

# PPP Financing and Strengthening Audit Oversight of Public Private Partnerships



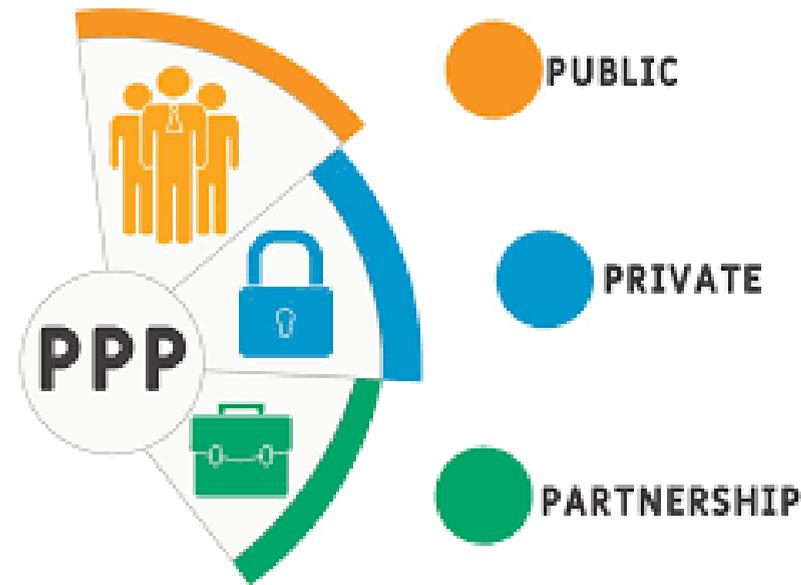
**Case Study Based Training Programme for Officials of the Comptroller and Auditor General of India at IIM Mumbai**

# A. PPP Financing and Bankability of PPP Projects





# Making PPP Projects Bankable: Turning Good Ideas into Financeable Reality

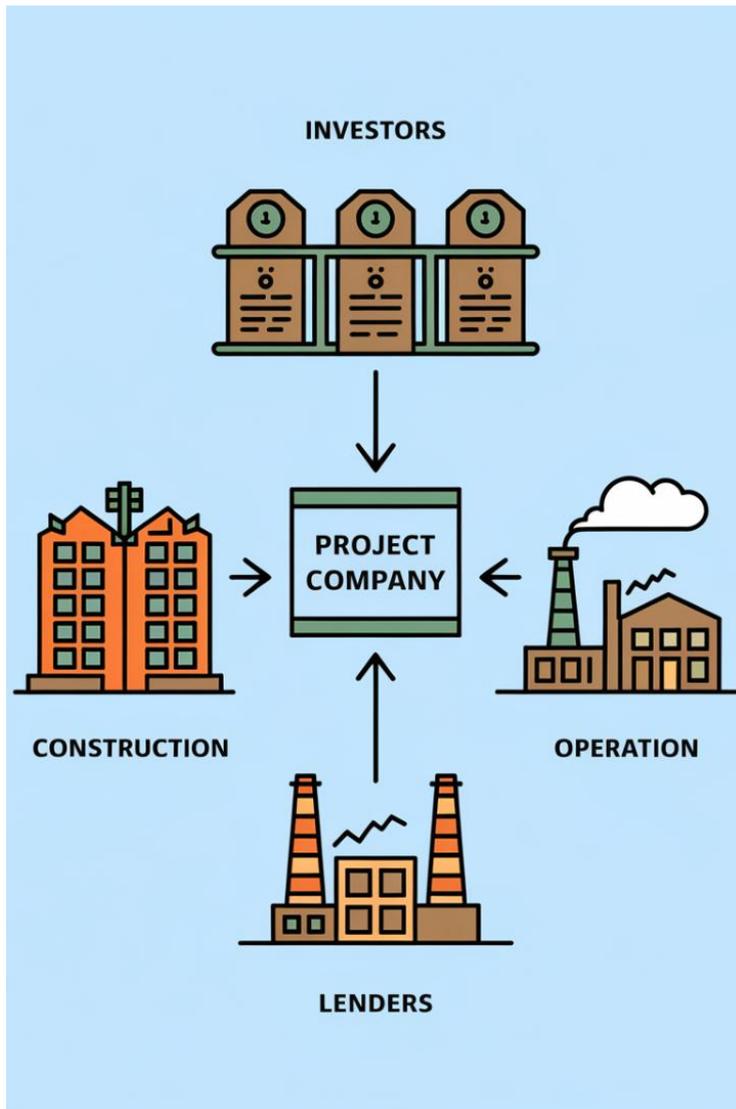


**Bankable PPPs are not about eliminating risk — they're about allocating and mitigating risk so well that lenders are willing to say YES**





# Financial Structure of PPP Projects



## Funding Sources

Combination of equity, commercial loans, bonds, and government contributions.



## Government Guarantees

Backstops that protect against specific risks to enhance project bankability.



