

SUSTAINABLE PUBLIC BUS TRANSPORT FINANCING: INDIA

Summary Report



2020

Janaagraha Centre for Citizenship
and Democracy



About Shakti Sustainable Energy Foundation:

Shakti Sustainable Energy Foundation works to facilitate India's transition to a cleaner energy future by aiding the design and implementation of policies that promote clean power, energy efficiency, sustainable transport, climate policy and clean energy finance.

About Janaagraha Centre of Citizenship & Democracy:

Janaagraha Centre for Citizenship and Democracy (Janaagraha) is a Bengaluru based not-for-profit institution that is a part of the Jana group. Janaagraha's mission is to transform quality of life in India's cities and towns. It defines quality of life as comprising quality of infrastructure and services and quality of citizenship. To achieve its mission, Janaagraha works with citizens to catalyse active citizenship in city neighborhoods and with governments to institute reforms to City-Systems.



Shakti Sustainable Energy Foundation (SSEF) supported Janaagraha in 2019 to design a sustainable bus transport financing mechanism for India.

Janaagraha and SSEF collaborated during the 1st phase of the project to estimate the funding gap in select states/cities and develop an institutional framework that can help sustainably finance bus operations for both capital and O&M spends.

Janaagraha immensely benefited from the continuous dialogue, brainstorming and co-creation with the SSEF team.

BACKGROUND



India is urbanizing rapidly; cities are likely to house 41% of India's population by 2030* from 31% in 2011 (census). This rapid urbanization has led to the growth of private-vehicle ownership, thereby creating several issues such as traffic congestion, increased road accidents, air pollution and declining share of public transport.



Public Bus Transportation is the backbone of mobility for both, urban and rural areas in India. Out of total 1.6 million buses registered in India; the public bus sector operates around 1,70,000* buses carrying 70 mn people per day. The avg. age of fleet ranges from 2 yrs to 11.8 yrs*.



As per ICRA estimates (2016), 100 of the largest Indian cities require ~ \$ 15.4 billion to procure 1,50,000 new buses and upgrade allied infrastructure. To bring in this scale of investment is a big challenge as most of the Indian State Transport Units (STUs) are financially constrained.



In this context, Shakti Sustainable Energy Foundation has appointed JCCD to undertake study on “Sustainable Financing of Public Bus Transportation in India” to assess the quantum of fund required for 5 Public Bus Transportation systems for next 10 years and to recommend a funding structure or mechanism for the same.



As a part of the study, 5 selected STUs were analyzed to understand their bus procurement and financial needs in the next 10 years. Their financial health, current sources of funding, and various schemes and supporting mechanisms in place were analyzed to further come up with a sustainable funding structure.

APPROACH AND METHODOLOGY

Selected STUs - TSRTC (rural/district), TSRTC (urban), KSRTC, MTC Chennai and BMTC

Approach

The study is undertaken in two parts -

- Demand estimation
- Assessing Financing mechanism

The study is undertaken with combination of primary and secondary research

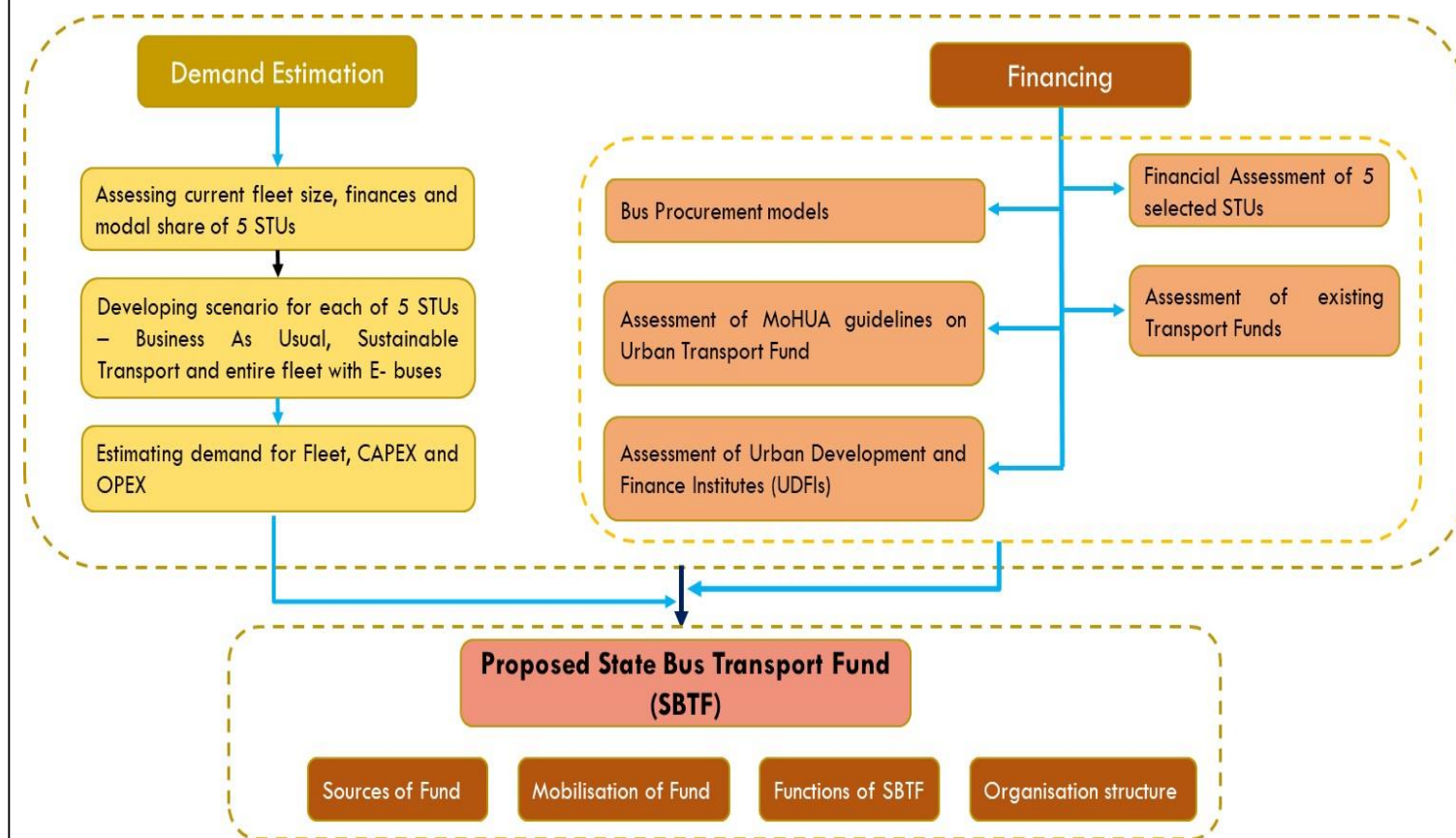
Secondary research involved

- Review of various studies, reports and documents on – public transportation, e buses, financing urban infrastructure etc.
- Review of global and Indian STUs including five selected STUs – in terms of procurement models, revenue sources, role of private players, key enablers and challenges etc.
- Analysis of unaudited finances of 5 selected STUs in terms of trends in revenue and operating costs, their interlinkages

Primary research involved

- Interaction with key experts and OEMs
- To seek insights and validate findings of secondary research
- Review meetings with Shakti Energy Foundation's team to validate and present findings

Methodology



FLEET AND FUNDING ESTIMATION SCENARIOS

To analyze the fleet and funding demands for the selected 5 STUs, three scenarios were taken into consideration. These range from the Business As Usual (BAU), where estimates were directly drawn based on today's status quo without factoring in any other changes, to an optimistic scenario assuming increase in demand due to service improvement to a more ambitious one involving e-buses in the fleet along with increased demand.

Scenario 1
Business as Usual (BAU)
Demand and supply conditions

- Fleet demand for the future is estimated based on past trends of operations (vehicle km operated per day; daily vehicle utilization, share of hired buses), assuming no change in vehicle technology
- Additionally, in the case of TSRTC, the BAU is compared with a scenario of adopting 100% hired buses instead of the current scenario of a mix of owned and hired services

Scenario 2
Optimistic
Increased bus demand induced by improved service levels

- For city level assessment: Bus fleet needs are estimated for the targeted mode share for buses derived from the public transport mode share targets set as a part of the sustainable mobility vision of the city's Comprehensive Mobility Plan (CMP)
- For state level assessment: Bus fleet needs are estimated for a shift of 25% of the passenger rides from auto rickshaws to public transport, along with a steady rise of bus ridership
- All buses are assumed to be BS-VI Non AC Diesel buses owned and operated in-house

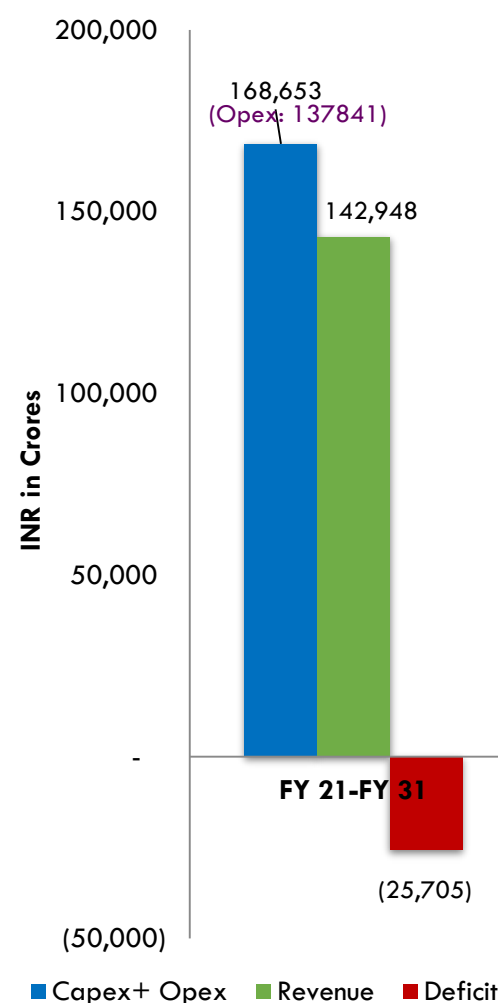
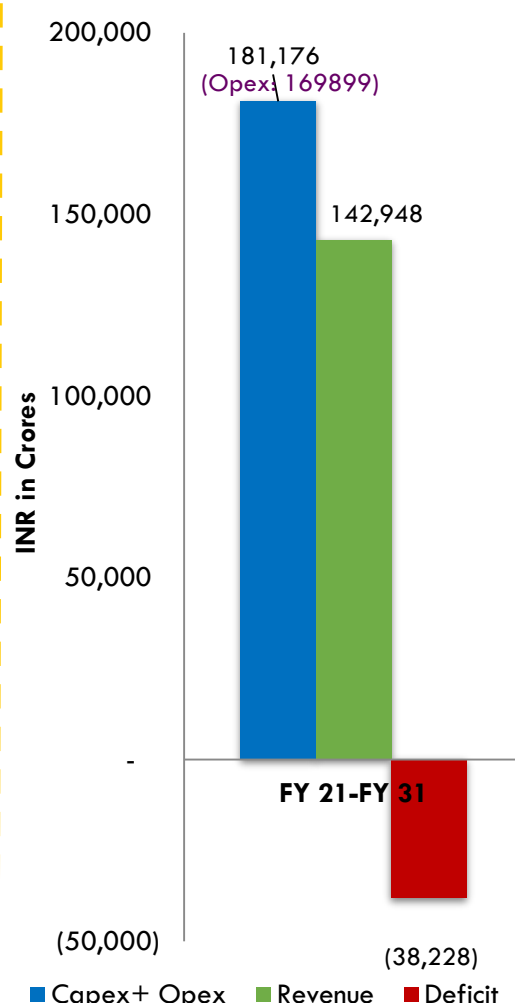
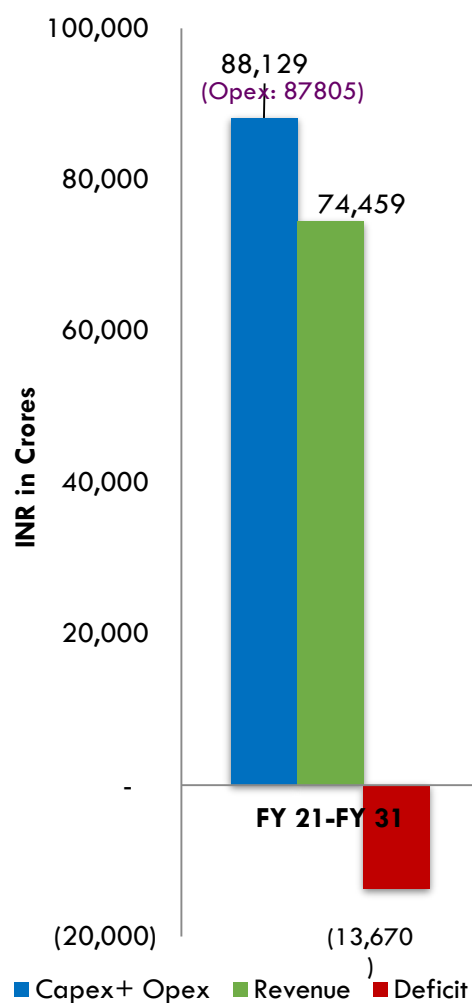
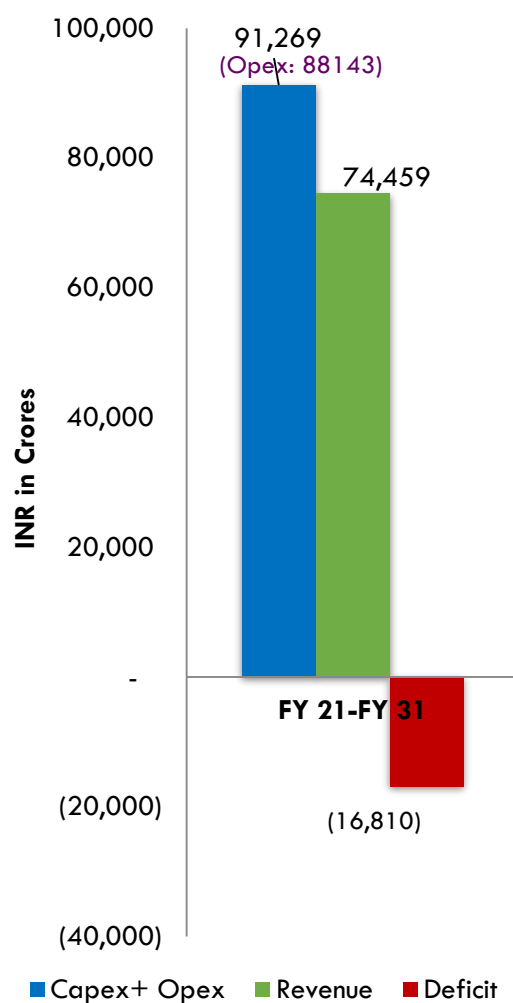
Scenario 3
Ambitious
Scenario 2+ Electric buses

