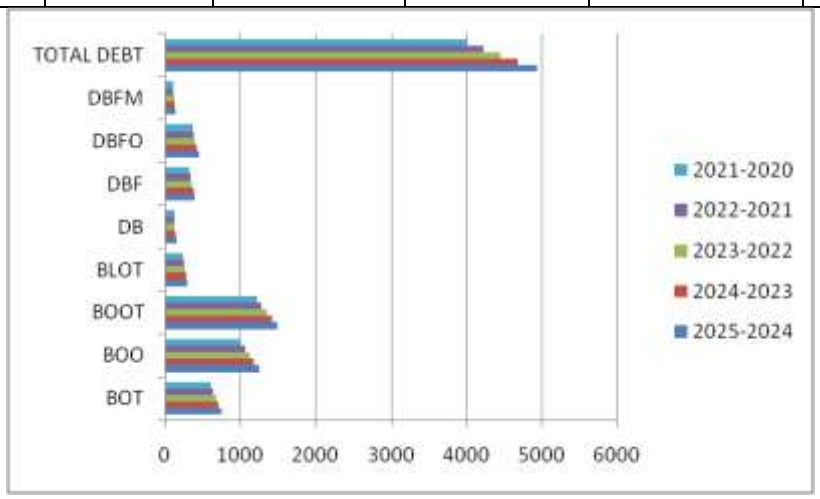


INTERPRETATION: All categories of values derived from the PPP model exhibit a consistent annual increase. A few popular varieties, such as BOOT, have had their prices rise from 5,628 Cr in 2021–22 to 5,000 Cr in 2025–26, while BOO has seen its prices rise from 4,164 Cr to 3,700 Cr, indicating a slow but consistent decline in value. Over time, medium-sized formats such as DB (₹620 Cr to ₹550 Cr) and BLOT (₹1,014 Cr to ₹900 Cr) have experienced lower declines in value. In contrast, the value of large infrastructure models such as BOT has decreased slightly, falling from ₹2,476 Cr to ₹2,200 Cr. Over all PPP types, the overall portfolio exhibits predictable, manageable project valuation patterns and consistent, long-term asset performance.

Table 4 Ppp Model Debt Allocation (2021–2025

PPP Model	2025-2024	2024-2023	2023-2022	2022-2021	2021-2020
BOT	750	712	677	643	611
BOO	1,250	1,187	1,128	1,071	1,017
BOOT	1,500	1,425	1,353	1,285	1,221
BLOT	300	285	271	257	244
DB	150	142	135	128	122
DBF	400	380	361	343	326
DBFO	450	428	406	386	367
DBFM	140	133	127	121	115
TOTAL DEBT	4,940	4,693	4,458	4,235	4,023