## Special Purpose Vehicles

Dedicated legal entities created to deliver the project and isolate financial risk.



## Project Recourse Funding

Financing arrangements where lenders have claims against specific project assets or cash flows as security.



## Financial Models

Long-term projections of costs, revenues, and returns over project lifecycle.



## Off-Balance Sheet Funding

Structured financing that allows public entities to develop infrastructure without recording debt on government balance sheets.





# The Bankability Pyramid



**Robust Legal & Regulatory Framework**

**Get the Enabling Environment Right**

- Clear PPP law with competitive bidding
- Independent regulator (if tariffs involved)
- Credible dispute resolution (intl. arbitration)

**Sound Technical & Economic Fundamentals**

**Make the Project Commercially Viable**

- Affordability + Value-for-Money (VfM) analysis
- Realistic traffic/demand forecasts
- Reference design + performance specs

**Fair & Balanced Risk Allocation**

**The Golden Rule is Balanced Risk Allocation**

- Allocate each risk to the party best able to manage it at least cost”

**Credit Enhancements & De-risking Tools**

**Credit Enhancement Toolkit**

- Viability Gap Funding (VGF)
- Partial Risk Guarantees – World Bank / MIGA
- Revenue/ Targeted guarantees with caps
- First-loss equity tranches (Infra funds)
- Refinancing Access: Bond markets, DFI funding (NaBFID, IIFCL) to extend debt tenors





# Your 7-Point Bankability Checklist



**The  
Super  
Power of  
Structu-  
ring**

- Has an independent demand/traffic study or revenue mapping been done?
- Is the risk allocation matrix properly balanced and is lender-friendly?
- Is land available and all approvals/ permits in place?
- Are tariffs affordable or is there credible payment mechanism?
- Is there political champion + inter-ministerial alignment?
- Is the procurement timeline realistic
- Are multilateral/bilateral de-risking tools on the table?





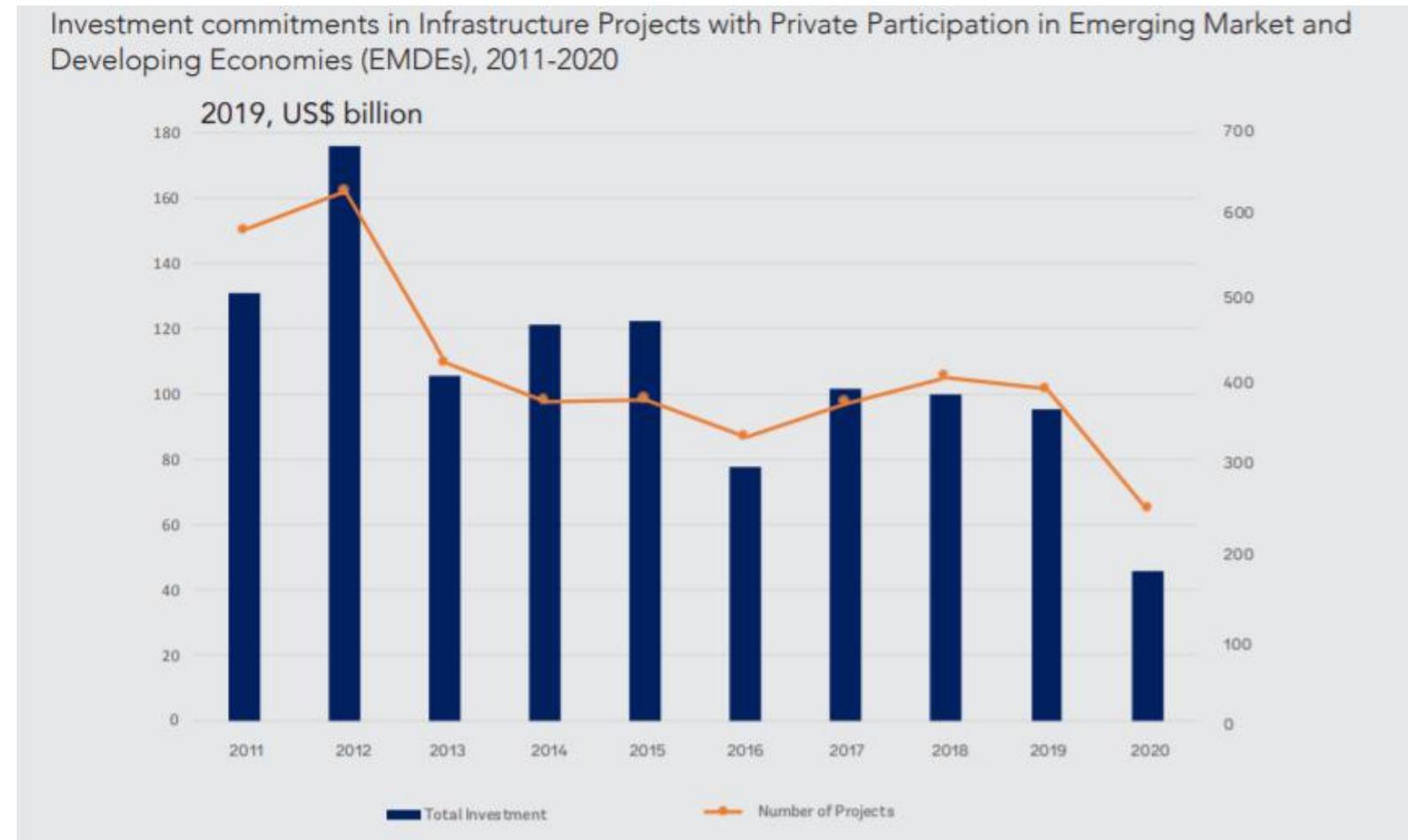
# Why most PPPs Fail to Achieve Financial Close