- This scenario uses the fleet estimation from scenario 2 with the additional assumption of inducting electric buses along with diesel buses to fulfill the demand
- Further, the scenario also assumes 100% electric bus procurement after 2023

NEEDS ASSESSMENT FOR STUs

TSRTC STATE (RURAL/ DISTRICT)

FLEET PROCUREMENT	BAU (owned fleet)	BAU (Hired Fleet)	Optimistic	Ambitious
Up to 2031	6,661	6,661 (to be hired by TSRTC)	17,318	17,318



The STU incurs losses across the scenarios analyzed, ranging from Rs. 13,670 Cr. to Rs. 38,228 Cr.

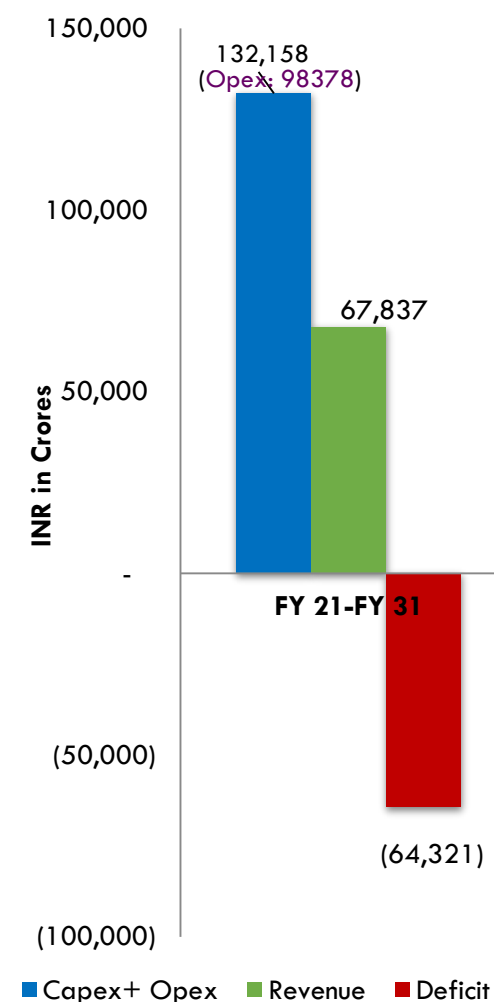
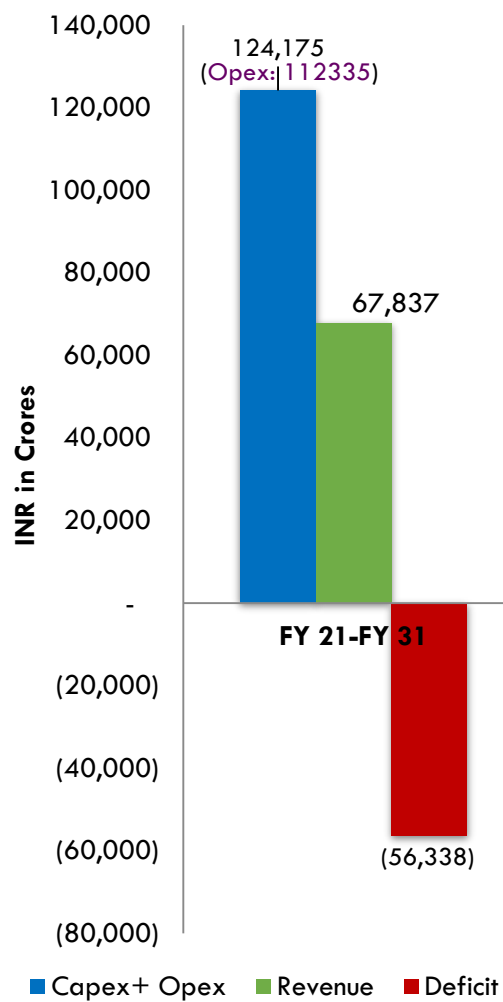
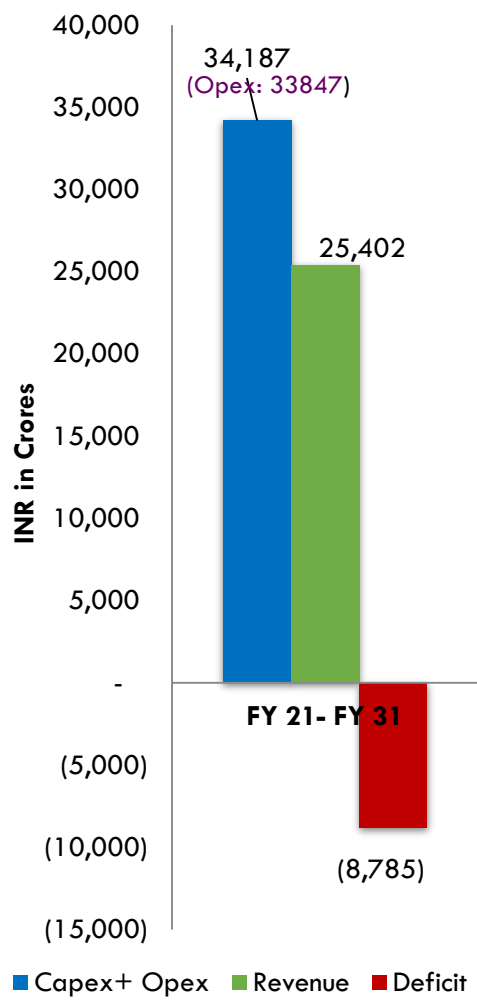
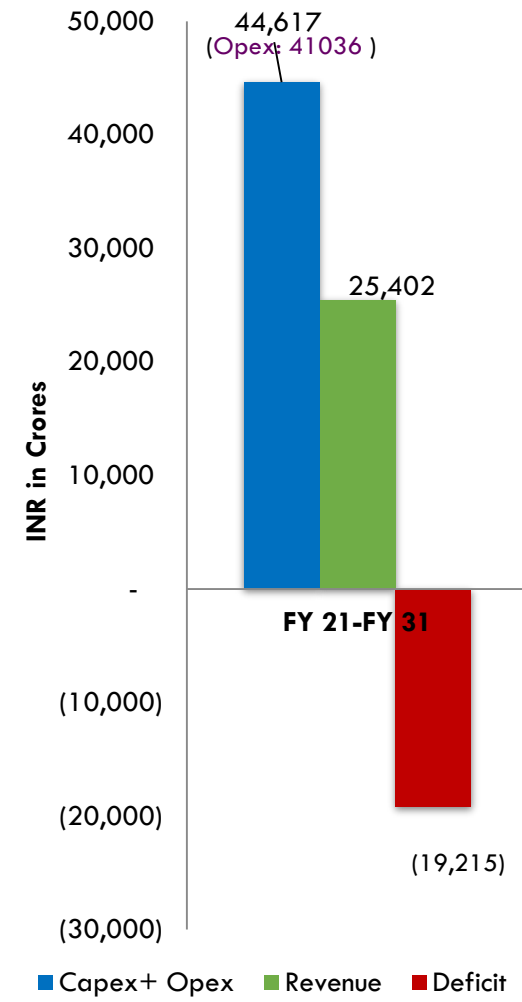
The deficit to be funded is found to be the least (Rs. 13,670 Cr.) under BAU when the buses are not totally owned by the STU, and highest (Rs. 38,228 Cr.) under the optimistic scenario.

Operating Expenditure (Opex) amounts to 97%, 99%, 94% and 82% of the Total Expenditure for the four scenarios respectively.

NEEDS ASSESSMENT FOR STUs

TSRTC HYDERABAD (URBAN)

FLEET PROCUREMENT	BAU (owned fleet)	BAU (Hired Fleet)	Optimistic	Ambitious
Up to 2031	5,315	5,315	20,170	20,170



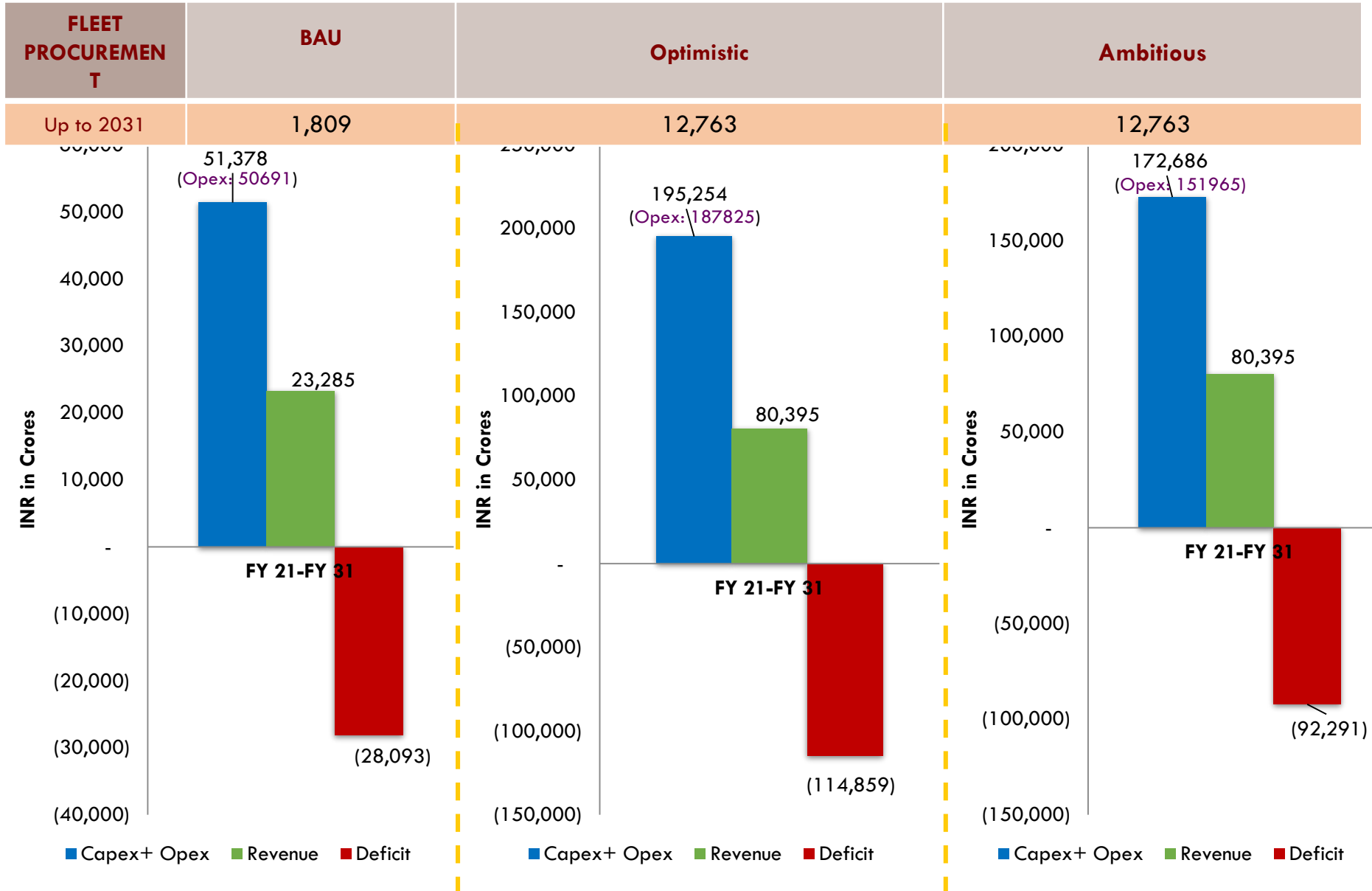
The STU incurs losses across the scenarios analyzed, ranging from Rs. 8,785 Cr. to Rs. 64,321 Cr.

