PERFORMANCE OF SELECTED URBAN LOCAL BODIES IN KERALA WITH SPECIAL REFERENCE TO SOCIAL INFRASTRUCTURE

Thesis submitted to the
University of Calicut for the award of the degree of

DOCTOR OF PHILOSOPHY IN ECONOMICS

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DECLARATION

I, SAYOOJ KUMAR.K.P, hereby declare that this Ph.D. thesis entitled, **"Performance of Selected Urban Local Bodies in Kerala with Special Reference to Social Infrastructure "** is a bonafide record of research work done by me for the fulfillment of the award of the degree of Doctor of Philosophy, under the guidance and supervision of **Dr. REJIMON P.M**, Professor and Head, Research & P.G. Department of Economics, Mar Dionysius College, Pazhanji. I also declare that this thesis has not been submitted earlier for the award of any degree, diploma, fellowship or any other similar title.

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This is to certify that the thesis entitled "**Performance of Selected Urban Local Bodies in Kerala with Special Reference to Social Infrastructure**", submitted by **Mr. SAYOOJ KUMAR.K.P**, to the University of Calicut, for the partial fulfilment of the requirements for the award of the degree of Doctor of Philosophy (Ph.D.) in Economics, is a bonafide research work done by **Mr. SAYOOJ KUMAR.K.P** under my supervision and guidance in the Research & Post Graduate Department of Economics, Mar Dionysius College (Affiliated to university of Calicut), Pazhanji, Thrissur, Kerala The content embodied in this Thesis, in full or in parts, have not been submitted to any other University or Institute for the award of any degree. Plagiarism is checked and found within the permitted limits.

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I hereby declare that the work presented in the thesis entitled "**Performance of Selected Urban Local Bodies in Kerala with Special Reference to Social Infrastructure** " is based on the original work done by me under the guidance of Prof (Dr) Rejimon. P.M. and has not been included in any other thesis submitted previously for the award of any degree. The contents of the thesis are undergone a plagiarism check using iThenticate software at C.H.M.K. Library, University of Calicut, and the similarity index found within the permissible limit. I also declare that the thesis is free from AI-generated content.

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This is to certify that no correction is made in the thesis entitled "**Performance of Selected Urban Local Bodies in Kerala with Special Reference to Social Infrastructure**", submitted by **Mr. SAYOOJ KUMAR.K.P**, as there are no suggestions for correction by the adjudicators of the thesis

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Sayooj Kumar K.P.

ABSTRACT

This study presents a comprehensive assessment of the performance of selected Urban Local Bodies (ULBs) in the Thiruvananthapuram district of Kerala, with an analytical emphasis on social infrastructure sectors, namely health and education. The broader aim is to evaluate how effectively these municipalities mobilise financial resources, deliver social services, and operate institutional systems that impact citizen welfare. The analysis is rooted in three key objectives: assessing financial indicators, evaluating the technical efficiency of the healthcare system, and examining the efficiency of the school education system under the jurisdiction of selected ULBs.

The financial performance evaluation reveals that Thiruvananthapuram Corporation emerges as a benchmark, consistently outperforming others across revenue mobilisation, decentralised planning, and capital investment. Its administrative scale and governance capacity underpin this success, making it a role model for urban financial management. Among smaller municipalities, Attingal and Neyyattinkara demonstrate upward fiscal trajectories, especially in revenue generation and capital expenditure. Nedumangad follows with a modest yet stable performance. Varkala, however, consistently underperforms, particularly in non-tax revenue. The study finds that establishment costs dominate ULB expenditures. Operations and maintenance allocations, particularly in Neyyattinkara and Attingal, show a rising trend, indicating a transition toward service-intensive governance.

Sectoral analysis reveals varied investment intensity. Health and education receive significant attention, particularly in Thiruvananthapuram and Nedumangad. Neyyattinkara displays volatility in both sectors. Varkala's modest progress is constrained by poor allocation patterns, calling for policy correction. Drinking water and sanitation spending have surged in Thiruvananthapuram, while Neyyattinkara's stagnation signals either project saturation or neglect. On governance, Thiruvananthapuram shows proactive funding of local government services and transferred institutions, suggesting institutional maturity. Other ULBs reveal mixed trends, with Varkala showing incremental growth, and Attingal and Nedumangad

facing execution challenges. Neyyattinkara's inconsistent allocations reflect weak planning, underlining the need for foundational administrative reforms.

The healthcare system's technical efficiency was assessed using Data Envelopment Analysis (DEA), alongside staffing, service uptake, and waiting time indicators. Thiruvananthapuram Corporation leads in permanent staffing and service stability. Neyyattinkara's expansion, driven by temporary hiring, highlights short-term service gains but raises concerns over sustainability. Varkala and Attingal's reliance on temporary staff amid stagnant doctor numbers points to constrained expansion capacity. Patient flow data underscores Thiruvananthapuram's dominance in healthcare access. While COVID-19 disrupted services, post-pandemic recovery varied, with Thiruvananthapuram and Neyyattinkara showing resilience, unlike Attingal and Varkala. Waiting time analysis shows 74.5% of patients were attended to within one hour, with Thiruvananthapuram and Neyyattinkara excelling. Statistically significant differences across ULBs indicate the role of governance in shaping service responsiveness. DEA results show that all ULBs, except Neyyattinkara, operate at technically and managerially efficient levels. Neyyattinkara's excess inputs without corresponding output gains indicate inefficiencies arising from poor resource optimisation. Governance perception surveys further reinforce this, placing Thiruvananthapuram and Neyyattinkara at the top, despite the latter's inefficiencies.

In the education sector, both teacher-side and student-side indicators were examined. Leadership effectiveness and administrative support are strongest in Thiruvananthapuram and Neyyattinkara. Varkala and Attingal suffer from fragmented governance. Faculty quality, infrastructure, and pedagogical practices align positively with governance indicators, reinforcing the centrality of systemic coherence. Neyyattinkara and Thiruvananthapuram perform well in ensuring faculty development, availability of teaching-learning resources, and sanitation facilities. In contrast, Attingal and Varkala lag significantly, especially in ICT access and learning material availability. From the student perspective, learning environment satisfaction, academic engagement, and aspirational readiness are markedly higher in Neyyattinkara and Thiruvananthapuram. These ULBs are recognised for fostering

inclusive, safe, and forward-looking learning environments. Varkala shows the weakest student perceptions, revealing a systemic disconnection between inputs and student experiences. Neyyattinkara emerges as the top-performing ULB in education, combining efficient governance, strong pedagogy, and responsive student systems. Thiruvananthapuram, while slightly behind in output measures, benefits from administrative depth and infrastructure scale. Nedumangad performs moderately, whereas Attingal and Varkala need urgent reforms to improve school effectiveness and student satisfaction.

The study proposes actionable recommendations: enhancing financial planning in underperforming municipalities, strategic staffing in healthcare, and performance-based budgeting in education. It advocates institutionalising the DEA for annual reviews, expanding community engagement in schools, and developing state-level monitoring systems to track ULB performance longitudinally.

Further research is suggested to broaden the study's scope. Including physical infrastructure, rural local bodies, and expanding DEA applications to the education sector could deepen the understanding of local governance performance. Expanding to a state-wide analysis may reveal broader trends and policy leverage points.

Limitations of the study include its focus on a single district and on urban bodies only. DEA is confined to the healthcare sector, and the time frame spans a decade. Sample sizes in some categories, like doctors and paramedics, are also relatively small, affecting the generalisability of certain findings.

The study offers a robust framework for evaluating ULB performance in Kerala. It reinforces the importance of aligning fiscal, institutional, and human resources to strengthen service delivery in health and education, two sectors crucial to inclusive urban development. ULBs like Thiruvananthapuram and Neyyattinkara offer replicable models, while others provide lessons for targeted reforms.

Keywords:

Urban Local Bodies, Social Infrastructure, Technical Efficiency, Healthcare Services, School Education, Governance Performance, Kerala Municipalities.

സംഗ്രഹം

കേരളത്തിലെ തിരുവനന്തപുരം ജില്ലയിലെ നഗരസഭകളുടെ ആരോഗ്യം വിദ്യാഭ്യാസം തുടങ്ങിയ സാമൂഹിക അടിസ്ഥാന സൗകര്യങ്ങളിലെ പ്രകടനം സമഗ്രമായി വിലയിരുത്തുന്നതാണ് ഈ പഠനം. ഈ നഗര സഭകൾ വിഭവ സമാഹരണത്തിലും അവ ഉപയോഗിച്ചു കൊ ് പൗരക്ഷേമത്തിന് ഉതകുന്ന പ്രവർത്തനങ്ങൾ ചെയ്യുന്നതും വിഭവങ്ങൾ എത്രത്തോളം ഫലപ്രദമായാണ് വിനിയോഗിക്കുന്നത് എന്നത് വിലയിരുത്തുകയാണ് ഈ പഠനത്തിന്റെ വിശാലമായ ലക്ഷ്യം. മൂന്ന് പ്രധാനപ്പെട്ട മേഖലകളിൽ ഊന്നിയാണ് നഗരസഭകളുടെ പ്രവർത്തനം വിലയിരുത്തുന്നത്.സാമ്പത്തിക സൂചകങ്ങൾ ആരോഗ്യ മേഖലയിലെ സംവിധാനങ്ങളുടെ സാങ്കേതികമായ കാര്യക്ഷമത പരിശോധിക്കുക, വിദ്യാഭ്യാസ മേഖലയിലെ കാര്യക്ഷമത പരിശോധിക്കുക എന്നിവയാണ് ഈ പഠനത്തിന്റെ ലക്ഷ്യങ്ങൾ.

വരുമാന സമാഹരണം, വികേന്ദ്രീകൃത ആസൂത്രണം, മൂലധന നിക്ഷേപം എന്നീ മേഖലകളിൽ തിരുവനന്തപുരം നഗരസഭ മറ്റ് നാല് നഗരസഭകളേക്കാൾ മികച്ച പ്രകടനമാണ് കാഴ്ച വെയ്ക്കുന്നത്. നഗരസഭയുടെ വലുപ്പവും ഭരണശേഷിയും ഈ പ്രകടനത്തിന് കാരണമാകുന്നു. മറ്റ് ചെറിയ സഗരസഭകളിൽ ആറ്റിങ്ങലും, നെയ്യാറ്റിൻകരയും ഉയർന്ന സാമ്പത്തിക ഭദ്രത കാണിക്കുന്നു.നികുതി വരുമാനത്തിലായാലും മൂലധന ചെലവിനായാലും നെടുമങ്ങാട് നഗരസഭ മിതമായതും സ്ഥിരതയുള്ളതുമായ പ്രകടനമാണ് കാഴ്ച വെച്ചിട്ടുള്ളത്. എന്നാൽ വർക്കല നഗരസഭ നികുതി ഇതര വരുമാനത്തിൽ സ്ഥിരത കുറഞ്ഞ പ്രകടനമാണ് കാഴ്ച വെയ്ക്കുന്നത്.

നഗരസഭകളുടെ കാര്യത്തിൽ അവയുടെ പൊതു ചിലവുകളും സ്ഥാപന ചെലവുകളും കൂടി വരുന്നതായിട്ടാണ് കാണുന്നത്.നെയ്യാറ്റിൻകര ആറ്റിങ്ങൽ നഗരസഭകളുടെ കാര്യത്തിൽ അവരുടെ സ്ഥാപന ചെലവുകൾ വർദ്ധിച്ചു വരുന്നതായി കാണുന്നു. ഈ നഗര സഭകൾ കൂടുതൽ സേവനങ്ങൾ ലഭ്യമാക്കുന്നതു കൊ ് കൂടിയാണ് സംഭവിക്കുന്നത്.

വ്യത്യസ്ത മേഖലകൾ തിരിച്ചുള്ള കണക്കുകൾ പരിശോധിക്കുമ്പോൾ നെയ്യാറ്റിൻകര, തിരുവനന്തപുരം നഗരസഭകൾ വിദ്യാഭ്യാസത്തിന് കൂടുതൽ തുക വകയിരുത്തിയതായി കാണാം. വർക്കലയിൽ നേരിയ പുരോഗതി ഉ ങ്കിലും വകയിരുത്തിയിട്ടുള്ള തുക തുലോം പരിമിതമാണ്.എല്ലാ നഗര സഭകളും സേവനങ്ങൾ നൽകുന്നതിൽ വർദ്ധിച്ച തുക മാറ്റി വെയ്ക്കുന്നു ന്ന് കാണാം.എന്നാൽ ആറ്റിങ്ങൾ, നെടുമങ്ങാട് നഗരസഭകൾ വിദ്യാഭ്യാസ മേഖലയ്ക്കായി വിനിയോഗിക്കുന്ന തുക കുറവാണ്.

ഡാറ്റാ എൻവലപ്പ്മെന്റ് അനാലിസിസ് (DEA) പ്രകാരം ആരോഗ്യ സംരക്ഷണ മേഖലയിലെ സാങ്കേതിക കാര്യക്ഷമത വിലയിരുത്തുകയു ായി. ഡോക്ടർമാരുടെ എണ്ണത്തിന്റെ പരിമിതി മൂലം ആറ്റിങ്ങൽ,വർക്കല ആശുപത്രികളിൽ താൽക്കാലിക ജീവനക്കാരുടെ എണ്ണം കൂടി വരുന്നതായി കാണുന്നു. സാങ്കേതിക കാര്യക്ഷമതയുടെ കാര്യത്തിൽ നെയ്യാറ്റിൻകര ആശുപത്രി ഒഴികെ ബാക്കി എല്ലാ ആശുപത്രികളും കാര്യക്ഷമമായാണ് പ്രവർത്തിക്കുന്നത്. നെയ്യാറ്റിൻ കരയുടെ കാര്യത്തിലാണെങ്കിൽ ചില വർഷങ്ങളിൽ അവരുടെ ഔട്ട്പുട്ട്, ഇൻപുട്ടിനേക്കാൾ കുറവായിട്ടാണ് കാണുന്നത്.ഇത് ആശുപത്രിയുടെ മാനേജ്മെന്റിന്റെ പോരായ്മയായാണ് കരുതേത്. അതേസമയം ആശുപത്രികളിൽ നൽകുന്ന സേവനങ്ങൾ സ്ഥിരം ജീവനക്കാരുടെ

ലഭ്യത,സർവ്വിസ് സ്ഥിരത തുടങ്ങിയ കാര്യങ്ങളിൽ രോഗികൾക്ക് നല്ല അഭിപ്രായമാ ണുള്ളത്.74.5% രോഗികൾക്കും ഒരു മണിക്കൂറിനുള്ളിൽ പരിചരണം ലഭ്യമാകാറു ്.

വിദ്യാഭ്യാസ മേഖലയിലെ നഗരസഭകളുടെ കാര്യക്ഷമത പരിശോധിക്കുമ്പോൾ തിരുവനന്തപുരം നെയ്യാറ്റിൻകര എന്നീ നഗര സഭകൾ ഫലപ്രാപ്തിയിലും ഭരണ നൈപുണ്യത്തിലും ശക്തമായ പ്രകടനമാണ് കാഴ്ച വയ്ക്കുന്നത്. അദ്ധ്യാപക രുടെയും വിദ്ധ്യാർത്ഥികളുടേയും അഭിപ്രായങ്ങൾ ക്രോഡീകരിച്ചുകൊ ാണ് കാര്യ ക്ഷമത പരിശോധിക്കുന്നത്.ആറ്റിങ്ങൾ വർക്കല നഗരസഭകളുടെ കീഴിലുള്ള സർക്കാർ സ്കൂളുകൾ ഐ സി ടി പഠനസാമഗ്രികളുടെ ലഭ്യത തുടങ്ങിയ കാര്യങ്ങ ളിൽ മറ്റ് നഗരസഭകളെ അപേക്ഷിച്ച് പിന്നോക്കം നിൽക്കുന്നതായി കാണാം.നഗരസഭ കളിൽ വിദ്യാഭ്യാസ മേഖലയിലുള്ള പ്രവർത്തനങ്ങളിൽ നെയ്യാറ്റിൻകര നഗരസഭ ഏറ്റവും മുന്നിൽ നിൽക്കുന്നതായി കാണുന്നു.നെടുമങ്ങാട് നഗരസഭ തൃപ്തികര മായി വിദ്യഭ്യാസ മേഖലയിൽ പ്രവർത്തനങ്ങൾ കാഴ്ച വെയ്ക്കുമ്പോൾ ആറ്റിങ്ങൽ വർക്കല എന്നീ നഗരസഭകൾ ഈ മേഖലയിൽ പ്രവർത്തനങ്ങൾ മെച്ചപ്പെടുത്തേ തായു ്.വർക്കലയിലും വിദ്യാർത്ഥികളുടെ പഠന സംതൃപ്തി മെച്ചപ്പെടുത്തുന്നതിനാ വശ്യമായ നടപടികൾ ആവശ്യമു ്.

മോശപ്പെട്ട പ്രകടനം കാഴ്ച വെയ്ക്കുന്ന നഗരസഭകളുടെ പ്രകടനം മെച്ചപ്പെ ടുത്തുന്നതിനായി സാമ്പത്തിക ആസൂത്രണം മെച്ചപ്പെടുത്തുക, ആരോഗ്യ സംരക്ഷ ണമേഖലയിൽ തന്ത്രപരമായ പരിഷ്ക്കാരങ്ങൾ നടപ്പാക്കുക.വിദ്യാഭ്യാസ മേഖല യിലെ പ്രവർത്തനങ്ങളെ അടിസ്ഥാനമാക്കിയുള്ള ബജറ്റിംഗ് നടത്തുക.വാർഷിക പ്രവർത്തനങ്ങളുടെ അവലോകനങ്ങളിൽ ഡാറ്റാ എൻവലപ്പ്മെന്റ് അനാലിസിസ് (DEA) ഉപയോഗിക്കുക.നഗരസഭകളുടെ പ്രവർത്തനങ്ങൾ വിലയിരുത്താൻ സംസ്ഥാ നതല നിരീക്ഷണ സംവിധാനങ്ങൾ ഏർപ്പെടുത്തുക എന്നീ കർമ്മ പദ്ധതികൾ സംസ്ഥാന സർക്കാറിന് അവലംബിക്കാവുന്നതാണ്.

ഈ ഗവേഷണത്തിന്റെ സാധ്യത വർദ്ധിപ്പിക്കുന്നതിന് ഭൗതിക അടിസ്ഥാന സൗകര്യങ്ങൾ പഞ്ചായത്തിന്റ പ്രവർത്തനങ്ങളുടെ പഠനം തുടങ്ങിയവക്കായി ഡി ഇ എ പ്രയോജനപ്പെടുത്താവുന്നതാണ്. ഈ പഠനം നഗരസഭകളുടെ പ്രവർത്തനങ്ങൾ വിലയിരുത്തുന്നതിനായി അടിസ്ഥാനഘടന നൽകുന്നതിനും ആരോഗ്യം വിദ്യാ ഭ്യാസം എന്നീ നിർണ്ണായകമായ ര ് മേഖലകളിലുള്ള സേവനങ്ങൾ മെച്ചപ്പെടുത്തു ന്നതിനും ഉള്ള പ്രവർത്തനങ്ങൾക്ക് പ്രാധാന്യം നൽകുന്നു.

സൂചക പദങ്ങൾ

നഗരസഭകൾ,സാമൂഹിക അടിസ്ഥാന സൗകര്യം,സാങ്കേതിക കാര്യക്ഷമത,ആ രോഗ്യ സേവനം, സ്കൂൾ വിദ്യാഭ്യാസം, ഭരണപ്രകടനം, കേരള നഗരസഭകൾ

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Abbreviation

CAG	-	Comptroller and Auditor General
CRS	-	Constant Returns to Scale
DEA	-	Data Envelopment Analysis
GoI	-	Government of India
JnNURM	-	Jawaharlal Nehru National Urban Renewal Mission
KMAM	-	Kerala Municipal Accounts Manual
NMAM	-	National Municipal Accounts Manual
SFA	-	Stochastic Frontier Analysis
ULBs	-	Urban Local Bodies
VRS	-	Variable Return to Scale

CHAPTER I

INTRODUCTION

1.1 Introduction

Over the past four to five decades, rapid population growth has been a major driving force behind demographic shifts in most developing countries. Among these shifts, migration has played a particularly significant role in shaping urbanisation patterns. Unlike in many Western nations, where migration has traditionally been closely linked to industrialisation, developing countries like India have experienced migration both alongside and independently of industrial development (Kojima, 1996). This distinction is crucial in understanding the unique trajectory of urban growth in developing economies, where economic transformations and rural-to-urban movements do not necessarily follow the same patterns as in the West.

The 1990s witnessed two significant yet contrasting trends in India: the globalisation of the economy and the localisation of authority and governance. While globalisation opened up markets, integrated economies, and increased foreign investments, localisation sought to empower smaller administrative units by decentralising governance. The latter movement aimed to bring decision-making closer to the people, enhancing accountability, responsiveness, and efficiency in public administration. Although the concept of local governance has existed since the earliest civilisations, it gained renewed global attention in the late 20th century as nations reevaluated governance structures. Many countries, including India, recognised the need for reforms that strengthened local institutions by transferring responsibilities from higher levels of government to the grassroots level.

Local governance reforms were driven by the understanding that centralised decision-making failed to address the diverse needs of local communities. By delegating administrative, financial, and functional powers to local government institutions, policymakers sought to improve service delivery and enhance democratic participation (Decentralised Plan Document, 2025). The idea was not merely to establish local bodies but to create a system where local governments had sufficient authority, resources, and capacity to function effectively. These reforms aimed to address governance gaps and improve accountability while ensuring that

policies reflected the specific needs of communities rather than being dictated by a distant central authority.

In its narrowest sense, local government refers to formal institutions or bodies established to manage public affairs within a geographically defined jurisdiction. These entities are responsible for providing a range of services, such as water supply, sanitation, local infrastructure, education, and healthcare. However, local governance is a broader concept that extends beyond administrative structures to include collective decision-making processes, participatory governance, and community engagement in policy formulation and implementation. Effective local governance ensures that decision-making is inclusive and reflects the aspirations of residents rather than being imposed by external authorities.

Beyond service delivery, good local governance plays a crucial role in preserving fundamental rights and freedoms. It safeguards the life and liberty of residents by ensuring law enforcement, justice administration, and conflict resolution at the local level. Additionally, it fosters a democratic culture by providing platforms for civic dialogue, public participation, and consultation on key decisions affecting communities. This participatory aspect of local governance enhances transparency and strengthens trust between citizens and governing bodies, reinforcing the legitimacy of local institutions.

Moreover, effective local governance contributes to sustainable development by promoting environmentally responsible policies and practices. Local governments are at the forefront of implementing green initiatives, managing urban planning, and addressing climate change challenges specific to their regions. By integrating economic, social, and environmental considerations into policy frameworks, local governance can significantly improve residents' quality of life. Ultimately, local governance is not just about administrative efficiency but about creating resilient, inclusive, and vibrant communities where people actively participate in shaping their futures.

1.1.1 Urbanisation

Scholars have identified three primary factors contributing to the expansion of urban populations in developing countries. The first is natural growth, which results from

higher birth rates than death rates in urban areas. The second is the expansion of urban administrative boundaries, where rural settlements are absorbed into urban jurisdictions as cities grow. The third, and most significant, is the inflow of population from rural areas, driven by economic, social, and environmental factors. Among these, migration from the countryside to urban centers has been the most decisive factor influencing the pace and pattern of urbanization. This movement is often propelled by rural distress, lack of employment opportunities in agriculture, and the promise of better livelihoods and services in urban centres.

Urbanisation has traditionally been regarded as a by-product of human development (Fox, 2012). Historically, as societies progressed in terms of economic growth, education, healthcare, and infrastructure, urban centres emerged as hubs of innovation, commerce, and cultural exchange. However, in many developing countries, urbanisation has frequently outpaced economic development, leading to significant challenges such as overpopulation, inadequate infrastructure, and growing informal settlements. This phenomenon has raised concerns about the sustainability of urban growth, particularly in regions where governance and urban planning mechanisms are not equipped to handle the rapid influx of people.