**60–70% of PPPs in emerging markets fail to reach financial close (World Bank PPI Database)**

Top Killers:

- **Demand overestimation** - Weak revenue streams / tariff unaffordability
- **Poor Risk Allocation** - Poorly structured concession, Contractual Complexities, Government and political risks
- **Delays** - Lengthy & unpredictable procurement process
- **Uncertainties** - Land/ project components not secured
- **Aggressive bidding** - overlooking project feasibility
- **Tenor Mismatches** - impacting funding
- **Cost overruns** - potential for cost overruns
- **Mismatches** - between technical design, financial structuring, and investor expectations



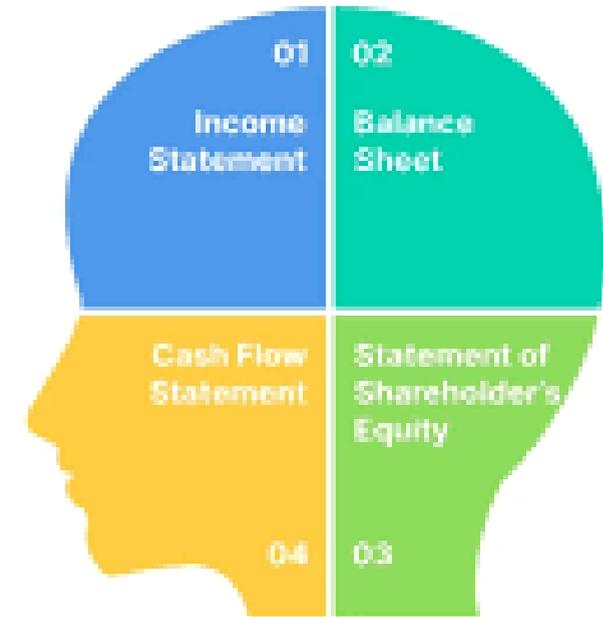
Source: World Bank PPI Database





# Key Financial Metrics for Lenders

- **Debt Service Coverage Ratio (DSCR):**  $CFADS \div Debt\ Service$ ; min  $>1.2x$ , avg  $>1.5x$  required
- **Loan Life Coverage Ratio (LLCR):**  $NPV(CFADS\ over\ loan\ life) \div Outstanding\ Debt$ ;  $>1.3x$  indicates strong repayment capacity
- **Project Life Coverage Ratio (PLCR):**  $NPV(full\ CFADS) \div Debt$ ; measures long-term resilience beyond loan tenor
- **Equity IRR & NPV:** Project returns must exceed sector hurdle rates; equity IRR typically 15–20%+





# VGF vs. Guarantees



**Is DSCR >1.25x achievable without support?**

YES: Market sounding only → proceed to tender

**Is DSCR 1.0–1.25x with 90% downside?**

MAYBE: Use targeted guarantee (payment/demand backstop) + reserves

**Is DSCR <1.0 (gap >15%)?**

NO: VGF required (20–30% TPC); or re-structure project





# Financial Modelling is key to PPP Success



PPP financial models serve as the analytical backbone for evaluating whether a public-private partnership is viable, affordable, and delivers value for taxpayers. These sophisticated tools transform complex project parameters into clear financial outcomes that guide critical investment decisions.



## Assess Project Viability

Determine if the project generates sufficient returns for private investment



## Evaluate Affordability

Ensure fiscal sustainability and value for money for the public sector



## Support Risk Allocation

Quantify risk transfer and optimal risk sharing arrangements



## Inform Decision-Making

Provide data-driven insights for negotiation and contract structuring

A well-constructed model enables governments and private partners to understand the full lifecycle economics of infrastructure projects, typically spanning 20-30 years or more. It provides a quantitative foundation for negotiations, risk allocation discussions, and ongoing performance monitoring.





# Government Metrics



**While private investors focus on returns, governments must evaluate broader public value, fiscal sustainability, and long-term budget implications. Value for Money analysis compares PPP delivery against traditional public procurement alternatives.**

## **Value for Money Assessment**

Quantitative comparison of PPP delivery cost versus Public Sector Comparator (PSC), adjusting for risk transfer value. PPP must demonstrate net VfM typically exceeding 10% after accounting for transaction costs and optimism bias.