The deficit to be funded is found to be the least (Rs. 8,785 Cr.) under BAU when the buses are not totally owned by the STU, and highest (Rs. 64,321 Cr.) under the ambitious scenario.

Operating Expenditure (Opex) amounts to 92%, 99%, 90% and 74% of the Total Expenditure for the four scenarios respectively.

NEEDS ASSESSMENT FOR STUs

MTC CHENNAI(URBAN)



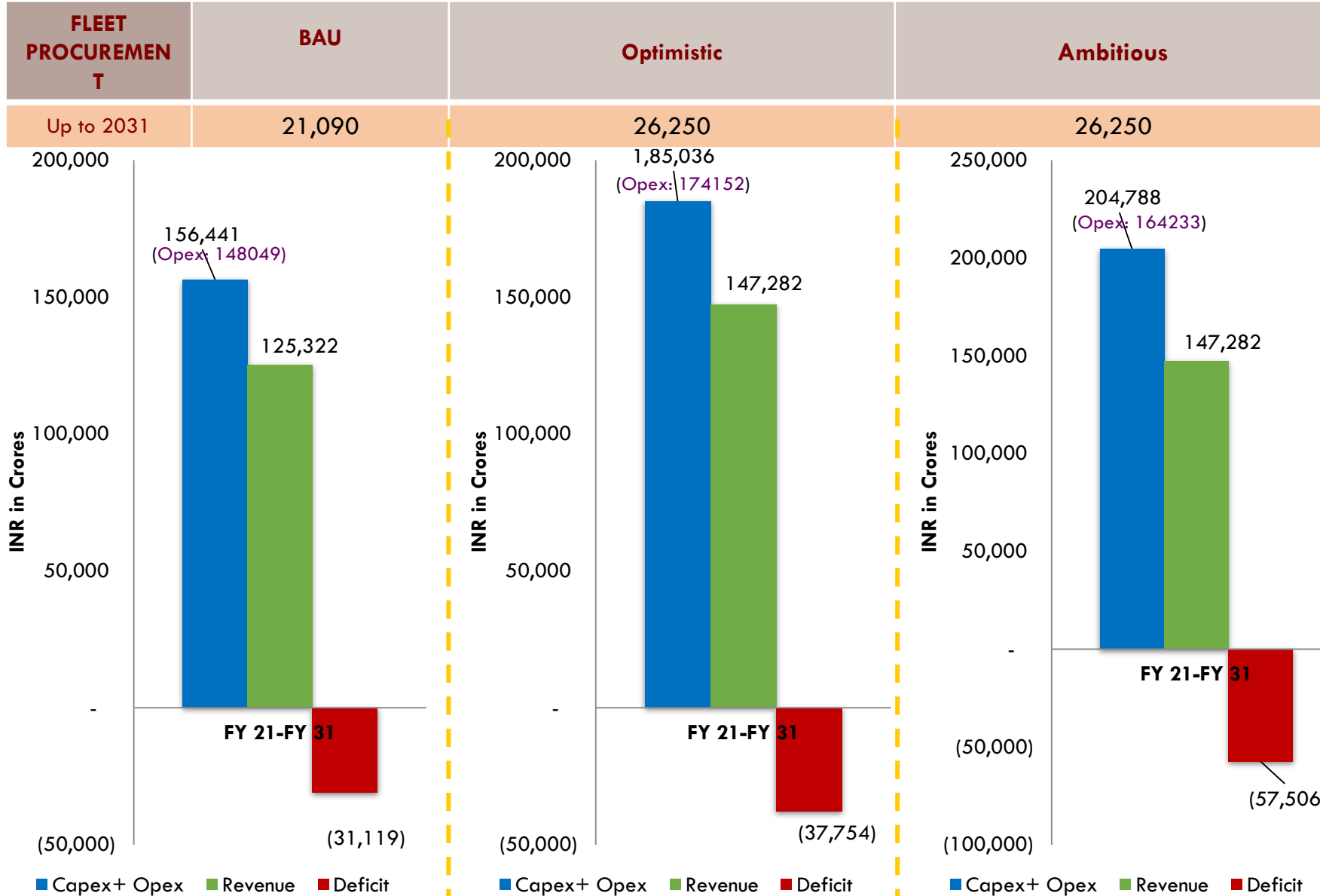
The STU incurs losses across the scenarios analyzed, ranging from Rs. 28,093 Cr. to Rs. 1,14,859 Cr.

The deficit to be funded is found to be the least (Rs. 28,093 Cr.) under BAU and highest (Rs. 1,14,859 Cr.) under the optimistic scenario.

Operating Expenditure (Opex) amounts to 98%, 96% and 88% of the Total Expenditure for the three scenarios respectively.

NEEDS ASSESSMENT FOR STUs

KSRTC KARNATAKA (RURAL/ DISTRICT)



The STU incurs losses across the scenarios analyzed, ranging from Rs. 31,119 Cr. to Rs. 57,506 Cr.

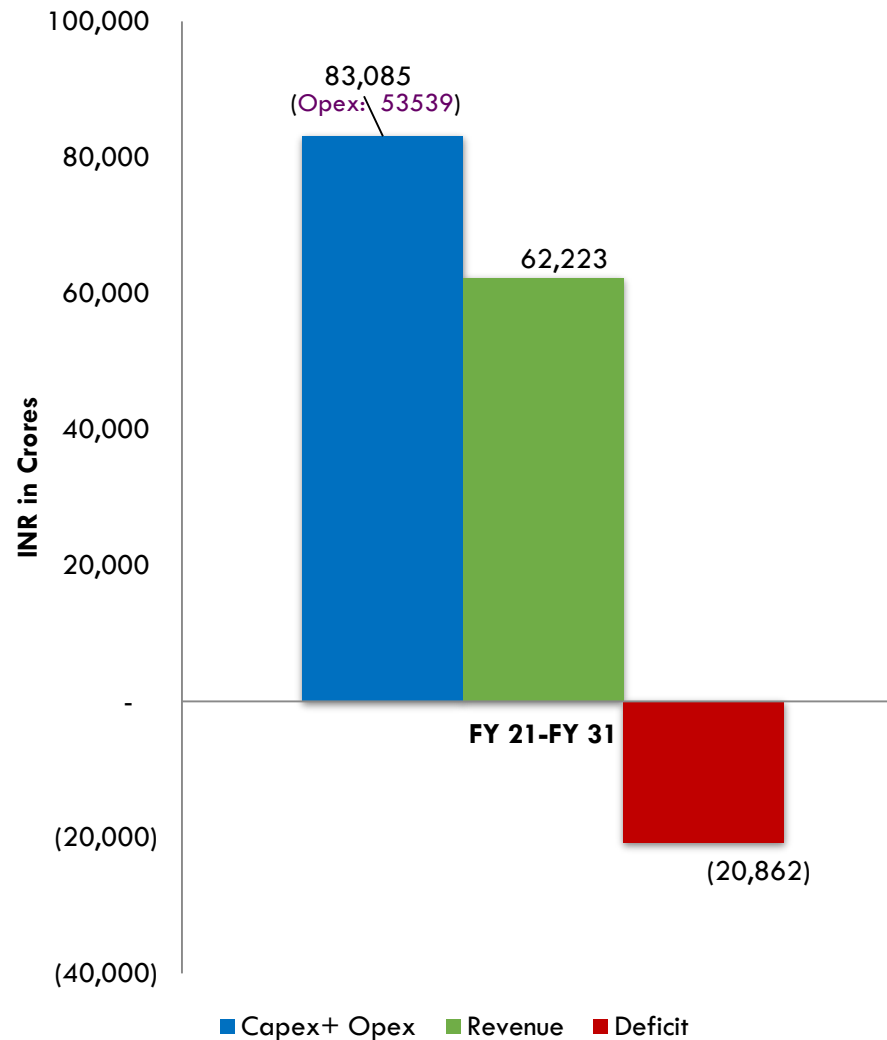
The deficit to be funded is found to be the least (Rs. 31,119 Cr.) under BAU and highest (Rs. 57,506 Cr.) under the ambitious scenario, which includes 100% e-buses after 2023.

Operating Expenditure (Opex) amounts to 95%, 94% and 80% of the Total Expenditure for the three scenarios respectively.

NEEDS ASSESSMENT FOR STUs

BMTC BANGALORE (URBAN)

FLEET PROCUREMENT	Improved Public Transport + Electric bus Scenario
Up to 2031	17,853



The BMTC Vision plan envisages the growth for the next 10 years. According to the plan, the viable scenario for BMTC is the improved public transport scenario with procurement of only electric buses after the year 2023.

The deficit to be funded here is Rs. 20,862 Cr.

Operating Expenditure (Opex) amounts to 64% of the Total Expenditure.

KEY TAKEAWAYS-1

Meeting the sustainable transport vision identified by Hyderabad, Chennai and Bangalore points to the need for a 2-4-fold increase in the bus fleet size of these cities. As per our analysis, even rural and intercity service providers such as TSRTC and KSRTC will need to procure up to 18645 and 29958 in fleet size to cater the estimated demand for bus transport in the next 10 years.

1

Improving bus service levels and their transition to zero emission electric buses requires sustainable non-fare funding sources that support STUs' Capital and Operational expenditure needs.

3

A state level facility that funds STUs in-lieu of meeting the improved service and emissions performance needs to be set up. As discussed in the subsequent sections, this fund is designed after careful analysis of bus procurement trends, sources of funds, financial health of the STUs, and the existing guidelines and mechanism in place.

5

2

Across STUs, the BAU trend points at stagnant service levels and increasing financial losses due to steady increase in staff and fuel costs. These costs are not matched with commensurate increase in fare levels due to affordability considerations of bus users.
MTC Chennai and KSRTC, under BAU trend, incur losses worth Rs. 28,093 Cr. and Rs. 31,119 Cr. Respectively in next 10 years.

4

Further, the transition to electric buses would require higher investments given the higher capital needs of electric buses due to higher vehicle cost and supporting infrastructure needs such as charging and electric infrastructure.

For example, in the case of KSRTC, Capex required for the e-bus scenario (ambitious) is Rs. 40,555 Cr as against Rs. 10,884 Cr. otherwise. Similarly Opex for e-bus scenario for KSRTC reduces to Rs. 1,64,233 Cr from Rs. 1,74,152 Cr otherwise. This trend is constant across STUs.

TREND IN PROCUREMENT OF BUSES

ALTHOUGH GCC/NCC MODELS HAVE BEEN INTRODUCED BUT THEIR ADOPTION HAS BEEN QUITE LIMITED

Predominant Public Bus Procurement Models

- Outright purchase of buses continued to be priority for most of the STUs. However, policy push through NUTP-2006 and funding support under JnNURM scheme incentivized many STUs to adopt GCC and NCC kind of models, and in some cases hybrids of these models.
- Under GCC and NCC models, the bus is procured by either the STU or the private player, but the bus operations is with the private player
- The type of contract is decided based on key parameters – bus ownership, bus operation, responsibility for revenue collection and fare fixation
- Under FAME 1 scheme, launched in March 2015, 50% of the cities/ STUs adopted GCC model while remaining 50% cities adopted Outright Purchase model (Total buses ~ 450)
- FAME-II scheme, launched in 2019, recommended GCC model. As electric bus is still a nascent technology with high capital cost and the STU capacity is inadequate to manage its operations, Gol recommended GCC Model (Total buses- 5545 for 64 STUs)
- GCC model promotes major role for the private players and to reduce the risk of capital and O&M cost on STUs; and at the same time improve efficiency and service levels.

Comparison of various models across key parameters

Model-> Functions	Open Market with regulations	NCC	GCC	Monopoly
Procurement of Vehicle	P	P or G	P or G	G
Bus operation	P	P	P	G
Bus maintenance	P	P	P	G
Route Planning and Scheduling	P	P and G	G	G
Monitoring	-	G	G	G
Fare Collection	P	P	G	G
Fare Fixation and revision	P and G	G	G	G
Provision of Infrastructure	P (if required)	G	G	G

- Only TSRTC shows wider adoption of GCC (>20% of fleet), BMTC, KSRTC and MTC Chennai, who have combined fleet of 28,743 buses are exploring GCC model only for FAME-II e- buses as its mandated by Gol.
- Although GCC and NCC models promote larger participation of private players to improve service levels and reduce operating costs, STUs have still refrained from adopting them at scale. This may be attributed to no periodic revision in tariff, inadequate operational planning and absence of robust institutions.
- As evident from above, these 5 STUs will need significant investment for outright purchase of buses as per the estimated demand.

KEY TAKEAWAYS-2

WHY SPECIFIC PROCUREMENT MODELS ARE PREFERRED BY STUs

Many STUs continue to adopt **outright purchase and leasing models** because of –

- Lack of willingness to change existing procurement systems, influence by automobile industries and political decision makers as auto industry in India is a major industrial investor and job creator
- Resistance to change by legacy worker unions, opposition to PPP and outsourcing contracts

However, some STUs preferred **GCC and NCC models** because of -

- Push by funding and reforms under JnNURM during 2016-2014, many STUs adopted GCC and newly formed smaller STUs preferred NCC models
- In case of e – buses: the risk of high upfront cost, nascent technology and inadequate capacity of STUs to manage e buses, was transferred to private player through GCC model

Proactive STUs like Ahmedabad and Pune chose GCC model for diesel and CNG buses (part of the fleet) where the local ecosystem of various stakeholders and leadership played a major role in decision making

Although **OEMs** prefer Outright purchase, they are adopting other models such as GCC and NCC due to upfront subsidy available from government and to withstand market competition

TO FULFILL THE ASPIRATIONS OF SUSTAINABLE BUS TRANSPORT — HOW & WHERE TO GET FUNDS FROM?