In definitional terms, urbanisation can be understood as a process encompassing environment-altering practices that create and sustain urban spaces (Christopher et al., 2012). These changes include the expansion of built environments, shifts in land use patterns, and the transformation of economic and social structures to accommodate growing urban populations. While urbanisation is often associated with economic advancement, in many cases, it has also led to issues such as environmental degradation, socio-economic inequalities, and strains on public services

Ultimately, the patterns of urbanisation in developing countries highlight the complex interplay between demographic forces, migration trends, governance structures, and economic transformations. While rural-to-urban migration continues to be the predominant driver of urban expansion, it is crucial to ensure that this growth is managed in a way that enhances livelihood opportunities, social equity, and environmental sustainability. By adopting forward-thinking policies and innovative urban management strategies, developing nations can turn the challenges of rapid urbanisation into opportunities for long-term development and progress.

India has been experiencing an unprecedented surge in urbanisation over the past few decades. The proportion of the urban population rose from 25.7 per cent in 1991 to 27.8 per cent in 2001 and further to 31.2 per cent in 2011 (Census Report, 2011). This trend is expected to accelerate even more rapidly in the coming years. One of the key drivers of this urban expansion is the large-scale migration of people from rural areas to cities in search of better livelihood opportunities, education, healthcare, and improved living standards (Migration Survey, 2018). Additionally, natural population growth within urban areas and the transformation of rural settlements into urban centres have contributed significantly to the increasing urban footprint.

The continuous rise in urban population has placed enormous pressure on Urban Local Bodies (ULBs), which are responsible for managing and delivering essential civic services. ULBs play a crucial role in maintaining urban infrastructure. This includes solid waste management, transportation, water supply, sanitation, and housing. However, the rapid influx of people into urban areas has outpaced the capacity of these local governments to provide adequate services. As a result, many cities and towns struggle with severe infrastructure deficits, congested roads, inadequate waste disposal systems, and insufficient public amenities, making urban governance increasingly complex.

1.1.2 Urban Governance

Local Self-Governments (LSGs) have been an integral part of India's administrative system since ancient times, evolving through various forms to meet the needs of different eras. In contemporary India, LSGs are categorised into two main types: Urban Local Bodies (ULBs) and Rural Local Bodies (RLBs).

The ULBs primarily govern urban areas and include City Corporations and Municipalities, whereas RLBs function in rural regions through Panchayati Raj institutions such as Grama Panchayats, Block Panchayats, and District Panchayats. These institutions play a crucial role in decentralised governance by addressing the specific needs of local populations and ensuring the efficient delivery of essential public services.

The present structure of ULBs in India can be traced back to the British colonial era, when municipal governance was formally introduced. However, their functioning

remained limited under colonial rule, primarily serving British administrative interests rather than empowering local communities. Following independence, ULBs were recognised as state subjects, meaning that state governments were responsible for their structure, governance, and functionality. While some states took initiatives to strengthen urban governance, there was no uniform legal framework to define the powers and responsibilities of ULBs across the country. As a result, urban governance remained largely fragmented and dependent on state-level policies.

A major turning point in urban governance came with the 74th Constitutional Amendment Act (CAA), 1992, which formally institutionalised ULBs within India's democratic framework. Before this amendment, India's governance structure was predominantly a two-tier system comprising the central and state governments.

The 74th CAA introduced a third tier—local governments—by granting constitutional status to ULBs and clearly defining their powers and functions. Under Article 243W, the amendment listed 18 functional areas in the 12th Schedule, assigning ULBs the responsibility for critical urban services such as education, healthcare, sanitation, housing, recreation, and drinking water. This marked a significant step towards decentralisation, allowing cities to have greater autonomy in addressing local challenges.

Over the past few decades, India has witnessed a growing trend of state governments delegating more responsibilities to ULBs. Many states have actively transferred functions related to urban planning, slum improvement, public health, and infrastructure development to local bodies, reinforcing the principle of governance at the grassroots level. This transition has been driven by the realisation that centralised decision-making often fails to address the unique and dynamic needs of urban populations effectively.

By empowering ULBs with greater decision-making authority, financial autonomy, and administrative capabilities, states have sought to improve service delivery and urban governance outcomes. A well-functioning urban governance system is essential for sustainable urban development and improving the quality of life in India's rapidly growing cities.

1.1.3 Urban Local Bodies in Kerala

Kerala stands out as a unique state in India due to its remarkable achievements in human development and governance. The state has often been cited as a model for its high Physical Quality of Life Index (PQLI) and significant advancements in social sectors such as healthcare, education, poverty alleviation, and housing. Kerala's progressive policies have led to notable improvements in women's literacy, reduced child mortality, expanded healthcare coverage, and a strong social support system. Unlike many other states, Kerala has also made remarkable strides in the devolution of functional and financial powers to Urban Local Bodies (ULBs), ensuring more effective urban governance. This decentralised approach has empowered ULBs to take charge of urban development and local administration.

Urban governance in Kerala is carried out through 93 ULBs, which include 87 Municipalities and 6 Municipal Corporations. These ULBs function under the Kerala Municipality Act, 1994 (KMA), a legislative framework that outlines their powers, responsibilities, and governance structure. The Kerala Municipality Act was designed to align with the 74th Constitutional Amendment, ensuring that local governments function as independent and self-sustaining entities. The ULBs operate under the Local Self-Government Department (LSGD), which is the nodal agency overseeing urban development in the state. This structured governance model ensures that urban administration is carried out efficiently while allowing local governments to address the specific needs of their respective areas.

The Department of Municipal Administration (now the Directorate of Urban Affairs) was formed in 1962 by separating the erstwhile "Department of Local Bodies" into the Department of Municipalities and the Department of Panchayats (Department of Urban Affairs, GoK, 2025). The Directorate of Urban Affairs (DUA) plays a crucial role in overseeing the administration of Municipalities and Corporations in Kerala. It provides policy guidance, monitors urban development projects, and ensures compliance with statutory regulations. Kerala is widely regarded as the only state in India that has successfully implemented large-scale decentralisation of fiscal and administrative powers to ULBs, in true alignment with the 74th Amendment of the Constitution. This devolution has significantly expanded the role of urban local

bodies, allowing them to function as self-governing institutions with enhanced autonomy in planning, implementation, and resource management.

A key milestone in Kerala's urban governance was the introduction of the Kerala Decentralisation Programme, which marked a paradigm shift in governance by empowering local bodies with financial independence. Under this program, ULBs receive funds directly through budgetary allocations, enabling them to perform their devolved functions effectively. The program ensured that local governments had the necessary resources to implement development projects, provide essential urban services, and undertake welfare initiatives based on the specific needs of their communities. This model of financial devolution has been instrumental in strengthening urban governance and enhancing local development outcomes.

1.2 Need and Significance of the Study

The Urban Local Bodies (ULBs) play a pivotal role in the governance and development of cities, especially in the provision of essential social infrastructure services such as healthcare and education. In Kerala, a state renowned for its strong decentralised governance system, ULBs are instrumental in sustaining high human development indicators. However, despite Kerala's achievements in the social sector, disparities persist in urban service delivery, warranting a detailed analysis of the performance of ULBs.

The Thiruvananthapuram district, as the administrative capital of Kerala, exhibits a diverse urban landscape with significant variations in the functioning of ULBs. Given the state's commitment to decentralised governance through the 74th Constitutional Amendment, assessing the financial sustainability and service efficiency of these local bodies is essential. The present study aims to bridge this gap by critically analysing the financial performance and technical efficiency of selected ULBs in Thiruvananthapuram, with a particular focus on healthcare and education services.

One of the key determinants of urban governance is financial sustainability. A thorough evaluation of financial indicators of ULBs in Kerala can shed light on whether municipal bodies possess adequate fiscal capacity to cater to growing urban demands. Local bodies often struggle with financial constraints, primarily due to limited revenue generation and a heavy reliance on grants from higher levels of

government. By analysing revenue patterns, expenditure trends, and fiscal management practices, this study will provide a clearer picture of the financial health of ULBs and its ability to sustain and expand social infrastructure services.

Healthcare infrastructure is a cornerstone of urban social services. Kerala has made remarkable progress in public health, yet urban disparities in healthcare accessibility and service quality persist. This study will assess the technical efficiency of healthcare services managed by ULBs in Thiruvananthapuram district to determine how effectively resources are being utilised to deliver quality healthcare services. Identifying inefficiencies and resource misallocation will be crucial in formulating policy interventions aimed at strengthening municipal health services and ensuring equitable healthcare access.

Similarly, the school education system under ULBs ensures equitable access to quality education for urban populations. Despite Kerala's high literacy rates, challenges persist in terms of infrastructure deficiencies, teacher shortages, and learning outcomes in municipal schools. This study will evaluate the technical efficiency of municipal schools in Thiruvananthapuram, offering empirical insights into the effectiveness of resource utilisation and highlighting areas requiring improvement.

This research aligns with broader global urban governance trends, where cities are increasingly assessed based on their ability to provide efficient and inclusive public services. The Sustainable Development Goals (SDGs), particularly SDG 3 (Good Health and Well-being) and SDG 4 (Quality Education), emphasise the role of local governments in achieving developmental targets. By evaluating the performance of ULBs in Thiruvananthapuram, this study contributes to ongoing discussions on urban governance and sustainable development.

A robust municipal financial system is critical for the effective delivery of social services. This study investigates whether ULBs in Thiruvananthapuram are efficiently mobilising resources and strategically allocating them toward healthcare and education. A detailed examination of revenue generation patterns, expenditure frameworks, and fiscal deficits provides insights into how municipal finances can be strengthened to support sustainable social infrastructure.

By evaluating the technical efficiency of health services, the study is addressing the accessibility and quality of municipal healthcare services, thereby ensuring equitable health outcomes for all residents. The quality of municipal education services is integral to Kerala's long-term human capital development. A comprehensive evaluation of municipal schools' efficiency by incorporating the educational resources—such as teacher-student ratios, infrastructure investments, and learning materials. The study explores how this affects academic outcomes and innovative strategies to improve the quality and inclusivity of urban school education in Kerala.

A significant aspect of this study is its comparative approach, wherein the performance of different ULBs in Thiruvananthapuram is analysed to identify best practices and common challenges. This comparative assessment facilitates the formulation of evidence-based strategies that can be replicated in other urban regions of Kerala to enhance municipal service efficiency.

From an academic standpoint, this research contributes to the field of urban local governance by employing advanced efficiency measurement techniques such as Data Envelopment Analysis (DEA). This methodological approach offers a rigorous quantitative assessment of municipal performance, complementing qualitative insights drawn from governance and policy analysis.

By focusing on a district-level analysis, this study will provide localised insights that are often overlooked in broader state or national studies. This granular approach enables policymakers to develop targeted interventions that improve urban governance in Thiruvananthapuram while offering lessons applicable to other regions in Kerala.

Ultimately, this research will contribute to the overarching objective of making Kerala's urban local bodies more financially sustainable, administratively efficient, and socially inclusive.

1.3 Statement of the Research Problem & Research Questions

Urban Local Bodies (ULBs) played a crucial role in the administration and delivery of essential public services, particularly social infrastructure such as healthcare and education. In the context of developing economies like India, where urbanisation had increased exponentially, the financial sustainability and efficiency of ULBs in

managing these services had become a pressing concern (Mathur & Singh, 1998). Despite the implementation of fiscal decentralisation and governance reforms, there remained significant gaps in assessing whether Kerala's ULBs had successfully achieved financial sustainability while ensuring the efficient delivery of healthcare and education services (Bandyopadhyay, 2012).

Urban Local Bodies (ULBs) served as the backbone of municipal governance in India, particularly in the administration of essential public services such as healthcare and education. With increasing urbanisation, ULBs were expected to efficiently allocate financial resources while ensuring the quality and accessibility of social infrastructure. However, despite decades of decentralisation and fiscal reforms, concerns persisted regarding the financial sustainability and service delivery efficiency of ULBs in India, particularly in Kerala.

Kerala's governance model had been widely regarded as progressive due to its emphasis on decentralisation, participatory planning, and social sector investment. However, despite this reputation, the financial viability of ULBs and its ability to maintain quality healthcare and education services remained uncertain. While fiscal devolution had been implemented through various constitutional and policy measures, many ULBs continued to face financial constraints, affecting their ability to manage urban services effectively. The extent to which fiscal autonomy translated into better service delivery outcomes had not been systematically analysed.

A major issue confronting Kerala's ULBs was the disparity in financial capacity across municipalities, which in turn affected their ability to provide healthcare and education services equitably. Some ULBs demonstrated strong financial independence, while others remained reliant on state and central government transfers. The inconsistent financial performance across municipalities raised questions about the long-term sustainability of decentralised governance in the state. Assessing the financial indicators of ULBs, including revenue generation, expenditure management, and budgetary efficiency, was essential to determine whether municipal finances were adequately supporting social infrastructure.

Another critical concern was the efficiency of municipal healthcare and education services. Kerala's healthcare system was often lauded for its achievements in public

health, yet there was little empirical evidence assessing how efficiently municipal healthcare institutions utilised available financial and human resources. Similarly, while municipal schools played an important role in Kerala's education system, there was limited research on their operational efficiency. Given the increasing demand for public services due to urbanisation, it was imperative to evaluate whether ULBs were managing their social infrastructure resources optimally.

Technical efficiency in public service delivery had been widely studied in various global contexts, with methodologies such as Data Envelopment Analysis (DEA) being used to assess efficiency levels in healthcare and education systems. However, such advanced efficiency measurement tools had not been adequately applied to Kerala's ULBs. Without empirical evaluation using quantitative efficiency models, it remained unclear whether ULBs in Kerala were operating at optimal efficiency levels in healthcare and education service delivery.

Institutional and administrative factors also played a significant role in determining municipal service efficiency. Financial constraints were not the only challenge; issues such as bureaucratic inefficiencies, governance structures, and participatory decision-making mechanisms influenced service outcomes. While Kerala had experimented with participatory planning through initiatives like the People's Planning Campaign, it was necessary to examine whether such participatory governance models contributed to improved healthcare and education efficiency within ULBs.

The urbanisation brought additional financial and administrative challenges for ULBs. As cities expanded, the demand for urban services increased, necessitating better financial planning and governance frameworks. However, there was limited research assessing whether Kerala's ULBs had adapted effectively to these urbanisation-driven demands. Understanding how municipalities managed financial constraints while addressing growing service needs was crucial for designing sustainable urban governance models.

Given these challenges, it was necessary to undertake a systematic study on the financial performance, technical efficiency, and governance of ULBs in Kerala, with a specific focus on healthcare and education service delivery. This research aimed to analyse the financial indicators of selected ULBs, evaluate the efficiency of municipal

healthcare and education institutions, and examine the broader governance and administrative factors influencing service delivery.

By using advanced efficiency measurement techniques such as DEA, this study sought to provide empirical insights into whether Kerala's ULBs were utilising their resources efficiently. Additionally, it aimed to determine whether financial autonomy and governance reforms had translated into improved healthcare and education services. The findings of this study would contribute to evidence-based policy recommendations aimed at strengthening urban governance in Kerala.

Research Questions

This study sought to address the following research questions:

i. How financially sustainable were selected Urban Local Bodies (ULBs) in Kerala, particularly in Thiruvananthapuram district?

ii. What was the technical efficiency of the healthcare system under selected ULBs in Kerala?

iii. What was the technical efficiency of the school education system under selected ULBs in Kerala?

iv. How did financial and administrative factors influence social infrastructure service delivery in Kerala's ULBs?

v. Did fiscal autonomy translate into improved healthcare and education service quality in Kerala's urban municipalities?

These questions aimed to assess the financial sustainability of ULBs by examining revenue generation, expenditure patterns, and financial management practices, and evaluate the operational efficiency of municipal healthcare services, using efficiency measurement models such as DEA. The research questions also focused on municipal schools' efficiency, particularly regarding resource utilisation and student performance outcomes. It sought to determine the role of financial autonomy, participatory planning, and institutional capacity in shaping service outcomes.

1.4 Objectives of the Study

The broader objective of this study is to analyse the performance of selected urban local bodies in the Thiruvananthapuram district in Kerala with an emphasis on social infrastructure. The specific objectives are,

i. To analyse the financial indicators of selected Urban Local Bodies(ULBs) in Kerala.

ii. To evaluate the technical efficiency of the health care system under selected Urban Local Bodies (ULBs) in Kerala with special reference to Thiruvananthapuram district

iii. To examine the efficiency of the school education system under selected Urban Local Bodies (ULBs) in Kerala with special reference to Thiruvananthapuram district**.**

1.5 Working Hypotheses

The study hypothesises the following:

i. There has been no substantial increase in the financial position of the selected municipalities and corporations in Kerala.

ii. There has been no substantial technical efficiency of the health care system under selected Urban Local Bodies (ULBs) in Kerala with special reference to Thiruvananthapuram district.

iii. There has been no substantial efficiency of the education system under selected Urban Local Bodies (ULBs) in Kerala with special reference to Thiruvananthapuram district.

1.6 Research Methodology

This section comprises the theoretical and conceptual framework of the research, selection of Thiruvananthapuram district and urban local bodies in the Thiruvananthapuram district, identification of the sample respondents and analytical framework and tools.

1.6.1 Theoretical and Conceptual Framework

The evaluation of healthcare system efficiency is critical for ensuring the optimal use of resources in hospitals and healthcare institutions. Efficiency measurement in healthcare is particularly relevant in the context of Urban Local Bodies (ULBs) in Kerala, given their role in delivering primary and secondary healthcare services.

The efficiency of the school education system is a critical factor in ensuring the optimal use of resources to maximise student learning outcomes. Urban Local Bodies (ULBs) play a crucial role in managing and funding public schools in urban areas, making it essential to evaluate their efficiency in delivering quality education. Measuring technical efficiency helps identify how well schools transform inputs such as teachers, infrastructure, and funding into desired outputs like student performance, retention rates, and graduation rates.

This study aims to assess the technical efficiency of the healthcare and educational systems under selected ULBs in Kerala, with a special focus on the Thiruvananthapuram district.

1.6.1.1 Theoretical Framework – Technical Efficiency in the Healthcare System

Efficiency in healthcare refers to the optimal utilisation of available resources to maximise healthcare outputs while minimising waste. It ensures that healthcare facilities provide the best possible services with the resources at their disposal. Given the increasing demand for healthcare services and the constraints on financial and human resources, efficiency analysis plays a crucial role in improving the performance of healthcare institutions (Chuang et al., 2011).

Healthcare systems operate within complex environments, requiring the effective management of medical personnel, infrastructure, and financial resources. Efficiency, in this context, refers to the ability of hospitals and health centres to optimise these resources while maintaining or improving the quality of healthcare delivery. Efficient healthcare systems ensure that resources are not wasted on unnecessary procedures, excessive staffing, or underutilised equipment (Bannick & Ozcan, 1995).

i) Classification of Efficiency: Farrell's Model (1957)

Farrell (1957) introduced a framework for measuring efficiency, categorising it into three major types: technical efficiency, allocative efficiency, and economic efficiency. These concepts provide a foundation for evaluating healthcare institutions and their ability to deliver services effectively.

Technical Efficiency in Healthcare

Technical efficiency refers to the ability of a healthcare facility to produce the maximum possible output (health services) using a given set of inputs (doctors, nurses, hospital beds, medical equipment, and financial resources) (Barros and Ana Sampaio, 2004). If a hospital is technically efficient, it is operating on the "best practice frontier", meaning it is utilising its resources optimally without any wastage (Prakash & Annapoorni, 2015).

Technical efficiency is typically measured using non-parametric and parametric approaches. The most widely used method is Data Envelopment Analysis (DEA), which evaluates multiple inputs and outputs to determine efficiency scores for healthcare facilities. DEA compares hospitals or clinics against the most efficient units, highlighting those that need improvement (O'Neill et al., 2008; Weng et al., 2009).

Several factors influence the technical efficiency of healthcare institutions:

- Availability of Skilled Staff – A shortage of doctors and nurses can reduce efficiency (Chen et al., 2017).
- Infrastructure and Equipment – Modern equipment and well-maintained facilities enhance efficiency (Gholami et al., 2015).
- Management Practices – Efficient hospital administration ensures optimal resource use (Johannessen et al., 2017).
- Financial Resources – Adequate funding supports better service delivery (Lobo et al., 2016).

Despite its importance, many healthcare institutions face challenges in achieving technical efficiency. Some common issues include:

- Underutilisation of Resources: Hospitals with excess capacity may not be operating efficiently (Rezaee & Karimdadi, 2015).
- Overcrowding: Overburdened hospitals may struggle to maintain efficiency (Kang et al., 2017).
- Inefficient Processes: Administrative inefficiencies can lead to resource wastage (Ersoy et al., 1997).

Allocative Efficiency in Healthcare

Allocative efficiency refers to the appropriate distribution of resources to maximise patient care while minimising costs. It ensures that financial and human resources are directed toward the most cost-effective treatments and services. A hospital may be technically efficient but still allocatively inefficient if resources are not distributed optimally (Yawe, 2010).

A healthcare facility can be technically efficient but allocatively inefficient. For instance, a hospital may maximise patient throughput but allocate excessive resources to low-priority treatments. Conversely, allocative efficiency without technical efficiency may result in cost-effective decisions but poor resource utilisation (Mitropoulos et al., 2015).

Economic Efficiency: The Integration of Technical and Allocative Efficiency

Economic efficiency is achieved when both technical and allocative efficiency are present. It ensures that a hospital provides the maximum possible healthcare services at the lowest possible cost without compromising quality. This is the ultimate goal for healthcare administrators and policymakers (Rouyendegh et al., 2016).

i) Data Envelopment Analysis (DEA) as a Theoretical Foundation

Data Envelopment Analysis (DEA), developed by Charnes, Cooper, and Rhodes (1978), is a non-parametric technique (Chowdhury & Zelenyuk, 2016) used to evaluate the efficiency of decision-making units (DMUs), such as hospitals, schools,

and municipalities. Unlike traditional econometric models that require assumptions about the functional form of production, DEA allows for a data-driven approach to assess performance (Chowdhury & Zelenyuk, 2016).

Hospitals and healthcare institutions are complex systems that use multiple inputs (e.g., doctors, nurses, medical equipment, hospital beds) to produce multiple outputs (e.g., treated patients, successful surgeries, patient recovery rates). DEA is well-suited for evaluating healthcare efficiency because it:

- ❖ Handles multiple inputs and outputs simultaneously, making it ideal for the healthcare sector, where different resources contribute to various patient care outcomes (Prakash & Annapoorni, 2015).
- ❖ Does not require a predefined functional relationship between inputs and outputs, unlike parametric models, allowing for more flexible efficiency analysis (Johannessen et al., 2017).
- ❖ Constructs a best-practice frontier by identifying the most efficient hospitals and benchmarking inefficient hospitals against them (Bannick & Ozcan, 1995).
- ❖ Provides efficiency scores, categorising hospitals as efficient or inefficient, helping policymakers improve resource allocation (Chuang et al., 2011).

iii) DEA Models Applied in Healthcare Efficiency Studies

i) Basic DEA Models:

Since its introduction, the DEA has evolved to accommodate different assumptions about production processes. The two fundamental DEA models are:

i.a) Charnes, Cooper, and Rhodes (CCR) Model

CCR Model assumes constant returns to scale (CRS)—meaning that increasing inputs leads to a proportional increase in outputs. This model is suitable for large hospitals where scale efficiency is not a concern (Ersoy et al., 1997). It is commonly used in national-level efficiency studies (Yawe, 2010; Lobo et al., 2016).

i.b) Banker- Charnes- Cooper (BCC) Model

The BCC model assumes Variable Returns to Scale (VRS)—allowing for non-proportional relationships between inputs and outputs (Rezaee & Karimdadi, 2015). This is more appropriate for small and medium-sized hospitals, where increasing inputs may not always lead to proportional output growth (Rezaee & Karimdadi, 2015). It is useful for evaluating regional healthcare systems (Prakash & Annapoorni, 2015).

ii) Advanced DEA Models Applied in Hospital Studies

Given the complexities of healthcare operations, researchers have modified DEA models to better capture real-world conditions. Several advanced DEA approaches have been applied in hospital efficiency studies:

ii. a) Stochastic DEA

This model was introduced to account for random fluctuations in hospital performance, such as seasonal variations in patient admissions or unexpected disease outbreaks (Mitropoulos et al., 2015). This model incorporates probabilistic elements to distinguish between inefficiencies caused by management and those caused by external uncertainties.

ii. b) Dynamic Network DEA

The Dynamic Network DEA model evaluates efficiency over time, considering interdependent processes within hospitals, such as outpatient services, inpatient care, and follow-up treatments (Khushalani & Ozcan, 2017). This model is suitable for studying multi-stage healthcare delivery systems, where patients undergo sequential treatments.

ii. c) DEA with Truncated Regression

This model combines DEA scores with regression analysis to identify efficiency determinants, such as hospital funding levels, staffing ratios, and patient demographics (Chowdhury & Zelenyuk, 2016). This model is used to explore the factors driving efficiency disparities across different hospitals.

ii. d) DEA-Game Theory Models

This model integrates strategic interactions among hospitals, such as competition for resources, patient referrals, and policy constraints (Zare et al., 2018; Omrani et al., 2018). It is useful for evaluating hospital networks and regional healthcare planning.

ii. e) Fuzzy DEA Models

The Fuzzy DEA Models account for uncertainty and vagueness in hospital decision-making, such as subjective quality assessments or incomplete patient records (Rouyendegh et al., 2016). It is applied in environments with imperfect or imprecise data, particularly in developing healthcare systems.

iv) Global Evidence on Hospital Efficiency Using DEA

The application of DEA in hospital efficiency studies is well-documented across multiple regions.

iv.a) United States

The DEA has been widely used in the U.S. to evaluate hospital efficiency, particularly in government-funded and private hospitals (Bannick & Ozcan, 1995). The Studies have focused on hospital networks, such as the Iowa Hospital Association (Weng et al., 2009) and hospitals in Pennsylvania (Chen et al., 2017). The evaluations show that efficient hospitals typically have better staffing, financial management, and technology adoption (Gholami et al., 2015).

iv.b) Canada

The DEA has been applied to Ontario's hospital system, analysing the impact of healthcare funding and government regulations on hospital performance (Chowdhury & Zelenyuk, 2016). Findings indicate that public hospitals tend to be less efficient than private hospitals, due to bureaucratic constraints and funding limitations.

iv.c) Europe

In Greece, Stochastic DEA was used to assess public hospital efficiency, revealing that uncertainty in patient demand affects efficiency levels (Mitropoulos et al., 2015).