## **Fiscal Impact Analysis**

Annual government payment obligations, contingent liabilities, and budgetary impacts over the concession period. Models calculate present value of government commitments and compare against available fiscal space.

## **Affordability Envelope**

Maximum annual payment capacity given budget constraints and competing priorities. Determines feasible payment structures and identifies need for viability gap funding or revenue support mechanisms.

## **Long-Term Liabilities**

Off-balance-sheet obligations, termination payment exposures, and refinancing risk that create future fiscal commitments requiring disclosure and prudent management within fiscal frameworks.





# Case Study – Greenfield Airport Development



RCS-UDAN plan  
update as of July 2021



## Background

- The New Airport was planned in 1997 but finally awarded on DBFOT in 2020 and commenced operations, once operational will replace the defense airport and contribute to the growth of the region

## Bankability Challenged

- Significant delays in award, land acquisition challenges, people and legal disputes
- Political and Administrative Changes impacting timelines
- Financial viability on a standalone basis

## Award

- Project awarded to one of the largest airport operator in India through a protracted tender process and now the project is nearing completion

## Unique Structuring

- **Concession period to match financial viability - 40 yrs + 20 yrs option**
- **PPP model designed to share financial, operational, and market risks** between the public and private sectors to enhance project viability.

## Impact

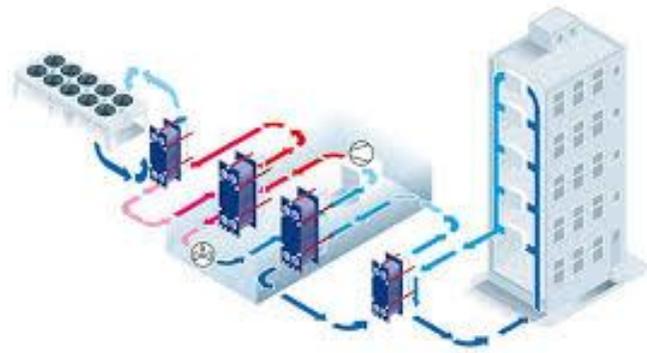
- Project structured with funding support in form of equity and debt investment
- \$350 Mn in form of 18 year debt and \$75 Mn **in form of Equity from bank and Funds clearly demonstrating meeting the bankability criteria**

## Bankability Established

- Revenue-share model with state Govt with a focus on commercial viability
- Significant land monetization opportunities in the Airport impact area



# Case Study – PPP of District Cooling



## ADVANTAGES OF DISTRICT COOLING SYSTEM

1. Improve efficiency of energy
2. Protect environment
3. Save space
4. Improve urban view
5. Re-use the heat from exhaust system
6. Prevent disaster
7. Reduce manpower for operation and maintenance



## Background

- First time district cooling project awarded on PPP basis in India, and that too for Government project

## Bankability Challenged

- While adopted model Concession agreement, however structured to make it commercially viable for developer while maintaining Government interest

## Unique Structuring

- **Step down Tariff, fixed basis demand, as demand increases tariff will come down – risk sharing**
- **Phased development as demand escalates allowing investments in a phased manner**
- Two part tariffs – Demand charge for capex recovery and Consumption charge to account for operations
- Authority will be responsible for tariff payment while it takes the collection responsibility at its risk

