Research Study on How Municipal Financial Data can be used for Decision Making

The Institute of Chartered Accountants of India
(Set up by an Act of Parliament)
New Delhi

RESEARCH STUDY ON
HOW MUNICIPAL FINANCIAL DATA CAN BE USED FOR DECISION-MAKING

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Basic draft of this publication was prepared by CA. Dr. R S Murali & Ms. Manasa Prabhakar

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FOREWORD

The availability of accurate, comprehensive, and timely data is a fundamental requirement for effective decision-making across all organizations and Government is not an exception to it. By harnessing the potential of third tier i.e. municipal bodies in collection of meticulously organized data, higher levels of Government can make effective decisions suitable to local requirements. In fact, the key to empowering municipal bodies with greater autonomy is the judicious fiscal management for which the financial data is significantly important.

I am pleased to note that the Committee on Public & Government Financial Management (CPGFM) of the Institute of Chartered Accountants of India (ICAI) is bringing out a Research Study on “How Municipal Financial Data can be used for Decision Making". This Research Study is an attempt to explore the ways/ strategies in which financial data can be used for decision making in municipalities and the enablers to promote better utilization of financial data in municipal decision making. This research study throws light on the way municipal financial information is or needs to be organized and used; linkages between decision making, data requirement, and data availability; and sources of financial data and issues thereat.

I congratulate CA. Kemisha Soni, Chairperson, CA. Prasanna Kumar D, Vice-Chairperson, and all other members of the Committee for bringing out this Research Study.

I believe that this Research Study would be found immensely useful by various stakeholders, members of the profession and other readers.

6th February, 2024
Delhi

CA. Aniket S. Talati
President, ICAI

PREFACE

Municipal financial data serves as a pivotal resource as it has the potential to offer invaluable insights to the stakeholders including officials of all types and at all levels of Urban Local Bodies (ULBs) in multiple ways. Municipal financial data is a linchpin for compliance with legal requirements, optimising public service delivery, and facilitating evidence-based decision-making. It is not merely a financial reporting requirement but a powerful tool that underpins the health and vitality of local communities.

The Institute of Chartered Accountants of India (ICAI), a partner in nation building and torch bearer of the virtues of transparency and integrity, is making significant efforts to enhance transparency and accountability in financial operations of Municipal Bodies by supporting them in implementation of accounting and financial management reforms. We are pleased to note that the Committee on Public & Government Financial Management (CPGFM) of ICAI has come out with the Research Study on "How municipal financial data can be used for decision-making" that has been prepared based on an exploratory qualitative research that gives insights to levels and decision requirements in Urban Local Bodies (ULBs); what are the key decision at municipal level and what are the data sources; issues in data generation for decision making; key performance indicators involving financial data; capacity limitations in ULBs to handle financial data and decision making; importance and application of financial data in key decisions in ULBs; suggestions for improving municipal capacity: policy, process, people, technology perspectives; international experiences in this regard with focus on how these can be used in Indian conditions.

We express our thanks to CA. Aniket S. Talati, President, ICAI and CA. Ranjeet Kumar Agrawal, Vice-President, ICAI, for their continuous guidance and support in the Committee's initiatives. We are also thankful to all the members of the Central Council of ICAI and of the Committee on Public and Government Financial

Management (CPGFM) including Co-opted Members and Special Invitees for their support in the Committee's endeavours.

We wish to place on record appreciation for CA. (Dr.) R. S. Murali, Resource Person, CPGFM and Ms. Manasa Prabhakar, his research assistant, for carrying out the extensive research and writing down the research findings in user-friendly manner in the research study for all concerned.

We are sure that this Research Study would be useful for **practitioners**, government functionaries, ULB employees, researchers, and other concerned stakeholders.

6th February 2024
Delhi

CA. Kemisha Soni **CA. Prasanna Kumar D**
Chairperson **Vice-Chairperson**
Committee on Public & Government Financial Management

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I - Background

Municipal accounting reforms in India have reached a maturation point. The early 2000s witnessed a significant paradigm shift, as both central and state governments embarked on a transformative journey towards adopting accrual system of accounting within municipalities. This progressive shift was primarily instigated by the 74th amendment to the Indian Constitution in 1993, which decentralized 18 key functions to the municipalities. The realization of this vision, however, materialized after nearly a decade of collaborative efforts by stakeholders, with financial reforms initiated from the realm of accounting itself. Genuine decentralization materializes hand in hand with the devolution of financial powers. To effectively wield these powers, proficient financial management becomes imperative, and at its core lies the prerequisite of accurate and comprehensive accounting. With two decades of financial reforms and so much efforts taken in the country, are the municipalities[1] capable of making their own decisions?

The principal aim behind the empowerment of municipalities with greater autonomy is to facilitate localized decision-making and holistically manage governance at the third tier of government. Such decisions within the governance sphere necessitate meticulous and complete information and adeptness in decision-making skills.

The significance of financial information in shaping internal decisions at the municipal level has been a subject of prolonged contemplation and concern. Globally, several studies have been undertaken over the past few decades to delve into this very aspect. The impact of decentralisation on municipal financial decision-making in South America (Bossert, Larranaga, Giedion, Arbelaez, & Bowser, 2003), the South African experience in finance based monitoring system (Shongwe & Meyer, 2023), devolution dynamics influencing the decision-making in Spanish municipalities (Balaguer-Coll, Prior, &

[1] The terms municipalities, local governments, urban local bodies (ULBs) have been used interchangeably in this paper

Tortosa-Ausina, 2010), OECD working paper on fiscal federalism has case studies from Denmark, Finland, Ireland, Netherlands, New Zealand (Vammalle & Bambalaite, 2021), the quality of financial reporting in US municipalities (Raimo, Rubino, & Esposito, 2022) all bring out the importance of the financial aspects of decision-making in municipalities. This sentiment has not escaped the attention of India's various Finance Commissions, which have consistently underscored the criticality of sound financial information. This paper, focuses mainly on the Indian municipal system, and attempts to address the issues taken up from Indian perspective. However, most of the issues discussed could apply to municipalities across the world.

The national-level finance commissions have come to recognize the paramount significance of financial information for Urban Local Bodies (ULBs). Particularly noteworthy is the emphasis on linking financial information to grant allocation, a trend that gained prominence starting from the tenth Commission onwards (Commission). A detailed outline of specific requisites concerning financial information is presented in **Appendix 1**, shedding light on the nature of decisions ULBs must undertake to enhance their governance.

Municipalities are intricate and open social systems obligated to uphold democratic values while concurrently making well-informed and efficacious decisions (Jalonen, 2006). Navigating the decision-making process within a municipality can be intricate, involving an array of stakeholders each with diverse demands and influence. As per Jalonen, "In the context of municipalities, decision-making is entangled by conflicting stakeholder interests, negotiations and bargains among influential groups and individuals, personal capacity limitations, and the actual dearth of information." Consequently, municipal decision-makers are tasked with adeptly manoeuvring through a labyrinth of challenges when shaping their courses of action. Moreover, given that municipalities serve as the primary layer of government interacting with the general populace, a multitude of perspectives must be taken into account when making decisions.

“Due to the diversity of numerous actors in a municipality – citizens, administrative leaders, politicians, companies and so on – different interests and world views are leading to different expectations and actions” says Bohmer et al (Roland Böhmer, 2020). These would also influence the decision taken by the municipal officers.

A ubiquitous issue encountered by municipalities worldwide is the paucity of adequate resources to sustain their operations. Whether a municipality adheres to outcome-based or incremental budgeting, the perennial issue of insufficient resources persists. While the question of why municipalities struggle to plan and secure necessary resources in light of known deficits (or at least requirements) is seemingly straightforward, the answer is more intricate. This intricacy stems from various factors, with two pivotal dimensions being: (1) the availability of precise data for a comprehensive grasp of requirements, and (2) the presence of appropriate 'soft infrastructure,' encompassing personnel and processes, to facilitate decision-making.

II – Scope, Objectives, Approach of this research

Being an exploratory research, the scope of the research is delving into the realm of 'utilizing municipal financial data for decision-making,' aiming to address both theoretical and practical intricacies in this realm.

The main objective underlying this research is **to explore the ways in which financial data can be used for decision making in municipalities and the enablers to promote better utilisation of financial data in municipal decision making.**

The approach followed in this paper is that it initiates by grasping the existing decision-making structure within municipalities, scrutinizes typical gaps in the flow of financial data, and explores shortcomings in the decision-making capabilities of ULBs. By doing so, it aspires to formulate a holistic approach to decision-making within ULBs through the proficient utilization of financial data. The scope for using the financial data for both operational (internal) and governance (external) decision-making in the ULBs is also discussed in this context. While governance in general considers all aspects of ULB management, for the purpose of this paper, operational decision are called internal and higher level decision-making involving external stakeholders is called external or governance decisions. Key financial indicators that are relevant for municipal decision-making are explored. The paper concludes by discussing various initiatives that need to be taken at various levels and institutions in order to implement and gain the benefits of data-enabled decision making at the ULBs.

III - Levels and decision-making in municipalities

Municipalities are intricate and inclusive social systems entrusted with the dual responsibility of upholding democracy and facilitating effective decision-making (Jalonen, 2006). The process of decision-making within municipalities parallels that of higher levels of governmental systems, inherently shaped by the interplay between political and administrative hierarchies. As the third echelon of governance, municipalities encompass all the facets and functionalities of a state government, except for certain departments such as the police force. The municipal structure in India is depicted in **Figure 1**. Empowered by senior officers seconded by the state government, larger municipalities essentially function as microcosms of state governance. As a result, elements of bureaucracy and hierarchy are deeply ingrained within the very essence of any municipality.

In terms of traditional levels in municipalities, the Top level is filled in by the mayor or equivalent on the elected representative side and the Commissioner or equivalent on the administrative side. The next level is led by the heads of the departments like Revenue head, accounting head, Engineering head, and so on. The next is the operational level, headed by Superintendents along with their support staff.