In Norway, panel data DEA was used to track hospital performance over time, showing that efficiency improves with better resource management (Johannessen et al., 2017).

iv.d) Asia

The DEA applied to hospital networks in Taiwan highlighted the role of government policy in shaping hospital efficiency (Chuang et al., 2011). Studies in Iran using multi-group DEA and game theory models found that hospital ownership (public vs. private) significantly impacts efficiency (Rezaee & Karimdadi, 2015; Zare et al., 2018). Studies in Turkey incorporating fuzzy DEA models addressed uncertainties in healthcare decision-making (Ersoy et al., 1997; Rouyendegh et al., 2016). In India, the DEA-based analysis of hospitals in Tamil Nadu found significant inefficiencies in resource allocation among public hospitals (Prakash & Annapoorni, 2015).

Table 1.1

Theoretical Framework-Technical Efficiency of the Healthcare System

Authors	Techniques Used	Application
Bannick and Ozcan (1995)	DEA	Hospitals of the US Department of Defence
Ersoy et al. (1997)	DEA	Turkish acute general hospitals
Ouellette and Vierstraete (2004)	DEA	Hospital emergency services in Montreal
O'Neill et al. (2008)	DEA	Systematic review of previous studies
Weng et al. (2009)	DEA	Iowa Hospital Association (IHA)
(Yawe, 2010)	DEA	Hospital Performance Evaluation in Uganda
Chuang et al. (2011)	DEA and Regression tree	Taiwan's hospital
Mitropoulos et al. (2015)	Stochastic DEA and Bayesian Analysis	Greek public hospitals
Rezaee and Karimdadi (2015)	Multi-group DEA	Iranian hospitals
Prakash and Annapoorni (2015)	DEA	Hospitals of Tamil Nadu State in India
Gholami et al. (2015)	DEA	US hospitals

Rouyendegh et al. (2016)	DEA-FAHP	Hospitals in Turkey
Chowdhury and Zelenyuk (2016)	DEA with Truncated regression	Hospital services in Ontario
Lobo et al. (2016)	DEA	Brazilian hospitals
Khushalani and Ozcan (2017)	Dynamic Network DEA	USA Hospital
Kang et al. (2017)	DEA	USA Hospital
Johannessen et al. (2017)	DEA and Panel analysis	Norwegian hospitals
Chen et al. (2017)	DEA	Pennsylvania hospitals
Haghighi and Torabi (2018)	BWM and DEA	A real general hospital
Zare et al. (2018)	DEA-Game theory	Iran hospitals
Omrani et al. (2018)	Fuzzy Clustering DEA-Game theory	Iran hospitals
Ghahremanloo et.al.(2020)	New DEA Model	Hospitals of Tehran

Source: Various sources; Compiled by the researcher in 2024

1.6.1.2 Theoretical Framework – Efficiency in the Education System

i) Concept of Efficiency in Education

Efficiency in education refers to the ability of schools and educational institutions to maximise learning outcomes using available resources. According to Farrell (1957), efficiency can be categorised into technical, allocative, and economic efficiency, with technical efficiency being the primary focus in assessing school performance. Schools must ensure that available resources, such as teaching staff, infrastructure, and funding, are utilised optimally to enhance student learning outcomes (Farrell, 1957).

ii) Technical Efficiency in Schools

Technical efficiency evaluates how well schools use inputs (e.g., teachers, classrooms, learning materials) to maximise outputs (e.g., student performance, graduation rates). Charnes, Cooper, and Rhodes (1978) applied Data Envelopment Analysis (DEA) as a mathematical approach to measure relative efficiency among decision-making units (DMUs)(Charnes, Cooper, & Rhodes, 1978), including schools. DEA has since been widely used in education research to determine best-practice frontiers and identify inefficiencies (Charnes, Cooper, & Rhodes, 1978).

iii) Role of Urban Local Bodies (ULBs) in School Education

In India, ULBs are responsible for managing and financing public schools in urban areas. Understanding their efficiency is crucial for effective policymaking. Studies suggest that decentralised management often improves school performance by allowing better resource allocation (Thanassoulis et al., 2011). The application of efficiency measurement tools like DEA can help assess how well ULB-run schools perform compared to national benchmarks.

iv) Application of Data Envelopment Analysis (DEA) in School Efficiency Studies

DEA has been a key methodology in evaluating school efficiency across different countries. Johnes (2006) applied DEA to assess UK schools, highlighting significant efficiency variations. Similarly, de Witte & López-Torres (2017) conducted a meta-analysis of DEA applications in school efficiency, reinforcing its relevance in comparative education studies.

a) DEA Models for Measuring School Efficiency

DEA models vary based on assumptions about returns to scale. The CCR model (Charnes, Cooper, & Rhodes, 1978) assumes constant returns to scale, whereas the BCC model (Banker, Charnes, & Cooper, 1984) allows for variable returns, making it more suitable for heterogeneous school settings. Recent advancements, such as Bootstrapped DEA, enhance statistical robustness in school efficiency studies (Cherchye et al., 2010).

b) External Factors Affecting School Efficiency

Ruggiero (1996) highlighted that external factors, such as socio-economic background, parental involvement, and school location, influence efficiency. Schools operating in disadvantaged areas may appear less efficient due to factors beyond their control. To address this, DEA models incorporating environmental variables have been developed to adjust efficiency scores for contextual differences (Ruggiero, 1996).

vi) Policy-Oriented Approaches to School Efficiency

Thanassoulis et al. (2011) emphasised the need for policy-oriented DEA studies that not only measure efficiency but also provide actionable recommendations. Integrating efficiency findings with policy frameworks can help improve resource allocation and pedagogical strategies in ULB-run schools.

a) Stochastic Frontier Analysis (SFA) and DEA Comparisons

Haelermans & Ruggiero (2013) compared DEA with Stochastic Frontier Analysis (SFA) in evaluating school efficiency. While DEA is deterministic and non-parametric, SFA accounts for statistical noise, making it useful in cross-country comparisons.

Table 1.2

Theoretical Framework-Technical Efficiency of the Education System

Author(s)	Techniques Used	Application
Farrell (1957)	Efficiency Measurement Framework	Introduced the concept of technical efficiency in education.
Charnes, Cooper, & Rhodes (1978)	Data Envelopment Analysis (DEA)	First application of DEA to measure efficiency in various sectors, including education.
Banker, Charnes, & Cooper (1984)	BCC DEA Model	Extended DEA to variable returns to scale, useful for analysing school efficiency.
Ruggiero (1996)	DEA with Environmental Variables	Studied school performance considering external factors.
Johnes (2006)	DEA in Education	Applied DEA to analyse school efficiency in the UK.
Cherchye et al. (2010)	Bootstrapped DEA	Improved DEA efficiency scores by considering statistical robustness in school efficiency studies.

Thanassoulis et al. (2011)	DEA with Policy Recommendations	Measured school efficiency and provided policy insights for improving education systems.
Haelermans & Ruggiero (2013)	Stochastic Frontier Analysis (SFA)	Compared DEA and SFA to evaluate school efficiency in European countries.
de Witte & López-Torres (2017)	DEA Meta-Analysis	Reviewed global applications of DEA in school efficiency studies.

Source: Various sources; Compiled by the researcher in 2024

1.6.1.3 Conceptual Framework

The study focuses on the technical efficiency of social infrastructure in the selected Urban Local Bodies in Kerala. More specifically, the study is focused on the Corporation and Municipalities in the Thiruvananthapuram District with special reference to health and education. From the literature review and theoretical framework, it is evident that scholars have approached the two sectors individually. However, the present study considers both of them together with different input and output variables.

The conceptual framework for evaluating the technical efficiency of the healthcare and school education systems under selected Urban Local Bodies in Kerala, with special reference to Thiruvananthapuram district, is structured around input and output variables within each sector. The healthcare sector's efficiency assessment considers the resources utilised by hospitals as input variables, including the number of doctors, nurses, other hospital staff, hospital beds, and operational expenditure. These resources are critical in determining the healthcare services provided, measured through output variables such as the number of outpatients and inpatients treated, patient satisfaction levels, and average bed occupancy.

Given the complexity of healthcare service delivery, an output-oriented Data Envelopment Analysis (DEA) is employed to assess technical efficiency. The application of this models allows for a comprehensive evaluation of the relationship between resource utilisation and service outcomes, ensuring a data-driven approach to identifying inefficiencies and areas for improvement. The theoretical underpinnings

for this analysis are drawn from the works of Chuang et al. (2011) and Mitropoulos et al. (2015), who have established methodological precedents in healthcare efficiency analysis.

The assessment of the school education system's technical efficiency follows a different analytical structure due to the unavailability of required data. Thus, the researcher incorporated perception-wise components; teachers' perceptions are considered as input variables, and students' perceptions are outcomes. The input variables comprise governance and leadership (includes enrolment, student-teacher ratio, teaching load, administrative support, collaboration with ULBs, overall system evaluation), faculty quality (includes professional development and teacher motivation & job satisfaction), infrastructure and resources (includes, teaching-learning materials, infrastructure & institutional support and drinking water & sanitation), pedagogical practices (includes capacity building, assessment practices, and curriculum relevance) and financial and administrative efficiency (includes utilisation of available funds, per student cost, community involvement and safety and security measures).

The output variables for measuring school education performance include academic performance, teaching quality, physical and digital infrastructure. co-curricular and extra-curricular activities, student learning outcomes, and operational efficiency. Broadly, outcome variables are categorised under three heads- learning environment, academic engagement and satisfaction &achievement.

By integrating these input and output variables within the specified analytical models, the conceptual framework facilitates a comprehensive evaluation of the healthcare and education sectors under selected Urban Local Bodies. The study's methodological approach ensures that the efficiency of resource utilisation is systematically examined, enabling evidence-based policy recommendations to enhance service delivery. The emphasis on technical efficiency aligns with the broader objective of optimising public service provision, particularly in the context of urban governance in Kerala. Through this structured framework, the study contributes to the discourse on local government performance in social infrastructure sectors, offering insights that are critical for policymakers, administrators, and researchers engaged in urban development and public service efficiency.

Table 1.3

Conceptual Framework

Sectors	Input Variables	Output Variable	Analysis Model	Sources
Health	**Inputs (Resources Used by Hospitals)** Number of Doctors Number of Nurses Number of Paramedical Staff Number of Hospital Beds Operational Expenditure	**Outputs (Healthcare Services Provided)** Number of Outpatients Treated Number of Inpatients Treated Patient Satisfaction Levels Average hospital bed occupancy rate	Data Envelopment Analysis (DEA)	Chuang et al. (2011) Mitropoulos et al. (2015)
Education	**Input Variables (Resources Used-Perceotion)** **1. Governance and Leadership** i. Enrolment ii. Student-Teacher Ratio iii. Teaching Load iv. Administrative Support v. Collaboration with ULBs vi. Overall System Evaluation **2. Faculty Quality** i. Professional Development ii. Teacher Motivation & Job Satisfaction	**Output Variables (Performance Indicators)** **1. Learning Environment** i. School Physical Infrastructure ii. School Digital Infrastructure iii. Safety and Equality **2. Academic Engagement** iv. Teaching Quality & Engagement v. Access to Learning Resources vi. Extracurricular Activities vii. Academic Assessment	BCC DEA Model Using the Ranking Method.	Charnes, Cooper, & Rhodes (1978) Banker, Charnes, & Cooper (1984) Johnes (2006)

3. Infrastructure and Resources

i. Teaching-Learning Materials
ii. Infrastructure & Institutional Support
iii. Drinking Water & Sanitation

4 Pedagogical Practices

i. Capacity Building
ii. Assessment Practices
iii. Curriculum Relevance

5. Financial and Administrative Efficiency

i. Utilisation of available funds
ii. Per student Cost
iii. Community involvement
iv. Safety and Security Measures

3. Satisfaction and Achievement

viii. Aspirational Outcome Readiness

Source: Compiled by the Researcher, 2025

1.6.2 Selection of Urban Local Bodies

The study focused on the Municipalities and corporations in the Thiruvananthapuram district. Thiruvananthapuram is the capital of Kerala and has a structured public healthcare and educational system. The first medical college with all modern equipment and the first University in Kerala are situated in Thiruvananthapuram district. Thus, Thiruvananthapuram district was selected.

There are four Municipalities- Neyyattinkara, Nedumangadu, Attingal and Varkala, and Thiruvananthapuram Corporation are the ULBs in the district. All these local bodies were included in the study. All taluk hospitals were selected to ensure uniformity and excluded Thiruvananthapuram Medical College, because of the difference in financial pattern.

Table 1.4

List of Selected Hospitals and Schools

ULBs	Hospital	Schools
Thiruvananthapuram Corporation	General Hospital Thiruvananthapuram	Govt. Girls Higher Secondary School, Karamana, Thycadu,TVM
Neyyattinkara Municipality	Taluk Hospital Neyyattinkara	Govt. Higher Secondary School, Neyyattinkara.
Nedumangadu Municipality	Taluk Hospital Nedumangadu	Govt. Girls Higher Secondary School, Nedumangad
Attingal Municipality	Taluk Hospital Attingal	Govt. Boys Higher Secondary School , Attingal
Varkala Municipality	Taluk Hospital Varkala	Government Model Higher Secondary School, Varkala

Source: Primary Consolidation by the Researcher, 2025

The Government Higher Secondary schools were selected based on the following stratification.

b) The schools should comprise classes from 6- 12 ie upper primary, secondary and higher secondary.
c) Schools should be run by the government under general education department
d) Schools have only one Board of Examination - Kerala Board of Public Examinations (KBPE) for SSLC (10^{th}) and Higher Secondary (12^{th}).

1.6.3 Data Sources and Collection Methods

The study comprises both secondary and primary data. Secondary data were collected from the Annual Budget Documents of the respective ULB, School Documents and Statistics from the selected Hospitals. Economic Review is also used to collect secondary data. RTIs were filed to collect overall statistics of select hospitals in the last 10 years. More specifically, this RTI covers, number of staff, key infrastructure facilities including rooms, beds, counters, labs, machinery, departments, and statistics of inpatient and outpatients.

Primary Data

A field survey was conducted to collect primary data. The survey comprises employees in the respective municipalities and corporations, Hospital staff (doctors nurses and other staff), patients/bystanders, teachers and students from the selected schools. Separate questionnaires and schedules were distributed to collect the data.

Sample Size

Holding a 95 per cent of confidence limit and a 5 per cent margin of error, the identified sample size is computed as follows.

Table 1.5

Sample Size

Sample	Sample Size (Computed)	Sample Size in the Study
Doctors	78	5
Nurses	100	57
Paramedical Medical Staff	123	30
Patients/bystanders	600	1388
Teachers	150	161
Students	600	1388

Source: Primary Consolidation by the Researcher, 2025

These samples are fairly distributed (the majority of doctors and nurses are not ready to fill out the questionnaire) between the selected municipalities and corporations.

1.6.4 Analytical Tools and Techniques

DEA Framework for Hospital Efficiency Analysis

1. Input and Output Variables

Inputs (Resources & Infrastructure)

1. Human Resources
    - Total number of doctors (permanent + temporary)
    - Total number of nurses (permanent + temporary)
    - Total number of paramedical staff (permanent + temporary)
2. **Infrastructure & Equipment**
    - Number of total hospital beds
3. **Financial Inputs**
    - Annual operational expenditure

Outputs (Service Delivery & Performance)

1. **Healthcare Service Performance**
    - Total number of inpatients treated
    - Total number of outpatients treated
    - Patient satisfaction score
2. **Efficiency Indicators**
    - Bed occupancy rate (%)

i) Mathematical Formulation of Output-Oriented DEA (BCC model)

Let,

X_{ij} = Input *i* used by DMU j

Y_{rj} = Output r used by DMU j

Φ = Efficiency Score (Output Expansion Factor)

λ_j = Weights for reference DMUs

Objective Function: Max Φ

Subject to:

$$\sum_{j=1}^{n} \lambda_j x_{ij} \leq x_{io} \quad \text{for all inputs } i$$

$$\sum_{j=1}^{n} \lambda_j y_{rj} \geq \Phi y_{ro} \quad \text{for all outputs } r$$

$$\sum_{j=1}^{n} \lambda_j = 1, \quad \lambda_j \geq 0$$

Interpretation of the Model is

Efficiency Score, Φ = 1: DMU is efficient — it's producing the maximum outputs for its inputs.

Efficiency Score, Φ< 1: DMU could expand its outputs by a factor of φ to be efficient.

1. 7 Chapter Scheme.

Chapter I: The first chapter deals with a brief introduction to the study. More specifically, this chapter highlights the need and significance, statement of the problem, research questions, objectives, and detailed methodology comprising sources of data, theoretical and conceptual framework, and analytical tools

Chapter II: This chapter is entitled 'Review of the Literature', and comprehensively looks into the existing literature review. This literature review provides a detailed examination of the governance, financial performance, and technical efficiency of ULBs at three interconnected levels: global, national (India), and regional (Kerala). By systematically analysing existing scholarly works, policy documents, and empirical studies, this chapter seeks to identify key trends, persistent challenges, and innovative best practices that shape the efficiency and effectiveness of ULBs in delivering critical social infrastructure services such as healthcare and education.

Chapter III: The chapter is entitled **'**Urban Local Bodies in India and Kerala – An Institutional and Administrative Overview, and examines the evolution of the administrative and financial overview of urban local bodies. More specifically, it comprises the historical process of

and financial overview of urban local bodies. More specifically, it comprises the historical process of urbanisation in India, constitutional Amendments on local self-governance, and the institutional framework of urban local bodies. This chapter analyses the accounting pattern of urban local bodies, components of revenue and expenditure of ULBs in detail under different heads.

Chapter IV: The chapter entitled **'**The Financial Performance of Selected Urban Local Bodies in Thiruvananthapuram, Kerala,' examines the financial performance of selected Urban Local Bodies in Kerala. This chapter covers the revenue (both tax and non-tax) and expenditure trend, funding to health, education, sanitation and infrastructure. More specifically, the chapter looks into the revenue and expenditure under different heads of the last three financial years

Chapter V: The chapter ' Technical Efficiency of the Healthcare System in Urban Local Bodies in Thiruvananthapuram District' looks into the technical efficiency of the healthcare systems in the selected ULBs in the Thiruvananthapuram district. The chapter starts with a detailed profile of sample respondents in the health sector, then analyses the technical efficiency of the last 10 years using the DEA model. This chapter also discussed the perceptions of staff and patients/bystanders in relation to management efficiency, accessibility of health care services, hospital facilities and quality of treatment, and cost of health care.

Chapter VI: The chapter ' Technical Efficiency of the School Education System Under Selected Urban Local Bodies' comprises the efficiency of the selected schools. Due to the unavailability of required data, teachers' perceptions are considered as input variables, and students' perceptions are outcomes. The input variables comprise governance and leadership, faculty quality, infrastructure and pedagogical practices, and financial and administrative efficiency. The output variables for measuring school education performance include academic performance, teaching quality, physical and digital infrastructure. All the analysis was done to compare the municipalities in terms of school efficiency.

Chapter VII: This chapter shows a detailed consolidation of inferences, major findings and recommendations. This chapter also indicates the limitations of the study and the scope of future research.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter comprehensively looks into the existing literature review. This literature review provides a detailed examination of the governance, financial performance, and technical efficiency of ULBs at three interconnected levels: global, national (India), and regional (Kerala). By systematically analysing existing scholarly works, policy documents, and empirical studies, this chapter seeks to identify key trends, persistent challenges, and innovative best practices that shape the efficiency and effectiveness of ULBs in delivering critical social infrastructure services such as healthcare and education. In general, the chapter is summarised in the following heads.

2.1 Studies on Urban Local Bodies

Faustino Jorge (2003), examined the evolution of the Portuguese local government budgeting and accounting system. The research explored key questions, including the development trajectory of Portugal's local government accounting system, the impact of transitioning from a cash-based single-entry budgetary accounting system to a hybrid model incorporating cash-based budgeting alongside accrual-based financial and cost accounting, and the operational effectiveness of the current system. The study aimed to provide a comprehensive analysis of Portuguese local government accounting, offering an inductive theoretical explanation for its structure and evolution. By adopting a comparative-international perspective, the research contrasted the Portuguese system with that of the United Kingdom, highlighting differences, challenges, and best practices. A significant objective of the study was to integrate the Portuguese local government accounting framework into the broader international discourse, contributing to the global understanding of public sector accounting reforms.

Al-Dhowaihy (2003), analysed the role and effectiveness of management accounting in municipal planning, control, and decision-making processes within the Kingdom of Saudi Arabia. The study aimed to assess the current status of management accounting practices, identify recent and anticipated future developments, and evaluate the factors influencing changes in these practices. Furthermore, it sought to determine the strengths and weaknesses of the existing municipal accounting framework and

propose potential improvements. The findings highlighted a critical need for qualified accountants to support planning, financial control, and revenue collection activities in Saudi municipalities. The research emphasised the necessity of designing and implementing a standardised management accounting system across municipalities and ensuring adequate training for municipal staff to operate it effectively. One of the key concerns identified was the absence of clearly defined objectives and performance measurement criteria for public sector organisations, particularly municipalities, which hindered efficient financial management and decision-making. The study underscored the importance of strategic reforms to enhance transparency, accountability, and efficiency in municipal financial administration.

Benito and Brusca (2004), examined the evolution of accounting systems in recent years, particularly in the context of widespread reforms across OECD countries. The study highlighted that these reforms were primarily aimed at enhancing public service management, increasing transparency, and strengthening governmental accountability. The research categorised countries based on the development of their accounting systems, identifying nations such as Australia, the Netherlands, New Zealand, Sweden, Switzerland, the United Kingdom, and the United States as having highly advanced local government accounting frameworks. In these countries, accounting systems are designed not only for financial accountability but also for improving the efficiency and effectiveness of public administration. The study emphasised that financial reporting alone is no longer deemed sufficient for ensuring transparency in governance. Instead, there is a growing recognition of the need to incorporate non-financial information, such as performance indicators, to provide a more comprehensive assessment of public sector performance. The findings underscored the importance of integrating financial and non-financial reporting to facilitate better decision-making and enhance public sector management.

2.1.1 Evolution of Urban Studies in India

The Balwantrai Mehta Committee (1957) laid the foundation for comprehensive legislation on Local Self-Government and served as the basis for the establishment of the Panchayati Raj system in India. The committee emphasised that in a vast and diverse country like India, effective planning and implementation of development programs would not be possible without active participation and responsibility-

sharing by the people at the grassroots level. The report underscored the necessity of a democratic decentralisation framework, recommending “a three-tier Panchayati Raj structure consisting of Gram Panchayats at the village level, Panchayat Samitis at the block level, and Zila Parishads at the district level”. This system was envisioned to facilitate better governance, enhance local participation, and ensure that development initiatives were aligned with the needs of local communities. The committee’s recommendations played a pivotal role in shaping India’s decentralised governance model, reinforcing the idea that empowering local bodies was essential for sustainable and inclusive development.