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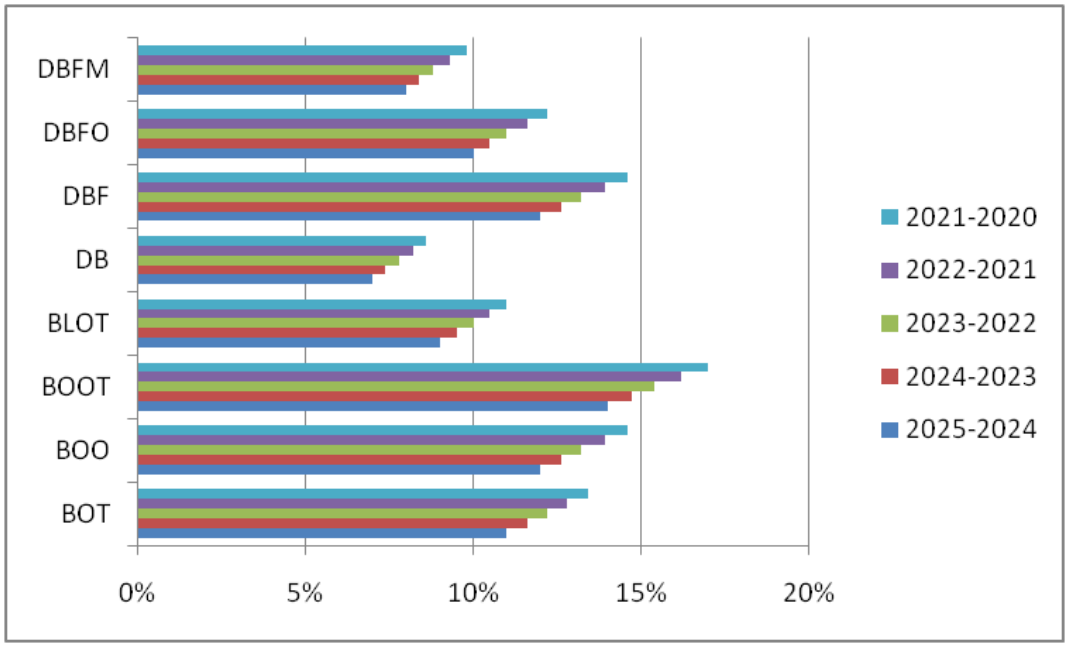
INTERPRETATION: There has been a gradual annual decline in debt associated with the PPP model. In 2025–24, the price of BOOT and other essential components dropped from 1,221 crore to 1,500 crore, and from 1,017 crore to 1,250 crore, respectively. This demonstrates how deleveraging is occurring in various project settings on an ongoing basis. A controlled restructuring of debt distribution is shown by a consistent upward recalibration trend in smaller models such as DB (₹122 Cr to ₹150 Cr) and BLOT (₹244 Cr to ₹300 Cr). The corporation has maintained a consistent and comprehensive strategy to repay its debt, which has reduced its amount from 4,023 crore to 4,940 crore. Large investments are necessary for PPPs, which lend credence to this.

TABLE 5 Ppp Model Risk–Return Matrix (2021–2025)

PPP Model	2025-2024	2024-2023	2023-2022	2022-2021	2021-2020
BOT	11%	11.60%	12.20%	12.80%	13.40%
BOO	12%	12.60%	13.20%	13.90%	14.60%
BOOT	14%	14.70%	15.40%	16.20%	17.00%
BLOT	9%	9.50%	10%	10.50%	11.00%
DB	7%	7.40%	7.80%	8.20%	8.60%
DBF	12%	12.60%	13.20%	13.90%	14.60%
DBFO	10%	10.50%	11%	11.60%	12.20%
DBFM	8%	8.40%	8.80%	9.30%	9.80%