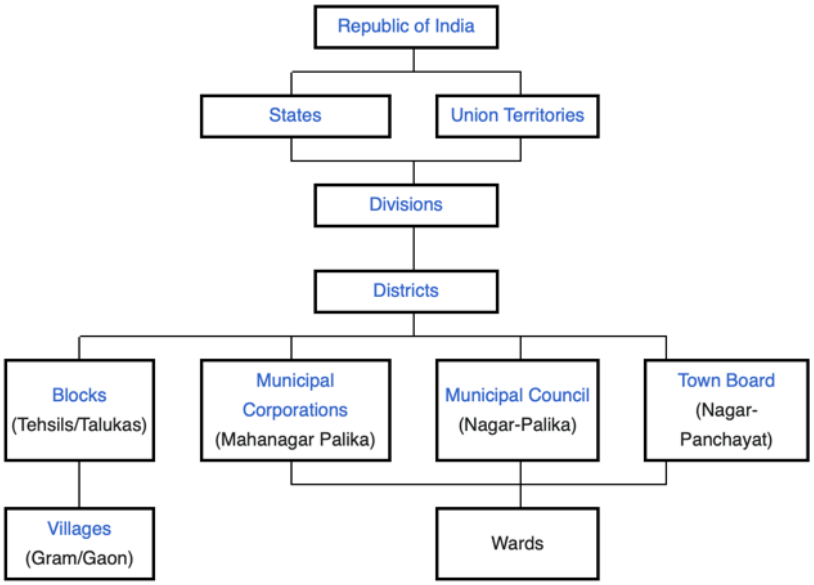


Figure 1 Municipal Structure in India

The fabric of decision-making is intricately woven with the threads of hierarchy and operational systems embedded within the organizational framework. In larger municipalities, such as corporations, the administration is led by an official of the Indian Administrative Service (IAS), while the elected representatives are spearheaded by a Mayor. This fundamental structure is echoed across all tiers of municipalities: the municipal corporations, the municipal council, and the town panchayats/boards.

Pivotal decisions, particularly those of policy significance or considerable magnitude, fall under the purview of the Council of elected representatives, informed by proposals and data presented by the administration. Such decisions might encompass initiatives like the construction of flyovers or the allocation of flood relief resources. Conversely, operational decisions pertaining to contractual payments for flyover construction adhere to established protocols akin to those within government departments. Routine operational decisions, like administrative expense disbursements or revenue collection by bill

collectors/ e-seva counters/on-line methods, unfold in an orderly fashion under the guidance of vigilant supervisors. However, notably, the crux of "decision making" is concentrated at the senior echelons within Urban Local Bodies (ULBs).

The municipalities have a Council consisting of basically elected representatives headed by the Mayor or equivalent. Policy formulation as well as major project and investment decisions are made by the Council. The Council is supported by Committees that are formed from within the Council members like the Taxation Committee, Health Committee, and so on.

The key decisions taken at different levels in a municipality may vary depending on its size, structure, and specific functions. Here are some common key decisions made at different levels in a municipality. Most of these decisions require financial data:

Hierarchical

- Mayor and Council Level:
  - Setting overall policy direction
  - Reviewing and approving the annual budget and financial plans proposed by the executive.
  - Authorizing major expenditures, contracts, and capital projects.
  - Conducting oversight of municipal operations and programs.
  - Representing constituents' interests and concerns - collectively as Council and individually, as elected representatives.
- Executive Level:
  - Setting overall priorities for the municipality.
  - Proposing the annual budget and financial plans.
  - Initiating major infrastructure projects and development initiatives.
  - Representing the municipality in external relations and partnerships.
  - Appointing key officials and administrators.
- Department Level:

- Implementing and managing programs and services within their respective domains (e.g., public safety, public works, education, health).
- Developing and executing operational plans to achieve departmental objectives.
- Allocating resources and budgets within their departments.
- Conducting performance evaluations and improvement initiatives.
- Addressing issues specific to their department's area of responsibility.

Functional

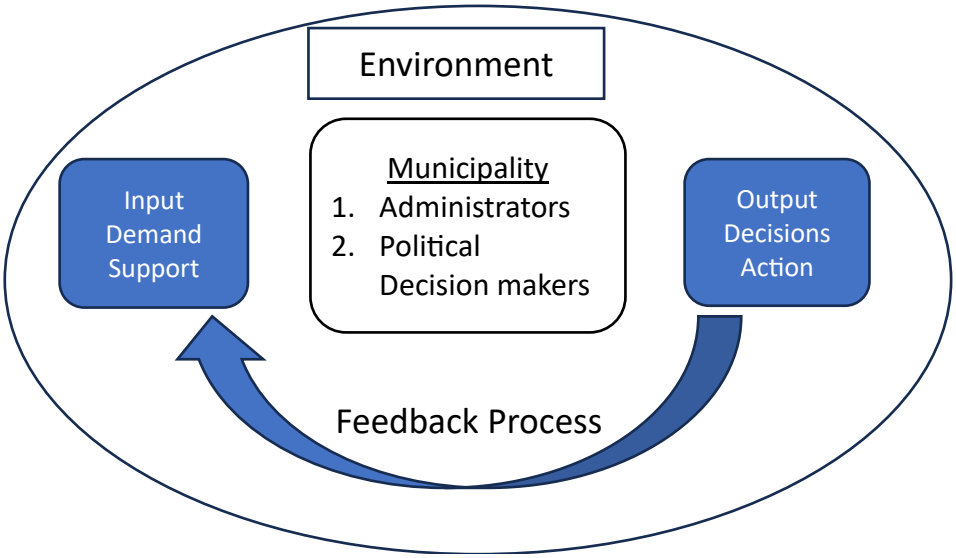
- Administrative:
  - Managing day-to-day operations and services of the municipality.
  - Ensuring compliance with laws, regulations, and policies.
  - Hiring and managing municipal staff and employees.
  - Coordinating interdepartmental activities and initiatives.
- Finance and Budget:
  - Preparing and presenting the annual budget to the council.
  - Overseeing financial management and reporting.
  - Managing financial resources and revenue collection.
  - Ensuring compliance with accounting standards and financial reporting requirements.
  - Conducting financial analysis and forecasting for budget planning.
- Local Community or Neighbourhood Level:
  - Participating in local planning and zoning decisions.
  - Engaging in community development and improvement projects.
  - Advocating for neighbourhood interests and priorities.
  - Participating in community events and activities.
  - Addressing local concerns and issues.

These are general examples of key decisions at different levels in a municipality. The specific decisions may vary based on the municipality's size, administrative structure, and local priorities. The

decisions made at each level are interconnected and contribute to the overall governance and functioning of the municipality. The financial data flows across all the departments, functions, and levels, and is used at all these levels and for different purposes.

The decision-making when viewed as a system (**Figure 2**) includes both external (environment) and internal data flow and processes. In the case of a municipality all the decisions ultimately have to result in public benefit or good; and most of the key decisions involve monetary element highlighting the importance of financial data. The key decisions taken at different levels and functions further stresses the importance of financial data requirement in municipalities.

Figure 2 Municipality as a system



Adapted from (Easton, 1965)

IV - Stakeholders of municipal financial data

Stakeholders are those that influence or are influenced by the municipalities. According to Gomes, "…. stakeholding has yet to be fully explored in the Public Management field, with little empirical evidence in local government studies", and this holds good even today (Gomes, 2004). Understanding whether the stakeholders are 'internal' or 'external' helps in understanding the type of financial data they may need for their decision-making.

Internal stakeholders for municipal financial data are individuals or groups directly associated with the municipality's operations and governance (**Table 1**).

Table 1: Internal stakeholders

Stakeholder	Need for financial data
Mayor, Council and Committees	Elected officials responsible for setting policies, approving budgets, and making key financial decisions.
Commissioner/Administrator	Overseeing day-to-day operations, including financial management, and implementing policies set by the city council**.**
Chief Accounts Officer (CAO) and Finance Department	Responsible for financial management, budgeting, accounting, and reporting within the municipality.
Department Heads	Heads of various municipal departments, such as public works, public safety, education, and health, who manage budgets and financial resources for their respective areas.
Municipal Staff	Employees involved in financial administration, accounting, budgeting, and financial reporting.

Stakeholder	Need for financial data
Internal Auditors	Responsible for evaluating the municipality's financial controls, internal processes, and compliance.
Finance Committee	A subcommittee of the city council that oversees financial matters and provides recommendations.

External stakeholders for municipal financial data are individuals, groups, or entities outside the municipality that have an interest in the municipality's financial performance and accountability (**Table 2**).

Table 2: External stakeholders

Stakeholder	Need for financial data
Residents and Citizens	Members of the community who pay taxes and rely on municipal services. They have an interest in the efficient use of public funds and service quality.
Taxpayers	Individuals and businesses paying taxes to the municipality, who expect transparency and responsible financial management.
Lenders and Creditors	Entities that lend funds to the municipality or hold its debt, who require financial data to assess creditworthiness and risk.
Bondholders, Banks, Financial Institutions	Individuals or institutions holding municipal bonds, who monitor the municipality's financial condition and ability to repay debt.
Regulatory Authorities	Government bodies responsible for overseeing local government finances and ensuring compliance with financial regulations.
Rating Agencies	Organizations that assign credit ratings to municipalities, influencing their

Stakeholder	Need for financial data
	borrowing costs and market reputation.
Non-profit Organizations and Advocacy Groups	Groups advocating for specific causes or public interests, who use financial data to assess municipal policies and expenditures.
Media and Journalists	Reporters who analyze financial data to inform the public and hold local officials accountable.
Higher levels of Governments	Governments to understand the performance of municipalities and different perspectives of the performance.

Both internal and external stakeholders rely on accurate and timely municipal financial data to make informed decisions, ensure transparency, and promote responsible financial management in municipalities.

The importance and benefits of municipal financial data are multifaceted, extending to both internal and external stakeholders. Internally, it guides local officials in budgeting, resource allocation, and long-term planning, ensuring fiscal responsibility and efficient governance. These are dealt with in detail in **section VIII** of this research. Externally, it fosters transparency and accountability, engendering trust among residents, taxpayers, businesses, and investors, thereby attracting investment and stimulating economic growth.