The Ashok Mehta Committee (1978) was constituted to assess the performance of the Panchayati Raj system in India and suggest measures to strengthen decentralised governance. The committee recognised that the existing system was facing significant challenges, including financial constraints, political interference, and lack of autonomy. It emphasised that for local self-government to be truly effective, it must be granted constitutional status, ensuring that Panchayati Raj institutions function as permanent and integral components of India's democratic framework rather than being subject to the discretion of state governments. One of the committee’s key recommendations was the restructuring of the Panchayati Raj system into a two-tier structure instead of the existing three-tier model. The proposed system included Zila Parishads (district-level bodies) as the primary institutions of governance, with Mandal Panchayats at the block level, comprising a group of villages. This reorganisation was intended to streamline administration, reduce bureaucratic inefficiencies, and create stronger governance at the local level. The committee also stressed the importance of political participation in Panchayat elections, advocating for the involvement of political parties to enhance accountability, transparency, and representation within local self-governance structures.

Financial constraints were identified as a major impediment to the effective functioning of Panchayati Raj institutions. To address this issue, the Ashok Mehta committee proposed the establishment of a Panchayati Raj Finance Corporation, a dedicated financial institution aimed at providing credit facilities to Panchayats, enabling them to undertake developmental projects and improve local infrastructure. Additionally, the committee recommended a clear delineation of functions and

responsibilities between state governments and Panchayati Raj institutions to prevent excessive state control over local governance. The committee's recommendations laid the groundwork for future constitutional reforms, influencing the enactment of the 73rd Constitutional Amendment Act of 1992, granted constitutional recognition to Panchayati Raj institutions. By emphasising grassroots democracy, financial autonomy, and decentralised decision-making, the Ashok Mehta Committee played a pivotal role in shaping India's local self-governance framework, ensuring that rural communities had a greater say in their own development and governance.

Hanumantha Rao (1984), in his report, emphasised that for decentralised planning to be truly effective and impactful, institutional mechanisms must be broadened and strengthened. He stressed that the success of decentralised governance depends on the active participation of local representatives, who should be directly involved in decision-making processes that affect their communities. Rao argued that local bodies should not merely serve as implementing agencies but should be empowered with greater autonomy to make independent decisions tailored to the specific needs of their regions.

The report highlighted that institutional mechanisms at the local level must be broad-based, inclusive, and structured in a way that enables efficient governance, resource allocation, and development planning. Rao pointed out that the existing governance framework often limited the decision-making powers of local bodies due to bureaucratic control and political interference. Without a significant shift toward greater financial and administrative autonomy, local governments would struggle to implement effective development plans that align with the needs and aspirations of the people.

Rao's observations laid the foundation for subsequent reforms in decentralised governance, including efforts to strengthen Panchayati Raj institutions and urban local bodies. His report underscored the necessity of institutional reforms that would provide local governments with not only decision-making power but also financial independence and accountability mechanisms, ensuring that decentralized planning translates into meaningful development at the grassroots level.

2.1.2 Decentralisation and Local Governance in Kerala

The Panchayat Finance Commission (1985), chaired by Sri Avukadar Kutty Naha, former Deputy Chief Minister of Kerala, was established to examine the financial challenges faced by Panchayats in the state and to propose measures for their improvement. The commission conducted a comprehensive study of the functions and financial structure of Panchayats, identifying key shortcomings in the existing system. The analysis focused on the structural and operational limitations that hindered the financial sustainability of Panchayats. The commission's recommendations aimed at strengthening the fiscal capacity of these local bodies, ensuring better financial management, and enhancing their ability to effectively perform their assigned functions. The study emphasised the need for reforms to address financial inadequacies and promote the efficient utilisation of resources within the Panchayati Raj system.

S B Sen (1987), in his report as the head of the committee on decentralisation, Government of Kerala, laid down clear and coherent first principles of decentralisation and also recommended the constant status to Panchayats. The author attempted to bring about a re-structuring of the 'Kerala Panchayats Raj Act, the Kerala Municipality Act and the allied Acts', besides making appropriate recommendations to strengthen Local Self Government with adequate staff support.

Radha (1987) conducted research on "Local Self Government in Travancore-1894-1947", found that the institutions of local self-government had a slow growth and were in the continuing process of evolution in Travancore.

M. K. Mohanan (1989), in his study "Financial Administration of Muvattupuzha Municipality," highlighted the absence of a systematic approach to ranking project proposals for municipal works. The study emphasised the necessity of adopting scientific methods such as the 'Net Present Value (NPV) method and the Internal Rate of Return (IRR)' method for evaluating and prioritising projects. It was recommended that municipal authorities be well-versed in modern evaluation techniques to enhance project assessment, cost reduction, and financial control. The study advocated for a shift from conventional budgeting practices to more effective budgeting techniques such as Performance Budgeting or Zero-Based Budgeting. Mohanan stressed the need to reduce overreliance on government grants by

encouraging municipalities to develop independent revenue sources through the implementation of income-generating schemes. The research concluded that a well-structured financial planning and administrative framework is essential for ensuring the long-term financial sustainability and self-sufficiency of municipalities.

2.1.3 Urban Local Bodies and Social Infrastructure

Vincent (2003), examined the financial management and administrative efficiency of local self-government (LSG) institutions in the state. The study observed that a systematic approach to the utilisation of allocable funds had not been followed, leading to inefficiencies in resource allocation. Additionally, there was a lack of direct monitoring by LSGs in overseeing the implementation of projects under their jurisdiction. The research also highlighted the absence of an operational framework and proactive measures to ensure the proper utilisation of allocated resources. To address these shortcomings, Vincent recommended the establishment of dedicated administrative mechanisms to oversee and enhance the efficient use of LSG funds. Rather than solely relying on increased grants-in-aid from the state government, he emphasised the importance of taking proactive steps to expand non-tax revenue sources. Furthermore, the study underscored the necessity of prioritising local issues based on micro-level needs, ensuring that the specific and immediate concerns of each LSG are effectively addressed.

2.2 Financial Performance of Urban Local Bodies

Pillai (1979), found that Panchayats in some districts are highly developed with respect to one sector, say agriculture, but lag with respect to other sectors. The research suggested that Panchayats situated in less developed districts would get larger resources than others. This suggestion also possesses the merit that resource transfer to poor Panchayats would rise progressively with the degree of underdevelopment and such a policy might lead over time to equalisation of fiscal potential among Panchayats. It is found that there exist inter-Panchayat differences in the level of income, revenue and expenditure. Panchayat, for the last quarter of a century, has only aggravated the differences instead of reducing the same. The existing system of grants-in-aid is based neither on the principle of need nor on the effort of Panchayats.

Raju (1975) highlighted the inefficiencies of the cash-based single-entry accounting system used in municipalities, emphasising its limitations in assessing managerial performance. This system records actual receipts and disbursements without considering accruals, prepayments, debtors, or creditors, making it inadequate for evaluating an organization's full financial impact over a fiscal year. Originally introduced by the British, it may have met their limited administrative needs but is now outdated for an independent nation focused on economic growth and improving living standards. Furthermore, city governments continue to follow traditional budgetary practices aimed at expenditure control rather than serving as an effective management tool for performance evaluation. As a result, the existing accounting framework fails to support the planning and control functions of the government, highlighting the urgent need for accounting and budgetary reforms.

Mathur (1991) suggested some measures for augmenting the financial resources of municipalities. A cell should be set up in each municipality to explore every possible means for mobilisation of financial resources on a continuing basis. A thrust should be made to identify appropriate and proven technologies and ensure their adoption for ensuring optimum utilization of available financial resources. For preventing wastage of all kinds and proper utilisation and maintenance of essential services, a concerted educational campaign for citizens, especially the new migrants, should be made. Mobilization of private finance is a crucial matter which should be critically examined in the context of the local situation.

Mathur and Singh (1998), argued that the existing local governance system in India has not achieved the expected level of success, particularly in delivering effective and efficient services to all sections of society. Their study sheds light on the numerous financial challenges faced by local bodies across the country. The authors emphasise the importance of implementing the recommendations of the Finance Commission to ensure that the local bodies have necessary financial resources to fulfill the functions and their responsibilities sustainably.

Chattopadhyay (1999), examined the extent to which resource mapping data had been effectively utilised in Panchayat-level planning. The study assessed whether the systematic identification and documentation of local resources contributed to informed decision-making, resource allocation, and the overall efficiency of

decentralised planning at the Panchayat level. By analysing the integration of resource mapping into the planning process, the research aimed to highlight potential gaps and suggest improvements for optimising the use of locally available resources in governance and development initiatives.

Kumar and Sunil (2000), in their study "Public Finance and Fiscal Management in Developing Countries," examined various dimensions of public finance and fiscal management in developing economies. The study explored the complexities of decentralization, emphasizing that it is not an exogenous process but rather one that is shaped by institutional, economic, and political factors. The authors argued that decentralisation is often constrained by challenges such as inadequate fiscal capacity, weak institutional frameworks, and governance inefficiencies. Their analysis highlighted the need for well-structured fiscal policies and institutional reforms to ensure effective decentralisation and sustainable financial management in developing countries.

Harilal and George (2000), in their paper "Prioritisation in Local Level Planning – The Kerala Experience," analysed the effectiveness of participatory planning in Kerala. Their study concluded that the People's Planning Campaign successfully developed and implemented an innovative methodology for participatory planning from the grassroots level. The research highlighted the systematic approach adopted in decentralising decision-making, ensuring community involvement, and prioritising local development needs. The findings underscored the significance of inclusive planning processes in strengthening local governance and enhancing the efficiency of resource allocation for sustainable development.

Thankappan (2000), in his paper "Decentralisation Experiments of Kerala," provided a brief analysis of the evolution of the Panchayati Raj system in India, with a specific focus on Kerala. The study examined the distinctive features of the amended Kerala Panchayat Act and highlighted the impact of the People's Plan Campaign in promoting participatory governance. It was observed that the campaign aimed to actively engage citizens in the decision-making process, fostering a sense of ownership and responsibility in local governance. The research emphasised that the initiative sought to inspire and empower people to contribute meaningfully to the

decentralised governance framework, thereby strengthening the effectiveness of local self-government institutions.

Sarma (2000), in his article "The Seventy-Fourth Constitutional Amendment and Municipal Financial Autonomy," examined the financial control mechanisms governing municipalities and their alignment with the objectives of the 74th Constitutional Amendment. The study observed that the existing system of municipal financial oversight is primarily designed to ensure accountability to state governments, rather than fostering true financial autonomy at the municipal level. This approach, Sarma argued, is inconsistent with the broader goals of decentralisation envisioned in the constitutional amendment. To enable municipalities to provide civic services in a sustainable and efficient manner, the financial decision-making framework must prioritise local autonomy. The study emphasised the need for comprehensive reforms in four key areas: (1) a rational delineation of the financial domain of municipalities, (2) allocation of adequate revenue resources along with performance-based incentives, (3) recognition and strengthening of the internal management structures of municipal bodies, and (4) the promotion of improved budgeting, accounting, and financial reporting practices. A concerted effort in these areas, the study suggested, is essential to enhance the financial sustainability and operational efficiency of municipal governance.

Chen, Yeh, and Chung (2012) conducted a study on township governments in Taiwan, incorporating public finance indicators across four budget stages—formulation, submission, execution, and auditing—using Data Envelopment Analysis (DEA). The study found that the overall efficiency of township governments averaged 0.755, implying an inefficiency of 24.5%, primarily driven by low efficiency during the submission and execution stages. Notably, local governments performed most efficiently during the auditing stage. One of the key findings was that incumbent officials seeking reelection demonstrated lower efficiency during the submission stage. The study also examined the role of industrial districts in financial performance, revealing that townships with established industry clusters exhibited significantly higher efficiency during the formulation and submission stages. The research highlighted demographic influences, showing that local governments with a higher proportion of the aboriginal population had significantly lower efficiency

during the execution stage, likely due to lower tax revenues and unique socioeconomic characteristics. The study underscored the importance of examining efficiency across different budget stages rather than aggregating performance indicators, advocating for a more nuanced assessment of public financial management. The study emphasised the need for local governments to optimise the execution stage by improving revenue and expenditure management, leveraging inter-governmental financial aid, and fostering industrial development to enhance overall fiscal performance. These findings contribute to the broader discourse on public financial management by illustrating the complexities of budget execution and the political, economic, and demographic factors influencing local government efficiency. Future research could explore similar methodologies in different institutional contexts to validate these findings and further refine efficiency measurement in public finance.

Jariwala (2016) conducted a comprehensive study on the financial management of selected urban local bodies in the state of Gujarat. The study emphasised that local initiative is an essential prerequisite (sine qua non) for a successful and stable democracy. In the context of India's rapid urbanisation, the role of local self-governments has become increasingly significant. Financial resources, often termed the lifeblood of economic activity, are crucial for the effective functioning of these local bodies. The efficiency and adequacy of financial resources directly influence the ability of local self-governments to perform their mandated functions. Thus, the linkage between local functions and local finance is both critical and inextricable. Accounting, as an essential component of financial management, plays a pivotal role in maintaining financial discipline. It encompasses not only the systematic recording of financial transactions but also their analysis, interpretation, and the provision of timely and relevant information to policymakers for forecasting, planning, and control. The study undertaken by Jariwala aimed to conduct a comparative analysis of the financial management practices of four major municipal corporations in Gujarat,namely Ahmedabad Municipal Corporation (AMC), Surat Municipal Corporation (SMC), Vadodara Municipal Corporation (VMC), and Rajkot Municipal Corporation (RMC). Based on this comparative assessment, the study proposed strategic recommendations to enhance and sustain the financial management capabilities of these urban local bodies.

Pethe and Lalvani (2020) undertook a review to analyse the financial patterns of Urban Local Bodies (ULBs) in Maharashtra. The study, based on secondary data from 1999 to 2003 sourced from state ministries, the Bureau of Economics and Statistics, and ULBs, followed the guidelines of the State Finance Commissions and the 74th Constitutional Amendment. The authors identified a major challenge in the lack of standardised and comprehensive financial data, particularly beyond limited heads such as water supply, sanitation, license fees, and entertainment. Information on service delivery, staff performance, and citizen outcomes was largely unavailable, making comparative assessment difficult. They noted that ULB efficiency was often judged only on financial terms without evaluating the actual purpose or impact of spending. A significant data gap between revenue and expenditure further limited effective analysis. The study concluded that municipal corporations performed better than councils due to superior financial resources and called for increased funding, institutional reforms, and the creation of autonomous, tech-enabled bodies to ensure systematic data collection and improved policy planning in line with the 74th Amendment.

Jagan Shah (2020) published a comprehensive paper providing an overview of municipal finance in the context of the prevailing financial conditions of municipalities in India. The study focused on the period from 1990 to 2018 and examined key financial indicators such as per capita revenue, grants received, revenue expenditure, and the growth rate of municipal revenues. By conducting a trend analysis over nearly three decades, the paper traced the evolution of financial patterns within urban local bodies. It revealed a gradual and consistent improvement in the financial position of municipalities over the years. The analysis highlighted how increased grants and a rise in internal revenue generation contributed to the strengthening of municipal finances. The paper also noted that reforms and policy support at both the state and central levels played a role in this positive development. The study acknowledged the need for further strengthening of municipal finances to meet the growing demands of urbanisation. In conclusion, Shah asserted that while progress has been made, sustained efforts are necessary to ensure the long-term financial sustainability of India’s municipalities.

2.2.1 Revenue and Expenditure Trends

Mathur (1991) emphasises that effective management of financial resources is crucial for strengthening the municipal revenue base. As the demand for municipal services is expected to grow exponentially in the future, any reform in municipal finance must account for this rising need. To sustain their financial viability, municipal authorities must reassess their existing revenue-generating mechanisms and actively explore alternative, non-conventional funding sources. Without such proactive measures, municipalities may struggle to meet increasing financial demands, jeopardizing their ability to provide essential services.

Nath (1993) analysed the finances of three Municipal Corporations in Kerala and identified financial inadequacy as a major constraint on the efficiency of urban local bodies. The study found that tax revenue served as the primary income source for all three corporations, with internal sources contributing over 60 per cent of total revenue. In terms of expenditure, service-related costs accounted for approximately 76 per cent, while administrative expenses made up 15 per cent of total spending. Loans, however, constituted only a small portion of the total revenue. To enhance financial sustainability, Nath recommended introducing new revenue sources, such as the Betterment Tax, Entry Tax, Municipal Corporation Stamps, and licensing fees for cable TV. It is also suggested a share in income tax from service-based businesses, a portion of land revenue and building tax, and participation in central government projects. The researcher advocated for the adoption of Zero-Based Budgeting and improvements in the efficiency of municipal accounting departments. Recognising the limitations of the existing single-entry accounting system, he stressed the need to evaluate the feasibility of transitioning to a Double-Entry Accounting System for better financial management.

Bandyopadhyay (2012) evaluates the performance of Urban Local Bodies (ULBs) in Karnataka, India, using Data Envelopment Analysis (DEA) to measure technical efficiency. The study assesses service delivery efficiency in different city size classes and examines financial sustainability through operational and maintenance (ONM) expenditures. The analysis highlights disparities in service provision, indicating that smaller cities face greater challenges in achieving efficiency due to higher salary and establishment costs. The study finds that larger cities allocate more expenditures

towards productive expenses, improving their ability to finance services efficiently. Notably, the research identifies a significant shortfall in ONM expenditures across all city sizes, averaging 57 per cent below the required norms, with the largest cities experiencing the highest deficit of 64 per cent. Additionally, the study finds that property tax collection efficiency is relatively low, averaging 62 per cent, with minimal variation across cities. These findings suggest the need for improved revenue mobilisation and better financial management strategies at the municipal level. The study also examines the ability of ULBs to finance their ONM expenditures through own revenues. Results indicate that, even when revenue potential is fully realised, ULBs can only cover 27.5 per cent of ONM expenditure requirements, with larger cities exhibiting a higher coverage proportion. Municipalities can finance approximately 50 per cent of their ONM costs on basic services through their own resources, although there is significant variation across cities. The study underscores inefficiencies in expenditure management, revealing that, on average, ULBs could reduce 27 per cent of their ONM, labour, and establishment expenditures while maintaining the current level of services. This inefficiency is more pronounced in smaller cities, where unproductive spending is more prevalent. The study suggests that operational cost reductions could be achieved, particularly in labour and establishment expenditures, by improving administrative efficiency and optimising resource allocation. The research highlights critical areas for policy intervention to enhance urban governance efficiency. It emphasises the need for improved financial planning, better revenue mobilisation strategies, and optimised resource allocation to ensure the sustainability of urban services. The findings provide valuable insights for policymakers aiming to enhance the performance of ULBs, particularly in smaller cities where inefficiencies and resource constraints are more acute. By addressing the challenges of unproductive spending and service under-provision, municipal governments can work towards improving their technical efficiency and financial sustainability, ultimately leading to better urban service delivery in India.

2.2.2 Financial Autonomy and Sustainability

Mohanty (1995) examined the implications of the 74th Constitutional Amendment Act and proposed several recommendations for improving municipal governance. The researcher emphasised that local government functions should remain simple to avoid the need for highly specialised administration. Municipalities should have the

autonomy to determine their tax rates, while borrowings and user finance should serve as the primary sources of capital funding. The researcher stressed the need for a transparent system of municipal accountability, ensuring that municipalities are answerable both to the public and the state government through appropriate regulations. Citizens should be well-informed about the consequences of municipal decisions. The article highlighted the importance of a well-defined legal framework covering various aspects of municipal governance, including information collection and dissemination, budgeting, financial reporting, taxation, contracts, dispute resolution, user charge design, grants, audits, and independent evaluations. Such a framework is essential for enhancing the efficiency and effectiveness of municipal administration.

Rao (1998), in his article "Autonomy – The Essence of Panchayat Raj," examines the extent of government supervision and control over Panchayati Raj institutions. He identifies four primary mechanisms through which this oversight is exercised: the application of legal frameworks, administrative procedures, personnel management, and financial regulations. While acknowledging the necessity of regulatory oversight to ensure accountability and efficiency, the author argues that excessive governmental intervention in local governance can be counterproductive. Such interference, he asserts, undermines the fundamental objectives of Panchayati Raj institutions, which are intended to promote decentralised decision-making, participatory governance, and self-sufficiency at the grassroots level. Rao emphasises the need for a balanced approach that allows local bodies to function autonomously while maintaining appropriate regulatory mechanisms to ensure transparency and effective service delivery.

2.3 Technical Efficiency in Public Service Delivery

Bannick and Ozcan (1995) conducted a comparative efficiency analysis of hospitals operated by the United States Department of Defense (DoD) and the Department of Health and Veterans Affairs (VA) using Data Envelopment Analysis (DEA). The study aimed to assess the relative performance of these federally funded hospitals and identify variations in efficiency between the two systems. The findings revealed that hospitals under the Department of Defense exhibited significantly higher efficiency levels compared to those managed by the Department of Health and Veterans Affairs.

This suggests that DoD hospitals utilised their resources more effectively, achieving higher output levels with given inputs. The authors attributed these differences to several factors, including differences in operational structures, management strategies, and patient demographics. Th explanation for the higher efficiency of DoD hospitals is their streamlined organisational structure and centralised decision-making processes, which may have contributed to better resource allocation. Additionally, the nature of healthcare delivery in military settings, characterised by disciplined protocols and standardised procedures, may have enhanced efficiency. In contrast, VA hospitals, which serve a broader and often more complex patient population, may face greater challenges in resource management, leading to relatively lower efficiency levels. The study also underscores the importance of evaluating efficiency in public healthcare institutions, as inefficiencies in resource utilisation can have significant implications for cost containment and service delivery. The findings highlight the potential for operational improvements within VA hospitals through better resource allocation and strategic management interventions. This research provides valuable insights into the performance disparities between different federally funded hospital systems in the U.S. and underscores the relevance of efficiency analysis in shaping healthcare policies and management practices. The use of DEA as a methodological tool further reinforces its applicability in evaluating hospital efficiency and identifying areas for potential improvement.

Ersoy et al. (1997) evaluated the technical efficiency of Turkish hospitals using Data Envelopment Analysis (DEA) to assess resource utilisation and performance disparities. Their findings indicated that less than 10 per cent of the hospitals operated efficiently, highlighting widespread inefficiencies in the system. The study suggests that structural and managerial shortcomings, such as suboptimal resource allocation, inadequate staffing, and outdated administrative practices, may contribute to low efficiency levels. Regional disparities in hospital size and resource distribution further exacerbate these inefficiencies. The results emphasize the need for policy interventions to enhance hospital management, streamline resource use, and adopt best practices from more efficient institutions. By demonstrating the applicability of DEA in benchmarking hospital performance, this study provides valuable insights for healthcare policymakers. It underscores the potential for efficiency improvements

through targeted reforms and better management strategies, ultimately contributing to a more effective and sustainable healthcare system.

Zere et al. (2006) conducted an assessment of the technical efficiency of district hospitals in Namibia using Data Envelopment Analysis (DEA). The study aimed to evaluate productive efficiency and quantify potential efficiency gains that could help bridge resource gaps in the healthcare system. The findings revealed significant levels of both pure technical and scale inefficiencies, with the average technical efficiency level falling below 75 per cent during the study period. Less than half of the hospitals analysed were positioned on the technically efficient frontier. A predominant form of scale inefficiency observed was increasing returns to scale, indicating that many hospitals could potentially lower their unit costs by expanding output. The study highlighted that inefficiency levels ranged between 26 per cent and 37 per cent, suggesting that if inefficient hospitals operated at the efficiency levels of their best-performing peers, the healthcare system could have realised efficiency gains amounting to 26–37 per cent of total resource usage. For instance, efficiency savings in 2000/2001 were estimated to be equivalent to the cost of constructing 50 new clinics. The findings align with broader research in sub-Saharan Africa, where technical inefficiency in healthcare facilities is widely documented. The study underscores that addressing inefficiencies could lead to substantial input savings, which in turn could be redirected toward reducing healthcare inequities and enhancing service quality. However, the authors note that increasing output levels necessitates greater healthcare demand, a factor largely beyond hospital management's control. In this context, the merger of hospitals located in close proximity is suggested as a potential strategy for improving efficiency.