## Impact on PPP

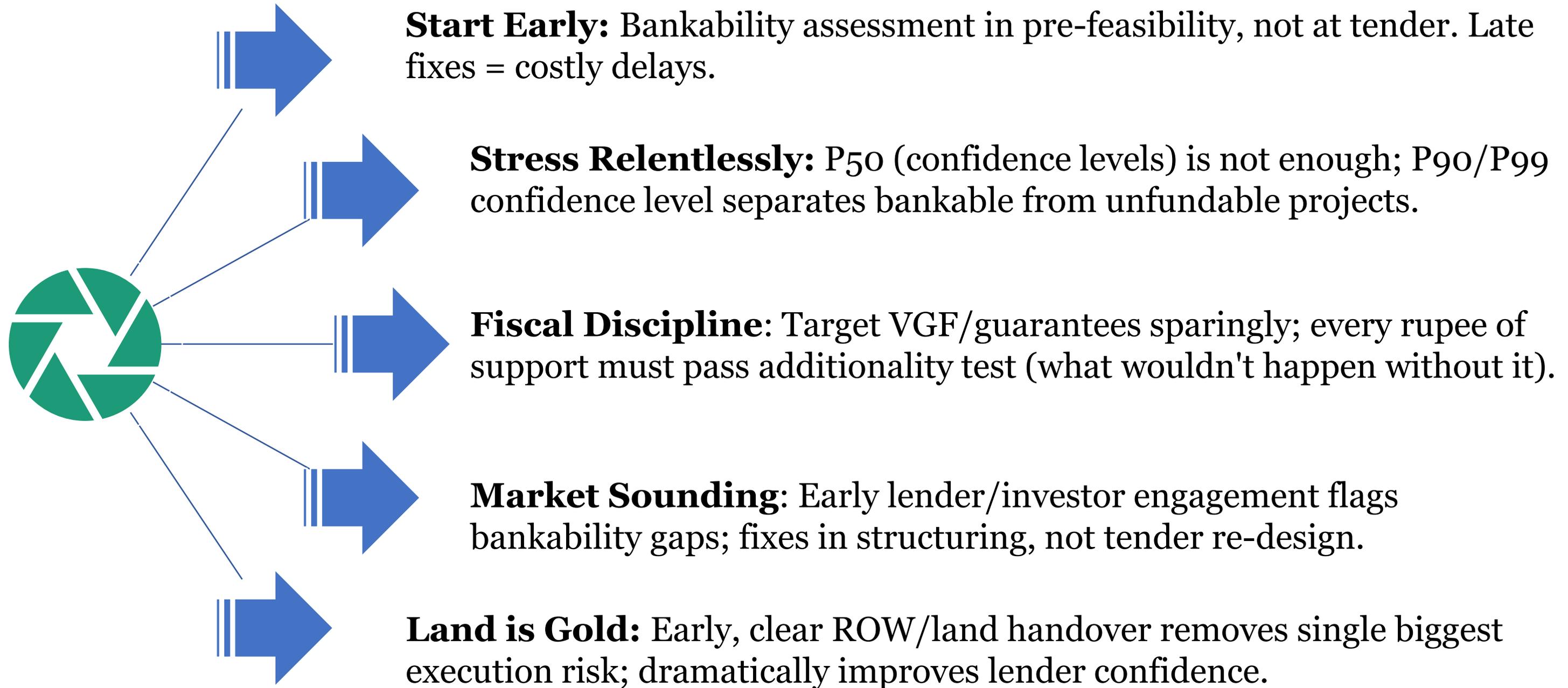
- Two large international players bid for the project and was awarded at very competitive terms to a Gulf based global player

## Bankability Established

- Concessionaire mobilized funding at attractive terms given competitive structure
- However project got stalled due to political changes



# Key Takeaways – BANKABILITY IS KEY TO PPP SUCCESS



# **B. Strengthening Audit Oversight of Public Private Partnership Projects**





# The Role of Auditors in PPP Projects



## Ensuring Accountability

Verifying that public resources are used appropriately. Confirming compliance with legal frameworks.



## Evaluating Value for Money

Assessing if PPP approach delivers better value than alternatives. Reviewing overall cost-effectiveness.



## Protecting Public Interest

Examining whether projects deliver promised benefits. Confirming fair risk allocation between partners.



## Assessing Compliance

Verifying adherence to contractual terms and regulations. Identifying deviations and their impact.



# Scope of PPP Audits



**PPP Audits should be across the full lifecycle: pre-procurement (feasibility, VfM analysis), bidding (procurement fairness), contract execution (risk transfer, payments), and operations (performance, termination).**

## Comprehensive evaluation across the project lifecycle



### **Project formulation and approval**

Assessment of initial concept and planning



### **Bidding and award process**

Evaluation of selection transparency and fairness



### **Contract management**

Review of agreement execution and compliance



### **Project implementation and monitoring**

Ongoing oversight of construction, operation and maintenance



# Key Audit Areas



## Financial aspects

Examine funding structure, cash flows, returns, and financial reporting accuracy

## Performance indicators

Evaluate measurement and achievement of service level targets



## Technical specifications

Assess engineering standards, innovation, and construction quality

## Legal and regulatory compliance

Verify adherence to laws, policies, and contractual obligations



# Project Formulation Audit



## Feasibility studies

Verify technical, economic, and financial feasibility assessments are comprehensive and based on sound assumptions.



## Cost-benefit analysis

Examine methodology for quantifying both tangible and intangible benefits against lifecycle costs.