Moreover, municipal financial data is a linchpin for compliance with legal requirements, optimizing public service delivery, and facilitating evidence-based decision-making. It is not merely a financial reporting requirement but a powerful tool that underpins the health and vitality of local communities.

Support for reporting to higher authorities

Municipal financial data has the potential to offer invaluable insights to higher tiers of government in multiple ways. With the governance-sensitive decisions taking place at different levels of governments (Bulkeley & Betsill, 2005), there are several avenues through which municipal financial data can prove beneficial to higher levels of government (**Table 3**).

By harnessing the potential of municipal financial data, higher levels of government can make well-founded decisions, tailor policies and initiatives to suit local requirements, and to address the demands of judicious fiscal management at the grassroots level.

Support for audit and control

Municipal financial data serves as a pivotal resource for auditors in the execution of their financial audits, and control by municipal management playing a vital role in upholding accountability and transparency within the realm of local government operations. Auditors use municipal financial data in a multifaceted manner, relying on it to check the adherence to financial regulations, pinpoint potential risks, and deliver impartial report on the financial statements of the municipality. The considerations for expressing audit opinion are the deficiency in the internal control system, the non-compliance with regulations and laws, and the non-conformance with the Government Accounting Standards (Pamungkas, Ibtida, & Avrian, 2018). Financial data creation and reporting processes influence all these aspects. There are several ways through which municipal financial data provides invaluable support to audit and control (**Table 3**).

Table 3: Benefits of Municipal Financial Data - External Stakeholders

For higher levels of Government	For Auditors
• Financial Oversight and Compliance • Allocation of Funds and Grants • Emergency Funding and Disaster Response • Long-Term Financial Planning • Debt Management • Revenue Sharing and Tax Policies • Infrastructure Investment Decisions • Financial Assistance Programmes • Formulation of Fiscal and Economic Policies • Risk Assessment • Transparency and Accountability • Enhancing Local Government Capacity	• Verification of Financial Statements • Conducting Compliance Audits • Identification of Fraud and Mismanagement • Risk Assessment • Evaluation of Internal Controls • Verification of Audit Findings • Elevating Financial Reporting Quality • Performance Audit
For Citizens	**For Politicians**
• Transparency and Accountability • Informed Voting and Civic Engagement • Budget Priorities and Participatory Budgeting • Assessing Policy and Enabling Advocacy • Evaluation of Public Services • Understanding Taxes and Fees • Disaster and Emergency Preparedness • Cultivating Public Trust • Efficient Utilization of Public Resources	• Transparency and Accountability • Evidence-Based Debate • Budgetary Priorities • Incumbent Accountability • Local Economic Contribution • Cultivating Public Trust

Compiled by the author from different sources

Collectively, municipal financial data emerges as the bedrock upon which financial audits rest. Its utilization empowers auditors to conduct their duties diligently, confer assurance on fiscal reporting, and contribute substantively to the enhancement of fiscal governance and accountability within the municipal sphere.

Support for citizens

Municipal financial data represents an asset for citizens, furnishing them with information to facilitate active participation in civic affairs, and the ability to hold local governments to account. Here are several ways in which municipal financial data can serve citizens (**Table 3**).

Citizens would like to receive information in the form of a general financial overview and details about how money is used by their municipal administration (Haustein & Lorson, 2022). By granting citizens access to comprehensive and transparent financial data, municipalities empower their communities to be better informed, more engaged, and be active participants in local governance and decision-making processes. This, in turn, bolsters democratic accountability and paves the way for more efficient and citizen-centric governance.

Support for politicians

Municipal financial data assumes a pivotal role within the realm of political debates, furnishing incontrovertible and impartial information that serves as support for a diverse arguments and stances. Political, economic, and control factors influence the interest of politicians in municipal financial data (Buylen & Christiaens, 2013). The multifaceted contributions of municipal financial data to political debates are outlined in **Table 3**.

The veracity and unbiased assessment of financial information is pivotal in invigorating political debates with enlightened discussions, equipping citizens with the requisite insights to make informed choices while electing their representatives.

V - Financial management issues in municipalities

Financial management challenges in municipalities vary depending on unique circumstances and the specific development hurdles faced by each municipality. Issues in municipal financial management in India have been discussed a lot (Joshi, 1996), (Mohanty, M, Goyal, & Jeromi, 2007) (Sharma & Prince, 2023). Several recurring financial management issues are frequently encountered by municipalities, including:

Non-achievement of Budget projections: Many municipalities grapple with persistent non-achievement of budget projections, particularly on the revenue side, resulting in expenditures consistently surpassing revenues. This predicament leads to pressure on the cashflow resulting in financial management strains.

Constricted Revenue Streams: Certain municipalities contend with restricted revenue sources, heavily relying on grants. This reliance results in revenue volatility, affecting financial flexibility and adaptability.

Increasing Pension and Retirement Obligations: The presence of unfunded or inadequately funded pension commitments and retiree benefits places a substantial burden on municipal finances, impacting long-term sustainability and fiscal health.

Elevated Debt Levels: The outcome of excessive borrowing and poor debt management is unsustainable debt levels. This, in turn, amplifies debt service costs and exerts strain on the municipality's overall financial standing.

Inadequate Financial Planning: Municipalities do not resort to long-term financial planning or have any contingency plans. This deficiency leaves them ill-equipped to effectively navigate economic downturns or unforeseen emergencies.

Insufficient Capital Investment: A scarcity of funding for critical infrastructure projects and capital investments becomes an

impediment to implement developmental projects required for the citizens/locality. This situation has given rise to deferred maintenance expenses, further straining resources, and failing infrastructure in the municipalities.

Inefficient Cost Control: Ineffective spending practices of the municipalities, coupled with a dearth of comprehensive cost control measures, result in wasteful expenditures. Consequently, the financial efficiency and efficacy are eroded.

Weak Internal Controls: The presence of ineffectual internal controls in municipalities elevates the risk of financial mismanagement, fraud, and irregularities. Strengthening these controls becomes crucial for maintaining process integrity, leading to reliable financial data.

Inaccurate Financial Reporting: The occurrence of erroneous or delayed financial reporting and audit in municipalities hampers transparency and impedes timely, informed decision-making.

Challenges in Revenue Collection: Municipalities have difficulties in effectively collecting taxes and fees, and these significantly impact cash flow and strain financial resources, affecting overall fiscal health.

Economic Downturns: External factors like economic contractions and recessive phases exacerbate financial challenges of municipalities. These periods lead to declining revenues while simultaneously increasing the demand for essential municipal services.

Legal and Regulatory Compliance: Several municipalities face non-compliance issues with financial regulations and reporting requirements exposes municipalities to legal and financial penalties, further undermining fiscal stability.

Cash Flow Management: Municipalities have poor cash flow management that results in difficulties in meeting short-term financial obligations, necessitating proactive measures for smooth financial operations.

Governance and Leadership Challenges: Fragile governance structures and leadership deficiencies of municipalities hinder effective financial decision-making and oversight, highlighting the need for strong leadership and strategic management.

Addressing these financial management challenges necessitates a comprehensive approach involving robust financial planning, efficient debt management, stringent internal controls, and transparent financial reporting. Additionally, proactive engagement with stakeholders, cultivation of accountability, and the implementation of prudent financial policies are vital to safeguard the long-term financial health and sustainability of the municipality. The vital ingredient here is the municipal financial data. The characteristics of the data and the capability of the users decide the quality of the municipal financial management.

VI - Issues in municipal data

"Accounting information systems are defined as a group of resources, including people and equipment that are used to transform financial data and other data into information" (Yigrem, 2023). The degree of utilization of financial information for decision-making varies according to their usefulness (Nogueiraa & Jorge, 2012). The usefulness of such data is influenced by the quality of data.

The availability of accurate, comprehensive, and timely data is foundational requirement for effective decision-making across all organizations. Within municipalities, these data quality aspects take on even greater significance. Given that these entities manage public funds and borrowed finances, often attracting public interest, the meticulousness of their data for decision-making cannot be overstated.

Several data-related challenges persist within municipalities, particularly concerning financial data, with some of the prominent ones being:

Lack of accrual accounting data: Financial data emanating from municipalities frequently grapple with gaps stemming from reasons such as the absence of an accrual accounting system. Even though the municipalities have supposed to have moved to accrual accounting, in reality, accrual data is still not properly generated. One reason for this seems to be that the demand for accrual accounting data seems to be less as "…..municipal governments have introduced accrual accounting without being pushed by a factual market-oriented management style therefore the demand of high-quality data seems to be poor and so ought be the accrual information produced" (Padovani, M, & L, 2010).

Incomplete and inaccurate data availability: Accounting municipalities is done more as a routine than with the objective of having comprehensive data for decision-making. So, closing of accounts on a monthly/periodic basis as a system is generally

absent. This results in disparities within asset-liability-receivables-payable data. Inaccuracy issues arise due to inadequate reconciliations and the absence of external-party confirmations.

Data quality concerns: The absence of data-related policies and controls results in compromised data quality. Data related policies could relate to data security, methods of data validation, accepted sources of data, approval methods of financial data, data standardisation/uniformity, etc. Such policies are generally lacking in municipalities and lead to unreliability of financial reports influencing quality of decision-making.

Fragmented financial data: Historical legacies like functioning as watertight departments, lack of process approach, etc. have led to departmental silos, restricting data integration and holistic analytics. Despite the involvement of multiple departments in services like property tax collection where revenue department and accounting department are involved, data remains segregated, impeding comprehensive insights.

Timeliness of data: The lack of real-time accounting due to limited computerization or manual record-keeping hampers the timely availability of data. The dependence on manual methods creates backlogs in accounting and auditing processes, hindering timely decision-making.

Shortcomings in computerization/unaddressed future data requirements: During the transition to computerized systems, insufficient consideration is often given to data needs for the financial decision-making of the municipalities. This results in an insufficient number of data points available for informed decision-making. For instance, the absence of a key document like the Demand-Collection-Balance (DCB) Register due to accounting software limitations impacts the municipality's functionality.