O'Neill et al. (2008) contributed to this field by developing a DEA-based performance evaluation model that incorporated a more refined classification of inputs and outputs, tailored to local environmental conditions. This approach ensured that performance assessments were contextually relevant and reflected the specific operational constraints of different healthcare settings. A key feature of their study was the use of window analysis, a technique that extends traditional DEA by allowing performance evaluation over multiple time periods rather than a single point in time. This method provides a dynamic perspective on hospital efficiency, enabling the

identification of trends and fluctuations in performance. By analysing efficiency levels across time, hospital administrators can gain a better understanding of long-term operational patterns and implement more effective management strategies. The study categorised hospital inputs and outputs more comprehensively than previous DEA-based studies, enhancing the accuracy of efficiency assessments. Inputs typically included resources such as medical personnel, hospital beds, and financial expenditures, while outputs focused on service delivery indicators such as patient outcomes, bed occupancy rates, and the number of treated cases. By refining the selection process, the authors ensured that the evaluation model captured the complexities of hospital operations while accounting for external factors that might influence efficiency levels. The study highlighted variations in hospital efficiency across different healthcare systems and identified key factors influencing these differences, such as healthcare financing mechanisms, policy frameworks, and organisational structures. The findings underscored the importance of considering local healthcare environments when applying DEA to hospital performance evaluation, as efficiency benchmarks that are relevant in one country may not be applicable in another. The study introduced a taxonomy of DEA-based hospital efficiency research, classifying studies based on their methodological approaches and contextual focus. This categorization provided a structured framework for future research, guiding scholars and practitioners in selecting appropriate DEA models for specific healthcare evaluation objectives. By incorporating window analysis, refining input-output selection, and emphasising the role of the local environment, their study laid the foundation for more sophisticated and context-aware performance evaluation models in healthcare. The findings have practical implications for hospital administrators seeking to improve efficiency and for policymakers aiming to design healthcare systems that optimise resource utilisation while maintaining high-quality patient care.

Yawe (2010) contributed to this field by employing the Super-Efficiency Data Envelopment Analysis (DEA) approach to assess and rank hospital performance in Uganda. This study introduced an advanced DEA model that not only measured efficiency levels but also allowed for the ranking of hospitals beyond the efficient frontier, providing a more refined comparative analysis. The Super-Efficiency DEA model extends the traditional DEA framework by differentiating efficient hospitals

from one another. In conventional DEA, efficient hospitals receive a score of 1, making it difficult to rank them further. The Super-Efficiency model addresses this limitation by allowing efficient hospitals to score above 1, enabling a more granular performance ranking. This approach is particularly useful for policymakers and hospital administrators who need to identify top-performing hospitals and benchmark best practices.

Yawe (2010) incorporated the Balanced Scorecard (BSC) methodology into the DEA model. The BSC framework evaluates hospital performance across multiple dimensions, including financial performance, patient satisfaction, internal hospital processes, and learning & growth. By integrating BSC criteria, the study moved beyond traditional input-output efficiency analysis, providing a more holistic view of hospital performance. This integration allowed for a more comprehensive assessment that accounted for strategic objectives and qualitative aspects of healthcare service delivery. The study's findings highlighted variations in efficiency levels across hospitals in Uganda. Some hospitals exhibited high levels of technical efficiency but struggled with effectiveness in meeting broader healthcare goals. The study emphasised that while resource allocation played a critical role in performance, strategic management decisions, such as improving patient-centered care and hospital workflows, were equally important. The policy implications of the study are significant, as the combination of Super-Efficiency DEA and BSC provides a structured approach for hospital administrators to enhance efficiency, set performance targets, and allocate resources effectively. By identifying top-performing hospitals, the model can serve as a benchmarking tool for underperforming institutions, guiding them toward best practices and operational improvements. The study underscores the importance of incorporating qualitative and strategic performance indicators into efficiency analysis, ensuring that hospitals not only optimise resource use but also achieve broader healthcare objectives.

Johannessen et al. (2017) applied Data Envelopment Analysis (DEA) to assess the performance of physicians in a Norwegian hospital, focusing on their productivity following a hospital reform. The study aimed to measure how efficiently physicians utilised hospital resources while delivering healthcare services. Given the increasing complexity of hospital operations and the growing demand for multifunctional

healthcare professionals, the study provided valuable insights into workforce efficiency and the impact of reforms on physician productivity. The findings revealed that physicians with multiple skills played a crucial role in improving hospital efficiency, yet they often did not receive enough organisational support or strategic focus. The study suggested that hospitals could enhance efficiency by leveraging the diverse skill sets of their medical staff, ensuring that physicians are assigned roles that maximise their expertise and productivity. The study found that some inefficiencies stemmed from rigid work structures, which limited the flexibility of physicians to perform across different medical disciplines. The study emphasised the need for better workforce planning and training strategies to enhance physician productivity. By incorporating multiskilled healthcare professionals into hospital workflow planning, administrators could optimise service delivery and resource utilisation. The study further highlighted that policy-level changes following hospital reforms must consider workforce adaptability, ensuring that physicians are empowered to work across multiple roles without compromising patient care quality.

Chen et al. (2017) analysed the impact of the Great Recession on hospital performance using Data Envelopment Analysis (DEA) to evaluate hospitals in Pennsylvania. Their study sought to understand how economic downturns influence healthcare efficiency and resource allocation. The findings indicated that hospital performance declined following the recession, as financial constraints led to reductions in hospital budgets, staffing, and service availability. These limitations affected both technical efficiency and quality of care, underscoring the vulnerability of hospitals to macroeconomic fluctuations. A key observation from the study was that hospitals faced increased pressure to optimise resource utilisation during economic downturns. However, many institutions struggled to maintain efficiency due to budget cuts and reduced patient demand. The authors highlighted that while some hospitals managed to sustain operations through cost-cutting measures and operational adjustments, others experienced a decline in productivity and service delivery. The study emphasised that economic crises can create long-term inefficiencies in the healthcare sector, affecting both public and private hospitals. The study suggested that healthcare institutions should develop financial resilience strategies to withstand economic shocks. This could involve diversifying revenue streams, enhancing operational efficiency, and implementing cost-saving initiatives

without compromising patient care. The government intervention through financial support programs could help mitigate the negative effects of recessions on hospital performance. The findings of this study provide valuable insights for healthcare policymakers and administrators in designing strategies to enhance hospital sustainability during economic downturns.

Haghighi and Torabi (2018) explored the role of hospital information systems (HIS) in patient satisfaction and healthcare quality. Recognizing that efficient data management is crucial in modern healthcare, they proposed a novel mixed sustainability-resilience framework to assess HIS performance. Their methodology combined the Best Worst Method (BWM) to determine the weights of evaluation indicators with Data Envelopment Analysis (DEA) to evaluate unit performance. This approach allowed them to quantify the impact of HIS on hospital efficiency and overall service delivery. The study underscored that a well-integrated HIS enhances decision-making, reduces errors, and improves resource allocation, thereby contributing to patient satisfaction. Their findings indicated that not all hospital units utilised HIS effectively, leading to variability in efficiency levels. Units that fully integrated HIS into their operations exhibited higher performance, while others struggled due to poor adoption, lack of training, or system inefficiencies. The study suggested that hospitals should focus on improving HIS implementation, ensuring proper training for medical staff, and continuously updating the system to align with technological advancements. Furthermore, the resilience aspect of HIS was highlighted, emphasising its role in sustaining operations during crises such as pandemics or cyberattacks. The study recommended that hospital administrators prioritise HIS investment as a strategic asset. Governments and healthcare institutions should develop policies that mandate HIS optimisation and integration across all hospital departments. By doing so, hospitals can enhance patient satisfaction, streamline operations, and improve healthcare delivery. The study's hybrid approach combining BWM and DEA offers a robust framework for evaluating HIS performance, providing valuable insights for hospital management and policymakers aiming to enhance digital healthcare infrastructure.

Omrani, Shafaat, and Emrouznejad (2018) proposed an innovative integrated fuzzy clustering cooperative game Data Envelopment Analysis (DEA) model to evaluate

hospital efficiency under uncertain conditions. Traditional DEA models often struggle with heterogeneous decision-making units (DMUs), particularly in cases where hospitals operate in diverse geographic and economic environments. To address this issue, the study introduced fuzzy clustering, allowing hospitals to be grouped based on similar characteristics before efficiency evaluation. A key contribution of their model is its cooperative game theory integration, which optimises resource allocation among hospitals. By applying cooperative game DEA, the authors demonstrated that hospitals could collaborate to improve overall efficiency, rather than being assessed in isolation. This approach was particularly useful in evaluating hospitals across different provinces, where variations in resource availability, patient demographics, and healthcare policies create challenges for direct performance comparisons. The study's empirical analysis validated the effectiveness of this hybrid DEA model, highlighting its ability to provide more realistic efficiency scores compared to traditional DEA methods. The model's strength lies in its flexibility to handle uncertainty in hospital performance data, making it a valuable tool for healthcare policymakers seeking to enhance hospital efficiency, resource allocation, and strategic planning in complex healthcare systems.

Ghahremanloo et.al. (2020) introduced a novel approach for assessing hospital performance by simultaneously measuring efficiency, effectiveness, and productivity using Data Envelopment Analysis (DEA). Traditional DEA models primarily focus on efficiency by comparing input-output ratios among decision-making units (DMUs). However, this study expands on conventional models by integrating effectiveness—how well outputs align with predetermined goals—and productivity, which accounts for both efficiency and effectiveness. The study developed the DEA-EEP (Efficiency, Effectiveness, and Productivity) model, which allows for a more comprehensive evaluation of hospital performance. Inputs considered in the model include the number of health workers, other hospital staff, and patient beds, while outputs include bed occupancy and bed turnover rates. By setting target values for outputs, the model assesses hospitals not only on their operational efficiency but also on their ability to meet performance benchmarks. An additional advantage of this approach is its ability to provide recommendations for non-productive hospitals to improve their performance by adjusting inputs and outputs. A case study involving 11 hospitals in Tehran over a three-year period demonstrated the applicability of the

DEA-EEP model. The findings indicated that while some hospitals showed an upward trend in performance, most hospitals exhibited fluctuating efficiency, effectiveness, and productivity scores, suggesting an inconsistent approach to performance improvement. Despite efforts to enhance service quality, the study highlights the need for strategic interventions to achieve sustained growth in hospital performance. The proposed DEA-EEP model provides valuable insights into hospital management by offering a more holistic framework for evaluating healthcare institutions. Unlike traditional DEA models that focus solely on efficiency, this approach ensures that hospitals are assessed based on their overall contributions to healthcare objectives. The study underscores the importance of setting measurable targets and aligning hospital operations with broader healthcare goals to improve service delivery. This study serves as a foundation for further research on multi-criteria performance assessment models that can be adapted to different healthcare systems and settings.

Chuang et al. (2011) introduced an advanced methodology that integrates DEA with artificial neural networks (ANN) and DEA-assurance region (DEA-AR) models to enhance the accuracy of hospital performance evaluation. The study employed a hybrid DEA-ANN model to analyse hospital data, leveraging artificial intelligence to refine efficiency measurements. Artificial neural networks are machine learning models capable of identifying complex relationships between variables, making them particularly useful for predicting hospital efficiency based on historical data. By integrating ANN with DEA, the study improved the ability to classify hospitals based on their efficiency scores and provided a more robust performance evaluation. The authors applied the DEA-Assurance Region (DEA-AR) model, which incorporates weight restrictions in DEA analysis. One of the limitations of traditional DEA models is the unrestricted assignment of weights to inputs and outputs, potentially leading to biased efficiency scores. The DEA-AR model addresses this issue by imposing constraints on weight distributions, ensuring a fairer comparison among hospitals. This methodological advancement enhances the reliability of efficiency assessments and provides a more realistic representation of hospital performance. The study examined hospital efficiency and inefficiency patterns using regression analysis, which allowed for an in-depth investigation of the factors influencing hospital performance. By integrating regression models, the study identified key determinants

of efficiency, such as hospital size, patient load, resource allocation, and administrative policies. This approach provided actionable insights for hospital administrators, enabling them to address inefficiencies and improve service quality. The findings revealed significant variations in hospital efficiency, with some hospitals consistently underperforming due to poor resource utilisation and ineffective management practices. The study emphasised that while DEA is a powerful tool for efficiency measurement, its integration with machine learning techniques and regression analysis offers a more comprehensive framework for evaluating hospital performance. From a policy perspective, the hybrid DEA-ANN and DEA-AR models provide healthcare managers with advanced tools for benchmarking hospital efficiency, identifying areas for improvement, and formulating data-driven policy interventions. This study highlights the potential of combining traditional efficiency evaluation techniques with artificial intelligence and econometric models to enhance decision-making in healthcare management. Their work underscores the importance of integrating DEA with advanced analytical tools to obtain more accurate, fair, and actionable efficiency assessments in the healthcare sector.

Mitropoulos et al. (2015) introduced a hybrid approach combining Stochastic DEA and Bayesian Analysis to calculate hospital efficiency scores in Greece. The study applied Stochastic DEA, an extension of the conventional DEA model that incorporates randomness and uncertainty in input-output data. Traditional DEA assumes that all inefficiencies are due to poor resource management, but in real-world scenarios, external factors such as economic conditions, demographic variations, and policy changes may also influence efficiency scores. Stochastic DEA accounts for these uncertainties by incorporating a probabilistic structure, improving the robustness of efficiency assessments. The study integrated Bayesian analysis, a statistical modelling technique that incorporates prior knowledge and probability distributions to refine efficiency estimates. Bayesian analysis was used to generate a simulation platform, allowing the researchers to analyse multiple alternatives and estimate the statistical properties of efficiency scores. By incorporating prior information and updating it with new data, Bayesian analysis helped mitigate biases and provided a more reliable efficiency measurement framework. The findings of the study revealed significant variations in hospital efficiency levels across Greece, with some hospitals operating close to the efficiency frontier while others exhibited

substantial inefficiencies. The integration of Bayesian inference allowed for a more precise differentiation between truly inefficient hospitals and those whose inefficiency might be attributed to random fluctuations in data. The study demonstrated that efficiency scores derived from traditional DEA models might be overestimated or underestimated if statistical properties are not taken into account. From a policy perspective, the hybrid Stochastic DEA-Bayesian model offers a more accurate and statistically robust method for hospital performance evaluation. The findings provide valuable insights for hospital administrators and policymakers, enabling them to distinguish between genuine inefficiencies and external uncertainties affecting performance. This distinction is critical for designing targeted policy interventions, such as resource reallocation, infrastructure investments, and managerial reforms.

Rezaee and Karimdadi (2015) addressed this gap by examining the impact of geographical location on hospital efficiency using a multi-group DEA model. The authors categorised hospitals into different groups based on their provinces, ensuring that each group operated within a similar geographical and environmental setting. This classification allowed for a fairer comparison among hospitals, as external factors such as access to resources, patient demographics, economic conditions, and regional healthcare policies were taken into account. By analysing hospitals within the same geographical region, the study reduced biases that may arise when comparing hospitals operating in vastly different environments. The study employed the multi-group DEA model, an advanced extension of DEA that allows for the comparative analysis of efficiency across different categories. Unlike traditional DEA models, which assume a homogeneous operating environment, the multi-group DEA model provides a more nuanced efficiency evaluation by recognizing regional disparities in healthcare infrastructure, accessibility, and demand for services. The findings revealed significant variations in efficiency levels across different geographical locations. Hospitals in urban areas generally exhibited higher efficiency scores due to better infrastructure, access to skilled personnel, and advanced medical equipment. In contrast, hospitals in rural and remote areas faced challenges such as limited resources, staff shortages, and lower patient volumes, which contributed to lower efficiency scores. The study also highlighted the importance of regional policy interventions, such as targeted investments in underperforming hospitals and

infrastructure development in rural healthcare facilities. From a policy perspective, the results underscore the need for location-specific strategies to improve hospital performance. Instead of applying a one-size-fits-all approach to efficiency improvement, policymakers should consider regional variations in healthcare needs and resources.

Prakash and Annapoorni (2015) conducted a DEA-based evaluation of public hospitals in Tamil Nadu to assess their relative efficiency and resource utilisation. The study analysed inputs such as hospital infrastructure, healthcare personnel, and financial resources, alongside outputs like inpatient admissions, outpatient visits, and bed occupancy rates. The findings revealed significant variations in efficiency levels, with urban hospitals outperforming rural ones, largely due to better resource availability and skilled personnel. Many district-level hospitals exhibited scale inefficiencies, indicating a need for better workforce management and strategic resource reallocation. The study highlighted critical disparities between urban and rural healthcare facilities, emphasising the challenges faced by rural hospitals in maintaining efficiency due to resource shortages, lower patient volumes, and staff constraints. Hospitals operating below their optimal capacity were identified, suggesting that enhanced training programs, better financial management, and infrastructural improvements could bridge the efficiency gap. The DEA approach also helped pinpoint benchmark institutions, enabling less efficient hospitals to adopt best practices from high-performing counterparts. The study underscores the need for targeted interventions to optimise hospital performance. Key recommendations include improving resource allocation, strengthening rural healthcare infrastructure, expanding telemedicine services, and enhancing referral networks. By adopting such strategies, policymakers can ensure that public hospitals operate more efficiently, improving healthcare accessibility and service delivery. The findings validate DEA as a valuable tool for performance assessment, reinforcing its role in shaping evidence-based healthcare management policies.

Gholami et al. (2015) investigated the relationship between IT investment, hospital quality, and operational efficiency by employing a two-stage Bootstrap DEA model on a dataset of 187 hospitals in the United States over two years. Their study aimed to determine whether hospitals could simultaneously achieve both high efficiency and

high-quality care through IT advancements. The first stage of the analysis measured hospital efficiency using DEA, while the second stage applied a bootstrap regression approach to assess the impact of IT investment on both quality and efficiency. The findings revealed a positive relationship between IT investment and hospital quality, indicating that technological advancements contributed to improved patient outcomes and service delivery. However, the study also highlighted a trade-off between efficiency and quality, suggesting that hospitals with a strong focus on quality improvements often experienced lower operational efficiency due to increased costs. Conversely, hospitals emphasising cost efficiency sometimes compromised on quality indicators. The results emphasised that while IT could enhance quality, its impact on efficiency depended on how effectively resources were managed alongside technological adoption. The study underlined the importance of strategic IT implementation in hospitals, advocating for balanced investment approaches that optimise both efficiency and quality. Key recommendations include targeted IT spending, improved workforce training, and process reengineering to ensure that technology adoption translates into measurable efficiency gains without compromising service quality. The study reinforces IT as a crucial enabler of healthcare performance and highlights DEA as a valuable tool for evaluating the dual impact of IT on hospital efficiency and quality.

Rouyendegh et al. (2016) introduced a hybrid hospital performance evaluation (HPE) model that integrates Data Envelopment Analysis (DEA) and Fuzzy Analytic Hierarchy Process (FAHP) to enhance the accuracy of efficiency measurement in hospitals. By combining DEA's ability to assess relative efficiency with FAHP's capacity for multi-criteria decision-making, the study aimed to overcome limitations associated with traditional DEA models, such as the subjectivity in weight assignment. The hybrid approach provided a fully ranked efficiency evaluation by determining optimal weight distributions, ensuring a more precise assessment of hospital performance. The study demonstrated that hospitals with similar input-output structures exhibited varying efficiency levels depending on how resources were utilized. The incorporation of FAHP allowed for a more nuanced evaluation of qualitative factors, such as patient satisfaction, service quality, and hospital management effectiveness, which are often overlooked in pure DEA models. This approach helped differentiate hospitals with marginal efficiency differences, offering

a more comprehensive ranking system compared to standard DEA. The findings indicated that hospitals ranking higher in efficiency often had better managerial practices and resource allocation strategies. This model provides a valuable tool for hospital administrators and policymakers to make informed decisions regarding resource allocation, performance benchmarking, and operational improvements. By integrating both quantitative and qualitative performance indicators, the study suggests that healthcare institutions can achieve a more balanced and effective evaluation system. The research highlights the importance of multi-method approaches in hospital efficiency analysis, offering a framework that can be adapted to various healthcare environments for more refined performance assessment.

Chowdhury and Zelenyuk (2016) assessed the performance of hospital services in Ontario, Canada, using a DEA with Bootstrap and regression approach to provide a more robust and statistically reliable efficiency estimation. The study applied DEA to measure hospital efficiency and then utilised a two-stage Bootstrap regression model to examine the distribution of efficiency across different geographical locations, educational settings, and hospital sizes. This methodology allowed for a deeper understanding of how external factors influence hospital efficiency, providing a more refined efficiency analysis compared to traditional DEA models. The findings revealed significant efficiency variations among hospitals, with urban hospitals generally outperforming rural ones, likely due to better resource availability and specialised healthcare services. The hospitals associated with medical education institutions showed relatively higher efficiency. However, size-related efficiency patterns were mixed, indicating that while larger hospitals benefited from economies of scale, some suffered from diseconomies due to complex management structures. The study highlights the importance of tailored interventions to improve hospital performance based on regional and institutional characteristics. The findings suggest that policy measures should focus on enhancing rural healthcare efficiency.

Lobo et al. (2016) applied Dynamic Data Envelopment Analysis (DDEA) to assess the performance of university hospitals over multiple years, enabling a more comprehensive evaluation of efficiency trends over time. Unlike traditional DEA, which captures efficiency at a single point, DDEA allows for intertemporal comparisons, making it particularly useful for monitoring performance fluctuations

and identifying long-term efficiency patterns. This approach helped hospitals track improvements or declines in operational efficiency, providing valuable insights into resource utilisation and productivity changes over consecutive years. The study's findings highlighted significant variations in hospital efficiency across different periods, influenced by factors such as budgetary changes, policy shifts, and advancements in medical technology. Some hospitals demonstrated consistent efficiency improvements, while others experienced fluctuations due to changes in input-output relationships. The ability to track efficiency over time enabled hospital administrators to identify operational inefficiencies, allocate resources more effectively, and implement strategic improvements. From a strategic perspective, the use of DDEA offers a dynamic benchmarking tool for healthcare policymakers and hospital management. By evaluating how efficiency evolves over time, decision-makers can adjust policies to sustain long-term performance gains and address inefficiencies before they become systemic issues. The study underscores the importance of incorporating time-based efficiency models in hospital performance evaluations, ensuring a more holistic and adaptive approach to healthcare management.

Kang et al. (2017) applied Data Envelopment Analysis (DEA) to evaluate the efficiency of hospital emergency departments (EDs), an area critical to healthcare delivery due to its high patient volume and time-sensitive operations. The study focused on assessing how efficiently EDs utilised their available resources—such as medical staff, equipment, and facilities—to deliver timely and effective emergency care. Given the increasing strain on emergency departments worldwide, the study provided valuable insights into operational bottlenecks and efficiency gaps. The findings indicated that many EDs operated below optimal efficiency levels, suggesting the need for process re-engineering to enhance performance. Factors such as overcrowding, long patient wait times, resource misallocation, and workflow inefficiencies contributed to reduced performance in several emergency units. The study emphasized that some hospitals were better at managing patient flow, optimizing staffing levels, and reducing turnaround times, leading to higher efficiency scores in the DEA model. From a managerial perspective, the study highlights the importance of process optimisation and resource allocation strategies to improve ED efficiency. By using DEA as a benchmarking tool, hospital administrators can

identify best-performing emergency departments and adopt their strategies to enhance efficiency across other units. The study also underscores the need for innovative approaches, such as digital health interventions, triage optimisation, and lean management techniques, to ensure that emergency departments deliver high-quality care with available resources while minimising patient waiting times.

The study by Afonso and Fernandes (2008) contributes significantly to this field by employing a Data Envelopment Analysis (DEA) approach to evaluate the relative efficiency of Portuguese municipalities. Their study highlights the importance of assessing local government performance through a composite municipal indicator, allowing for comparisons against a best-practice frontier. The research also integrates a Tobit analysis to examine the influence of socio-economic factors such as education and per capita purchasing power on municipal efficiency scores. The increasing importance of efficiency measurement in public sector performance is a response to growing fiscal constraints and the need for optimised service delivery. The authors addressed the concern by developing a Local Government Output Indicator (LGOI), which captures various municipal service provisions as a composite output measure. The study clustered the municipalities into five NUTS-2 regions, thereby allowing for a region-specific evaluation of efficiency. This methodological approach aligns with prior research that examines efficiency variations based on geographical and institutional differences. The study concludes that many municipalities could enhance their performance without increasing spending, emphasising the potential for better resource allocation and policy interventions. This research contributes to the broader discourse on public sector efficiency and offers a practical framework for policymakers aiming to improve local governance outcomes.