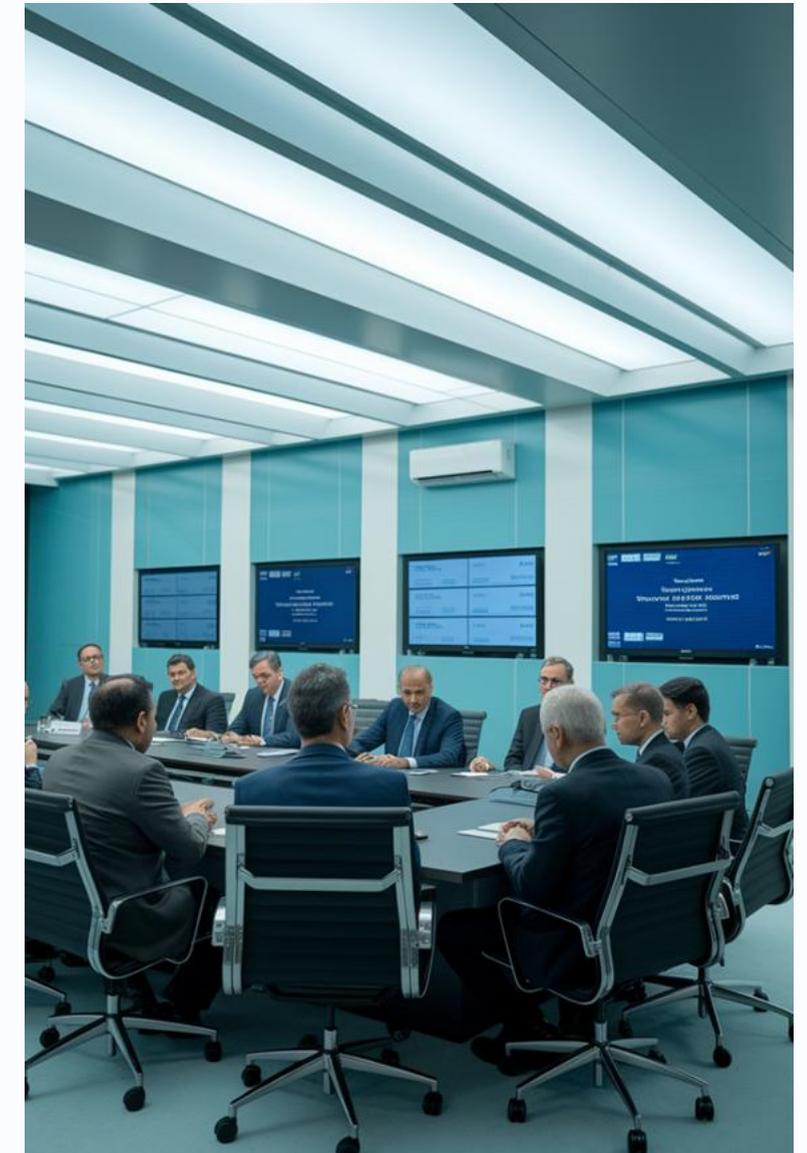
## Risk assessment

Review identification and evaluation of project risks including project size, complexity, political sensitivity, contract changes including mitigation strategies and contingency plans.



## Stakeholder consultation

Assess adequacy of engagement with affected communities, potential users, and other relevant stakeholders.





# Value-for-Money Assessment



## Public Sector Comparator

Verify methodology for comparing PPP against traditional procurement



## Discount Rate Selection

Assess appropriateness of rates used in present value calculations



## Cost-Benefit Analysis

Review quantification of both tangible and intangible benefits



## Risk Valuation

Evaluate methods used to monetize transferred risks





# Performance Monitoring Framework



**Explicit legal and timely access to private partner records (contracts, financials, performance data) is critical and technical expertise is paramount**



## **Service Quality**

Key Indicators: User satisfaction, availability

Audit Focus: Measurement methodology



## **Financial Performance**

Key Indicators: Revenue targets, cost control

Audit Focus: Reporting accuracy



## **Operational Efficiency**

Key Indicators: Throughput, utilization rates

Audit Focus: Benchmark comparison



## **Maintenance Standards**

Key Indicators: Asset condition, downtime

Audit Focus: Compliance verification



# Tariff and User Charges Verification



## Initial Tariff Setting

Verify methodology & calculations for base tariff determination

- Compliance with sector regulations
- Cost recovery assessments
- Affordability considerations

## Tariff Revision Mechanism

Evaluate fairness of adjustment formulas and triggers

- Indexation parameters
- Extraordinary review provisions
- Documentation of adjustments

## Revenue Collection Oversight

Assess systems for accurate revenue reporting

- Traffic/usage counting methods
- Revenue sharing verification
- Fraud prevention controls





# PPP Audit Planning and Scope



## **Risk-Based Approach**

Identifying high-risk areas that require greatest scrutiny. Prioritizing resource allocation.



## **Defining Audit Objectives**

Establishing clear goals for the audit. Setting specific criteria and benchmarks.



## **Identifying Key Focus Areas**

Determining critical aspects for examination. May include procurement, financing, or operations.



## **Determining Audit Procedures**

Selecting appropriate methodologies and techniques. Ensuring comprehensive coverage of selected areas.



# Audit Procedures for PPP Projects



## Document Review

Examining contracts, financial models, reports, and correspondence. Identifying inconsistencies and compliance issues.



## Stakeholder Interviews

Gathering insights from project participants. Clarifying processes and identifying hidden issues.



## Data Analysis

Evaluating operational and financial performance. Testing payment calculations and performance indicators.



# Bidding Process Audit



## Transparency in tender process

Verify public notifications, information access, and clear communication of requirements and timelines.



## Evaluation criteria

Review objectivity, relevance, and weighting of technical and financial parameters for bid assessment.