Major source of own revenue for STUs is a Fare Box Revenue or traffic revenue, which constitutes 80% to 90% of their total revenue. However, most of these STUs incur operating losses and the funding for procurement of buses is largely done through:

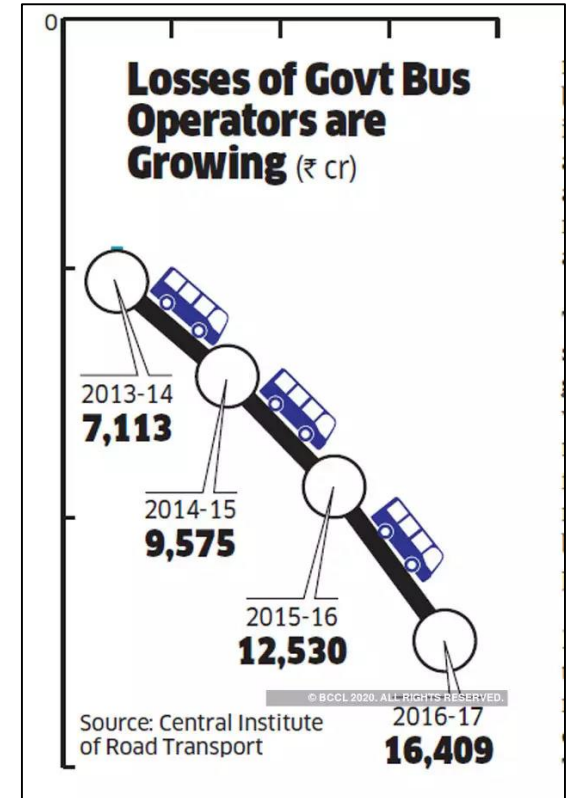
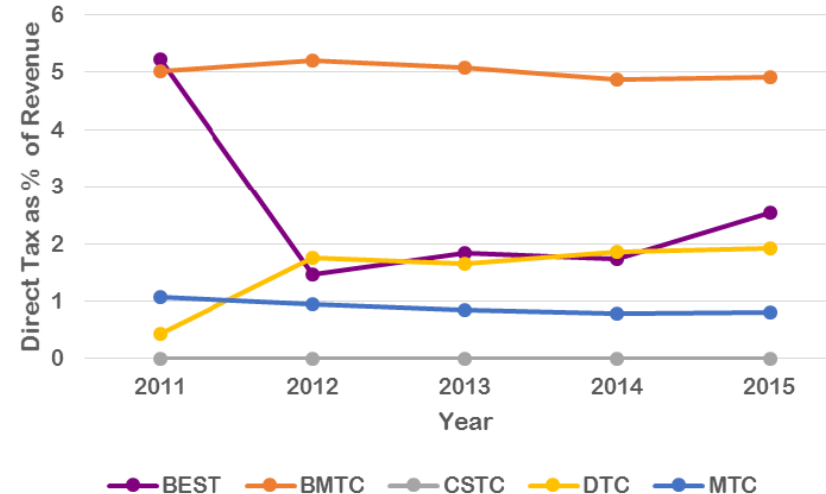
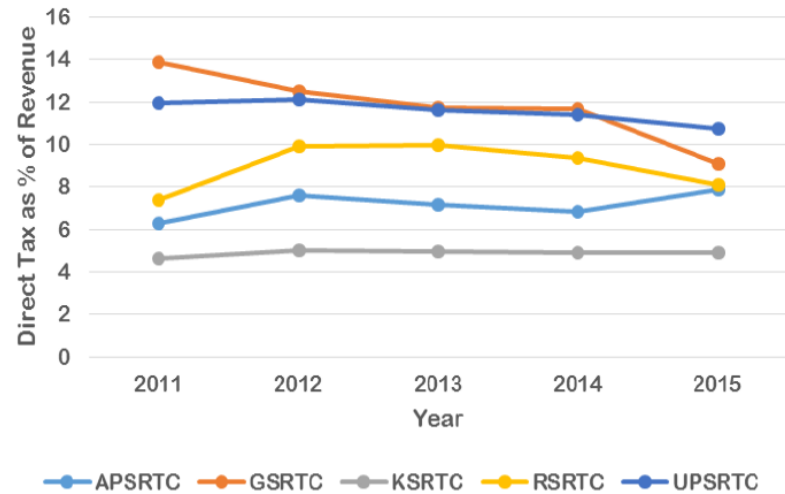
- ☐ Government grants either through budgetary provisions or through state / centrally sponsored schemes like JnNURM, FAME etc.
- ☐ Borrowing from various financing entities, with state guarantees

Therefore, it is necessary to analyze the finances of select STUs to assess their financial health and explore **alternative financing entity structure/ mechanism to fund** the CAPEX and OPEX to meet the future demand.

MOST OF THE STUs INCUR OPERATING LOSSES AND NEED TO PAY FURTHER TAXES ON A COMMERCIAL BASIS DESPITE OF THEIR SOCIAL OBLIGATIONS

- There are 50+ government-run SRTCs in India and in FY17, combined operating losses of these STUs were INR16,400 cr, which is >33% that was in FY16 & 8 times that was in FY07), highlighting that managing OPEX is a big challenge
- Low non-traffic income at 5% of STU's revenues (FY17) while the Manpower cost (35% to 60%) is a major component of the operating cost

- Financially constrained Indian STUs pay govt. taxes in the range of 1- 10 % of their revenue, (study year 2015)
- STUs pay 13 types of taxes, out of which 3 are from center
- Most significant direct taxes are Motor Vehicle Tax & Passenger Tax



Source: <https://economictimes.indiatimes.com/industry/transportation/roadways/what-ails-state-run-bus-operators-in-india/articleshow/72312102.cms?from=mdr>

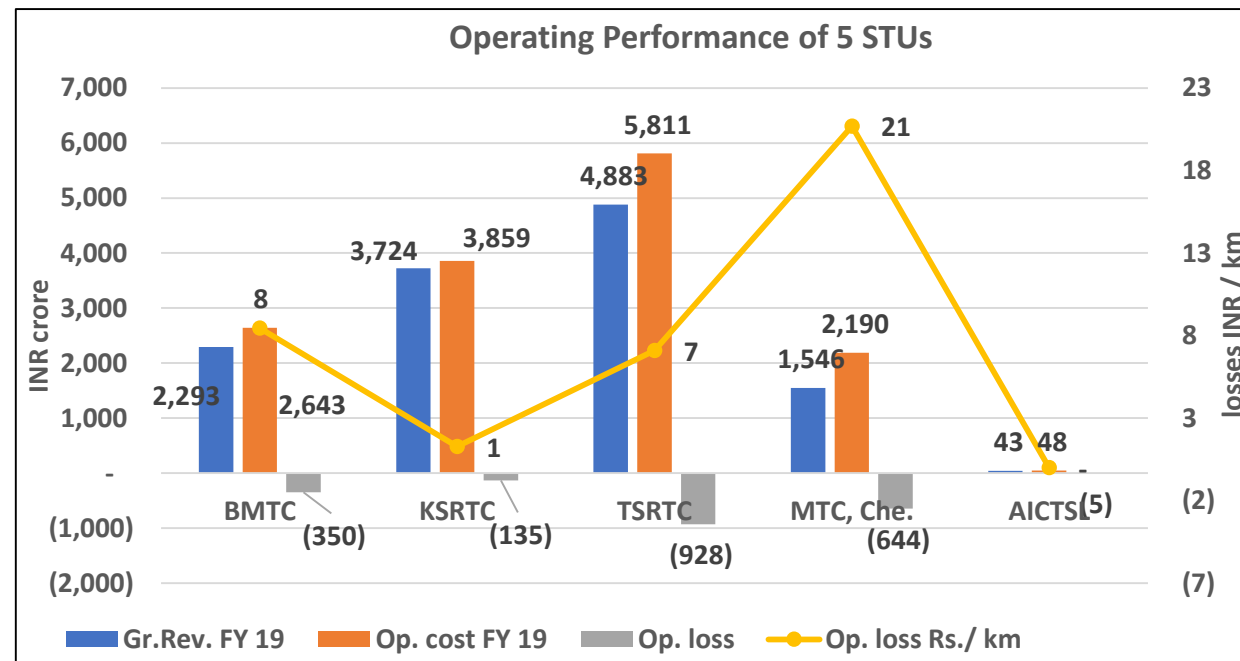
APSRTC: Andhra Pradesh, GSRTC: Gujarat, KSRTC: Karnataka, RSRTC: Rajasthan, UPSRTC: Uttar Pradesh, BEST: Mumbai, BMTC: Bengaluru, CSTC: Calcutta, DTC: Delhi, MTC: Chennai

Source: Taxation & its impact on Public Transport, Overview, Policy Distortions, and Potential Reforms, WRI India

<https://economictimes.indiatimes.com/industry/transportation/roadways/what-ails-state-run-bus-operators-in-india/articleshow/72312102.cms?from=mdr>

ANALYSIS OF FINANCES OF STUS - KEY OBSERVATIONS

- Cumulative losses of five STUs is **INR 5,442 cr (FY17-19)**
- Wide range of operating losses to gross revenue: **4% (KSRTC) to 42% (MTC)**
- Very less non- operating revenue (< 10%)
- State subsidy for concessions (8% to 13% of total Rev.)
- Manpower cost is a major component of the operating cost : manpower cost to Op. cost is 41% (KSRTC) to 61% (MTC, Chennai)



Non-Operating to Gross Revenue %	FY17	FY18	FY19
BMTC	6%	9%	10%
KSRTC	5%	6%	5%
TSRTC	5%	5%	6%
MTC, Che.	8%	9%	6%
AICTSL	4%	14%	7%

HR cost/ Operating cost	FY17	FY18	FY19
BMTC	53%	53%	53%
KSRTC	43%	42%	41%
TSRTC	52%	50%	49%
MTC, Che.	61%	61%	61%

Telangana State Road Transport Corporation (TSRTC), Karnataka State Road Transport Corporation (KSRTC), Bengaluru Metropolitan Transport Corporation (BMTC), Metropolitan Transport Corporation (Chennai) Ltd. (MTC, Chennai), Atal Indore City Transport Services Limited (AICTSL)

Source: Unaudited finances of BMTC, KSRTC, TSRTS, MTC and AICTSL

ANALYSIS OF FINANCES OF 5 STUS - BORROWING

Although STUs heavily rely on state and central grants, they also borrow from various agencies like commercial banks, state finance intermediaries etc.

- For instance, BMTC swapped Commercial loan (@10%) to KUIDFC loan (@6.5%) under Mega City Scheme Fund
- The interest rate on borrowing varies substantially from 6.5% to 10.75% and in some cases goes upto 14% (Delhi's DTC)
- KSRTC and BMTC have availed loans under Mega City Scheme (till 2015) & then Mega City Revolving Fund (MCRF), apart from central schemes
- All 5 STUs have availed grants under central schemes like JnNURM and FAME

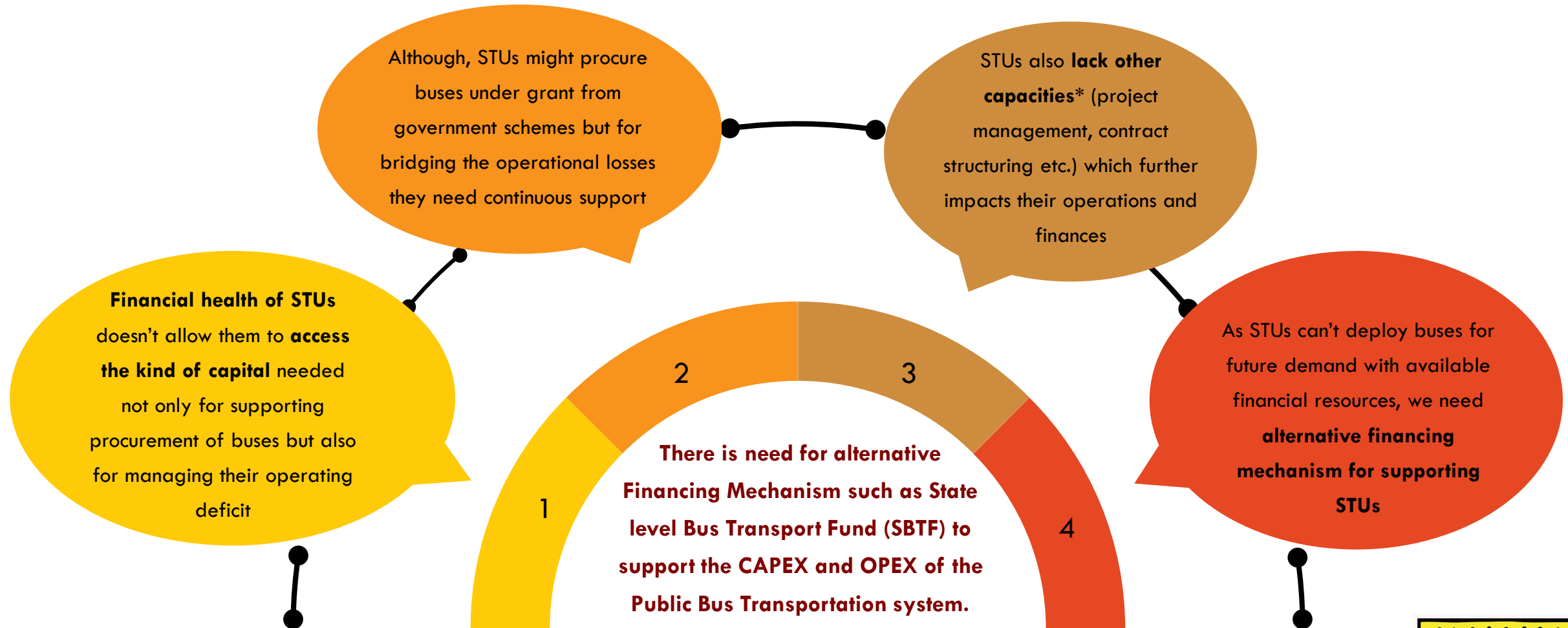


	BMTC	MTC Chennai	KSRTC	TSRTC
Int. Rate for Borrowing	6.5%	8% - 9%	8.5%-9%	10.5%-10.75%
Lending Agency	KUIDFC*	TFDC*	Banks, Fls, KUIDFC	Banks
Loan outstanding, INR Cr.	1,614	347	748	249

*Karnataka Urban Infrastructure Development and Finance Corporation (KUIDFC)
Tamil Nadu Transport Development Finance Corporation Ltd. (TDFC Ltd.)