Ambiguous decision-making structures: Municipalities often lack well-defined documentation for decision-making structures, relying primarily on organizational charts to define segregation of duties and

power. Decisions are often influenced by political considerations and may not be decision based, affecting data generation tailored to situational preferences.

Undervaluing data for decision-making: Archaic practices and conventions lead to misalignment of data requirements with specific decision-making needs at various levels within municipalities.

Reporting shortcomings: Reporting deficiencies hinder the acquisition of appropriate data. Routine and summary reports fail to provide analytical insights, with limited comparative or perspective-based analyses available. Inadequate reporting formats and a lack of flexibility further compound this issue. Reports were often irregular or inaccurate, or contained too much data and too little useful information (Treasury, 2011).

Ad hoc reporting approaches: Ad hoc reporting often occurs through unstructured MS Excel worksheets, lacking data source control and validation. Practices, such as reusing files and inconsistent file naming, contribute to the proliferation of disparate data versions.

Lack of analytical approaches in data management: In the context of big data, municipal financial data presents various dimensions for being analysed and used in decision making.

Volume: The sheer volume of data offers extensive possibilities for multifaceted analyses.

- **Variety**: Financial and non-financial data encompass a wide variety, including demographic, economic, and physical data.
- **Velocity**: Data flows fast in general, especially during months of high activity such as property tax collections.
- **Veracity/quality**: The veracity of data quality presents a recurring challenge, which this research addresses in detail.
- **Value proposition**: The fundamental question of whether the available data truly enriches municipal decisions demands careful consideration, one of the focal areas of this research.

These dimensions are not being considered while designing and implementing systems and processes in municipalities. This has resulted in lack of analytical data for decision-making, though there is a huge potential for the same and municipalities can get immensely benefited out of the same.

Refer to **Appendix – 2** highlights the ways different countries have created a system for managing municipal financial data, and the ways in which they are used for decision making.

VII - Financial KPIs

To effectively manage their resources and make informed decisions, municipal officials rely on a set of key financial performance indicators. These indicators are critical tools for assessing the financial health and sustainability of a municipality. They provide valuable insights into revenue generation, spending efficiency, debt management, and the overall fiscal well-being of the local government. To assess their financial health and sustainability, municipal decision-makers rely on a combination of financial performance indicators. These indicators offer insights into the municipality's fiscal condition, allowing for informed decision-making and accountability to the public.

There are several studies done across the globe to identify financial KPIs of municipalities and their usage in providing information for decision-making and good governance. Role of the KPIs/ratios in understanding the financial condition of municipalities (Rahayu, Yudi, & Rahayu, 2023), impact of financial distress on ratios (Wisnu & Astuti, 2023), using horizontal and vertical analysis to financial statement of municipalities (Kablan, 2013), approaches to measure financial condition of local governments (Ritonga, 2014), financial assessment tool for small cities (Brown, 1993), municipal finance index at macro level (Team, 2019) have brought out the role of key financial indicators for effective financial management of the municipalities.

Financial Key Performance Indicators (KPIs) are essential metrics that municipalities can use to assess their financial performance and make informed decisions. Some of common financial KPIs for evaluating the financial performance of a municipality given in **Table 4** address different perspectives of the municipal financial management, and hence municipal decision-making. This research, with focus on financial decision-making looked at the financial indicators from the perspective of decision making, and hence has identified financial KPIs and their implications for decision-making. The KPIs shown in the table are based on various research studies

cited in this paper, the municipal performance index study of the MoHUA[2], and the experience gained in various studies and assignments. The study in **Table 5** has identified a set of key financial indicators that deal with sustainability. Sustainability is an increasingly important issues and the ULBs play a major role in this regard.

Table 4: Financial KPIs

Financial KPIs	Formulae	Implications for decision making
A. Revenue		
1.Revenue Growth Rate (in %)	(Current period revenue – Prior period revenue) / Prior period revenue	This KPI measures the percentage increase or decrease in total revenues over a specific period, reflecting the municipality's ability to generate income.
2. Own Revenue ratio (in %)	Own Revenue / Total revenue	This KPI shows how much of the revenue generated by the municipality is through its own sources. More this ratio shows the strength of the municipality.
3.Revenue Diversity (in %)	Individual revenue source / Total revenue	This metric assesses the proportion of revenue derived from various sources (e.g., property taxes, grants, fees), indicating the relative contribution of different revenue streams.

[2] https://amplifi.mohua.gov.in/mpi-landing [Accessed 15 January 2024]

Financial KPIs	Formulae	Implications for decision making
4.Tax Collection Efficiency (in %)	Actual current year tax revenue collections / Expected current year tax collectibles (Based on budget)	This metric assesses the effectiveness of the municipality's tax collection efforts, reflecting how efficiently the municipality collects the taxes from residents and businesses.
B. Expense		
5.Expense-to-Revenue Ratio (in %)	Total expense / Total revenue	This ratio compares total expenses to total revenues and helps assess the efficiency of financial resource management. A lower ratio indicates better operating efficiency.
6.Operating Expense Breakdown (in %)	Individual operating expense / Total operating expense	Analyzing the distribution of operating expenses by category (e.g., personnel, utilities, maintenance) provides insights into spending patterns and potential areas for cost-saving.
7.Establishment Expense to own Revenue (in %)	Establishment expenses / Own revenue	Establishment expenses take-up a major portion of the operating expenses of municipality. It is important that this ratio is funded by its own sources. (should be <1)
8.Interest Cost Ratio (in %)	Interest expenses / Own revenue	This KPI measures the proportion of the municipality's own

Financial KPIs	Formulae	Implications for decision making
		revenue dedicated to paying interest on debt.
C. Cashflow		
9. Quick Ratio	(Current Assets – Inventory) / Current Liabilities	This KPI measures the municipality's ability to cover short-term financial obligations using its liquid assets, such as cash and cash equivalents.
10.Debt Service Coverage Ratio (in %)	(Net Income + non-cash charges) / Debt service (Principal + Interest)	This financial metric is used to assess the ability of the municipalities to meet its debt obligations
D. Asset		
11.Capital Expenditure Ratio (in %)	Total capital expenditure / Total revenue	This KPI compares capital expenditures to total revenues, indicating the municipality's commitment to infrastructure investment and long-term financial planning.
12.Capital Asset Management Ratio (in %)	Total capital assets / Total outstanding debt	This KPI evaluates the ratio of capital assets to outstanding debt, indicating the municipality's ability to fund infrastructure investments without excessive borrowing.
E. Liability		
13.Debt-to-Revenue Ratio (in %)	Total debt outstanding / Total revenue	This ratio compares the total debt outstanding of the municipality to its total revenues, indicating the

Financial KPIs	Formulae	Implications for decision making
		level of debt burden relative to the municipality's ability to generate income.
14.Debt-to-Own Revenue Ratio (in %)	Total debt / Own revenue	This ratio compares the total debt of the municipality to its operating revenue, indicating its financial leverage relative to its revenue-generating capacity.
15.Debt Affordability Ratio (in %)	Total debt payments / Total revenue	This ratio assesses the municipality's general ability to service its debt
16.Fund Balance Ratio (in %)	Fund balance (reserves) / Total expenses	This KPI compares the municipality's fund balance (reserves) to its total expenses, indicating its ability to cover unforeseen expenditures.
17.Increase in Contingent Liabilities (in %)	(Current year contingent liability – Previous year contingent liability) / Previous year contingent liability	This metric evaluates the municipality's contingent liabilities, such as guarantees or liabilities related to public-private partnerships, which may affect its financial stability.
F. Overall		
18.Budget Variance Analysis (in %)	(Actual revenue – Budget revenue) / Budget revenue	Monitoring the variance between budgeted and actual revenues helps identify discrepancies and deviations from financial plans. Generally, the

Financial KPIs	Formulae	Implications for decision making
		budget achievement percentage is monitored.
19.Debt Burden per capita	Total outstanding debt / Total population	This KPI measures the municipality's total outstanding debt relative to its population showing its level of debt burden per capita.
20.Cost per Capita (Amount)	Total expenses / Total population	This metric divides total expenses by the municipality's population, providing a per capita cost, which aids in comparing performance with other municipalities.
21.Revenue to GDP (in %)	Total Revenue / GDP	
22.Credit Rating	Like AAA, AA(+/-), A(+/-), BBB(+/-), BB(+/-), B(+/-), CCC	The municipality's credit rating assigned by reputed credit rating agencies reflects its ability to meet its debt obligations. Higher credit ratings indicate a lower credit risk.
23.Financial Transparency Index[3]	It is an index consisting of several parameters.	This index evaluates the municipality's level of financial transparency, including the availability and accessibility of financial reports and data to the public. It is a

[3] Refer to https://www.againstcorruption.eu/ercas-projects/transparencyindex/ [Accessed 15 January 2024]

Financial KPIs	Formulae	Implications for decision making
		composite index.

These financial KPIs provide a comprehensive view of the municipality's financial performance, helping decision-makers identify strengths, weaknesses, and opportunities for improvement. Regular tracking and analysis of these indicators enable municipalities to make data-driven decisions and achieve financial stability and transparency.

Appendix-3 provides illustration of these ratios for a municipal corporation, based on the data provided in the annual financial statements, and budget. This illustrates how well financial statements and budgets together can provide information for decision making, both operations (short-term) and policy (long-term) related.

Financial Sustainability Index

The financial sustainability index considers various financial KPIs to determine the municipality's overall financial health and its long-term sustainability. The indicators given in **Table 5** address not only the financial sustainability but also aspects relating to ESG as well.