## Fairness in selection

Assess prevention of conflicts of interest and equal treatment of all qualified bidders.



## Compliance with procurement rules

Examine adherence to applicable government procurement policies and regulations.



# Financial Audit



## Financial Area

## Key Audit Questions

Project financing structure

Is debt-equity ratio appropriate?  
Are financing costs reasonable?

Revenue sharing arrangements

Is revenue sharing fair and properly monitored?

Government support mechanisms

Are viability gap funding or guarantees properly assessed?

Financial model assumptions

Are traffic/usage forecasts realistic? Are tariff structures appropriate?



# Environmental and Social Impact Audit



## **Environmental clearances**

Verify proper assessment and approvals obtained before project commencement.  
Review mitigation measures for identified environmental impacts.



## **Social impact assessments**

Examine community consultations and impact measurement methodologies.  
Assess inclusion of vulnerable population concerns in project planning.



## **Rehabilitation and resettlement**

Evaluate fair compensation and proper implementation of resettlement plans.  
Verify livelihood restoration measures for displaced communities.



## **Sustainable development goals**

Assess alignment with national and international sustainability commitments.  
Review long-term ecological and social sustainability provisions.



# Concession Period Audit



1

## Construction Phase

Verify adherence to milestones and quality standards

2

## Operation Phase

Check service delivery against performance standards

3

## Maintenance Requirements

Assess compliance with maintenance obligations

4

## Handover Provisions

Evaluate asset condition requirements at transfer





# Contract Management Audit



1

## Concession agreement terms

Evaluate clarity, completeness and enforceability of contract provisions

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## Risk allocation

Assess appropriate distribution of risks between parties

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## Change management procedures

Review protocols for contract modifications and amendments

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## Dispute resolution mechanisms

Examine provisions for handling conflicts efficiently



# Contract Termination Risk Audit



## Termination Provisions

Verify clarity and fairness of contract termination clauses

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## Compensation Mechanisms

Evaluate calculation methodology for termination payments

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## Dispute Resolution

Assess effectiveness of established procedures

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## Transition Arrangements

Review continuity plans for service delivery



# Performance Monitoring Audit



## **Key Performance Indicators (KPIs)**

Auditors must verify that measurable, relevant KPIs are established. These should align with project objectives and public service requirements.

Example KPIs include construction timelines, service availability, and quality standards.

## **Service Level Agreements**

Review whether SLAs clearly define expected performance. Examine monitoring mechanisms and reporting frequencies.

Auditors should assess whether measurement methodologies are objective and reliable.

## **User Satisfaction**

Evaluate if user feedback is systematically collected. Verify implementation of improvement actions based on survey results.

Public perception should be a key consideration in overall project success assessment.



# Governance and Oversight



## **Project steering committees**

Review composition, authority, and effectiveness of oversight committees.

Assess frequency and documentation of meetings and decision-making processes.

## **Independent engineers/auditors**

Verify appointment of qualified third-party experts for technical validation.

Examine independence and reporting mechanisms for these professionals.

## **Regulatory oversight**

Evaluate compliance with sector-specific regulatory requirements.

Review interactions with regulatory bodies and implementation of directives.

## **Reporting mechanisms**

Assess transparency and comprehensiveness of project reporting.

Verify public disclosure of appropriate information about the PPP.



# Assessing PPP Financial Management



<b>Financial Aspect</b>	<b>Audit Focus</b>	<b>Key Questions</b>
Financial Models	Accuracy & Assumptions	Are projections reasonable and well-supported?
Payment Mechanisms	Calculation & Application	Are payments correctly determined based on performance?
Government Exposure	Contingent Liabilities	Are guarantees and commitments properly disclosed?
Project Statements	Accuracy & Compliance	Do financial statements accurately reflect project status?



# Auditing PPP Contract Compliance



Contract compliance audits verify service delivery against specifications, review modifications, assess dispute resolution, and evaluate management practices. They ensure both parties fulfill obligations.

## **Service Delivery Verification**

Confirming that delivered services meet quantity, quality, and timing requirements specified in the contract, including inspections of physical infrastructure and review of performance reports.

## **Contract Modifications Assessment**

Evaluating the appropriateness of contract changes, including amendments, variations, and change orders to ensure they follow proper approval processes and maintain value for money.

## **Dispute Resolution Effectiveness**

Examining how contractual disputes are documented, addressed, and resolved, including assessment of timeliness of resolution and adherence to contractual dispute mechanisms.

## **Contract Management Systems**

Assessing the adequacy of monitoring systems, record-keeping practices, and performance tracking tools used to ensure ongoing contractual compliance by all parties.





# Challenges in PPP Audits



## Complex Arrangements

PPP contracts often span thousands of pages. They involve intricate financial structures and risk allocation mechanisms.

Auditors must develop specialized knowledge to navigate complexity.