2.3.1 Efficiency in School Education under ULBs

De Borger and Kerstens (1996) conducted an extensive comparative analysis of different efficiency measurement techniques applied to Belgian municipalities. The study explored five different reference technologies, including two non-parametric approaches—Free Disposal Hull (FDH) and Data Envelopment Analysis (DEA)—alongside three parametric frontiers, comprising one deterministic and two stochastic methods. The research aimed to determine efficiency scores, evaluate their distribution across municipalities, and analyse ranking differences among the applied

techniques. A key finding of the study was the significant variation in efficiency scores across different methods, with estimated means ranging from 0.57 to 0.94. The rank correlations between parametric and non-parametric methods were moderate, indicating the challenges in selecting an optimal efficiency measurement approach. Despite these variations, the explanatory analysis of inefficiency provided consistent insights. The study identified local tax rates and education as positive contributors to municipal efficiency, while per capita block grants and average income exhibited negative effects. These findings suggest that government grant policies might unintentionally reduce cost efficiency, highlighting the need for careful fiscal planning. The study underscores the importance of employing multiple efficiency measurement techniques to ensure robust assessments of public sector performance. Additionally, it advocates for further research on the impact of fiscal policies on municipal efficiency and the replication of similar studies in different national contexts. By addressing data limitations and focusing on specific local government services, future research could provide more nuanced insights into efficiency determinants.

Woodbury, Dollery, and Rao (2002) provide a comprehensive review of the efforts made to evaluate local government efficiency, emphasising the need for a more systematic approach. Their study highlights the lack of consistent methodologies in assessing efficiency across Australian states, with most evaluations relying on partial performance indicators rather than holistic measures of efficiency. The authors identify the use of Data Envelopment Analysis (DEA) in select areas such as library services, waste management, and planning and regulatory services. However, they note that these applications are often limited to single-year analyses, preventing an understanding of changes in efficiency over time. One of the significant gaps identified in their study is the absence of service quality measures in efficiency evaluations. While service quality plays a crucial role in determining the effectiveness of local government operations, existing assessments have largely focused on cost efficiency without incorporating qualitative aspects. An exception is the Western Australian Office of Water Regulation, which introduced an aggregated service quality index based on water quality and supply reliability. However, no comprehensive methodology has been developed to integrate such indicators into an overall efficiency measure. This limitation raises concerns about the accuracy of

existing performance benchmarks and underscores the need for refined approaches to measuring local government efficiency. The study concludes by emphasising the urgency of developing methodologies that incorporate both efficiency and service quality indicators. The authors argue that Total Factor Productivity (TFP) analysis has yet to be effectively applied in Australian local government studies. Without such measures, policymakers lack the necessary tools to make informed decisions on resource allocation and service delivery. The findings contribute to the ongoing discourse on municipal efficiency and highlight the necessity for future research that considers both quantitative and qualitative aspects of local government performance evaluation.

Fu-Hsiang Kuo (2021) investigated the operational efficiency of school management through digital mobile e-learning, utilising Data Envelopment Analysis (DEA) and data mining methodologies. The study assessed the efficiency of high schools in Taiwan, identifying three key efficiency measures: Technical Efficiency (TE), Pure Technical Efficiency (PTE), and Scale Efficiency (SE). Among the nine schools analysed, only four achieved a consistent efficiency score of "1" over three years, all located in Taipei City or New Taipei City. This finding suggests that schools in urban areas with greater access to resources are more efficient in integrating digital mobile e-learning. The study further explored key determinants influencing school efficiency, including teacher-student ratio, the number of tablet PCs, technical teacher ratio, digital infrastructure expenses, school location, and school type (public or private). While digital learning tools enhance efficiency, excessive staff and redundant equipment can burden school operations, particularly in institutions experiencing declining student enrollment. Public schools were found to be more efficient than private schools, with larger cities benefiting from better resources for digital education. However, the study warns that during economic downturns and budget constraints, maintaining digital infrastructure in public schools may become a financial challenge. The research has significant implications for educational policymakers, emphasising the need for strategic planning in resource allocation to maximise the benefits of digital learning. Schools must balance investments in technology and staff while considering fluctuating student numbers. The policymakers should address disparities between urban and rural schools by ensuring equitable access to digital education resources. The study underscores the importance

of continuous assessment and adaptation of educational policies to align with technological advancements and socio-economic conditions.

Povedano et al. (2021) analyse the efficiency of Brazilian municipal public schools in improving student performance in Portuguese using a two-stage Data Envelopment Analysis (DEA) approach. The study identifies 45 indicators and goals that contribute to school performance, highlighting factors related to students, teachers, and school principals. One key finding is that an increase in current expenditure does not necessarily lead to better educational outcomes, reinforcing the importance of efficient resource allocation. The research also emphasises the role of school principals' management skills in fostering high-quality teaching practices. The study underscores the multifaceted nature of education quality, incorporating social, economic, organizational, and institutional variables. It acknowledges the impact of socioeconomic factors on student performance and benchmarks effective schools within similar socioeconomic levels. Findings suggest that beyond financial inputs, elements such as teacher qualifications, pedagogical strategies, and school leadership significantly influence educational outcomes. By comparing high-performing schools, the study provides a reference point for policymakers and school administrators to enhance management practices and instructional strategies. Despite its contributions, the research is limited by its reliance on quantitative data and self-reported information, which may introduce subjectivity. The authors suggest that future research should incorporate qualitative methods and on-site evaluations to better understand how identified best practices are implemented. This would provide more concrete guidance for education stakeholders in improving school performance.

Vallurupalli et al. (2013) conducted a feasibility study on the use of wearable devices in a cardiology fellowship program, highlighting their role in facilitating real-time learning and bridging the gap between theoretical knowledge and practical application. The study found that wearable technology positively impacted fellows' retention of procedural knowledge and confidence in clinical decision-making, particularly through real-time access to ECGs and echocardiographic imaging. Additionally, wearable devices allowed for more efficient patient monitoring and management, potentially improving patient outcomes. However, challenges such as high costs, data privacy concerns, and technical limitations were identified as barriers

to widespread implementation. Despite these challenges, the study suggests that wearable technology has the potential to revolutionise medical education, provided that issues related to feasibility, security, and integration are effectively addressed. Future research should explore standardised protocols and best practices for incorporating wearable technology into medical training programs to maximise its benefits.

2.4 Empirical Studies on Kerala's Urban Local Bodies

Nair (1999), examined Panchayat development plans, their implementation, and the challenges associated with the People's Planning initiative in Kerala. The study analysed the effectiveness of decentralised planning in achieving local development goals, assessing both the strengths and limitations of the process. Attention was given to issues such as resource allocation, administrative efficiency, community participation, and institutional constraints that affected the successful execution of development programs. The findings provided insights into the practical difficulties encountered in grassroots planning and governance, highlighting areas for improvement to enhance the effectiveness of decentralised development initiatives.

Biju (1998), critically evaluates the various developmental schemes and programs implemented in Kerala aimed at improving the standard of living of the rural population. His analysis highlights significant financial constraints faced by Panchayati Raj institutions in the state. The author observes that the financial resources available to these local bodies are insufficient, even to sustain the ongoing developmental activities assigned to them. The inadequacy of funds poses a serious challenge to the effective implementation of welfare and infrastructure projects at the grassroots level. Biju underscores the need for enhanced financial support, either through increased government allocations, improved revenue-generating mechanisms, or alternative funding sources, to ensure the long-term sustainability and success of decentralised governance in Kerala

2.5 Identification of Research Gaps and Rationale for the Study

The review of existing literature on Urban Local Bodies (ULBs) across different countries highlights significant progress in local government financial management and accounting reforms. Studies such as those by Faustino Jorge (2003) and Al-Dhowaihy (2003) provide insights into the evolution of municipal accounting systems

in Portugal and Saudi Arabia, respectively. However, there is limited research examining the financial management efficiency of ULBs in India, particularly in Kerala, with social infrastructure.

The study by Benito and Brusca (2004) underscores the importance of integrating financial and non-financial reporting for better public sector performance evaluation. While this has been effectively implemented in developed nations, Indian ULBs still largely focus on financial accounting without adequately incorporating performance indicators related to social infrastructure. The historical evolution of local governance in India, traced from the Balwantrai Mehta Committee (1957) to the 74th Constitutional Amendment, emphasises decentralisation. Hanumantha Rao (1984) and the Panchayat Finance Commission (1985) emphasised the need for financial independence and transparency in local governance. While Vincent (2003) examined financial management in Kerala's local self-governing institutions, the study did not focus on the specific efficiency of social infrastructure, particularly in education and healthcare under ULBs. More specifically, the existing studies fail to assess whether Kerala's ULBs have achieved financial sustainability while delivering quality social services.

Studies such as those by Pillai (1979) and Raju (1975) highlight financial disparities among municipalities but do not investigate how these financial differences impact social infrastructure development. The inefficiencies of traditional cash-based single-entry accounting systems in municipalities, as identified by Raju (1975), are well-documented. There is a lack of empirical research on Kerala's ULBs. Research by Mathur and Singh (1998) suggests that local governance in India has not achieved the expected levels of efficiency. However, there is limited analysis of whether this inefficiency extends to social infrastructure management in ULBs in Kerala.

Decentralized planning in Kerala has been widely studied (Harilal & George, 2000; Thankappan, 2000), but research on its actual impact on urban healthcare and education services remains scarce. The studies of Sarma (2000) and Jagan Shah (2020) examine municipal financial autonomy and per capita revenue trends. The financial sustainability of ULBs, as discussed by Bandyopadhyay (2012), lacks specific application to healthcare and education services. This implies that there is a

research gap in understanding whether increased financial autonomy translates into better social infrastructure services in urban Kerala.

Technical efficiency in public service delivery has been extensively studied using Data Envelopment Analysis (DEA) in healthcare (Bannick & Ozcan, 1995; Ersoy et al., 1997; Zere et al., 2006). However, very few studies have applied DEA to urban healthcare services in Kerala's ULBs. Studies such as those by Yawe (2010) and Chuang et al. (2011) have integrated advanced efficiency measurement techniques like DEA with Balanced Scorecard (BSC) and artificial intelligence models. These approaches have not yet been applied to evaluating urban healthcare efficiency in Kerala.

Research on school education efficiency in municipal governance remains limited, despite the significant role of ULBs in managing schools in Kerala. Povedano et al. (2021) highlight the importance of efficiency measurement in municipal public schools. However, no comparable studies assess how efficiently municipal schools in Kerala allocate and utilise resources. Studies on participatory planning in Kerala, such as those by Nair (1999) and Biju (1998), do not specifically address whether participatory models improve healthcare and education infrastructure.

Despite extensive discussions on decentralisation in Kerala (Sen, 1987; Thankappan, 2000), there is no comprehensive study assessing whether decentralised decision-making has led to better healthcare and education outcomes.

Chen et al. (2017) investigated the impact of financial crises on healthcare efficiency. The impact of economic fluctuations on municipal healthcare services in Kerala remains unexplored. Research by Kumar and Sunil (2000) suggests that decentralisation is shaped by institutional factors. However, its influence on urban healthcare and education efficiency in Kerala is not at all explored.

Studies on fiscal management in developing countries (Jariwala, 2016; Pethe & Lalvani, 2020) suggest data inadequacy as a major problem. This gap also exists in research on Kerala's ULB finances and social infrastructure outcomes. There is a lack of empirical research integrating financial performance analysis with social infrastructure efficiency in Kerala's urban local bodies. The impact of urbanisation on municipal finance (Shah, 2020) has been studied, but its direct link to healthcare and

education infrastructure development is missing. Financial reforms in local bodies (Mohanty, 1995) have not been analysed in terms of their effect on healthcare and education service delivery efficiency. While fiscal autonomy of municipalities has been examined (Rao, 1998), its implications for healthcare and education investment remain underexplored.

DEA studies in public healthcare and education (Gholami et al., 2015; Prakash & Annapoorni, 2015) have not been applied to municipal governance efficiency in Kerala. There is a significant research gap in the comparative assessment of multiple urban local bodies within the same district, particularly in the context of social infrastructure.

Existing studies focus primarily on financial indicators of ULBs, but non-financial performance indicators related to service delivery remain underexplored. While international literature integrates financial and non-financial performance assessments, Kerala's municipal evaluations still rely heavily on financial data alone. The role of political, administrative, and financial factors in determining healthcare and education efficiency within ULBs has not been comprehensively examined in Kerala.

Given these research gaps, this study aims to evaluate the performance of selected urban local bodies in Thiruvananthapuram district with a specific focus on social infrastructure, applying modern efficiency measurement tools like DEA to provide empirical insights into their effectiveness in healthcare and education service delivery.

Rationalisation of the Study

Kerala has been at the forefront of decentralization and local governance reforms, especially after the 74th Constitutional Amendment Act. The state's People's Planning Campaign and other participatory governance models have been lauded as exemplary initiatives in local self-governance. Despite these advancements, disparities in financial resource allocation, service delivery efficiency, and institutional capacity persist among various ULBs.

While multiple studies have examined fiscal decentralisation, municipal finance, and participatory governance in Kerala, there remains a lack of systematic research on how these factors influence the effectiveness of social infrastructure delivery in urban areas. The present study aims to fill this void by assessing the financial performance, technical efficiency, and service quality of ULBs in Thiruvananthapuram district.

Kerala has witnessed a steady rise in urbanisation, increasing the demand for enhanced public services, particularly in education and healthcare. As cities expand, ULBs face the dual challenge of ensuring service efficiency while maintaining fiscal sustainability. This study seeks to evaluate whether existing financial and administrative mechanisms in ULBs are equipped to meet these demands.

A key component of the study is to examine financial indicators such as revenue generation, expenditure patterns, and budgetary efficiency of ULBs in Thiruvananthapuram. This is essential for identifying inefficiencies and recommending financial reforms to strengthen urban governance.

Using methodologies like Data Envelopment Analysis (DEA), the study aims to measure the efficiency of healthcare and educational institutions operating under ULBs. Kerala's healthcare system is often cited as a model for other Indian states, yet there is limited research on its operational efficiency at the municipal level. Similarly, understanding the efficiency of municipal schools in resource utilization and academic performance will contribute valuable insights to policy-making.

The findings of this study will provide empirical evidence to support policy interventions aimed at improving the financial and technical efficiency of urban governance in Kerala. It will also offer recommendations for strengthening institutional capacities and enhancing accountability mechanisms within ULBs.

Despite the presence of comprehensive urban governance policies, their implementation often encounters challenges related to administrative inefficiencies, political dynamics, and financial constraints. This study seeks to bridge the gap between policy prescriptions and ground-level realities by providing a data-driven assessment of ULB performance.

By focusing on healthcare and education, the study aligns with the broader Sustainable Development Goals (SDGs), particularly SDG 3 (Good Health and Well-being) and SDG 4 (Quality Education). Ensuring equitable access to these services within Kerala's urban landscape is crucial for achieving long-term sustainability.

The study will contribute to the existing body of literature by providing a nuanced understanding of how financial and administrative factors impact social infrastructure efficiency within Kerala's ULBs. It will also help contextualise Kerala's governance model in the broader national and international discourse on decentralisation and urban management.

The study will also explore the role of citizen participation in influencing municipal decision-making processes and service delivery outcomes. Understanding the extent of community involvement in governance will be crucial for devising inclusive and participatory urban policies.

This study aims to provide a holistic evaluation of ULB performance in delivering social infrastructure in Thiruvananthapuram, Kerala. By addressing financial, administrative, and efficiency-related challenges, the research will offer strategic recommendations to enhance urban governance and service delivery in Kerala's rapidly urbanising landscape.

CHAPTER III

URBAN LOCAL BODIES IN INDIA AND KERALA – AN INSTITUTIONAL AND ADMINISTRATIVE OVERVIEW

This chapter comprehensively examines the evolution administrative and financial overview of urban local bodies. More specifically, it comprises the historical process of urbanisation in India, constitutional Amendments on local self-governance, and the institutional framework of urban local bodies. The accounting pattern of urban local bodies, components of revenue and expenditure of ULBs under different heads, are summarised here.

3.1 Urbanisation and Evolution of Urban Local Bodies

Urbanisation is widely perceived as both a consequence and a determinant of economic development. Over the past two decades, several Asian countries have witnessed rapid economic growth, which has, in turn, led to a significant rise in urban populations. Three factors have been attributed to the expansion of the urban population: the natural growth in urban population, expansion of urban administrative justice, and the inflow of population from the countryside. It has been the third factor- the inflow of population from the countryside- which has been the preponderant decisive factor in the process of urbanisation. Urbanisation has traditionally been understood to be a by-product of human development (Fox, 2012). In definitional terms, it can be said to be constitutive of those environment-altering practices which create and maintain urban places' (Christopher et al., 2012).

Urbanisation has emerged as a defining global trend over recent decades, significantly shaping the social and economic landscapes of many nations. The United Nations projects that by the middle of the 21st century, approximately 68 percent of the world's population will reside in urban areas. India, being one of the fastest-growing economies and the most populous country, is at the forefront of this urbanisation phenomenon. Over the years, India has witnessed a steady and consistent rise in its urban population, reflecting broader economic and demographic shifts (Economic Review, 2023).

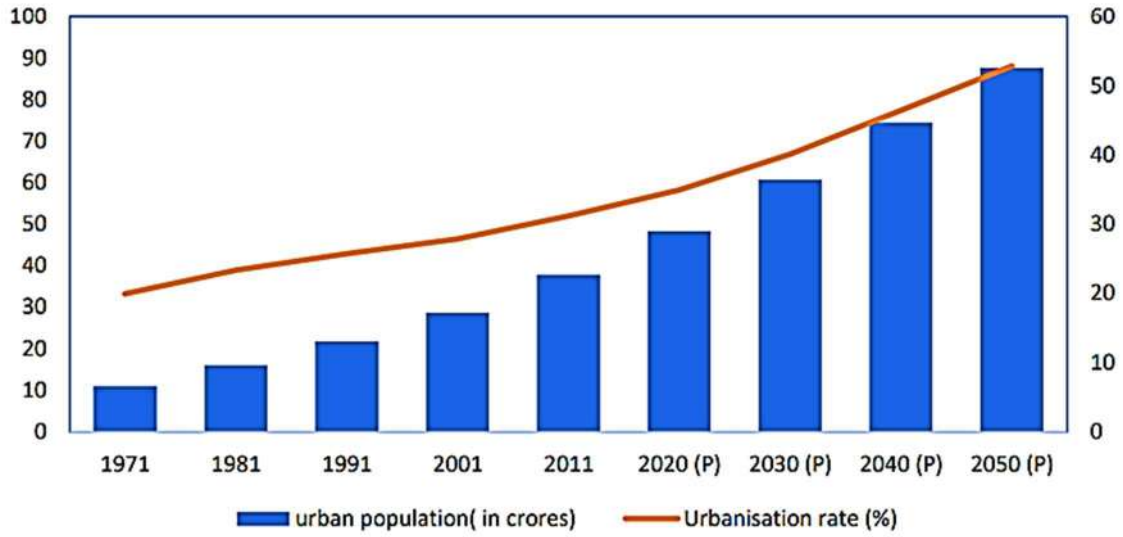


Figure: 3.1

Trend in Urban Population and Urbanisation Rate in India

Source: Economic Review, 2024 https://spb.kerala.gov.in/sites/default/files/2024-02/ER_English_Vol_1_2023.pdf

In India, urbanisation is classified using two distinct definitions: the administrative definition and the Census definition. Under the administrative definition, "an area is designated as urban if it falls under the jurisdiction of an Urban Local Self-Government (LSG)". Furthermore, state governments possess the authority to classify "an area as urban based on specific criteria such as population size, population density, and the proportion of non-agricultural economic activity". In contrast, the Census Bureau's definition considers an area urban if it meets certain thresholds, such as "a minimum population of 5,000, a population density of at least 400 persons per square kilometer, and at least 75 per cent of the male working population engaged in non-agricultural activities".

According to the Census of 2011, India had a total of 7,933 urban settlements, comprising both statutory and census towns. The total urban population stood at 377.1 million, making India the country with the world's second-largest urban system (Census Report, GoI, 2011). By 2020, India's urban population had increased to approximately 483 million, reinforcing its position as the second-largest contributor to global urbanisation (Economic Survey, 2023). This urban population accounted for 31.5 per

cent of India's total population (Census Report, GoI, 2011). Looking ahead, projections by the United Nations estimate that India's urban population will reach 607 million (40.1 per cent of the total) by 2030 and will exceed 876 million by 2050, more than doubling the urban population recorded in 2011 (Census Report, GoI, 2011).

The "State of the Cities India (2021)" report introduced an urbanisation index incorporating 25 indicators representing various dimensions of urbanisation, including productivity, inclusion, and environmental safety (State of the Cities India Report, 2021). This index has been utilised to rank 28 states and three Union Territories based on their urban development (State of the Cities India Report, 2021). Among the 17 general states analysed, Kerala secured the second-highest urbanisation index score (66.0), following Goa (66.5). Conversely, states such as Bihar (17.0), Chhattisgarh (27.6), Odisha (29.2), and Madhya Pradesh (32.6) were identified as the least urbanised (State of the Cities India Report, 2021). The report further assessed individual rankings for urbanisation, urban productivity, and urban inclusion and environmental security, revealing that while Kerala topped the list for urbanisation and productivity, it lagged in inclusion and environmental safety.

3.1.1 Evolution of Urban Local Bodies

The concept of Urban Local Bodies (ULBs) is closely linked to the concept of local self-government, which refers to government at a sub-regional level. The local government, as has been pointed out by Nanda (2012), has three important features

- It is elected by the local people, i.e., people of the area.
- It has fiscal powers, i.e., levying taxes like any other form of government on this population and within its administrative territory.
- Its functions and powers are laid down in law so that it enjoys a certain degree of autonomy from central governance.

LSGs imply the management of local affairs. They aimed at the welfare of every citizen. LSG is a system which possesses certain responsibilities of the affairs of the

local public and raising money to meet their expenses. The emergence of LSGs as a distinct government unit is the result of the interplay of several factors- historical, ideological and administrative (Panchayath Raj Report, 1957). Historically, LSGs had preceded the national government. Administratively, civic services are needed by a community for a planned, programmed and integrated development in terms of region or area inhabited by them.

LSGs are also necessary precisely because some public requirements are local in their intensity, character and scope (Chattopadhyay 1999). It provides an extensive range of services to the people and performs functions of great variety and magnitude (Chattopadhyay 1999). Mere pragmatic reasons speak well for the continuance and even strengthening of LSGs. LSGs ensure two-way communications between the state government and itself. The Desires and aspirations of the state government and the plans and programs of the state and central governments flow in the reverse direction (Chattopadhyay 1999).

Thus, it can be said that LSGs contribute to the buoyancy, strength and richness of democracy by promoting the diversification of political experience and by setting themselves up as yet another centre of creative activity through democratic action. In countries where the organs of LSGs are under the thump of the central authority, the efficiency of administration may be great, but the political character of the people will be unsatisfactory, it will be apathetic for long periods, and then get dangerously excited with the result of instability and corruption in the central government. On the other hand, a country with strong LSGs may be slow to move and blundering in its methods, but it will be a country of steady progress and of political stability and honesty.

3.2 Evolution of the Local Government

'Local Government' has a variety of meanings. Many attempts have been made to define the term by different theoreticians and practitioners of public administration. It might be thought that local government could be easily defined, but this is not the case. Renowned jurists have admitted the difficulties in proposing a sound definition. For instance, Sir Ivory Jennings states: "The explanation of these difficulties of definition

lies in the fact that local government is not a logical division of government. As soon as the jurist sets to work to provide his logical categories, he finds that local government is not one of them. The result is that draftsmen of Acts of Parliament avoid such juristic distinctions."

Sir John Maud and S.E. Finer observed: "Before starting to discuss local government, it is necessary to consider what is meant by Local Government; and this question is so difficult to answer clearly in a few words, that it seems best to introduce the subject by inventing a myth". About the local government institutions, which now exist in England, William Robson said that they were a curious compromise between ancient forms and modem need. Contrary to it, Smellie writes: "Modem English local government was established to deal with the problems which arose in the middle of the 18th century when the use of machinery began to shape the modem world". The term 'Local Government' has two words, 'Local' and 'Government'. The term 'Local' relates to specific portions of the country defined by Locality, implying a definite area and the population living therein. The 'Local' institutions are concerned with the needs and problems of the area thus defined. The second word 'Government' refers first to its representative character as it has to form part of the constitutional structure of the country, and in the second place to the 'autonomy' it possesses.