Table 5: Financial Sustainability Index

Financial KPIs	Formulae	Implications
1.Infrastructure Investment Ratio (in %)	$\frac{\text{Investment in infrastructure projects}}{\text{Total budget}}$	This financial metric assesses the proportion of a municipality's budget allocated to infrastructure projects.
2.Reserve Days (in Days)	$\frac{\text{Total Fund Balance}}{\text{(Total Annual Operating Expenses / 365)}}$	This financial metric measures how long a municipality can operate solely on its reserves if all other sources of revenue were to suddenly cease. It

Financial KPIs	Formulae	Implications
		provides valuable insight into the municipality's financial resilience and ability to weather unexpected financial crises or revenue disruptions.
3.Grant Dependency Ratio (in %)	Total Grant Revenue / Total Revenue	This financial metric assesses the extent to which a municipality relies on grants as a source of revenue. It measures the proportion of the municipality's total revenue that comes from grants.
4.Emergency Fund Adequacy (in %)	Emergency fund available / Last emergency spend	This KPI measures the adequacy of the municipality's emergency fund (such as a contingency or disaster relief fund) to handle unexpected crises or natural disasters without significantly impacting the budget.
5.Grant Utilization Rate (in %)	Total Grant Funds Utilized / Total Grant Funds Received	It measures how efficiently the municipality is utilizing the grants it receives from various sources, such as the government or other funding organizations, to fund specific programs, projects, or initiatives.
6.Budget Allocated to	Budget Allocated to Sustainability	This KPI measures the portion of the municipality's

Financial KPIs	Formulae	Implications
Sustainability Initiatives[4] (in %)	Initiatives / Total Budget	budget dedicated to environmentally friendly practices, renewable energy projects, and other sustainability initiatives.
7.Capital asset condition ratio (in %)	(Capital Asset-Accumulated depreciation) / Capital asset	The financial dimension of capital is the condition of capital assets as defined as remaining useful life. The capital assets condition ratio is used to analyse this dimension.

[4] Currently there is no budgeting framework in India at municipal level to identify these. SDG budgeting is being attempted at state and national levels

VIII - The importance and the application of financial data in key decisions in municipalities

Financial data plays a crucial role in guiding key decisions in municipalities. Effective financial management is essential for maintaining fiscal health, ensuring the delivery of public services, and supporting the overall development of the community. In many geographies, municipalities' powers over decision-making mechanism and financial resources are limited (Esen & Chibli, 2019). This does not restrict their role in decision-making but adds complexity to the same. Also, the elected representatives/politicians and executives of municipalities, due to different motivations and requirements may show differing interest to financial data (Helden & Jansen, 2003). This research has particularly investigated the way decisions could be made from robust financial data addressing different perspectives to provide an objective approach to financial decision making in municipalities.

Financial Data Support for internal decision-making
Municipal financial data stands as an asset for informed internal decisions within a municipality. Here are several ways this data can be effectively leveraged:

Budgeting and Resource Allocation: By comprehending revenue sources and spending trends, municipal authorities can estimate realistic/credible budgets and allocate resources judiciously. This approach aids in prioritizing projects and services based on their significance and potential impact.

Performance Evaluation: Financial data illuminates the efficacy of diverse departments and programmes. By scrutinizing financial metrics, municipalities can gauge the progress of different initiatives and make informed choices regarding whether to continue, modify, or terminate specific projects.

Identification of Cost-saving Opportunities: By dissecting expenditure patterns and identifying areas of excessive spending,

municipalities can unearth opportunities for cost reduction. This might involve renegotiating contracts, optimizing resource utilization, or streamlining processes to achieve efficiency.

Long-term Financial Planning: Financial data empowers municipalities to assess their fiscal well-being over the long term. This evaluation enables projections of forthcoming revenue and expense trends, identification of potential financial hurdles, and formulation of strategies to ensure enduring fiscal stability.

Debt Management: Municipalities often carry an array of debts and obligations. Analysis of financial data aids in deftly managing these liabilities, ensuring prompt repayments thus minimizing interest costs.

Revenue Enhancement: Financial data and its analysis of municipal financial data brings to light issues underlying the latent revenue sources and growth prospects to the forefront through time-series analysis and benchmarking with similar sized municipalities. This endeavour could entail exploring new avenues of income or optimizing existing ones.

Compliance and Accountability: By meticulously tracking financial data, municipalities maintain adherence to financial regulations and provide transparency to taxpayers. Transparent financial reporting fosters trust within the public and nurtures sound decision-making.

Risk Management: Delving into financial data permits municipalities to discern financial shocks and vulnerabilities. Delving into financial data can help identify exceptional behaviour such as spikes in ratios/reversal of trends etc. This can help detect shocks and vulnerabilities. This insight empowers them to enact risk-mitigation strategies and devise contingency plans to tackle potential challenges adeptly.

Benchmarking: Comparing financial data of similar municipalities facilitates benchmarking. Understanding how a municipality's fiscal performance positions up against others could yield insightful findings and prospects for potential improvement.

Capital Investment Decisions: When planning capital investments, financial data furnish details about available funds, debt capabilities, and plausible funding sources. This guarantees that projects align with the municipality's fiscal capacity and long-term aspirations.

By and large, the utilization of municipal financial data to drive internal decision-making fosters openness, accountability, and decisions grounded in empirical evidence. This approach ultimately enables effective governance and enhanced service provision for residents.

Financial Data Support for external decision-making

Municipal financial data holds significance not only for internal decision-making but also plays a pivotal role in guiding external decisions for a diverse range of stakeholders. Here are several ways in which it can be effectively leveraged externally:

Collaborative Projects and Partnerships: With the era of PPPs ushering in, external organizations and entities contemplating joint initiatives or partnerships with the municipality often request financial data to gauge the viability and fiscal sustainability of such endeavours.

Lenders and Creditors: Municipal financial data is a critical resource for lending agencies, financial institutions, and creditors with a direct interest in evaluating the fiscal health and creditworthiness of cities or municipalities. This data serves as the foundation for assessing the municipality's capacity to meet financial obligations, enabling well-informed decisions regarding investments in municipal bonds or extending credit (banks).

Legal and Regulatory Compliance: External auditors, regulatory bodies, and supervisory agencies rely on municipal financial data to affirm adherence to financial regulations and standards. This practice contributes to upholding transparency and accountability in financial reporting in addition to compliance.

Comparative Analysis: External stakeholders, encompassing citizens, policy makers, and researchers alike, may use municipal financial data to compare the efficacy and performance of different municipalities. In India the cityfinance portal (www.cityfinance.in) [Accessed 15 January 2024] facilitates the comparison of financial performance of municipalities across the country. This comparative assessment serves as a source of valuable insights pertaining to best practices and identifies areas for improvement.

Public Advocacy and Accountability: Non-profit organizations and advocacy groups may harness financial data to champion specific causes or to hold the municipality responsible for its financial determinations and resource allocations.

Rating Agencies: The scrutiny of municipal financial data by credit rating agencies assumes a central role in assigning credit ratings to the municipality's bonds, debt instruments. Institutions such as CRISIL, ICRA, CARE have developed methodologies to evaluate the municipal financial data for rating. These ratings wield significant influence over the municipality's borrowing costs. Higher credit ratings translate to reduced borrowing expenses, underscoring the imperative for municipalities to maintain financial stability and exhibit prudent fiscal management.

Public Perception and Trust/Transparency and Accountability: The practice of transparent financial reporting emerges as a cornerstone for cultivating public trust and confidence in the municipality's governance. By enabling citizens and stakeholders' access to comprehensible financial data, a culture of transparency and accountability is nurtured, fostering positive perceptions regarding the municipality's financial stewardship.

Grant and Aid Applications: In pursuit of grants or financial assistance from funding agencies, higher tiers of government or private entities, municipalities frequently need to present financial data as evidence of eligibility and funding requirements.

In its entirety, the act of providing reliable and accessible financial data enhances the municipality's credibility, supports external decision-making processes, facilitates investment and funding prospects, and nurtures collaboration with a multitude of stakeholders, thereby contributing to the holistic betterment of the urban community.

IX - Capacity limitations in the human resources in ULBs to handle financial data

In order to appreciate the use of financial data for decision-making qualified and trained human resources are a prerequisite, as financial decision-making is a technical function. Several gaps, viz. lack of personnel with appropriate skill-sets, inadequate skill-sets of personnel already deployed, lack of appropriate institutional set-up for capacity building, capacity gaps at the senior levels have been identified in the case of Indian municipalities (MoHUA, nd). Municipalities, as local governing bodies responsible for public services and resources, often grapple with issues when it comes to handling financial data, basically due to lack of adequate exposure and training. The political decision-makers also have limited skillsets for decision-making and have varied interests and pressures (Acharya & Scott, 2022).

Challenges in the capacity of human resources within municipalities to effectively manage financial data can stem from several factors:

Skills Gap: Municipal employees/elected representatives may lack the necessary skills in financial management, data analysis, and accounting. This deficit can lead to inefficiencies in handling financial data, potentially resulting in errors and misinterpretations.

Limited Training: Inadequate training opportunities can hinder the development of essential financial data management skills among municipal staff. Without proper training, employees might struggle to effectively handle complex financial data.

Competing Priorities: Municipal staff often juggle multiple responsibilities. The demand for their time and attention on other tasks can impede their ability to focus on managing financial data comprehensively. Also, with knowledge cantered around a very few people, they are overloaded with multiple responsibilities and work burden.

Staff transfer: High transfer rates among municipal employees can disrupt the continuity of financial data management efforts. New employees may require time to understand existing systems and processes. This coupled with lack of documented processes, adds to the troubles in operations and continuity.

Lack of Cadre/Specialization: Lack of a cadre for accounting function in the municipalities in several states has impacted the creation and maintenance of proper financial data in municipalities. Due to the broad range of responsibilities within municipalities, employees may not have specialized roles focused solely on financial data management. This can result in divided attention and reduced expertise in this critical area.

Capacity building issues: Capacity building happens, if at all, on a checkered basis. In many cases trainings are undertaken generally based on available budget, pressure of multilateral agencies, and so on. Also, there is no guarantee of continuity of the executive in the post he/she was trained for after the training.

Budget Constraints: Limited staffing levels and budgetary constraints hinders municipalities' ability to hire additional staff or invest in external expertise for handling financial data.

Data Complexity: Financial data often includes intricate transactions and complex records. Employees with insufficient knowledge, experience, and exposure struggle to analyse and interpret such data accurately.