## Long-Term Nature

Projects typically last 25-30 years. Auditors must consider evolving contexts and changing circumstances.

Early decisions affect outcomes decades later.

## Balancing Transparency

Commercial confidentiality often conflicts with public accountability. Auditors must find appropriate balance.

Public interest must remain paramount.

## Risk Transfer Verification

Determining if risks have been appropriately transferred as contractually agreed. Auditors must assess if risk allocation exists in practice, not just on paper.

Inappropriate risk retention by the public sector can undermine value for money.



# Best Practices for PPP Audits



## Develop Specialized Expertise

Train auditors in PPP-specific knowledge. Build multidisciplinary teams with diverse skills.



## Collaborate Across Institutions

Share experiences with other audit bodies. Create networks for knowledge exchange.



## Leverage Data Analytics

Use advanced tools to analyze performance data. Identify patterns and anomalies efficiently.



## Ensure Timely Reporting

Communicate findings promptly to enable corrective action. Follow up systematically on recommendations.



# Mumbai and Delhi Airport Case study



## Background of Airport PPPs

- 2003 Cabinet approval for PPP restructuring of Delhi (IGIA) and Mumbai (CSIA) airports
- AAI retained 26% stake; private partners 74% in JV SPVs (DIAL and MIAL)
- Concessions covered not only development of upgraded airports but also O&M, and monetisation to fund the development

## Audit Findings

- **Cost Escalation:** IGIA +43%, MIAL doubled
- **Risk Transfer:** Financing and implementation risk not effectively transferred to private sector
- **Development Fee:** Cost gaps met through passenger levies, not PPP
- **Weak Contract Management:** Minimal enforcement of timelines, penalties, and compliance
- **Land and Revenue Issues:** Ambiguous land demarcation; commercial exploitation benefits disproportionate to AAI share
- **Governance Gaps:** Inadequate performance monitoring and documentation by MoCA

## Audit Lessons

- **Valuation:** Land, non-aero revenue, and commercial potential must be properly valued in bid design
- **Change of Scope:** Independent scrutiny of cost/scope changes to prevent unjustified user charge escalation
- **User Interest Protection:** Development and security fees undermine PPP if used to co-finance private projects
- **Risk Allocation:** Audit must verify financing and implementation risks truly transferred per PPP rationale
- **Contract Enforcement:** Monitor use of AAI's contractual rights (penalties, compliance, revenue share)
- **Governance Framework:** Regular performance review, dedicated contract management, robust documentation



# Hyderabad Metro Project



## Background

- Hyderabad Metro Rail Phase I (72 km, three corridors) is India's largest PPP urban metro project, awarded to L&T Metro Rail (Hyderabad) Ltd in 2010

## Outcomes

- Corridors commissioned partially 2017-2019, but full operations delayed due to land acquisition, heritage issues, and COVID; total cost escalated ~30-35% to Rs 18,800+ crore
- Ridership below projections; L&T claimed Rs 5,000 crore for overruns/delays since 2017.
- Govt failed to enforce urban rejuvenation works, sub-leasing prohibitions, and fair rent recovery
- Debt ballooned to Rs 13,000 crore; project viability impacted by incomplete Corridor II due to old City

## Reasons for PPP Failure

- Government Delays & Non-Support: Land acquisition and approvals delays, utility shifting, realignments, and state bifurcation issues caused 2+ year delays without compensation
- Unbalanced Risk Allocation: Private share of construction/operational risks (ridership shortfalls, defects liability) while govt controlled fares, routes; inflated projections never materialized.
- Financial Strain: Cost overruns, no VGF extension or aid despite requests; unsustainable debt despite revenue share model.
- Contract Weaknesses: Poor transition to Central Metro Act led to higher fares but govt non-enforcement of penalties/works; L&T refused Phase II integration over revenue/cost sharing fears

## Audit Observation

- Systemic PPP metro failure pattern: Delhi Airport Express, Mumbai Line 1 also collapsed due to similar govt delays, risk dumping, defective infra accountability.



# CAG Guidelines on Audit of PPP



The Comptroller and Auditor General of India published comprehensive guidelines in 2009 for auditing of PPP infrastructure projects, ensuring accountability and value for public funds.





# INTOSAI PPP Auditing Guidelines (2001)



## Global Institution

Founded in 1953 as the premier international auditing organization.



## Extensive Membership

195 full members and 5 associate members from around the world.



## Audit Standards

Sets global standards for public sector auditing.



A comprehensive framework for auditing public-private partnerships established by the International Organization of Supreme Audit Institutions. These guidelines help ensure accountability, transparency, and value for money in government-private sector collaborations worldwide.

## Key Audit Focus Areas:

- **Value for Money:** Comparing costs and benefits.
- **Contract Management:** Ensuring compliance with terms and service levels.
- **Risk Transfer:** Evaluating if risks were correctly transferred or remained with the public sector.
- **Accountability:** Verifying the transparency of the bidding and awarding process.



**Thank You**