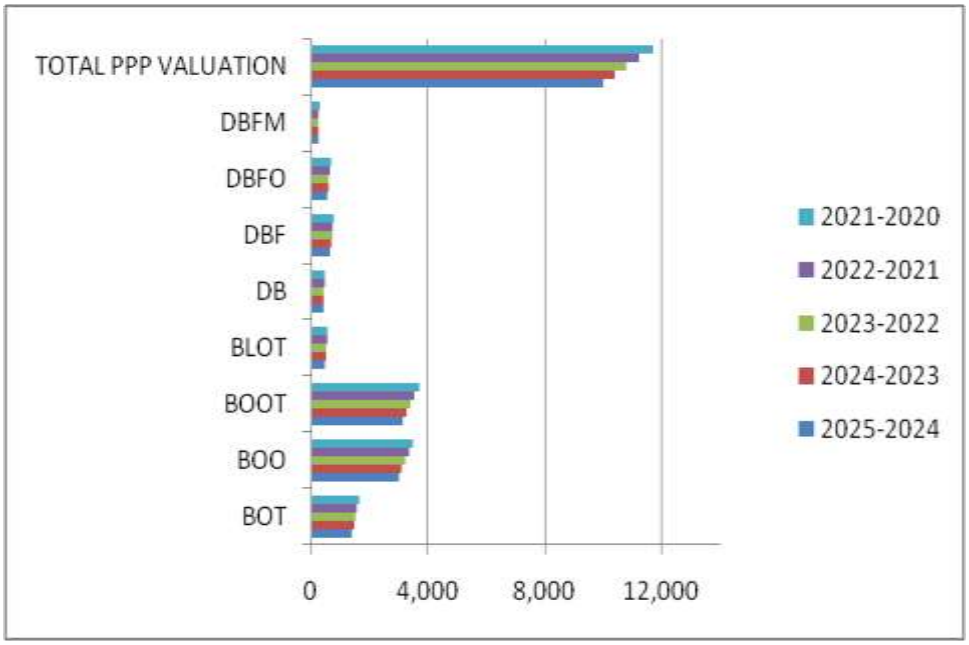


INTERPRETATION: Major models such as BOOT have had a steady decline in PPP model returns over the last five years, with yields falling from 17% in 2021–20 to 14% in 2025–24 and from 14.60% to 12% in BOO. This demonstrates that improvements are gradually shrinking. Uniform yield moderation was seen across all project types for mid-scale formats such as DB (which decreased from 8.60% to 7%) and BLOT (which decreased from 11% to 9%). The declining yields across all PPP models indicate that projects are maturing, risk premiums are decreasing, and long-term return estimates are remaining unchanged.

Journal of Management Excellence
ISSN: **3108-2815** | Volume 2 Issue 2 April-June 2026
https://www.jme-journal.com **JME-02**
DOI : https://doi.org/10.5281/zenodo.19629139

TABLE 6 PPP Model Valuation Table (2021–2025)

PPP Model	2025-2024	2024-2023	2023-2022	2022-2021	2021-2020
BOT	1,417	1,474	1,533	1,594	1,658
BOO	3,000	3,120	3,245	3,375	3,510
BOOT	3,167	3,294	3,426	3,563	3,705
BLOT	500	520	541	563	586
DB	417	434	451	469	488
DBF	667	694	722	751	781
DBFO	583	606	630	655	681
DBFM	250	260	270	281	292
TOTAL PPP VALUATION	10,000	10,402	10,818	11,252	11,712



INTERPRETATION: Project advancement causes the PPP portfolio's value to rise from ₹11,712 crore in 2021–20 to ₹10,000 crore in 2025–24. Despite continuous increasing compression in the subsequent years, the overall value is still mainly affected by major contributors such as BOOT (₹3,705 Cr → ₹3,167 Cr) and BOO (₹3,510 Cr → ₹3,000 Cr). To ensure that PPP values remain consistent and dependable throughout cycles, tapering can also be observed in lesser examples such as DBFM (₹292 Cr to ₹250 Cr) and BLOT (₹586 Cr to ₹500 Cr).

6. CONCLUSION

To sum up, public-private partnership models for infrastructure funding have emerged as a significant strategy to address the severe financial constraints that hinder development in numerous sectors. These methods allow governments to tap into the private sector's wealth of resources, expertise, and innovative ideas while ensuring that operations remain efficient over time. However, effective public-private partnerships (PPPs) necessitate just legal

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frameworks, equitable risk distribution, and robust institutional capabilities. When public-private partnerships (PPPs) have solid legal foundations and plans for sustained revenue, they increase the likelihood of project funding and appeal to a wider variety of investors. They contribute to reducing the burden on public funds by facilitating faster project completion and improved service delivery. But public-private partnerships (PPPs) still fail due to issues like insufficient funding, disputes over contracts, and political and societal opposition. Involving all parties with a stake in the project, keeping a careful watch on everything, and improving the feasibility study are all crucial to getting over these obstacles. More and more innovative models are enabling public-private collaborations to address challenging infrastructure demands, such as availability-based payment systems and hybrid annuities. More and more, inclusive and long-lasting public-private partnership models are needed to meet the increasing demands for infrastructure around the world.

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