Technology Literacy: Inadequate familiarity with modern financial software and data management tools hinders employees' efficiency in handling financial data.

Data Security Concerns: Managing financial data requires a deep understanding of data security practices. Inadequate awareness of security protocols exposes sensitive financial information to risks.

Resistance to Change: Employees might resist adopting new technologies or changing established processes, slowing down the implementation of more efficient financial data management methods.

X - Reality checks on financial data-enabled decision-making

Does the municipal system currently make use of financial data-enabled decision-making process? The reality is not encouraging and is often in the negative. In a study by NITI ICAI collaboration titled "Transition to accrual accounting: Models and learnings for Urban Local Bodies", there are detailed discussions on issues relating to data-enabled decision making in ULBs[5]. Some of the major issues relevant for this paper are discussed hereunder:

Governmental approach: In the traditional governmental systems, financial management as a specialisation does not exist. The finance department operations were more to do with meeting budget requirements. In general, budgeted expenditure is spent against the budget line items, and the balance remains unspent is returned to the Treasury. Also, there are very few departments in the government that are 'revenue' generating. This legacy has influenced the management of the ULBs very much. Even now the focus is very much less in 'revenue generating' unlike 'spending'. Management of finance or funds is a concept that the ULBs are still grappling with.

In a typical municipal administration setup in any state in India, the supervising authority say the Commissionerate/Directorate of municipal administration, etc. are not revenue generating. However, the ULBs that come under such authorities are revenue earning. It is often difficult for the higher level of the government to appreciate the

[5] The complete study is available at https://resource.cdn.icai.org/72746cpfgm58672.pdf and https://www.niti.gov.in/sites/default/files/2023-03/Transition-toAccrualAccounting.pdf [Accessed 15 January 2024]

financial management requirements of the ULBs, and hence the need to capture financial data.

Lack of aggregated reporting at the state level: The higher-level government do need a large amount of data from the ULBs for decision making. All such data are requested and obtained each time, instead of creating a regular flow of reliable and validated data. Most of the ULBs are computerised and in some states uniform software has also been used. But unified database for the state using the ULB data has not be created, and no dashboard is available at the higher-level for officials to review and supervise the performance of the ULBs. Even summarised financial data of all the ULBs in a state is not available for the higher-level officials. This has not been taken into design considerations when computerisation has been rolled out at the state level.

Lack of data-based decision-making approach: Across the sector and at the higher-levels also, there is a lack of data-based decision-making approach. There is no mapping of the key decisions at various levels of the government and what is the exact data requirements for the same and how it could flow from the ULBs? how to make such a data reliable and current? are some of the questions that need to be addressed. This has resulted in lack of a structured MIS at various level both within and outside the ULBs.

Lack of accounting cadre: Every ULB's health department has qualified doctors, education department/school has qualified teachers, public work department has qualified engineers, but the accounts department does not have a qualified accountant – in general, not even a BCom graduate! Some of the states like Karnataka have introduced accounting cadre and implemented the same; however, states like Tamil Nadu have created cadre rules but not implemented. Most of the states do not have any accounting cadre in ULBs. So even at the operating level there is no appreciation of accounting data.

Senior personnel not trained or experienced in accrual accounting: Appreciating financial data requires some amount of accounting literacy as well. In the case of ULBs, it is advisable that the senior officials and decision makers have good idea of accrual accounting and its impact on key decision making. Currently, this is totally absent.

Lack of appropriate and continuous training: The field of governance, particularly the area related to financial decision-making, which in the case of ULBs, involves linkages to macro and political economy aspects requires appropriate and continuous training. This is lacking both for the political and administrative leadership, directly and indirectly influencing the quality of financial decision-making. At the other levels within the ULBs, the training is ad hoc and not continuous. The post training continuity of employees in the job is also an issue. These coupled with lack of HR department or initiatives, the skill gap in ULBs is clearly seen.

Lack of strategic approach: The governments in India are creating large and often efficient IT infrastructure for enabling municipal processes in ULBs and citizen enabled services in the service centres. However, due to lack of strategic approaches to manage the migration process with project management techniques, empowering users with training and capacity building, ensuring continuity of people to handle the processes, etc. the benefit of the investments and efforts are not being realized. The computerization efforts have been more for reducing the procedural burdens, increasing data capture rather than on how the captured data will be used and what decisions could be based on such data when processed.

Procedure rather than process-oriented: Currently, most of the governmental systems work on procedures laid down long time back with some adjustments made based on requirements at certain specific points of time. This has resulted in keeping up with traditions and conventions in operations rather than focusing on the outputs/outcomes. This is the reason why though accounts are maintained, in most of the ULBs, they are not in standardized form,

though specified in National Municipal Accounting Manual or the State manuals. Also, the process of financial data creation, validation, and presentation is yet to be standardized and linked to decision-making requirements of the ULBs.

Linking reform progress to funding: The ULBs need to be motivated along with being incentivised to completely follow the reform process in order to enable completeness and correctness in accounting. In reality, many of the ULBs are either not moved to accrual accounting or doing the same partially. This affects the quality of information available for financial decision-making, as financial management begins where accounting ends. Current, some of the grants, like the finance commission grants are linked to grant releases; however, this does not ensure complete migration to accrual accounting.

XI – Summary of Research Findings and the Way Forward

Summary

The **main objectives** underlying this research (**section II**) was **to explore the ways in which financial data can be used for decision-making in municipalities and what needs to be done in order to promote better utilisation of financial data in municipal decision-making**. This section summarises the findings, and explores ways to promote the use of financial data in municipal decision-making.

Municipal financial management requires decision-making at various levels of the organisation. Financial management begins where accounting ends. Accrual accounting, for the ULBs is slowly happening, but yet to fructify fully. The need for structured accounting data ensuring data veracity, granularity, and completeness is recognized. However, the lack of understanding of how such 'quality data' need to be created (the process) and disseminated through an effective MIS has resulted in various decision-makers and stakeholders not getting financial data as desired.

The findings in **section III** show that Municipalities are essential for upholding democracy and facilitating **decision-making in local governance**, functioning as microcosms of state government. Decision-making within municipalities is influenced by hierarchy and administrative systems, with pivotal decisions made by the Council of elected representatives, informed by administrative proposals and data. Key decisions at different levels within a municipality depend on its size, structure, and specific functions, often requiring financial data. Decision-making in a municipality involves multiple levels, including the Mayor and Executive Level, Council Level, Department Level, Administrative Level, Finance and Budget Level, and Local Community or Neighborhood Level. The financial data (if available) plays a crucial role in decision-making at all levels of a municipality,

supporting budgeting, compliance, and financial analysis for various purposes.

Stakeholders in municipalities are those who can influence or be influenced by municipal activities. This research in **section IV** showed that the role of stakeholders in public management, especially in local government studies, is limited, with little empirical evidence. Distinguishing between internal and external stakeholders helps determine the type of financial data they require for decision-making. Internal stakeholders include the Mayor and Council, Commissioner/Administrator, Chief Accounts Officer (CAO), Department Heads, Municipal Staff, Internal Auditors, and the Finance Committee. External stakeholders consist of Residents and Citizens, Taxpayers, Investors and Creditors, Bondholders, Regulatory Authorities, Rating Agencies, Non-profit Organizations and Advocacy Groups, and Media and Journalists. Both internal and external stakeholders rely on accurate and timely municipal financial data to make informed decisions, ensure transparency, and promote responsible financial management in municipalities.

Municipalities in India face various **financial management challenges**, and these issues have been extensively discussed in academic literature. **Section V** findings brought out the common financial management challenges including budget deficits, constricted revenue streams, pension and retirement obligations, elevated debt levels, inadequate financial planning, insufficient capital investment, inefficient cost control, weak internal controls, inaccurate financial reporting, challenges in revenue collection, inadequate financial transparency, economic downturns, legal and regulatory compliance, cash flow management, and governance and leadership challenges. Addressing these challenges requires a comprehensive approach involving financial planning, debt management, internal controls, and transparent reporting. Proactive engagement with stakeholders, accountability cultivation, and prudent financial policies are essential for long-term financial health. The quality of municipal

financial management is heavily influenced by the characteristics of municipal financial data and the capability of its users.

The research brought out the **issues in municipal data** in **section VI**. Accounting information systems encompass resources, including people and equipment, used to transform financial data and other data into information. The degree of utilization of financial information for decision-making varies based on its usefulness, which is influenced by data quality. The availability of accurate, comprehensive, and timely data is crucial for effective decision-making, as municipalities manage public funds and borrowed finances. Challenges related to financial data in municipalities include incomplete and inaccurate data, data quality concerns, fragmented data, data timeliness issues, shortcomings in computerization, unaddressed future data requirements, and reporting deficiencies. Municipal financial data is multidimensional, involving volume, variety, velocity, veracity/quality, and value proposition, and these factors should be considered when analyzing and using data for decision-making.

This research report explored the pivotal **role of Financial Key Performance Indicators** (KPIs) in assessing municipal financial health and sustainability in **section VII**. Financial KPIs are crucial for assessing municipal financial health. The research identified KPIs relating to Revenue, Expenses, Cashflow, Assets, and Liabilities that address the financial performance of the municipalities. These KPIs offer insights into income generation, spending efficiency, debt management, and overall financial performance. These ratios were applied to one of the municipal corporations and given in Appendix 3. The research also identified Financial Sustainability Index as an important approach to assess long-term sustainability of municipalities. It includes KPIs that measure infrastructure investment, financial resilience, reliance on grants, crisis preparedness, grant utilization efficiency, and environmental sustainability initiatives. The Financial KPIs and the Financial Sustainability Index provide municipalities with a comprehensive view of their financial performance. Consistent tracking and analysis

enable informed, data-driven decisions, fostering financial stability, transparency, and sustainable development.