The local authorities are the same flesh and blood as the sovereign, but to a limited extent. Each council is elected (directly or indirectly) by the people of an area, and it is answerable to that local electorate, just as the sovereign is ultimately responsible to the national electorate. Thus, local government becomes an integral part of democracy. It can, thus, be said that local government is the regulation in particular localities, of matters of primarily of local importance by locally elected bodies raising the money necessary for their activities, by the imposition of local taxes and generally subordinate to the Central/State Government".

From the political point of view, local government is called 'democracy on the doorstep'. It contributes to the social and political education of the citizen. It is educative for the electors, who are called upon to do their voting in relation to issues

that are readily comprehensible to them; and for the councillors, who can gain experience in the act of responsible leadership. Thus, it has both political and educational value. The democratic values of liberty, equality and fraternity become real in the self-governing community.

Modern local government has, in addition, to play a vital role in the economic development of the country, whether it is town planning, housing activity, and trade or poverty alleviation. It should be used as a positive instrument in this direction. The economic value of local authorities is being increasingly recognized. Now, it could be argued, that when local government was meant only for the provision and management of certain services, those services could very well be provided by the National or State government through appointed officials or through appointed boards.

The answer, obviously, would be in the affirmative. But in such a situation the ability of the local inhabitants to influence the policy and administration of those services would have been reduced. The people want to have the benefit of certain services at the local level and pay taxes for them at the same level. And also problems faced by the people vary from region to region and from city to city, hence the need for local government. The government institutions should, therefore, have, apart from the legal independence, a degree of political, financial and administrative independence required for determining policies on local matters, levying taxes, implementing the policies and administering the services. It promotes popular control, participation and communication. Decentralisation becomes a necessary corollary and should be made real.

3.3 Historical Overview

Although the modern conception of Local Self-Governments (LSGs) did not exist in ancient India, historical evidence suggests that rudimentary forms of local governance were prevalent in various forms. Archaeological findings, ancient texts, and the accounts of classical travellers provide compelling insights into their existence. References in the Vedas, as well as the writings of Manu (Manusmriti) and Kautilya (Arthashastra), highlight early administrative frameworks that mirror elements of local

governance (Sharma, 2003). Foreign observers such as Megasthenes also documented decentralised administrative practices during their visits to India (Thapar, 2002).

The epics Ramayana and Mahabharata make mention of institutional forms such as Paura (guilds), Nigama, Pauga, and Gana, which were involved in legislative and administrative functions, including the collection of levies from various sources (Kosambi, 1996). During the later Hindu period, these evolved into more structured town committees, such as Gosthis and Mahajan Samitees, which played a significant role in local administration. These committees were noted for their representative character, which was often acknowledged and respected by the ruling authorities (Sastri, 1963).

3.3.1 LSGs during Kingship

The Maurya period was followed by the Gupta era, and subsequently, in the medieval period, the system of LSGs continued to be more or less the same. More specifically, following the Mauryan period, the system of Local Self-Governments (LSGs) continued during the Gupta era and persisted, albeit with limited transformations, into the early medieval period. These local institutions retained certain administrative functions and community-based characteristics. However, a marked shift occurred during the Mughal period. The representative character of local governance systems was significantly diluted, and urban administration came under the direct control of state-appointed officials.

A central figure in Mughal urban administration was the *Kotwal*, a government-appointed officer responsible for overseeing municipal functions. The *Kotwal* not only managed civic affairs but also exercised magisterial powers, including oversight of law enforcement, market regulation, sanitation, and intelligence gathering (Chandra, 2007). This centralised approach effectively eroded the participatory nature of earlier local institutions.

During the later phase of Mughal rule, the system experienced a significant decline. Urban centres were poorly administered and lacked basic infrastructure and hygiene.

Many cities remained neglected and unhealthy until the advent of British colonial administration, which brought structural changes in urban governance (Bayly, 1992).

Historically, local government in India during ancient and medieval periods was primarily oriented towards maintaining order, organising defence, and delivering rudimentary justice. In contrast, contemporary local self-governments are primarily focused on the delivery of public services and the implementation of welfare policies. Unlike legislative bodies, local authorities today function as administrative units that execute laws enacted by higher legislative bodies. Their role is fundamentally administrative, emphasising service delivery and local governance rather than lawmaking.

Thus, the concept of local self-governance in India has deep historical roots, dating back to pre-historic times. These early forms of community organisation reflect a strong sense of collective responsibility and cooperation. Local institutions fostered mutual governance and social cohesion, serving as foundational structures in the evolution of Indian civil society.

3.3.2 LSGs under British Rule

While forms of Local Self-Government (LSG) existed in ancient and medieval India, the structure and functions of modern LSGs—particularly as representative, electorally accountable institutions—are largely a legacy of British colonial administration. The traditional village panchayats and town governance structures of pre-colonial India, although rooted in local customs and community engagement, lacked the formalized mechanisms of periodic elections, representative accountability, and systematic administrative planning that characterize modern LSGs.

The village self-governments of earlier times were largely informal and organized on the basis of hereditary privilege, particularly along caste lines. Their functions were narrowly defined, primarily limited to the collection of land revenue, maintenance of local order, and protection of life and property. These institutions were neither

envisioned as training grounds for democratic governance nor as integral parts of a larger administrative framework (Srinivas, 1986).

It was during the British rule that the concept of LSGs, as representative and elective bodies accountable to the public, was systematically introduced. The British, influenced by the liberal democratic ideals of the West and seeking administrative efficiency at the grassroots, initiated a gradual process of decentralisation. This was marked by the establishment of municipal committees and district boards with elected Indian members, starting with Lord Ripon's landmark Resolution on Local Self-Government in 1882 (Morris-Jones, 1957). Often referred to as the "Magna Carta" of local self-government in India, this resolution laid the groundwork for involving Indians in local administration through elective representation and the delegation of certain administrative and fiscal responsibilities (Morris-Jones, 1957).

The British model of LSGs introduced institutions that were responsible to a defined electorate and were endowed with powers related to taxation, public works, sanitation, education, and local infrastructure. These bodies functioned not only as instruments of local administration but also as civic training grounds, preparing Indian citizens for future roles in national governance. Moreover, they served as intermediaries between the colonial state and the local populace, thereby playing a dual role in governance and political education (Chandhoke, 1990).

It is important to note, however, that while these institutions were modelled on liberal democratic principles, they often lacked genuine autonomy. British colonial interests remained paramount, and local bodies were frequently constrained by limited financial resources, bureaucratic oversight, and centralised control.

Although indigenous systems of local governance did exist in India's historical past, the modern conception of LSGs—as elective, representative, and administratively empowered institutions—is a product of British colonial policy. These institutions marked a significant departure from earlier forms of local organisation, both in terms of structure and intent, serving as both administrative units and instruments of political socialisation.

3.4 Phases of Development of LSGs in India

The formal institutionalisation of Local Self-Governments (LSGs) in India began in 1687 with the establishment of a municipal body in Madras (now Chennai). This marked the first attempt by the British East India Company to introduce a localised form of urban governance. Since then, the development of LSGs in India has undergone several significant phases, each marked by distinct legislative frameworks, political contexts, and administrative purposes. Broadly, the evolution of LSGs in India can be categorised into the following seven phases:

- Phase I- Up to 1882: The Period of Beginnings
- Phase II- 1882 to 1919: Institutionalisation under Lord Ripon
- Phase III- 1919 to 1935: Montagu-Chelmsford Reforms and Dyarchy
- Phase IV- 1935 to 1947: Provincial Autonomy and Pre-Independence Mobilisation
- Phase V- 1947 to 1988: Post-Independence Experimentation and State Initiatives
- Phase VI- 1988 to 1992: Pre-Constitutional Amendment Reforms
- Phase VII- From 1992 Onwards: Constitutional Recognition and Democratic Decentralisation

3.4.1 First Phase (up to 1882)

The early development of Local Self-Government (LSG) in India can be traced back to the colonial era, wherein the British introduced local administrative institutions largely as a matter of administrative expediency rather than as part of a broader democratic vision. The structure of modern LSGs in India, as they exist today, does not reflect a linear or indigenous process of evolution. Rather, it emerged as a functional necessity for colonial governance and fiscal efficiency.

The first significant step in this direction was the establishment of a Municipal Council in Madras (1687), comprising a Mayor, aldermen, and a few representatives of the local populace. This body was granted limited authority to collect taxes for urban maintenance and improvement. The motivation behind this initiative is well captured in the East India Company's belief that "the people of India would more willingly pay five shillings taxed by themselves than six pence raised by our despotic power." This underscores the colonial rationale of diffusing administrative burdens while creating a façade of participatory governance.

Subsequently, in 1726, the Municipal Council in Madras was replaced by a Mayor's Court, which functioned primarily as a judicial body rather than a civic institution. A more systematic expansion of municipal administration occurred following the Charter Act of 1773, which extended municipal governance to the presidencies of Bombay, Calcutta, and Madras. This Act empowered the colonial government to appoint Justices of the Peace, who were vested with quasi-municipal powers such as collecting house and land taxes, overseeing road construction, and initiating developmental activities.

In 1842, municipal administration was extended to district towns in Bengal, with functions encompassing conservancy, road repair, street lighting, by-law formulation, and the imposition of fines. The establishment of municipalities remained discretionary, contingent upon the consent of the local inhabitants. Taxation powers during this period primarily involved indirect levies, and the municipalities had limited autonomy.

A significant policy shift occurred under Lord Lawrence, whose administrative resolution encouraged towns to raise their own revenue through taxation for the upkeep of local police. Any surplus funds could be utilised for education and local development projects, thus linking local taxation with developmental outcomes. However, this model saw limited implementation, primarily in the North-Western Provinces and Bombay.

A landmark development in this phase was Lord Mayo's Resolution of 1870, which explicitly emphasised the decentralisation of authority from the central government to provincial administrations. This resolution recognised the utility of involving Indians in local governance and identified municipal institutions as the appropriate mechanism for

such participation. Lord Mayo's plan sought to relieve the central government from the financial burden of funding local services by encouraging municipalities to become self-sustaining units. His policy rationale thus combined administrative decentralisation with financial devolution.

The first phase in the development of LSGs in India (up to 1882) was characterised by the colonial state's pragmatic approach to governance. The British administration introduced local self-governing institutions not out of democratic intent but to address the twin challenges of administering a vast and diverse territory and mobilizing local financial resources. Despite their limited representative character, these early municipal bodies laid the groundwork for later reforms and were instrumental in familiarising Indian society with the concept of civic administration.

3.4.2 Second Phase (1882-1919)

The second phase in the evolution of Local Self-Government (LSG) in India was marked by the pivotal reforms initiated by Lord Ripon in 1882, which are widely recognised as laying the foundational framework for representative local governance in colonial India. While some progress in local governance had been recorded since the implementation of Lord Mayo's decentralisation policy in 1870, its impact was regionally uneven and often superficial. By the early 1880s, many municipal services remained under the tight control of the central administration, and the concept of local governance lacked both genuine autonomy and Indian participation. In effect, Local Self-Government was neither truly "local" nor genuinely "self-governing."

The growing political consciousness among Indians in the late 19th century, coupled with increasing demands for social justice and political representation, created pressure on the colonial state to respond. Appointed as the Governor-General of India, Lord Ripon recognised these aspirations and undertook a series of administrative reforms aimed at promoting political and popular education through local institutions.

In his landmark Resolution on Local Self-Government (1882), Lord Ripon articulated the need for expanding the scope and effectiveness of local bodies. He emphasised that

Local Self-Government should not merely serve administrative convenience but should function as an instrument of political training and democratic engagement. The resolution thus laid the philosophical and institutional groundwork for representative local bodies. As noted by the Taxation Enquiry Committee, this resolution "paved the way for the development of Local Self-Government" in India and is often hailed as the "Magna Carta" of Local Self-Government in the country.

Key features of Ripon's reforms included:

- Introduction of elected representatives into municipal bodies, albeit with a limited franchise.
- Encouragement of non-official Chairmanship, although this remained largely unimplemented in practice, with district officials continuing to occupy the role of ex-officio Chairpersons.
- Expansion of municipal responsibilities, including conservancy, public health, road maintenance, and education.

Despite the transformative intent behind the resolution, its implementation was partial and uneven. The colonial bureaucracy was hesitant to relinquish control, and local bodies often remained under the dominant influence of British officials. The resistance to democratic devolution was evident in the limited role granted to elected members and the continued emphasis on administrative efficiency over political empowerment.

The failure to fully realize Ripon's vision became apparent during the tenure of his successors. Lord Curzon, in particular, reversed many of Ripon's progressive measures. His emphasis on bureaucratic centralization and his distrust of popular institutions led to the reassertion of administrative control over local bodies. Curzon prioritized the consolidation of state authority and sought to promote autonomy for the colonial government rather than for the Indian people. This ideological shift stifled the growth of LSGs as platforms of political education and self-rule.

In 1907, the Royal Commission on Decentralisation was constituted to reassess the structure of local governance. The Commission acknowledged many of the deficiencies in existing arrangements and made several progressive recommendations:

- Local bodies should possess a non-official majority.
- The chairmanship of these bodies should be entrusted to elected representatives.
- Local bodies should enjoy greater fiscal autonomy, including the power to collect taxes and prepare budgets, subject to overarching government approval for major financial decisions.

While these recommendations signalled a more inclusive approach, their actual implementation remained modest, constrained by colonial apprehensions about expanding political agency among Indians.

The second phase of LSG development, inaugurated by Lord Ripon's 1882 resolution, was a critical turning point in the evolution of democratic decentralisation in India. Although the full democratic potential of his vision was not realised during this period, the ideological and institutional foundations laid by Ripon significantly shaped the trajectory of local governance reforms in the decades to follow.

3.4.3 Third Phase (1919-1935)

The third phase in the evolution of Local Self-Government in India was catalysed by the Montagu-Chelmsford Reforms, which culminated in the enactment of the Government of India Act of 1919. These reforms marked a significant constitutional shift, introducing the system of diarchy in the provinces—an arrangement that divided the functions of government between elected Indian ministers and British officials. Importantly, this period witnessed a more systematic recognition of local governance as a critical component of responsible provincial administration.

The 1919 Act explicitly acknowledged the importance of Local Self-Government by transferring the subject to Indian ministers within the provincial governments. This

delegation aimed to increase indigenous participation in governance and broaden the scope of democratic decentralisation.

In line with this, the Rural Local Self-Government Committee observed that the Resolution of 1918 had already set the tone for future developments by recommending that local bodies be made as representative as possible. It emphasized the role of local institutions in fostering village corporate life and advocated for the informal election of Panchayat members, including local officials and community representatives. The committee envisioned that village Panchayats should assume responsibilities related to:

- Sanitation
- Primary education
- Minor civil and criminal disputes

To empower these institutions financially, the resolution recommended that Panchayats be allocated a share of the land cess, thereby laying the groundwork for fiscal decentralisation. Moreover, the Government of India Act of 1919 introduced a schedule of permissible local taxes, enhancing the fiscal capacity and autonomy of local bodies.

Despite these developments, the practical progress in strengthening LSGs remained uneven and limited. While the policy framework allowed for increased Indian involvement, the institutional and financial weaknesses of local bodies continued to constrain their effectiveness. The Simon Commission Report (1930), which conducted a comprehensive review of Local Self-Government, acknowledged the inadequacies in the system. It concluded that the efficiency of local institutions was heavily dependent on the degree of oversight and support extended by the provincial governments. The commission also highlighted that local bodies lacked the financial means and institutional capacity to recruit and train qualified personnel, thereby undermining their administrative performance.

The Rural-Urban Relationship Committee similarly critiqued the prevailing system, noting that the central control exercised during this phase was largely negative and

regulatory in nature. Oversight mechanisms focused more on prohibiting undesirable actions and, in extreme cases, on dissolving non-compliant local bodies, rather than on supporting or developing their internal capacities. There was little effort made to improve administrative efficiency or promote participatory governance through proactive engagement with local institutions.

The period between 1919 and 1935 was marked by a formal expansion of the constitutional and administrative space for local self-governance, particularly at the village level. However, the lack of consistent financial support, bureaucratic inertia, and the absence of a genuine commitment to democratic deepening limited the transformative potential of these reforms. While the legislative architecture for LSGs was expanded during this phase, the actual realisation of self-governing and empowered local institutions remained elusive.

3.4.4 Fourth Phase (1935-1947)

The Government of India Act of 1935 marked a critical turning point in the evolution of Local Self-Government in India. This legislation introduced provincial autonomy, replacing the dyarchical system established by the 1919 Act, and granted provinces significantly greater legislative and administrative powers. The introduction of a responsible government at the provincial level—though still under British sovereignty—provided a fresh impetus for the development and democratisation of LSGs.

According to the Local Self-Government Committee, the implementation of the 1935 Act and the assumption of office by popularly elected ministries in 1937 gave a “fillip to the development of Local Self-Government on a popular basis.” This period saw the enactment of several provincial legislations aimed at widening the powers, functions, and representative character of local bodies. The elected provincial governments began to actively engage with LSG institutions, attempting to make them more democratic and responsive to local needs.

However, despite the administrative reforms and broader political representation, the financial autonomy of local bodies was severely constrained. While the scope of their functions expanded, the resources available to perform them diminished. The 1935 Act led to the transfer of terminal taxes—previously an important source of revenue for local governments—from the provinces to the central government. Furthermore, the clear demarcation between provincial and local taxation that had earlier existed was diluted, leading to overlapping claims and a reduction in the financial independence of local authorities.

As the Local Finance Enquiry Committee critically observed, this development proved "rather unfortunate for local authorities," as provincial governments began utilizing tax revenues that were earlier considered exclusively local in character, thereby weakening the fiscal base of local institutions.

The return of popularly elected ministries in 1946 renewed interest in reforming and strengthening local governance. Several committees were appointed across provinces to examine the structural, administrative, and financial issues plaguing LSGs and to suggest concrete improvements. These committees made valuable recommendations to streamline governance, enhance autonomy, and expand local participation.

However, the momentum of these reforms was disrupted by two major events:

1. The resignation of provincial ministries in 1939, in protest against India's involvement in World War II without consultation.

2. The outbreak and escalation of the Second World War, which diverted administrative attention and financial resources away from local governance reform toward wartime exigencies.

This phase was marked by important legislative and institutional strides, the full realisation of an empowered and functional system of Local Self-Government remained incomplete. The developments of this period laid important groundwork, but they were largely overshadowed by larger political upheavals, culminating in India's independence in 1947.

3.4.5 Fifth Phase (1947-1988)

The attainment of independence in 1947 marked the beginning of a new era in the evolution of Local Self-Government (LSG) in India. With the adoption of the Constitution of India in 1950, the vision of a democratic and welfare-oriented state was formally articulated, emphasising social, economic, and political justice for all citizens. The Directive Principles of State Policy, enshrined in Part IV of the Constitution, laid the philosophical foundation for LSGs as instruments of participatory democracy and local development.

Article 38 of the Constitution mandates the state to "strive to promote the welfare of the people by securing and protecting a social order in which justice—social, economic, and political—shall inform all institutions of national life." In the same spirit, Article 40 directs the state to "take steps to organise village panchayats and endow them with such powers and authority as may be necessary to enable them to function as units of self-government." These constitutional provisions signified a formal and normative commitment to decentralisation, particularly in rural governance.

The post-independence period thus witnessed significant legislative and policy initiatives aimed at revitalising LSGs. Reforms were introduced to democratise the structure and broaden the functional domain of both rural and urban local bodies. These included the introduction of adult suffrage, the abolition of communal representation, and amendments to state laws to empower local bodies with enhanced administrative and fiscal autonomy.

Despite this momentum, greater emphasis was placed on rural local governance, particularly through the Community Development Programme (1952) and the National Extension Service (1953). The Balwantrai Mehta Committee Report (1957) recommended the establishment of a three-tier Panchayati Raj system, which became the blueprint for rural decentralisation. Consequently, Panchayati Raj Institutions (PRIs) were set up in many states, with substantial responsibilities for developmental functions and planning at the grassroots level. These institutions received financial

support from the central government, a privilege that was largely denied to Urban Local Bodies (ULBs).

As noted by the Rural-Urban Relationship Committee (1963), "A lot of thinking has been done on the subject of LSGs in independent India, and far-reaching reforms and changes have been effected. However, the primary emphasis has been on laying down a strong system of LSGs in rural areas." This rural bias led to a disproportionate focus on PRIs, while ULBs remained structurally weak and largely neglected in terms of fiscal devolution and capacity-building.

Throughout this phase, the number of local bodies increased, and their institutional presence in governance expanded. However, their actual effectiveness remained limited, primarily due to the inadequacy of financial resources. Local bodies were expected to undertake a growing number of civic and developmental functions without a commensurate increase in revenue sources. Reforms in local taxation and finance during this period often reduced rather than enhanced their fiscal autonomy.

As a result, despite constitutional support and policy backing, LSGs during this period struggled to fulfill their intended role as vibrant institutions of democratic decentralisation. The urban local governance framework, in particular, remained underdeveloped and marginalised, overshadowed by rural-centric development strategies and central planning priorities.

- The fifth phase in the evolution of LSGs in India was marked by:
- The constitutional recognition of local self-governance is part of India's democratic framework.
- The institutionalisation of Panchayati Raj in rural areas followed the Balwantrai Mehta Committee's recommendations.
- Neglect of urban local governance, resulting in a dual and uneven system of decentralisation.
- Persistent fiscal constraints, limiting the autonomy and effectiveness of local

bodies.

This phase laid the groundwork for deeper structural reforms that would come in the post-1992 period with the 73rd and 74th Constitutional Amendments.

3.4.6 Sixth Phase (1988-1992)

The period from 1988 to 1992 marked a turning point in the evolution of Local Self-Government (LSG) in India, especially in the context of urban governance. Despite decades of post-independence reforms, local bodies—particularly Urban Local Bodies (ULBs)—continued to be perceived as the peripheral "younger sister" of mainstream governance. They remained structurally weak, with limited functions, poor financial health, and inadequate administrative capacity. However, the rapid pace of urbanization, coupled with the growing complexity of urban management, brought the issue of urban governance to the forefront of national policy discourse.

Recognizing the urgent need for a coherent urban development strategy, the National Commission on Urbanisation was established in 1985. The Commission undertook a comprehensive assessment of urban challenges and made far-reaching recommendations to improve the structure, composition, and functioning of ULBs. These included suggestions to:

- Strengthen the institutional framework of urban governance.
- Enhance the financial autonomy and revenue-generating capacity of municipalities.
- Increase citizen participation and democratic accountability.
- Provide a constitutional status to local bodies to protect them from state-level arbitrariness.

The findings of the Commission created a strong impetus for reform. This momentum was sustained by a series of high-level consultative meetings, notably the Nagar Palika Sammelans, organized and addressed by the then Prime Minister Rajiv Gandhi. These

national conventions brought together officials, non-officials, and stakeholders from across the country to deliberate on strategies for revitalising municipal administration.

In light of the growing recognition of the importance of urban local governance, the 65th Constitutional Amendment Bill was introduced in 1989 in the Lok Sabha. This Bill sought to provide constitutional recognition to ULBs by specifying their composition, tenure, functions, and powers. However, it lapsed due to the dissolution of the Lok Sabha.

Undeterred, the Government reintroduced a revised version of the Bill in 1991. After extensive debate and consultation, it was passed in 1992 and ratified by the requisite number of State legislatures. The Constitution (74th Amendment) Act, which came into force on April 24, 1993, marked a watershed moment in the history of urban governance in India. It granted constitutional status to municipalities, laying down a uniform framework for the structure, composition, and functioning of urban local bodies across all states.

3.4.7 Seventh Phase (1992 onwards)

The Seventh Phase of the evolution of Local Self-Government (LSG) in India, commencing in 1992, marks a watershed era in the history of decentralised governance. With the enactment of the 73rd and 74th Constitutional Amendment Acts, local governments in India were formally recognised as the third tier of governance, alongside the Union and State governments. These landmark amendments provided constitutional legitimacy, clarity in structure, regularity in elections, and a framework for the devolution of powers and responsibilities to rural and urban local bodies.