KEY TAKEAWAYS-3

FINANCIAL POSITIONS OF STUs- A CHALLENGE FOR FULFILLING THE INCREASE IN DEMAND



<https://shaktifoundation.in/wp-content/uploads/2017/06/Roadmap-for-City-Bus-Systems-in-India.pdf>

TRANSPORT FINANCING ENTITY - EXISTING GUIDELINES & MECHANISM

There is a recognised need to create or use alternate financial structures such as State level Bus Transport Fund (SBTF) to address capital requirement and financial operating gap of STUs. To frame the structure and functions of the SBTF, we evaluated various existing initiatives, guidelines and state level transport specific funds. In this regard, we have evaluated following -



MoHUA guidelines UTF

- MoHUA Guidelines on Unified Metropolitan Transport Authority (UMTA) & **Urban Transport Fund (UTF)**, 2015.
- There are around 15 UMTAs formed under this and most of them are not functional.
- Some states like Punjab and Andhra Pradesh are charging cess on petrol and diesel to fund the UTF.



Karnataka STF

- **Karnataka** has set up **State Transport Fund (STF)** under Dept. of Land Transport (DULT).
- It supports - **Traffic, Capacity building, awareness on traffic related issues - Projects aimed at popularizing NMT, innovative pilot projects**, lending soft loans to govt. agency/ statutory body.
- State allocates INR 50 to 60 Cr annually to STF.



Tamil Nadu TDFC Ltd.

- **Tamil Nadu - Transport Development Finance Corporation Ltd. (TDFC Ltd.)**, established in 1975, with objective of **developing fund for capital and working capital requirements of STUs** in Tamil Nadu. It takes deposits from citizens and lend it to STUs at 8%-10% interest rates.
- TDFC received interest-free loan of INR 713 Cr. from GoTN, later it converted into equity in 2019



Gujarat Viability Gap Funding

- **Gujarat Viability Gap Funding scheme** -To support Urban Bus Services in Gujarat, Govt. of Gujarat has launched a scheme to provide Viability Gap Funding (VGF) to TA & ULBs.
- Known as Gujarat – Chief Minister Urban Bus Service Scheme.
- Only operations cost with PPP mode will be part funded for a period of 7 years.
- VGF of 50% or INR 12.50 per km will be given to ULBs.

KEY TAKEAWAYS-4:

LEARNINGS FROM UTF GUIDELINES AND EXISTING STATE FUNDS

MoHUA guidelines on UTF are very comprehensive in nature for setting up the Fund Division within UMTA. **Some of these guidelines related to sources of funds, its utilisation are considered while drafting recommendations for the proposed SBTF**



Karnataka SUTF is set up under Department of Urban Land Transport (DULT) and functions as one of the departments of DULT. Thus, it has very limited autonomy, complete reliability on state budget, smaller scale of funding (upto INR 100 Crores) and limited or no access to private capital. **Learning from this, we have proposed –**
(a) **trust and fund manager like structure for the proposed SBTF and**
(b) **recommended a mechanism to access the capital from IFIs.**



In case of **Tamil Nadu - TDFC**, key challenges are - concentrated deposit profile, weak profitability, modest risk profile given TDFC's borrower segment i.e. STUs. It does not leverage on its large equity and deposit base to access private or IFI's capital from market thus limiting its reach. **Learning from this, we have recommended in SBTF, a mechanism to access the capital from IFIs.**



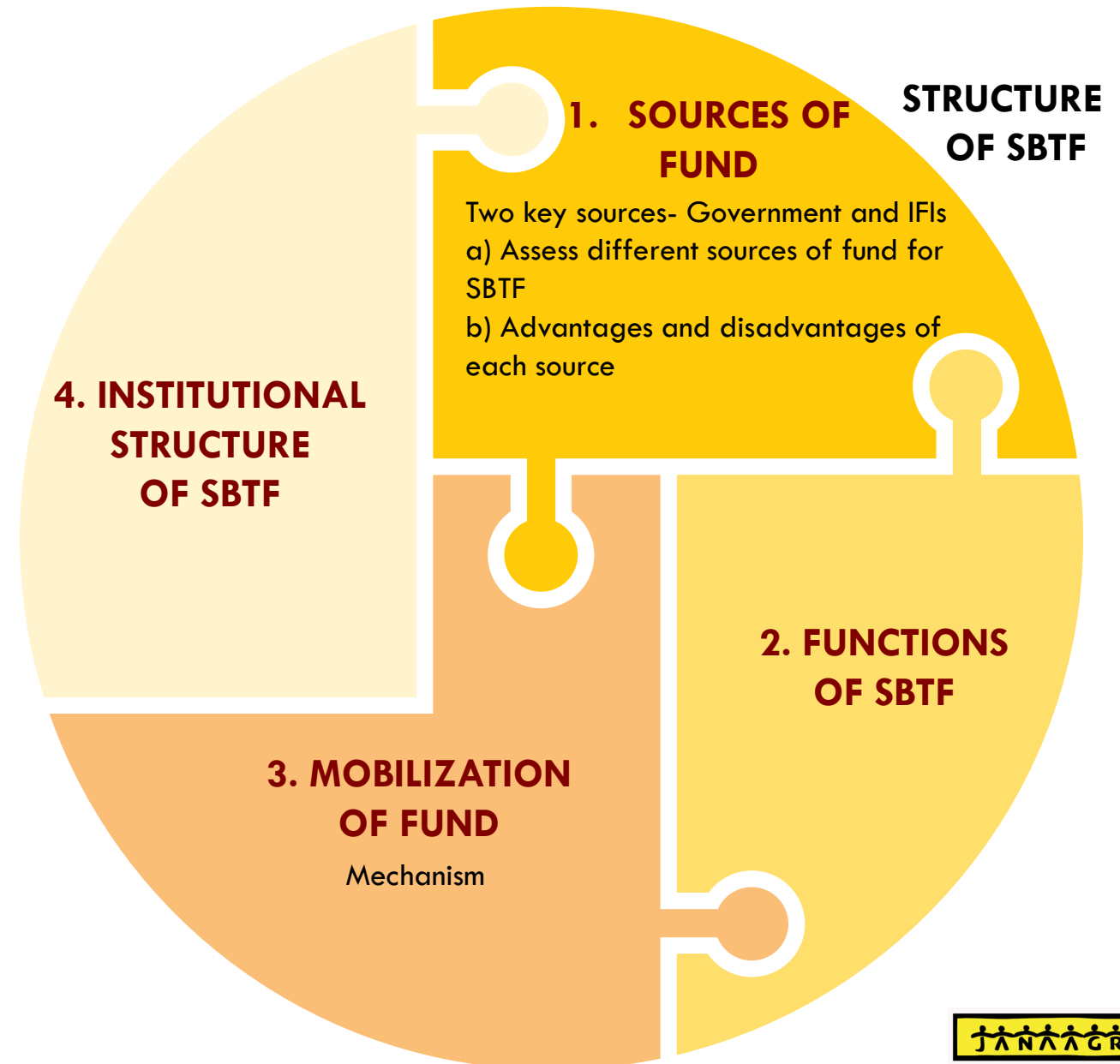
Gujarat VGF model is a unique model of funding the operating cost of STUs for their PPP models of bus operations for 7 years. **We have adopted key features of this model in our recommendations for the SBTF, to fund the operating deficit of the STUs.**



OUTLINE OF THE PROPOSED STATE BUS TRANSPORT FUND (SBTF)

It is proposed that SBTF needs to be formed by equity contribution from the State Govt. and IFIs and/ or commercial banks.

The fund will raise grants and loans from various government sources and IFIs.



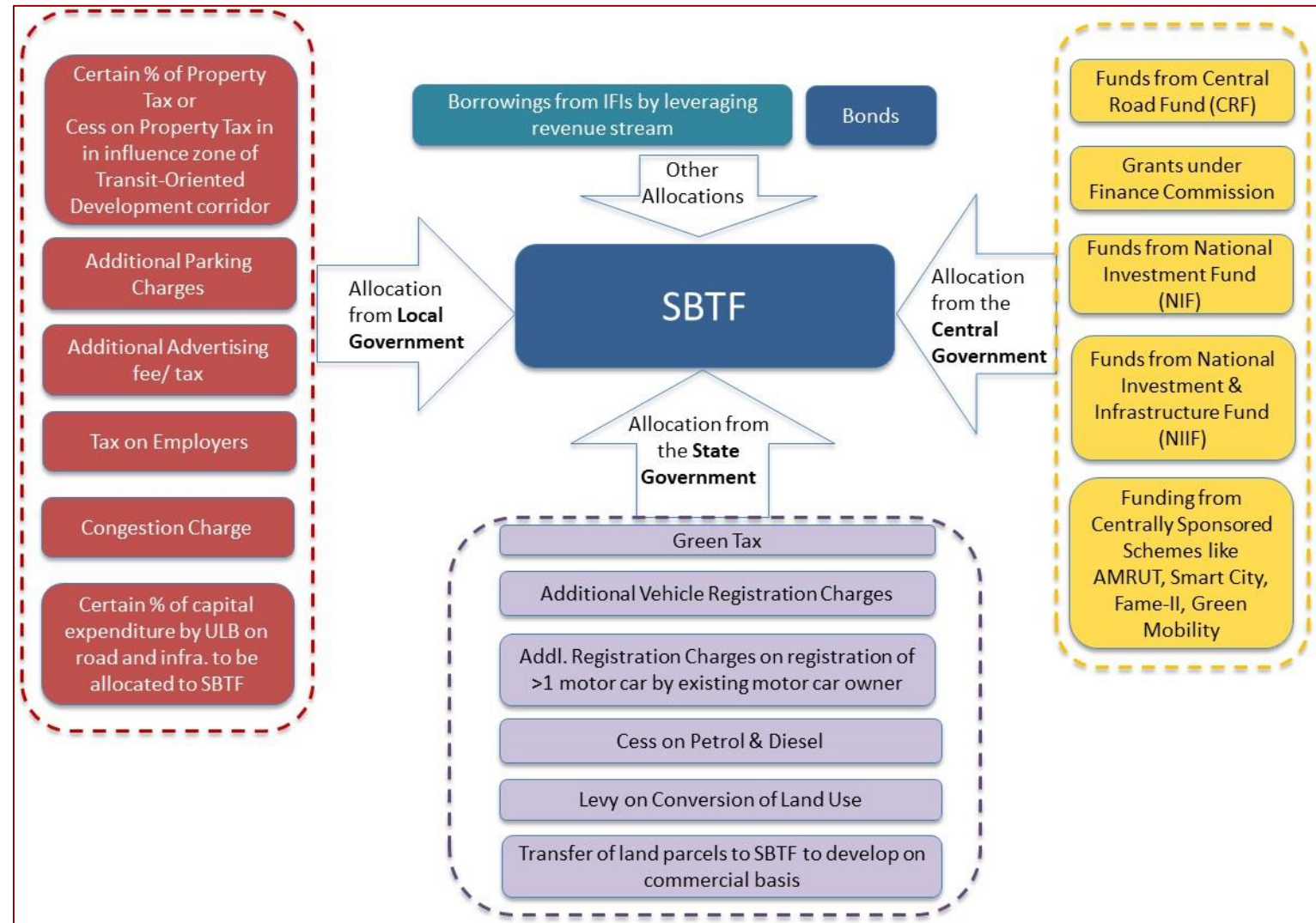
PROPOSED SBTF -SOURCES OF FUND

Two major sources of fund for SBTF:

1. **Government sources** at three levels – Central, State and ULBs or UDAs
2. **Borrowing** from International Finance Institutes (IFIs)
 - Access low cost capital from Development Banks with government guarantee

EXPLORE:

- Land monetization to ensure financial sustainability, state govt. will provide policy guidelines on this
- Part of the revenue generated through Transit Oriented Development – and further develop Terminals and Stations on PPP/ commercial basis



PROPOSED SBTF -SOURCES OF FUND: GOVERNMENT SOURCES

The sources of fund should be sustainable and remain available for a long period of time i.e. the revenue keeps flowing continuously over a long period. Following are the sources that will be available for long period of time:

NATIONAL LEVEL

1. Funds from Central Road & Infra. Fund (CRIF)
2. Grants under Finance Commission
3. Funds from National Investment Fund (NIF)
4. Funds from National Investment & Infrastructure Fund (NIIF)
5. Funds from centrally sponsored schemes (such as AMRUT/ Smart City/ FAME- II/ Green Mobility)

STATE LEVEL

1. Green tax
2. Additional vehicle registration charges
3. Additional charges on registration of more than one 'motor car' with an existing 'motor car' owner
4. Cess on fuel sold
5. Additional levy on conversion of land use charges
6. Transfer of land parcels to SBTF to develop on commercial basis

ULBS/RLBS

1. Cess on property tax in influence zone of Transit-Oriented Development corridor
2. Additional parking charges
3. Additional charge on advertising fee/ tax
4. Tax on employers
5. Congestion Charge
6. % of capital expenditure by ULBs on road and infra. to be allocated to SBTF

PROPOSED SBTF -SOURCES OF FUND: SUMMARY

WHAT GOES INTO POTENTIAL SBTF FROM GOVERNMENT & OTHER SOURCES

Sources	Source can be tapped in the - Short or long term	Source can be used as -	
		Grant	Debt
Central Govt. level sources			
1. Central Road and Infrastructure Fund	LT	✓	✓
2. Finance Commission grant	ST	✓	
3. Current Central schemes (AMRUT/ Smart City/ Green Mobility Scheme)	ST	✓	✓
4. Funds from National Investment Fund (NIF)	LT		
5. Funds from National Investment & Infrastructure Fund (NIIF)	LT		
State Govt. level sources			
1. Green Tax	ST	✓	
2. Additional Vehicle Registration Charges	LT	✓	
3. Surcharge on owning > 1 motor vehicle	LT	✓	
4. Cess on fuel sold	ST	✓	
5. Additional levy on conversion of land use charges	LT	✓	✓
6. In lieu of above, certain % on revenue under State MV Act and MV tax Act	ST	✓	
7. Premium on development of land parcel by SBTF on commercial basis	LT	✓	✓

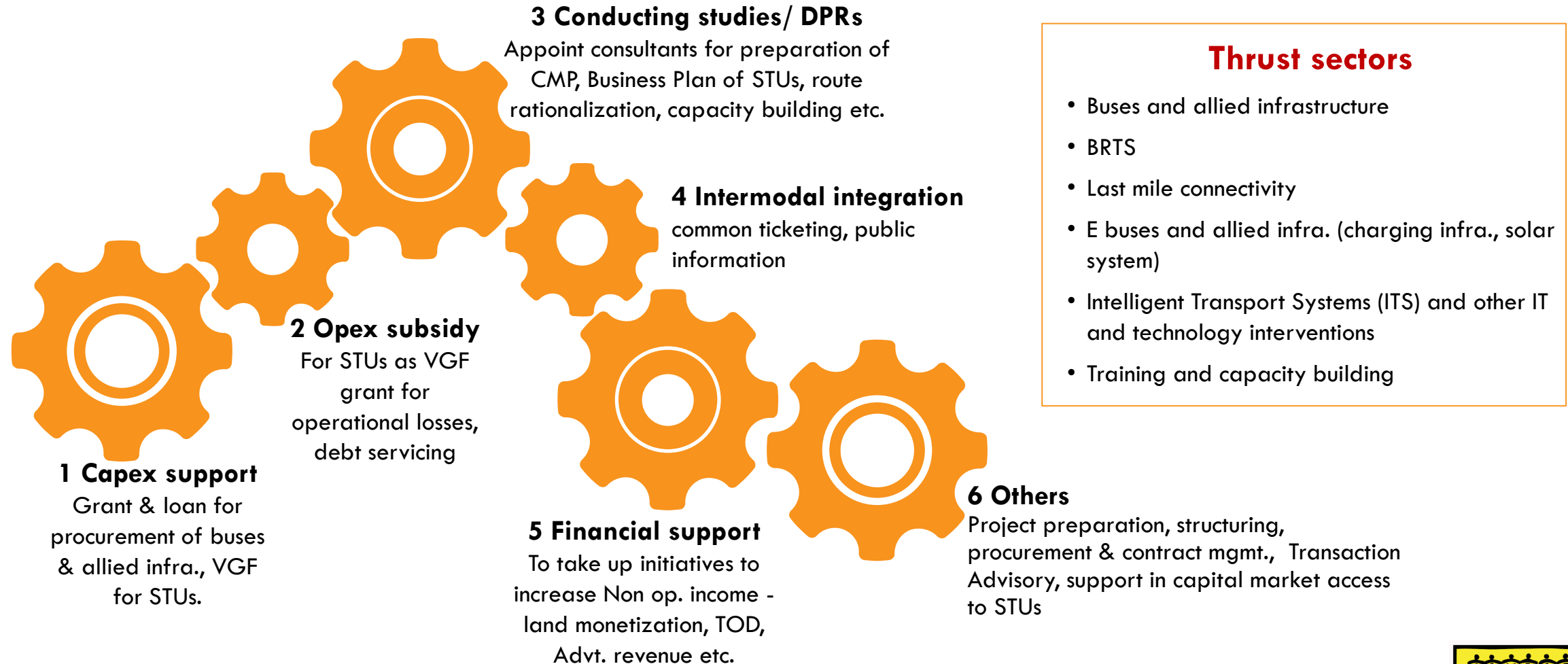
- Initial equity capital can be provided through State budget and /or Central Govt contribution + equity capital from IFIs and/or Commercial Banks + equity contribution from NIF and NIIF can be explored
- E.g. TNUDF has total equity of INR 200 Cr with contribution from GoTN (72%) and Banks/ NBFC (28%)
- Enhancing equity by infusing more capital in future
- Cost of Land parcel allocated by State govt. can go as equity of State Govt.
- Potential fund size for Tamil Nadu is around 2550 crore per annum considering IFI and government sources ([click here for more details](#))

Sources		Source can be tapped in the - Short or long term	Source can be used as -	
			Grant	Debt
ULB level sources				
1. Cess on property tax in influence zone of Transit-Oriented Development corridor		ST	✓	
2. Additional parking charges		LT	✓	
3. Additional charge on advertising fee/ tax		LT	✓	
4. Tax on employers		LT	✓	
5. Congestion Charge		LT	✓	
6. % of capital expenditure by ULB on road and infra. to be allocated to SBTF		ST	✓	✓
7. In lieu of above, % of total annual revenue of all ULBs in the state		ST	✓	✓
Short Term	ST	Long Term	LT	JANAKRAN

PROPOSED SBTF – FUNCTIONS OF FUND

UTILIZATION OF FUNDS FOR CAPEX AND OPEX & PROJECT PREPARATION ECOSYSTEM

SBTF can be utilized for thrust sectors for supporting their Capex and Opex requirements. It will also help in creating/ strengthening the project preparation ecosystem whereby project development grant will be provided.



PROPOSED SBTF — MOBILIZATION OF FUND

SBTF can be utilized for thrust sectors for supporting their Capex and Opex requirements, and for project development activities through various ways, which are explained below:

Utilisation mechanism	Activities/ Components	Existing examples
Loan	<ul style="list-style-type: none"> Debt can be used for creating assets, e.g. Purchasing buses, developing - Bus Depot, BRTS system, ITMS system etc. 	<ul style="list-style-type: none"> Govt. sources, IFIs or Commercial Banks provide loans to STUs for bus procurement and supporting infrastructure development
Capital grant	<ul style="list-style-type: none"> Capital grant for procurement of buses under various models Viability Gap Funding (VGF) for developing other TDF Ltd. Provides allied infrastructure such as bus depot/ terminal, bus stops, ITMS system etc. which can be developed on EPC or PPP model E.g. VGF grant upto 25% of the total project cost for allied infrastructure projects 	<ul style="list-style-type: none"> TDFC Ltd. provides loan to STUs in TN, Mega City Revolving Fund provides loans to Bangalore and Chennai metropolitan areas
VGF – Operations	<ul style="list-style-type: none"> As a subsidy for covering annual operating deficit of STUs either fully or partially In case STUs opt for PPP models for bus procurement like GCC or NCC models, then for the new procurement, the VGF can be provided as a grant (upto 50% of project cost) to support the operating cost for 5-7 years. This is to promote PPP (GCC and NCC) models. 	<ul style="list-style-type: none"> Project Sustainability Grant Fund (PSGF) managed by TNUIFSL, through which GoTN provides VGF for Urban Infra. projects of ULBs VGF by Gujarat for procurement of new buses on PPP (GCC, NCC models)
Project Preparation Grant (PPG)	<ul style="list-style-type: none"> Conducting studies/ DPRs - appointing consultants for preparation of CMP, Business Plan of STUs, route rationalization, technical studies and bid processes, capacity building etc. To take up initiatives to increase Non operating income of STUs. e.g. for land monetization – grant support for preparation of policy, carrying out Transaction Advisory Services etc. E.g. Developing action plan for exploring newer sources or strengthening existing sources of revenues of STUs 	<ul style="list-style-type: none"> IFIs or Commercial Banks contribute 5-10% of their overall financing commitment Project Development Grant Fund (PDGF) managed by TNUIFSL
Other partnerships	<ul style="list-style-type: none"> Leveraging on other partnerships such as Technical support available for capacity Building and training from various organisations 	<ul style="list-style-type: none"> GIZ provides technical assistance for e mobility and Urban Transportation in select Smart Cities in India

PROPOSED SBTF –INSTITUTIONAL STRUCTURE

ASSESSMENT OF EXISTING SUCH INSTITUTIONS IN URBAN SECTOR

Now the question is - how to Institutionalise the SBTF ? In this context, we have analysed the following Urban Infrastructure Development Finance Corporations (UIDFCs) by assessing their structure, role, functions and funding mechanism.

KUIDFC

- KUIDFC manages projects worth ~ INR 8,500 Cr. including externally aided projects and government schemes.
- It's major sources of income are Management fees representing the reimbursement received from GoK for operational costs incurred
- However, it's role is limited as a nodal agency which manages the projects without any margin over borrowings unlike TNUIFSL.

TUFIDCO

- TUFIDCO was incorporated in 1990, under the Companies Act, 1956 by GoTN (97%) and ULBS+ HUDCO (3%)
- It's role is to provide financial assistance and guidance to Local bodies, Corporations, Boards, Authorities and parastatal agencies for their development schemes.
- It's a nodal agency to implement Government programmes/schemes in the state through Tamil Nadu Urban Infrastructure Development and Renewal Fund (TNUIDRF)
- It's role is limited as a nodal agency to manage government schemes such as JnNURM, UIDSSMT etc.

TNUDF and TNUIFSL

- TNUIFSL manages the main fund i.e. TNUDF plus strengthens the financing ecosystem and supports ULBs in developing financially viable projects by assisting project preparation activities and extending viability gap funding through support funds like PDGF and PSGF.
- TNUIFSL has 24+ yrs of experience in managing Multilateral funds, floating bonds, accessing capital markets and has expertise in project development and structuring
- Therefore, existing institutional mechanism like TNUDF as a fund (registered as trust) and TNUIFSL as a fund manager (registered as public ltd. Company) is very appropriate for the proposed SBTF.

Some of the points that have to be considered while institutionalizing the fund:

- It can be housed in an existing institution with capability to act as fund manager
- It's structure should allow it to access capital in form of loan from market/ IFIs
- It should have capabilities to make professional investment decisions

PROJECT DEVELOPMENT GRANT FUND (PDGF)
PROJECT SUSTAINABILITY GRANT FUND (PSGF)

PROPOSED SBTF – INSTITUTIONAL STRUCTURE

The proposed SBTF is a state level entity and can be an independent fund.

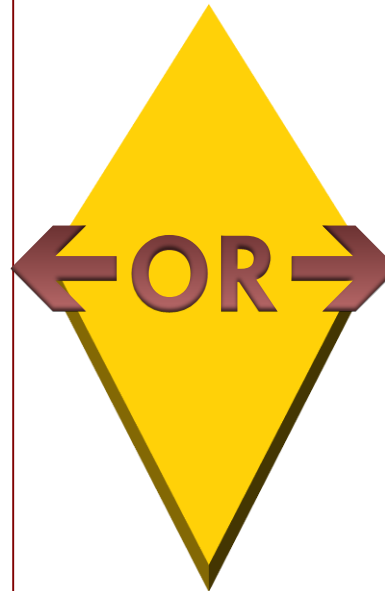
While a detailed organisation structure and nature of legal status of the SBTF depends on many factors which need to be evaluated, broadly two suggestions can be made for the institutional structure.

Option 1

SBTF can be registered as a **new Trust and a separate trustee company to be created to manage the trust.** An existing UIDFC in the state can act as a **Fund Manager or a separate entity** can be formed for the same.

Eg:

- Karnataka - KUIDFC acts as a fund manager for Karnataka Water and Sanitation Pooled Fund Trust (KWSPF Trust) and Megacity Revolving Fund (MCRF)
- Tamil Nadu - TNUIFSL acts as a Fund Manager for Tamil Nadu Urban Development Fund (TNUDF) and other supporting funds such as PDGF and PSGF



Option 2

SBTF can be a part of **existing government department, like Department of Land Transport (DULT).** The Functions of SBTF can be managed by a **fund management division under the department.** The FMD is envisaged to manage all matters pertaining to SBTF, including collection and disbursement of funds.