Financial data is of paramount importance in guiding critical decisions within municipalities. **Section VIII** explored how financial data could support decision-making in municipalities. Decision-making in municipalities can be complex due to limited decision-making powers and varied interests among elected representatives and executives. Robust financial data enables municipalities to make informed internal decisions, including budgeting, resource allocation, performance evaluation, cost-saving identification, long-term financial planning, debt management, revenue enhancement, compliance, and risk management. It also facilitates benchmarking and prudent capital investment decisions. Externally, municipal financial data is pivotal for diverse stakeholders. It aids in evaluating collaborative projects, determining creditworthiness for lenders, ensuring legal and regulatory compliance, comparative analysis for policymakers and citizens, and public advocacy. Credit rating agencies use financial data for rating municipal bonds, impacting borrowing costs. Transparent financial data fosters public trust and positive perceptions of governance. In grant and aid proposals/schemes, it serves as evidence of eligibility and funding requirements. In sum, reliable financial data enhances municipal credibility, supports external decision-making, facilitates investment, and nurtures collaboration with stakeholders, contributing to the holistic betterment of urban communities.

The **capacity limitations** in the municipalities seemed to have influenced the quality of decision-making in the municipalities. **Section IX** evaluated these aspects in detail. Human resource capacity challenges within municipalities in managing financial data are common due to specific hurdles faced by local governing bodies. Identified gaps in human resource capacity include a lack of personnel with appropriate skill sets, inadequate skills among existing staff, and a lack of institutional setup for capacity building. Common challenges related to human resources and financial data management in municipalities include a skills gap, limited training

opportunities, competing priorities, staff transfers, lack of specialized roles, resource constraints, data complexity, technology literacy, data security concerns, and resistance to change. Overloaded responsibilities on a few individuals with knowledge can lead to work burden and operational issues. High transfer rates among municipal employees can disrupt financial data management efforts, while the absence of specialized roles in data management can result in divided attention and reduced expertise. To address these challenges, municipalities need to invest in training, capacity building, defining clear roles and responsibilities, and implementing modern financial software tools to enhance their human resource capacity for effective financial data management.

Section X attempted a **reality check** in the urban sector on financial data-based decision-making to bring out the practical applicability of the research findings. The effective use of financial data for decision-making within municipal systems currently faces several challenges. A collaborative study by NITI and ICAI titled "***Transition to Accrual Accounting: Models and Learnings for Urban Local Bodies***" sheds light on reality of data-enabled decision-making in Urban Local Bodies (ULBs). One major concern is the governmental approach, where financial management is not a specialized function. Budget compliance often takes precedence, with a focus on spending rather than revenue generation. This legacy has shaped the financial management practices of ULBs. Additionally, a lack of aggregated reporting at the state level hampers decision-making. ULBs are computerized, yet a unified statewide database and dashboard for higher-level oversight are missing, leading to a fragmented data retrieval process. Lack of strategic approach to implementation has also contributed for the non-achievement of desired results. Computerization focus has been on creating data rather than usage of data. Data-based decision-making remains a significant challenge, resulting in the absence of a structured Management Information System (MIS) within and outside ULBs. The absence of an accounting cadre within ULBs and a lack of training in accrual accounting for senior officials further exacerbates the problem. Continuous training, appropriate skill development, and a shift from

procedure-oriented to process-oriented operations are needed to address these challenges. Also, proper motivation/incentivization of the ULBs by linking the success of the reform process to financial flows will support the cause of good quality financial information at the ULBs. In essence, the municipal system faces hurdles in adopting effective financial data-driven decision-making, characterized by a lack of specialization, training, and modernization in financial management practices.

Way forward

Such an array of considerations, as discussed in this paper, is required to understand the topic of using financial data in decision-making by municipalities and to develop various approaches for addressing the issues underlying to promote the use of municipal data for decision-making.

In conclusion, to address various issues with regard to municipal financial data identified in this research paper, following approach is proposed from a policy-process-people-technology perspective. The section numbers given in the brackets of the sub-heading shows the major linkages between those sections and the approaches for the way forward. These are higher level considerations only and not issue wise recommendations.

Policy matters (Section III, IV, V, VIII)

There has to be a common '**data standards**' with regard to the financial data to be maintained by the ULBs. Ideally, it should be supported by a national policy as there has to be commonality across states. However, as municipal matters are state subject it may be worthwhile that some of the states advanced in this area to frame such a policy clearly bringing out the essential financial data that shall be maintained by ULBs, the format, and various technical characteristics, period of storage, etc. These standards could take

cue from the digital knowledge governance standards[6] released under National Urban Digital Mission.

With the Digital Personal Data Protection Act, 2023 coming in, the way the **privacy of financial data** needs to be maintained and with all such data should be shared, etc. should be made clear and guidelines issued for the same.

The urban development departments of the states need to maintain a **central financial database of the ULBs**. Uniform software across the ULBs with a central database at the state datacentre is certainly achievable considering the current maturity of information technology in the country. This will not only help in generating the reports required at the state level, but the government could also use it for **analytics to provide guidance**, in areas found lacking, to the required ULBs. This will also remove the routine government requesting reports and the ULBs sending them as and when required. Initiatives taken under Indian Urban Data Exchange[7] (IUDX) need to be recognized and the municipal data from various validated sources need to be integrated. Linking success of reform process to funding would also promote proper creation of financial data with veracity.

Process matters (Section VI, VII, VIII)

The ULBs need to **streamline the process of creation of financial data**. The accounting processes and the accounting treatments made in the municipalities need to be uniform across all the ULBs in order to have a harmonious and comparable data. In every state in India different software are used for accounting, and different types of databases are created. This lack of uniform data base and non-availability of a unified data base creates a lot of data consistency and quality issues. These are results of lack of uniform processes is

[6] https://smartnet.niua.org/content/1dbef1a1-54fa-4b79-9436-c9020f09302e [Accessed 15 January 2024]

[7] https://www.meity.gov.in/writereaddata/files/Digital%20Personal%20Data%20Protection%20Act%202023.pdf [Accessed 15 January 2024]

the ULBs and using different software for creating such data. All the ULBs should use similar processes for creating a centralized financial database at the state-level that is updated and validated.

The financial reporting process needs to be strengthened and structured. In terms of format of the financial statements, the schedules underlying, various finance linked reports, etc. should follow uniform format so that stakeholders at various levels can get the report they need. With appropriate technological intervention reports could be generated automatically, but the **review of the reports and taking corrective actions** on the same need to be strengthened to enable meaningful decisions without delay.

People matters (Section III, IV, V, IX)

Political will to induct appropriately qualified persons is possibly the main issue in the sector. Once qualified and trained persons in accounting and finance are placed at the appropriate positions in ULBs there will be qualitative difference in the way finance related decision are taken.

Capacity building happens, if at all, on a checkered basis. In many cases trainings are undertaken generally based on available budget, pressure of multilateral agencies, and so on. **Linking capacity building to skill-sets required for financial decision-making** is required to make the efforts effective by ensuring the trained executive will be deployed for the skill-set one was trained in.

Technology matters (Section V, VI, VII)

In the last few decades of computerization, creating data centres at the state level, providing state-level WANs have played their role in increasing automation in the sector. However, the **lack of a strategic approach** has resulted in the municipal sector not reaping the benefits of these efforts. System-generated data that is current, correct, and complete for decision-making is yet to happen particularly in relation to financial decision making. Apart from various key factors discussed in this report, this requires an **outcome-initiated approach**. The computerization efforts have been more for

reducing the procedural burdens, increasing data capture rather than on how the captured data will be used and what decisions could be based on such data when processed. Any technology initiative that is outcome initiated will automatically take into consideration the needs of the stakeholders at various levels. This would create an automation that is data-sensitive with financial data getting created for making the system more decision-sensitive!

There are innumerable research studies that could be done to bring about data-based financial decision making in the municipalities, and in the urban sector. Some of the suggestions in this regard are:

- Do the financial ratios reveal the same issues for the different types of sizes of municipalities?
- Which are the key financial ratios that help in understanding the long-term financial performance and those that reveal short-term financial performance?
- Can the ratio analysis predict financial distress of the municipalities[8]?
- Which are the minimal set of financial ratios to be reported with financial statements to evaluate the quality of financial management of municipalities?
- Could there be the single financial performance index that would help to rate the overall performance of municipalities and support in ranking of municipalities?

[8] Financial distress in municipalities is yet to be recognized in India. Many countries have analyzed this concept and also have developed approaches for handling the municipal financial distress

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Appendix 1: Finance Commission recommendations/observations

FC Ref	Content/emphasis	Implications on availability of financial data for ULBs	XV FC Vol 1 (2021-26) ref
FC-XI	The FC-XI made it clear that the first charge on the grants should be maintenance of accounts and audit, followed by the development of a financial database.	Without financial database information for decision-making will not be available and hence robust decisions cannot be taken.	pp-173
FC-XII	The rural and urban local bodies were also expected to give high priority to expenditure for the creation of databases on their finances and maintenance of accounts through the use of modern technology and management systems.	The ULBs need to prioritize their investments in creating infrastructure to create financial database for decision-making.	pp-173
FC-XIV	In order to be eligible for performance grants, the local governments would have to show an increase in own source of revenue and also submit audited annual accounts. we paid particular attention to the long-standing issue of non-availability of accounts,	Grants not only linked to performance but also the availability of the financial data in the public domain.	pp-174

FC Ref	Content/emphasis	Implications on availability of financial data for ULBs	XV FC Vol 1 (2021-26) ref
	including audited accounts, in the public domain on a timely basis.		
FC-XV	To bring an end to this long-standing vexed issue, we had clearly stated, in our report for 2020-21, that availability of accounts (unaudited) for the previous year and audited accounts for the period preceding the previous year in the public domain online would be an entry-level condition for qualifying for any grant.	Availability of financial data an over-riding condition for grant.	pp-175
	An active municipal borrowing market must be created through the cityfinance portal, which serves as a national framework of standardised, timely and credible financial information on cities. It facilitates benchmarking, comparison and peer 3 learning between cities on a range of financial indicators.	Financial information of ULBs to be linked to cityfinance portal.	pp-179
	The MoHUA and the Controller General of Accounts (CGA) should	Integration of the ULBs financial data to higher	pp-180

FC Ref	Content/emphasis	Implications on availability of financial data for ULBs	XV FC Vol 1 (2021-26) ref
	develop an account maintenance system, National Municipal Accounting Manual (NMAM), which will be integrated with the Public Financial Management System (PFMS).	level finance database.	
	Funds should be earmarked for the creation of databases at the level of local governments, while providing them the flexibility to hire or outsource specialised manpower for this.	The ULBs need to graduate to digital databased even using external support.	pp-209
	Importance of generation of internal resources like revenues from property taxation and tax on professions.	Specific data on the projected tax revenues, receivables, etc. is required.	pp-183
	Two Entry Level Conditions for Availing Grants As in the case of the rural local bodies, in order to be eligible for grants, the urban local bodies too have to mandatorily prepare and make available online in the public domain annual accounts of the previous year	The accrual accounting that is audit worthy need to be prepared implying the need for the availability of robust financial data.	pp-199

FC Ref	Content/emphasis	Implications on availability of financial data for ULBs	XV FC Vol 1 (2021-26) ref
	and the duly audited accounts of the year before previous. Such audited accounts should include the minimum of a) balance sheet; b) income and expenditure statement; c) cash flow statement; and d) schedules to balance sheet, income and expenditure statement and cash flow statement.		
	To improve the current situation, urban local bodies require technical assistance to: (a) move towards professionalising their delivery of solid waste management services and economic use of land filling, either public, private or jointly managed; (b) develop and implement strategic multi-year investment plans that address their local infrastructure and maintenance needs according to their waste generation trends; (c) mobilise resources to fund capital investments and cost- recovery mechanisms that will ensure	Need for operational level financial data to understand the economics of these operations.	pp-210

FC Ref	Content/emphasis	Implications on availability of financial data for ULBs	XV FC Vol 1 (2021-26) ref
	the sustainability of operations and maintenance plans;		
	Adequate financing is essential to run any type of waste management system and hence private sector involvement in these efforts is recommended to ensure the availability of sufficient and reliable financing.	As above	pp-210
	Competition-based Grants for Incubation of New Cities	Grant data	pp-216
	Shared Municipal Services - Grants for National Data Centre	Grant data	pp-217
	An institutionalised mechanism needs to be established to make municipalities “market worthy”, with active participation of the financial services sector.	Financial services sector would require updated granular data for their requirements.	pp-217
	The institutional arrangement needs to be undertaken for implementation of various reforms at the urban local body level like publishing of	All these activities required good complete and correct financial data.	pp-218

FC Ref	Content/emphasis	Implications on availability of financial data for ULBs	XV FC Vol 1 (2021-26) ref
	documents, creating model PPP contracts, modernising municipal budgeting, evolving a national municipal borrowing framework including provisions equivalent to the Fiscal Responsibility and Budget Management Act for urban local bodies.		

Appendix – 2: Municipal financial data across the globe

The availability and quality of municipal financial data vary from country to country. Some countries have well-established systems for collecting, reporting, and publishing municipal financial data, while others may have limited or less transparent data. Generally, countries with more developed financial and governance systems tend to have better municipal financial data. Here are some countries known for having good municipal financial data:

United States: The United States provides comprehensive financial data for its municipalities through the Government Finance Statistics (GFS) and the Comprehensive Annual Financial Reports (CAFRs). Many cities and local governments also publish detailed financial information on their websites.
(eg: https://wwe1.osc.state.ny.us/localgov/findata/financial-data-for-local-governments.cfm copy and paste this link on the browser) [Accessed 15 January 2024]

Canada: Canada has a robust system for municipal financial reporting, with standardized financial statements and reporting requirements. The Open Canada portal provide financial information about the municipalities.
(https://open.canada.ca/data/en/dataset/cde4c4fd-a0b2-4816-af43-13de7a3fd3e3) [Accessed 15 January 2024]

United Kingdom: The UK has well-established financial reporting standards for local authorities, and the Ministry of Housing, Communities, and Local Government (MHCLG) collects and publishes municipal financial data regularly. Live tables on local government finances are available through the data is per financial item – like debts, liabilities, expenses, etc. in separate tables.
https://www.gov.uk/government/statistical-data-sets/live-tables-on-local-government-finance. [Accessed 15 January 2024]

However, a local government financial Statistics is also published in a summary and analytical form.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7447/1622439.pdf. [Accessed 15 January 2024]

Australia: Australia has a strong tradition of financial reporting by local governments. The Australian Bureau of Statistics (ABS) collects financial data for all levels of government, including municipalities. This information is available for analysis. Details of the data available are discussed clearly in ABS website.
https://www.abs.gov.au/statistics/economy/government/government-finance-statistics-australia/latest-release. [Accessed 15 January 2024]

Germany: Germany has a decentralized system of municipal finance, and each municipality is required to publish annual financial statements. The Federal Statistical Office of Germany collects and publishes financial data for municipalities.
https://www.ceicdata.com/en/germany/central-state--local-government-revenue-and-expenditure/local-government-expenditures [Accessed 15 January 2024] gives specific financial statistics at local government level.

Sweden: Sweden has a transparent system of municipal financial reporting, and Statistics Sweden provides financial data and statistics.
https://www.statistikdatabasen.scb.se/pxweb/en/ssd/START__OE__OE0107__OE0107A/BalansKcr/ [Accessed 15 January 2024]

Netherlands: The Netherlands has well-organized municipal financial reporting, and financial data is published Statistics Netherlands.
https://www.cbs.nl/en-gb/figures/detail/84413ENG [Accessed 15 January 2024]

New Zealand: New Zealand's local government financial reporting is overseen by the Office of the Auditor-General, and financial data is available through the Local Government Funding Agency (LGFA).

https://www.stats.govt.nz/information-releases/local-authority-financial-statistics-year-ended-june-2021. [Accessed 15 January 2024]

South Africa: South Africa provides rich municipal financial data through the National Treasury. Detailed tables are available on the financial data.
https://municipaldata.treasury.gov.za. [Accessed 15 January 2024]

Japan: Japan has a system of financial reporting for local governments, and financial data is available through the Ministry of Internal Affairs and Communications. https://www.soumu.go.jp/english/ [Accessed 15 January 2024] provides an analysis of the local government finances and the related processes.

It is important to note that while these countries are known for having good municipal financial data, the availability and accessibility of data may vary within each country based on local practices and reporting standards. Municipalities within the same country may differ in their financial reporting practices, so it's always recommended to check with specific municipalities or relevant government agencies for the most up-to-date and comprehensive financial data.

Appendix – 3: Municipal financial indicators – a sample case

S.No.	Financial KPIs	Formulae	2021-22	2022-23
A. Revenue				
1	Revenue Growth Rate (in %)	(Current period revenue – Prior period revenue)/Prior period revenue	21.05%	10.47%
2	Own Revenue Ratio (in %)	(Own revenue / Total revenue)	63.32%	64.07%
3	Revenue Diversity (in %)	Individual revenue source / Total revenue:		
		Tax Revenue	30.74%	34.05%
		Assigned Revenues & Compensation	4.09%	3.59%
		Rental Income from Municipal Properties	2.74%	1.61%
		Fees & User Charges	23.42%	22.69%
		Sale & Hire Charges	0.03%	0.05%
		Revenue grants, contributions & subsidies	32.60%	32.34%
		Interest Earned	4.09%	3.86%
		Other Income	2.30%	1.81%
4	Tax Collection Efficiency (in %)	Actual current year tax revenue collections/Expected current year tax collectibles (Based on budget)	Inadequate data 1	Inadequate data 1
B. Expense				

S.No.	Financial KPIs	Formulae	2021-22	2022-23
5	Expense-to-Revenue Ratio (in %)	Total expense/Total revenue	75.49%	74.12%
6	Operating Expense Breakdown (in %)	Individual operating expense / Total operating income:		
		Establishment Expenses	183.26 %	170.27 %
		Administrative Expenses	3.85%	3.97%
		Operations & Maintenance	62.97%	58.75%
		Programme Expenses	57.71%	53.24%
		Others	0.16%	0.14%
7	Establishment Expense to own revenue (in %)	Establishment Expenses/Own Revenue	70.95%	68.78%
8	Interest Cost Ratio (in %)	Interest expenses/ Own Revenue	0.82%	1.30%
C. Cashflow				
9	Quick Ratio	(Current assets - Inventory)/Current Liabilities	2.79	3.25
10	Debt Service Coverage Ratio (in %)	(Net Income + Non-cash charges) / Debt service (Principal + Interest)	Inadequate data 1	Inadequate data 1
D. Asset				
11	Capital Expenditure Ratio (in %)	Total capital expenditure/ Total revenue	191.97 %	179.99 %
12	Capital Asset Management	Total capital assets / Total outstanding debt	69.18	747.76

S.No.	Financial KPIs	Formulae	2021-22	2022-23
	Ratio			
E. Liability				
13	Debt-to-Operating Revenue Ratio (in %)	Total debt/Total Operating revenue	238.62 %	151.20 %
14	Debt-to-Own Revenue Ratio (in %)	Total debt/ Own revenue	67.05%	62.93%
15	Debt Affordability Ratio (in %)	Total debt payments / Total revenue	Inadequate data 1	Inadequate data 1
16	Fund Balance Ratio (in %)	Fund balance (reserves)/Total expense	681.96 %	622.68 %
17	Increase in Contingent Liabilities (in %)	(Current year contingent liability – Previous year contingent liability)/ Previous year contingent liability	3.11%	2.15%
F. Overall				
18	Budget Variance Analysis (in %)	(Actual revenue – Budgeted revenue)/ Budgeted revenue	Inadequate data 1	Inadequate data 1
19	Debt Burden per capita (in Rs) 2	Total outstanding debt / Total population	2,657.50	2,731.39
20	Cost per Capita (in Rs) 2	Total expenses/ Total population	2,735.85	6,337.15
1 Inadequate data refers to data not available in the financial statements				
2 Population data from https://www.macrotrends.net/cities/21430/vadodara/population				

S.No.	Financial KPIs	Formulae	2021-22	2022-23
[Accessed 15 January 2024]				
Source: Financial Statements and Budgets				