Eg:

As per MoHUA guidelines, UTF acts as a fund division within UMTA, which is set up at metropolitan level. Additionally UMTA looks after all modes of urban transportation including bus, metro rail, monorail, NMT etc.

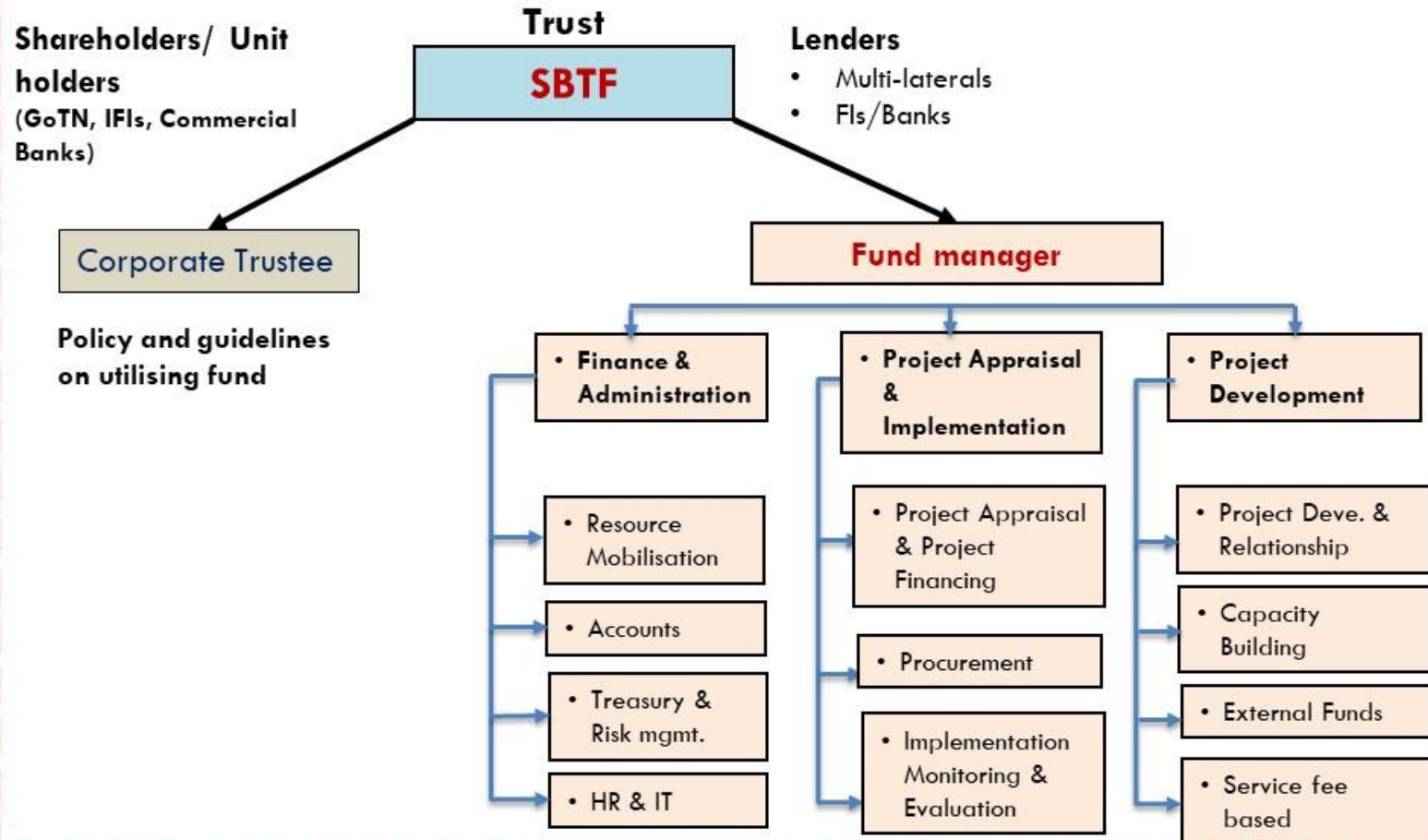
In case, a metropolitan city forms UMTA, the SBTF can lend it to the UMTA instead of the respective STU based on a certain guideline to solely use that allocation for supporting Public Bus Transportation.

EXAMPLE FOR INSTITUTIONALIZING SBTF AS SEPARATE TRUST

SBTF as a Trust with a separate Corporate Trustee managing it.

A separate existing or new entity can act as a fund manager for the SBTF.

- For instance, in case of Tamil Nadu - TNUIFSL act as a fund manager for TNUDF, similarly, it can act as a Fund Manager for SBTF
- TNUIFSL manages other supporting funds such as PDGF for project development support and PSGF for viability grant funding. These funds can act as supporting funds for SBTF.

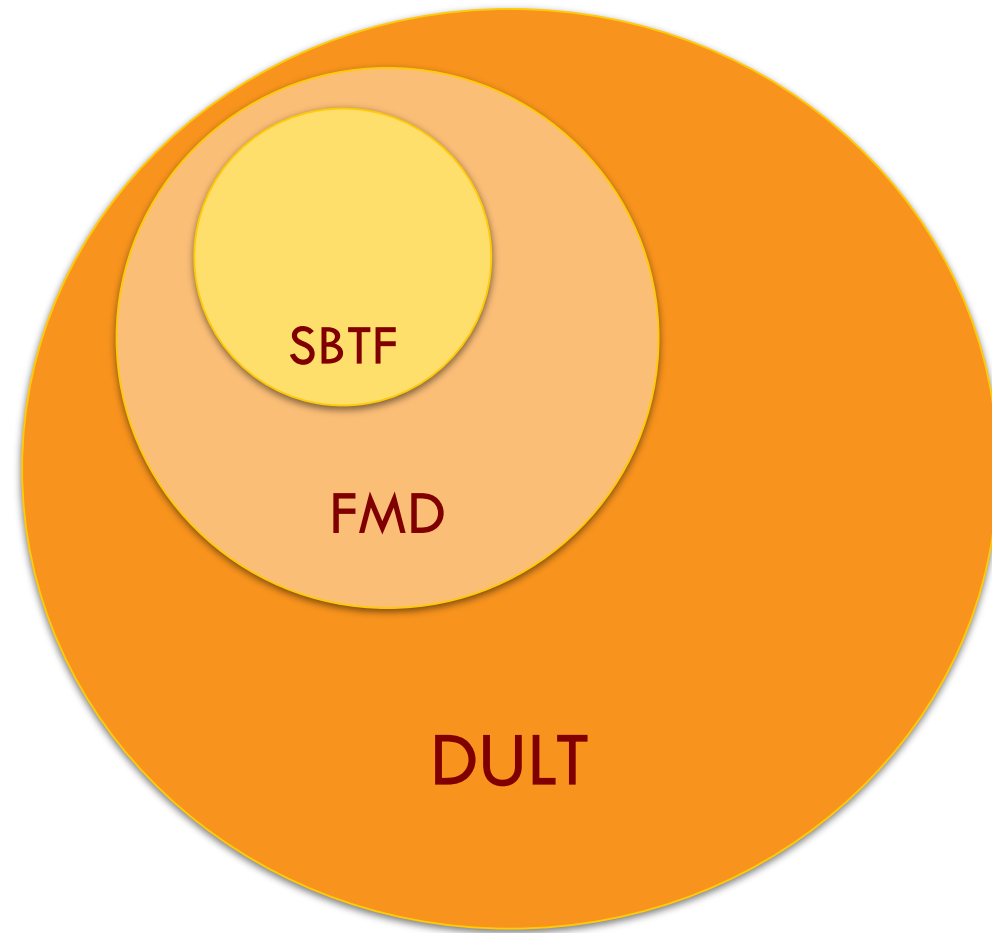


EXAMPLE FOR INSTITUTIONALIZING SBTF UNDER GOVT. DEPARTMENT

SBTF as a part of existing state level entity/authority on land transportation, eg. DULT, which will be responsible to look after it's management.

A department within the chosen entity/authority, eg. A Fund Management Division (FMD) can act as a fund manager for the SBTF.

- Urban Transport Fund (UTF) acts as a fund division within UMTA and it's Fund Management Division (FMD) acts as the fund manager for UTF.



PROPOSED SBTF — INSTITUTIONAL STRUCTURE

These two options are feasible under different enabling conditions as mentioned below:

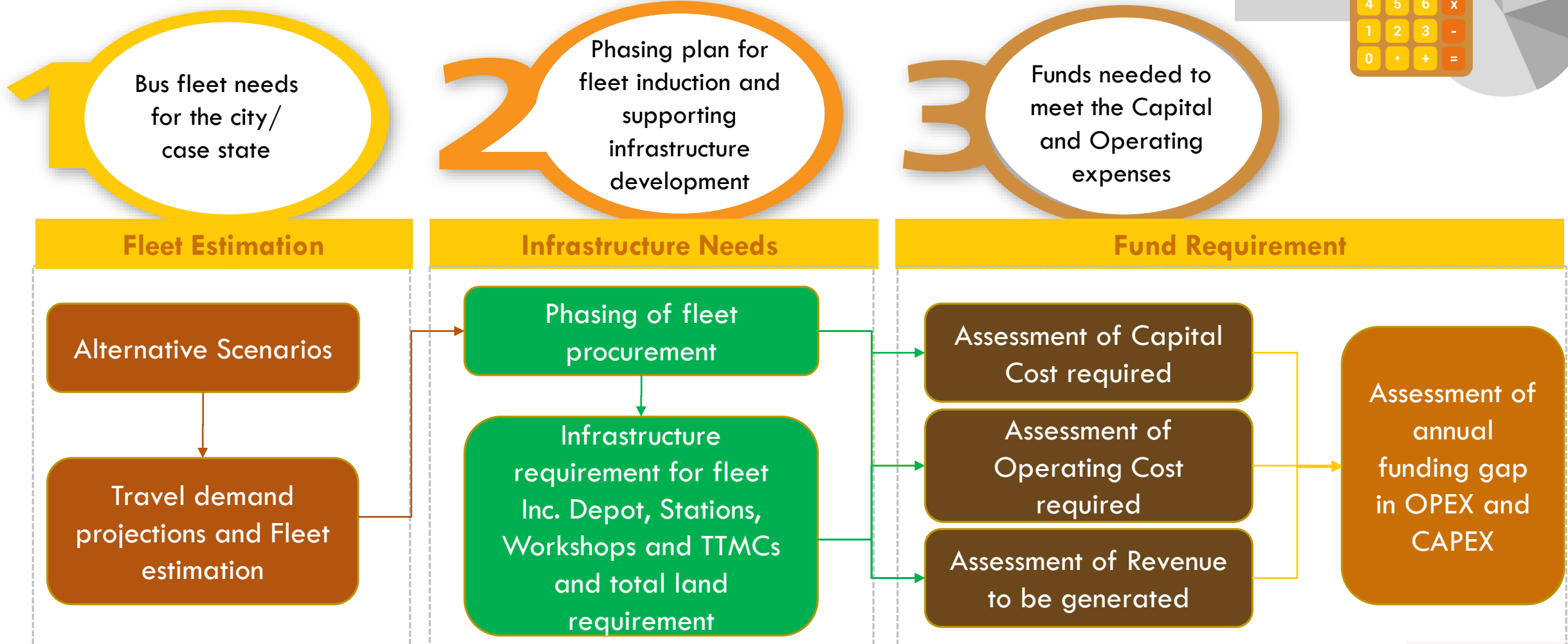
- **For Option 1- SBTF as a separate Trust** requires Presence of active UIDFC like entity with previous experience of
 - managing sizeable funds/ projects, e.g. above INR 1,000 crore
 - raising funds from commercial lenders and external financing institutions
 - project development activity
- **For Option 2- SBTF as a Division/ Department within govt.** requires presence of existing department/ agency or potential for creating such department/division with
 - political buy in
 - making budget provision for creating a fund
 - potential for creating ecosystem for project development activity

ANNEXURES

METHODOLOGY FOR FLEET & FUNDING ASSESSMENT

Overview

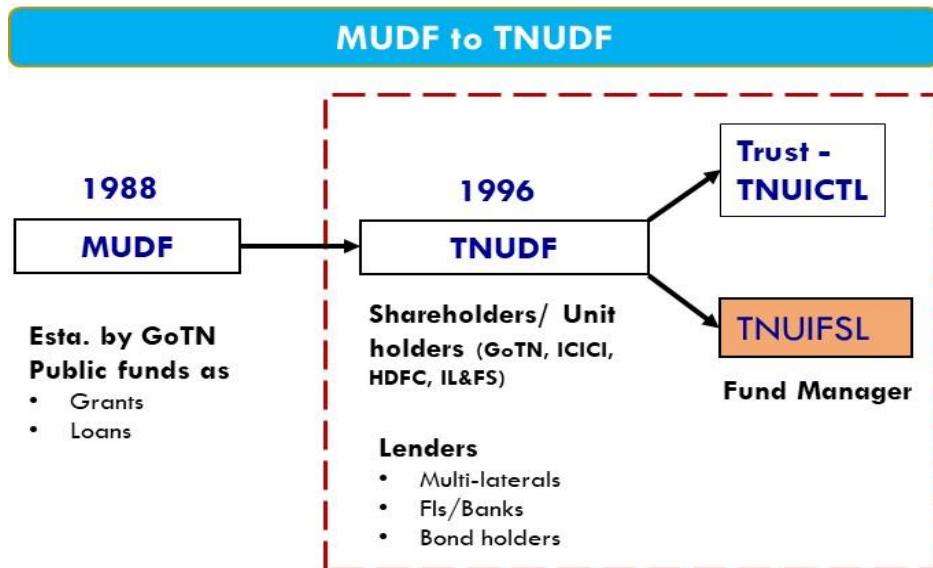
The following approach was adopted to estimate:



TAMIL NADU URBAN DEVELOPMENT FUND (TNUDF) AND TAMIL NADU URBAN INFRASTRUCTURE FINANCIAL SERVICES LTD. (TNUIFSL)

TNUDF: In 1996, Govt. of TN converted Municipal Urban Development Fund (MUDF) into TNUDF

- It has total **equity of INR 200 crore**, with **GoTN share 72% & rest by banks/ NBFC (ICICI, HDFC Bank and ILFS)**, and TNUDF is managed by a Corporate Trustee viz., Tamil Nadu Urban Infrastructure Trustee Company Limited (TNUITCL) and TNUIFSL is a fund manager
- Objective: to fund urban infra. projects, facilitate pvt. Participation, support ULBs to access debt
- TNUDF is financing urban infra. projects by availing external funds.
- E.g. TN Sustainable Development Project (TNSUDP) assisted by World Bank



TNUIFSL, a public Ltd. co. formed in 1996, with **equity participation by GoTN, ICICI Bank, HDFC Ltd. & IL&FS**

- It is fund manager for TNUDF, PDGF, PSGF, WSPF and GoTN schemes; PDGF and PSGF funds support in project development and preparation, provide viability grant etc.
- TNUIFSL as a fund manager manages sources funds in the form of loan from WB (50%), KfW (30%), ADB (8%), JICA (7%) and Others (5%)
- Expected margin on lending is around 1%; TNUIFSL successfully mobilized bonds under WSPF
- **TNUIFSL's role as a fund manager is very effective in managing the main fund i.e. TNUDF and other supporting funds i.e. PDGF and PSGF for creating investment ecosystem. It has also managed a margin of 0.5% to 1% to ensure financial sustainability of its own organisation.**

TNUIFSL - Key Finances	Amount in INR crore	FY 2018	FY 2019
	Total Income	222	196
	Total Exp.	203	180
	Net Income	11.4	9.9
	Avg. Return on lending	8.83%	8.78%
	Cost of funds	8.31%	8.29%
	Total Assets	3,023	2,611
	Net Worth	266	255

Source: TNUIFSL website, ICRA Rating Rationale

POTENTIAL SBTF FUND SIZE — CASE STUDY OF TN

An illustration for estimating the potential size of the SBTF in case of Tamil Nadu state.

1. The contribution from Govt. sources -

- In case of **TN**, tapping **govt. sources** would contribute around **INR 1,450 crore/ annum** to the SBTF
- This includes both grant and debt
- **Initial equity capital** provided through
- State budget and /or Central Govt contribution + equity capital from IFIs and/or Commercial Banks + equity contribution from NIF and NIIF can be explored
- E.g. TNUDF has total equity of INR 200 cr with contribution from GoTN (72%) and Banks/ NBFC (28%)
- Enhancing equity by infusing more capital in future
- Cost of Land parcel allocated by State govt. can go as equity of State Govt.

Sources (Amount in INR Cr)	Feasibility	Esti. Annual Amount
Central Govt.		
1. Central Road Fund (CRF)	At 5% of annual state allocation	100
2. FC XV devolution It includes devolution to ULBs and RLBs + devolution to improve air quality in 3 ULBs.	At 2% of annual state allocation i.e. 2 % of INR 8,420 cr.	168
3. Funds from NIF This can be tapped in long term in the form of equity separately.	---	---
4. Funds from central schemes (such as AMRUT/ Smart City/ Green Mobility) Funds can be tapped from proposed Green Mobility Scheme & from 2.0 version of other 2 schemes	Expected INR 7,000 cr allocation for TN; 10% of INR 7,000 cr as loan & grant: (it's divided into 5 yrs)	140
State Govt.		
1. State MV Act and MV tax Act Addl. vehicle registration charges, Cess on fuel sold, Green tax and additional charges on > one 'motor car' are part of State MV Act and MV tax Act .	5 % of total annual receipts under State MV Act and MV tax Act For TN: 5% of INR 6,019 cr in FY 21	300
2. Development of land parcels on commercial basis	State can develop land parcels on commercial basis on long term lease with upfront premium or PPP	100
ULB sources		
1. Share of ULB revenue Except Property Tax and Professional tax, all other sources of revenue generate very small amount of revenue. Capturing, tracking and sourcing these annually for all ULBs across the state is a tedious process. Hence, State can allocate 2% of total annual revenue of ULBs to the SBTF.	In case of TN, 2% of ULBs' estimated annual revenue of INR 32,231 cr. can be allocated to SBTF	645
TOTAL		1,453

PROPOSED SBTF — INTERNATIONAL FINANCE INSTITUTIONS (IFIs)

POTENTIAL BORROWING FROM IFIs — CASE STUDY OF TN

2. The contribution from IFIs as Loan + grant:

Rationale

- DFIs play important role in lending to the financially constrained State and Local Bodies
- Provide cheaper finance (Int. 1-3% excl. hedging cost) with longer tenure (10-30 yrs) & moratorium (3-7 yrs)

Challenges/ Disadvantages

- Approval is to routed through Department of Economic Affairs (DEA) and other relevant ministries of GoI, which is very cumbersome process
- State borrowing is reaching threshold for fiscal deficit to GSDP norms. E.g. TN's Fiscal Deficit to GSDP will be 2.84% in FY21, against the norm of 3%.

Case study

- TN has secured loan commitment of around INR 47,000 Cr from DFIs during 3-4 yrs.
- This amount will be disbursed over a period of 7-8 yrs, which translates to:
 - **Total annual commitment : INR 6,700 Cr &**
 - **Allocation for transport sector: INR 3,300 Cr/yr**

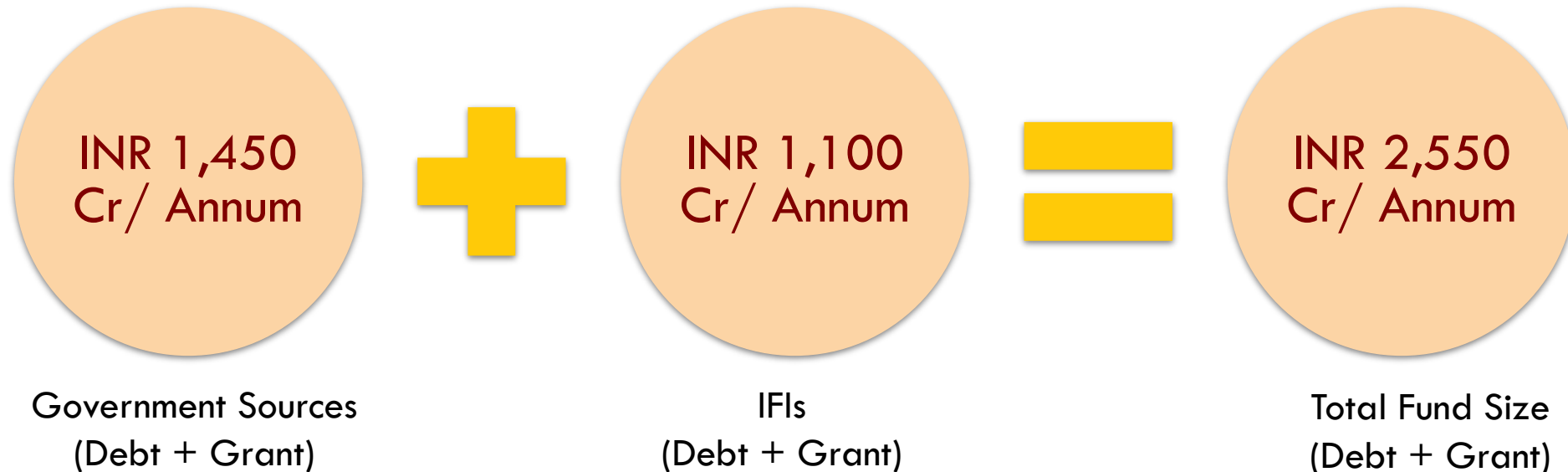
DFIs, (amount in INR Crores)	Loans/ fund committed, Last 3 - 4 yrs	Allocation for Transport	Transport allocation Details
JICA	20,626	8,715	Metro, Peripheral Ring Road, Intelligent Transport systems, Port dredging
ADB	6,623	800	TN Industrial road connectivity project
World Bank	8,463	2,271	Rural roads
KfW, Germany	1,575	1,575	Bus procurement - to procure 2,213 new buses under BSVI norms and 500 electric buses worth Rs 1,580 crore
Asian Infrastructure Investment Bank (AIIB)	10,000	10,000	Chennai Metro Rail, Ring Road
Total	47,287	23,361	

- In future, TN can secure 1/3rd of total transport commitment of around INR 1,100 Crores/ yr for SBTF as a mix of loan + grant.
- The grant component will be very less (around 5-10%) which can be used for project preparation support and VGF for project CAPEX.

PROPOSED SBTF – POTENTIAL FUND SIZE

CASE STUDY OF TN

Illustration for estimating the potential size of the SBTF in case of Tamil Nadu state.



- Initial equity capital can be provided through State budget and /or Central Govt contribution + equity capital from IFIs and/or Commercial Banks + equity contribution from NIF and NIIF can be explored
- E.g. TNUDF has total equity of INR 200 cr with contribution from GoTN (72%) and Banks/ NBFC (28%)

TREND IN PROCUREMENT OF BUSES

WE NEED TO LOOK AT DIFFERENT PROCUREMENT MODELS AND ASSESS FINANCIAL HEALTH OF STUs

3 Predominant Public Bus Procurement Models

- Outright purchase of buses continued to be priority for most of the STUs. However, policy push through NUTP-2006 and funding support under JnNURM scheme incentivized many STUs to adopt GCC and NCC kind of models, and in some cases hybrids of these models.
- Under GCC and NCC models, the bus is procured by either the STU or the private player, but the bus operations is with the private player
- The type of contract is decided based on key parameters – bus ownership, bus operation, responsibility for revenue collection and fare fixation

Comparison of various models across key parameters

Model-> Functions	Open Market with regulations	NCC	GCC	Monopoly
Procurement of Vehicle	P	P or G	P or G	G
Bus operation	P	P	P	G
Bus maintenance	P	P	P	G
Route Planning and Scheduling	P	P and G	G	G
Monitoring	-	G	G	G
Fare Collection	P	P	G	G
Fare Fixation and revision	P and G	G	G	G
Provision of Infrastructure	P (if required)	G	G	G



FAME SCHEME: E-BUS PROCUREMENT: MIX OF OWN PURCHASE + GCC MODEL

Faster Adoption and Manufacturing of Hybrid and Electric (FAME) Vehicles is part of the National Electricity Mobility Mission Plan (NEMMP)

FAME- I scheme

- Gol launched the FAME-I program in Mar 2015 to provide a push for early adoption and market creation for both hybrids and EVs.
- Under FAME –I scheme, Gol provided subsidy to 11 cities for procuring > 450 buses : 12 m size bus : INR 100 Lakh subsidy and 9 m size bus : INR 74 Lakh subsidy
- Among them, 50% of the cities/ STUs adopted **GCC model while remaining 50% cities adopted Outright Purchase** model
- Length agnostic subsidy resulted in STUs preference (65% of total buses) for 9 m buses



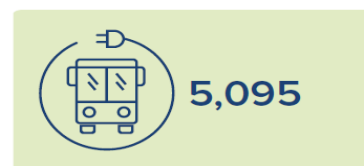
FAME- II scheme

- FAME-II scheme was launched in 2019, where total 5,545 e buses were sanctioned for 64 STUs on GCC model. Electric bus is still a nascent technology with high capital cost and the STU capacity is inadequate to manage its operations.
- Therefore, Gol has recommended GCC model to promote major role for the private players and to reduce the risk of capital and O&M cost on STUs; and at the same time improve efficiency and service levels.
- The STUs will get subsidy of INR 50 lakh per e-bus. Many STUs have started bidding process for this.

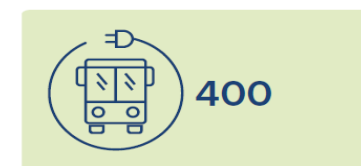
Cities & procurement models adopted under FAME-I

Model	Cities	No. of Buses
GCC	Bangalore, Mumbai, Hyderabad, Ahmedabad, Jaipur	240 (mix of both 9m and 12m size; AC/ non AC)
Outright Purchase	Indore, Lucknow, Kolkata, Jammu, Guwahati	150 (mix of both 9m and 12m size; AC/ Non AC)

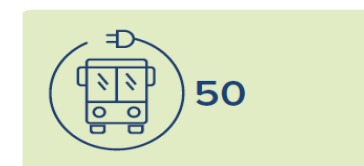
FAME-II



E-BUSES FOR INTRACITY ROUTES (SUMMARIZED IN TABLE 1)



E-BUSES FOR INTERCITY OPERATION



E-BUSES FOR LAST-MILE CONNECTIVITY FOR DELHI METRO RAIL CORPORATION (DMRC)