Before 1992, local governance functioned under the discretionary powers of State governments. This often resulted in inconsistent practices across states, limited authority of local bodies, irregular elections, and severe financial dependency. The Constitution (73rd and 74th Amendment) Acts, 1992, sought to address these issues by introducing a uniform structure and mandatory governance principles throughout the country.

The 1992 Constitutional Amendments made provisions for two types of mandates:

- Mandatory Provisions: These are binding on all states and ensure uniformity in the basic democratic framework of local governance across India.
- Discretionary Provisions: These allow flexibility for states to adapt the functioning of local bodies in accordance with regional variations and administrative needs.

a) The 73rd Constitutional Amendment Act, 1992 (Rural Local Governance)

The 73rd Constitutional Amendment Act, enacted in 1992 and brought into force on April 24, 1993, marked a turning point in rural governance in India. With this amendment, a new Part IX was inserted into the Constitution, comprising Articles 243 to 243-O, which laid down the legal and structural framework for the Panchayati Raj system. Additionally, the amendment introduced the 11th Schedule, which listed 29 functional items to be devolved to Panchayats, ranging from agriculture and minor irrigation to health, sanitation, education, and rural housing.

One of the major achievements of the 73rd Amendment was the establishment of a three-tier Panchayati Raj system that institutionalized rural local governance across the country. This structure comprises:

1. Gram Panchayat at the village level,
2. Panchayat Samiti at the intermediate or block level, and
3. Zila Parishad at the district level.

This system is mandatory in states with populations exceeding 20 lakhs, while smaller states may adopt a two-tier structure. The objective was to bring the government closer to the people by decentralising administration and promoting participatory democracy at the grassroots level. To ensure democratic legitimacy, the amendment mandated regular elections every five years for all levels of Panchayats. For this purpose, each state is required to establish an independent State Election Commission (SEC), which is

responsible for conducting free, fair, and timely elections to the Panchayati Raj Institutions (PRIs). This provision helped institutionalise political accountability and local representation in rural governance.

The amendment also introduced significant provisions to ensure inclusive participation in local governance. It mandated reservation of one-third of all seats for women, including those in leadership positions such as the Sarpanch or Chairperson. Additionally, it provided for proportional representation for Scheduled Castes (SCs) and Scheduled Tribes (STs), based on their population in the area. These measures have played a transformative role in empowering traditionally marginalized groups and promoting social justice.

Panchayats were entrusted with the responsibility of preparing and implementing plans for economic development and social justice within their jurisdictions. The amendment sought to empower local governments by devolving functional responsibilities in various sectors such as agriculture, land development, water management, education, health care, and sanitation. However, the actual extent of devolution depends on the enabling laws and administrative will of the respective state governments.

To support their expanded responsibilities, the amendment required each state to constitute a State Finance Commission (SFC) every five years. The role of the SFC is to recommend principles for the distribution of financial resources between the state and Panchayats, including the allocation of taxes, grants-in-aid, and revenue-sharing mechanisms. While this provision was intended to strengthen fiscal decentralisation, its implementation has remained uneven across states.

b) The 74th Constitutional Amendment Act, 1992 (Urban Local Governance)

Parallel to the 73rd Amendment for rural governance, the 74th Constitutional Amendment Act, also passed in 1992, came into effect on June 1, 1993. It added Part IX-A (Articles 243P to 243ZG) to the Constitution, providing a comprehensive framework for the governance of Urban Local Bodies (ULBs). It also introduced the 12th Schedule, which listed 18 functions that municipalities are expected to perform,

including urban planning, slum improvement, water supply, waste management, and public health.

Types of Urban Local Bodies

The 74th Amendment classified urban areas into three categories based on population and characteristics:

1. **Nagar Panchayat** for areas in transition from rural to urban status,
2. **Municipal Council** for smaller urban areas, and
3. **Municipal Corporation** for larger urban agglomerations.

This categorisation aimed to address the specific needs of different urban areas and streamline the administrative machinery accordingly.

As with Panchayats, the amendment mandated a five-year tenure for all Urban Local Bodies and required the conduct of regular elections by an independent State Election Commission. This provision was crucial for establishing political continuity, administrative stability, and responsive urban governance.

The 74th Amendment also mandated the reservation of seats for SCs, STs, and women (at least 33%) in urban local bodies, ensuring equitable representation of disadvantaged and marginalised groups in urban decision-making structures. The seats are to be rotated periodically, allowing for broader participation over time.

To promote participatory democracy at the local level, the amendment made provisions for the constitution of Ward Committees in municipalities with populations exceeding three lakhs. These committees are intended to involve residents in planning, budgeting, and monitoring local services, thereby strengthening the accountability and responsiveness of urban governance.

The amendment also mandated the formation of District Planning Committees (DPCs) and Metropolitan Planning Committees (MPCs). These bodies are responsible for

integrating the plans prepared by rural and urban local bodies and ensuring coordinated development within the district or metropolitan area. Their role is crucial in bridging the rural-urban divide in developmental planning.

The 74th Amendment emphasised the need for functional devolution to municipalities in key areas such as land use regulation, economic development, housing, and environmental protection. However, it left the actual devolution of powers and responsibilities to the discretion of the state governments, resulting in significant variations across states in the autonomy and capacity of ULBs. Municipalities were also brought under the purview of the State Finance Commission, which recommends ways to improve their financial viability. Yet, the persistent issue of fiscal dependence on state and central grants continues to limit the operational efficiency of urban local bodies.

The 73rd and 74th Amendments are widely regarded as historic milestones in India's democratic journey. For the first time, local self-government institutions were given constitutional recognition, transforming them from statutory bodies dependent on the whims of state legislatures to entities with guaranteed structure, elections, and powers. These amendments institutionalised grassroots democracy, brought decision-making closer to citizens, and provided a platform for inclusive governance. They emphasised participatory planning, enhanced transparency, and provided opportunities for women and marginalised communities to hold public office.

Financial empowerment through State Finance Commissions and access to central grants created the potential for local governments to become active agents of development rather than passive administrators of state-directed schemes. Despite the progressive intent and constitutional backing, the actual implementation of the 73rd and 74th Amendments has faced numerous challenges. A key issue is the incomplete devolution of powers—in many states, local bodies continue to function as implementing agencies rather than autonomous decision-makers. The transfer of functions, functionaries, and finances—often referred to as the 3Fs—remains fragmented and inadequate.

Local bodies also suffer from chronic financial constraints, with limited powers to raise revenues independently. Dependence on state governments for grants and approvals weakens their autonomy and responsiveness. In the urban context, urban local bodies (ULBs) are often overshadowed by state-level agencies and parastatals, especially in sectors like water supply, urban transport, and housing. Capacity deficits, lack of trained personnel, political interference, and weak accountability mechanisms continue to undermine the efficiency and effectiveness of local governance.

3.5 The Urbanisation Trends in Kerala

The urbanisation trends in Kerala offer a compelling case study of rapid urban transformation. In 1901, the combined population of Travancore, Cochin, and Malabar was 6.4 million, with 92.2 percent of people residing in rural areas. The share of the rural population steadily declined over the decades, reaching 74 percent in 2001. The 2011 Census marked a significant shift, as the rural and urban populations became nearly equal. Kerala's urban population stood at 15.9 million (47.7 percent), while the rural population was recorded at 17.4 million (52.3 percent). The state recorded an extraordinary decadal urban population growth rate of 92.72 percent between 2001 and 2011, making it the fastest urbanising state in the country. Among its districts, Ernakulam had the highest proportion of urban residents (68.1 percent), whereas Wayanad had the lowest (3.8 percent).

One of the key factors contributing to Kerala's rapid urbanisation has been the sharp rise in census towns. Census towns are settlements that, despite not being statutorily recognized as towns, have acquired urban characteristics such as high population density and a predominantly non-agricultural workforce. In 2001, Kerala had 99 census towns and 60 statutory towns. By 2011, the number of census towns surged to 461, while the number of statutory towns slightly declined to 59. This represents an astounding 366 percent increase in the number of census towns. Notably, Wayanad and Idukki, two predominantly rural districts, had no census towns in 2011 but each had one statutory town. This reclassification of census towns has resulted in a decline in the recorded rural population growth rate, pushing it into negative figures.

Despite this rapid urbanisation, the decadal population growth rate of towns that existed in both 2001 and 2011 was recorded at 3.90 percent, which is lower than the state's average of 4.86 percent. This data suggests that the surge in urban population was not primarily driven by migration or organic population growth but was instead largely due to the increase in census towns. Currently, Kerala has 19 urban agglomerations, with Thrissur District having the highest number of towns (135), accounting for over 25 percent of all towns in the state. More than 60 percent of towns are concentrated in four districts: Thrissur, Kannur, Ernakulam, and Kozhikode. Urban populations in eight districts have now crossed one million, with Ernakulam leading, followed closely by Thrissur, Kozhikode, and Malappuram. Collectively, these four districts comprise over half of Kerala's total urban population. In contrast, Idukki and Wayanad remain largely rural, with more than 95 percent of their populations residing in non-urban areas.

While urbanisation presents numerous opportunities for economic growth, employment generation, and improved living standards, it also brings challenges such as environmental degradation, housing shortages, traffic congestion, and strain on infrastructure and public services. Kerala's urban growth patterns highlight the need for strategic planning to accommodate the aspirations of its growing urban population. The state must continue investing in infrastructure, environmental conservation, and social inclusion to ensure that urban expansion remains sustainable and inclusive.

Recognising these challenges, the Government of Kerala has undertaken several initiatives to address urban issues effectively. A significant step in this direction has been the decision to establish an Urban Commission to coordinate various institutional interventions. Additionally, the state government has made commendable progress in strengthening urban Local Self Governments (LSGs), which play a crucial role in urban development. The state's campaign for a garbage-free Kerala has led to substantial improvements in waste management infrastructure and civic amenities. Urban LSGs are actively engaged in implementing policies envisioned in the 14th Five-Year Plan, aiming to enhance urban living standards.

Kerala has introduced the Ayyankali Urban Employment Guarantee Programme, an innovative initiative designed to provide employment opportunities for the urban poor. The state has also been integrating its local development programs with centrally sponsored urban development schemes, ensuring more effective and impactful interventions. Through these strategic measures, Kerala aspires to harness the benefits of urbanisation while preserving its unique cultural and environmental heritage, ensuring sustainable and inclusive growth for future generations.

3.6 Urban Local Governance in Kerala

Kerala, the tiny state lying in the south-west part of India, has a long tradition of local governance. Before independence, the three different regions in Kerala had been under different administrative systems. The northern region, reaching up to the present-day district of Thrissur, constituted the Malabar district of Madras Presidency. The evolution of local bodies in northern Kerala was determined by legislation in the Madras Presidency, which ran parallel to Bengal (KILA, 2022).

The central and southern Kerala had not been under direct British rule. There existed two princely states, the State of Travancore in the southern part and the State of Cochin in the central region. In 1956, after the state reorganisation, the modern State of Kerala came into existence. In 1960, a uniform system of local governments was established covering the three regions as a consequence of the enactment of the Kerala Panchayat Act and the Kerala Municipality Act (KILA, 2022).

3.6.1 In the Malabar Region

In the Madras Province, as elsewhere in British India, the emergence of local self-governments was fundamentally urban. The recommendations of the Royal Army Sanitary Commission emphasised the necessity of civic improvements in towns, which eventually led to the enactment of the Madras Towns Improvement Act of 1865 (Hardgrave, 1981). Within two years of the Act's passage, major urban centres in the Malabar region—including Calicut, Karmur, Tellicherry, Palakkad, and Fort Cochin—witnessed the establishment of municipal bodies under its provisions.

A significant shift occurred following the implementation of Lord Ripon's Resolution of 1882, which advocated for greater decentralisation and local participation. This resulted in the enactment of the Madras Municipal Act of 1884, which increased the proportion of elected councillors to three-fourths of the total membership and introduced the election of the council's chairman from among its members. Furthermore, the Act expanded the municipalities' taxation powers and administrative responsibilities, though the district collector retained wide discretionary authority over local affairs (Sivaramakrishnan, 2000).

In rural Malabar, local self-governance took a different institutional form. It was largely restricted to the Malabar District Board, which evolved from the earlier Local Fund Circle system. This system was formalised through the Local Funds Act of Madras (1871), under which local boards—presided over by the district collector—were established. These boards were responsible for managing local funds and were tasked with infrastructure and welfare services such as road construction, transportation, healthcare, education, drainage, and water supply (Menon, 1994).

The Madras Local Boards Act of 1884 introduced a three-tier system of rural local governance, incorporating elected representation at each level. The basic unit was the Union, comprising a revenue village or a cluster of villages. Above the Union level were the Taluk Boards, and at the top tier were the District Boards. The revenues for these boards were primarily derived from taxes on land, houses, carts, and livestock (Tharakan, 1990).

3.6.2 In Travancore Region

In the southern region of Travancore, Town Improvement Committees were formed in Trivandrum, Nagercoil, Alleppey and Kottayam, following the Town Improvement and Conservancy Regulation of 1894. In 1912, the right to vote in elections was made exclusive to taxpayers. Sanitation was the main focus area of the committees. Apart from sanitation, the construction and maintenance of public wells, roads, and marketplaces were also undertaken by the Committees. The Municipal Act of 1920 expanded the scope of education and health in the urban local bodies. The capital city of

Thiruvananthapuram had a committee with an official nominated by the government as its President. But the other councils in the Travancore area had elected Presidents. In 1941 Thiruvananthapuram was made a City Corporation with an elected Mayor.

3.6.3 In Cochin Region

In the princely state of Cochin, urban local governments began to take a structured form during the closing decades of the nineteenth century, primarily to oversee sanitation and public health measures in growing towns. A significant milestone was achieved in 1910, with the enactment of the Municipal and Sanitary Improvement Regulations, which led to the establishment of several town councils (Menon, 1994). These councils included elected representatives, although the Presidents of the councils continued to be nominated by the state government. A decade later, in the 1920s, further reforms were introduced. The powers and responsibilities of the town councils were substantially increased, and the extent of elected representation was broadened. However, the right to vote and contest elections remained limited to tax-paying citizens, reflecting the restricted nature of the franchise typical of that period (Joseph, 2005). A notable progressive reform was the removal of gender-based restrictions, which allowed women not only to vote but also to stand for election to municipal councils, marking an early step toward inclusive local governance in the Cochin state (Rajan, 2012).

3.6.4 In Integrated Travancore-Cochin (TC) Area

Although Travancore and Cochin were formally integrated in July 1949 to form the Travancore-Cochin State, the Panchayat systems of the two erstwhile princely states continued to operate separately under their respective laws. This arrangement persisted until 15 August 1951, when a unified statute—the Travancore-Cochin Village Panchayat Act, 1950—came into effect (Menon, 1994). The Act provided a common legal framework for local self-governance across the newly merged state.

Subsequently, the first Panchayat elections in the Travancore-Cochin State were held in 1953, and the elected bodies officially commenced operations on 15 August 1953. Prior to their integration in 1949, Travancore had 197 village unions and 7 Panchayats, while

Cochin had 100 Panchayats (Nair, 2001). The 1950 Act replaced the separate laws that had governed rural local bodies in both regions and laid the foundation for a unified Panchayati Raj system.

At the time of the formation of Kerala State in 1956, there were 495 reconstituted Panchayats in the Travancore-Cochin region and 399 Panchayats in the Malabar area, which was previously under the Madras Province. However, despite state unification, the two regions continued to operate under distinct local governance frameworks. Travancore-Cochin followed a single-tier Panchayat system, whereas Malabar adhered to a two-tier arrangement, resulting in considerable administrative and legislative divergence in grassroots governance across the new state (Rajan, 2010).

3.6.5 Since the Formation of Kerala State

In 1957, Kerala made political history by electing the Communist Party to power through democratic means, with E.M.S. Namboodiripad becoming the state's first Chief Minister. Upon assuming office, the government initiated a major step toward administrative restructuring by constituting an Administrative Reforms Committee (ARC) under the chairmanship of Namboodiripad himself. Among the ARC's terms of reference was the mandate to recommend "measures for decentralisation of powers at various levels and methods for democratisation of the organs of government at various levels," with a particular focus on enhancing the role of local self-governing institutions in administration (Rajan, 2012).

The ARC proposed a two-tier Panchayati Raj structure, comprising directly elected Village Panchayats at the grassroots level and District Councils at the district level. These village Panchayats were envisioned as viable units of self-government and local development, empowered not only to carry out development programmes but also to function as administrative units in their own right (Menon, 1994). A critical innovation was the recommended integration of revenue and development functions. Village Panchayats were expected to collect land revenue, which would then be remitted to the state government, thus linking fiscal responsibility with administrative authority.

To ensure functional alignment, the ARC suggested that revenue Taluks and development blocks be made coterminous, enhancing coordination and operational efficiency. A middle-tier body, composed of indirectly elected members, was envisaged but assigned limited advisory roles, indicating the ARC's preference for strong grassroots and district-level institutions over intermediate structures.

The most ambitious recommendation of the ARC was the formation of District Councils with the ultimate goal of evolving into District Governments. This transformation was to occur in three phases. In the first phase, District Councils would act as agents of the state government, with limited coordinating functions. In the second phase, they would be entrusted with full control over social sector responsibilities. In the final phase, the District Councils were to become full-fledged self-governing units, taking over all district-level development responsibilities, except for critical schemes retained by the state government (Joseph, 2006). This vision reflected a significant shift from treating local governments as mere administrative arms of the state to recognising them as autonomous agents of governance and development.

3.6.6 Legislation in 1960

The Administrative Reforms Committee (ARC) recommendations laid the foundation for the Kerala Panchayat Bill and the Kerala District Council Bill of 1958, which proposed a strong, phased district-level self-governing system. However, these bills were not enacted due to the dissolution of the Assembly following the anti-communist liberation struggle.

The new government, elected through the mid-term polls, largely disregarded the ARC's vision and instead passed the Kerala Panchayat Act (1960) and the Kerala Municipal Corporation Act (1961). Though these acts fell short of the ARC's decentralisation model, they significantly expanded the functions and financial powers of local bodies. A key objective was to involve Panchayats in all local government activities, either in an advisory or executive role. The village office was to be merged with the Panchayat, and state department staff at the Panchayat level were to work

under its supervision. The Act provided an extensive list of revenue and developmental functions.

In 1964, the Congress government attempted new legislation based on the Balwantrai Mehta Committee model, proposing Panchayat Union Councils at the block level with development roles, and Zilla Panchayats at the district level in an advisory capacity. The bill lapsed due to the ministry's fall.

The Left government elected in 1967, after President's Rule, introduced a Kerala Panchayat Raj Bill resembling the 1957 bill, proposing a two-tier system: Panchayats and Zilla Parishads (later renamed District Councils by the Select Committee). These District Councils were envisioned as governing bodies, not just development agencies, with possible delegation of tax collection, factory regulation, labour welfare, and even police functions.

This bill also lapsed with the fall of the Leftist ministry, but its provisions were reintroduced in the Kerala District Administration Bill (1971), which also failed to be enacted.

3.6.7 Kerala District Administration Act

The Kerala District Administration Act, originally passed in 1979, was reintroduced in 1978 after significant modifications, including the removal of references to police functions and a clear restriction of district-level administration to revenue-related functions (Nair, 1999). Although the Left Front Government that came to power in 1980 initiated preparatory steps—such as issuing notifications and drafting rules—for implementing the Act, their tenure was cut short. The succeeding Congress government (1982) sought to revise the Act before its implementation and appointed a review committee, though no substantive progress was made until 1987, when the Left returned to power (Menon, 2005).

In 1988, the new government appointed a Special Advisor to assess and recommend measures for effective democratic decentralisation at the district and lower levels. The Advisor's report, submitted in July 1988, was a comprehensive critique of the 1979 Act

and proposed structural and legislative reforms, including complementary legislation and urgent administrative changes (Sivaramakrishnan, 2000). Although many recommendations remained unimplemented, they formed the foundation for the 1991–92 District Council experiment in Kerala.

Despite extended legislative scrutiny, the District Administration Act of 1979 retained several deficiencies. The listing of 152 powers and functions across 19 sectors revealed internal inconsistencies, and the legislation failed to address the existence of parastatal agencies—such as the Kerala Water Authority, Command Area Development Agencies, and Khadi and Village Industries Board—which continued to operate autonomously on subjects that could have been effectively managed at the local level (Oommen, 1999). The Kerala Water Authority Act, in particular, severely undermined municipal autonomy by transferring even efficiently managed local water supply systems to a centralised authority, thereby monopolising the piped water supply in the state.

Although the District Councils were legally empowered, the State Government retained overriding control, often using conditionalities and executive interference to constrain local governance. This populist yet centralised approach, while politically convenient, enabled state-level bureaucracies to undermine local self-government through arbitrary legal mechanisms (Rajan, 2012).

The first elections to the District Councils were held on 29 January 1991, with the Left Front winning all but one of the councils. However, the successor state government, led by the opposition, was hostile to these Left-controlled councils and curtailed their powers through a legally sound amendment, which authorised the government to revise the list of functions via executive notification (Joseph, 2006). Another critical amendment allowed the de-linking of the district collector's role from that of ex-officio secretary to the District Council. Most district-level institutions under the agriculture and allied sectors were withdrawn from council control.

Due to resource shortages, lack of technical staff (with only about a dozen personnel per council), and political resistance, the District Councils became largely ineffective. Ultimately, they were formally abolished through an amendment to the Kerala

Panchayat Raj Act in 1994, marking the end of the state's short-lived experiment with district-level decentralisation (Mathew, 1995)

.3.7 Devolution of Funds and Function

After the 73rd and 74th Constitution Amendment Act 1992, the roles and responsibilities of Rural and Urban Local Bodies (ULBs) respectively have increased. The Local Government Institutions (LGIs) are recognised as the institutions of Self-Government. In tune with the 73rd and 74th Amendments, the Government of Kerala enacted two pieces of legislation in 1994, viz. Kerala Panchayat Raj Act and the Kerala Municipality Act. These were assigned several functions to the development and welfare of citizens. To perform the development functions effectively, funds and functionaries were also devolved to the ULBs. The gravity of funds managed through the ULBs has increased many folds from thousands before the decentralisation to crores after the decentralisation.

Particularly in the case of ULBs, the increase in the gravity of funds is much more pronounced. By the advent of 9th five-year plan, about one-third of the State plan budget had been devolved to the LSGs, including ULBs. This has necessitated better financial management with financial responsibility and accountability (KILA, 2022).

3.7.1 Accountability Concern

Devolution as a process assumes critical importance in this context, and the extent of devolution of the three Fs, namely, Funds, Functions and Functionaries (GoI, 2025), determines the success of the decentralisation process. Accountability concerns mount in the context of increasing funds and functions. Financial accountability involves accountability for whether the money and other resources have been utilised according to the legal requirements and the utilisation efficiency. This calls for a re-look at the existing financial system to ensure accountability, transparency and strengthening of procedures and practices. Most importantly, this demands that the local bodies are suitably empowered administratively and financially to discharge their enhanced responsibility (GoI, 2025).

The financial administration of any organisation rests upon four pillars. They are sources of finance, utilisation of finance, accounting and budgeting. The significance of an efficient accounting database and accounting system in the financial administration and good governance of any system need not be over-emphasised.

Accounting forms the most integral part of the financial management of any organisation. In ULBs, a sound accounting system is required to show how they have used the funds provided to them. It has to provide data in this regard to the controlling authority and management for decision-making purposes. It facilitates the management of an organisation by making the latter's supervision and control efficient and effective through routine reporting and call reporting.

Accounting is meant for keeping a systematic record of financial transactions whether of a public authority or of a private concern. Proper accounting not only prevents omission and forgetfulness of demands but also avoids duplication of payments with the help of data provided by it.

3.7.2 Cash Based Single Entry System of Accounting in ULBs

Since then- inception, the ULBs have been using the Cash Based Single Entry System of Accounting (CBSESA). Under the cash system transactions are recorded only when cash is actually received or paid in the reporting period. That is, there is no recognition for expenditure incurred but not paid and income earned but not received. Moreover, capital and revenue items are not recognised separately while recording transactions under this system.

Hence, this system has its inherent limitations in depicting the financial position and operating results of the institution. The financial statements prepared by the ULBs under the cash basis neither provide a complete picture of the financial health of the institutions nor are an effective reporting system to support financial planning and decision-making. It is also found to be a hurdle in financial management and in resource mobilisation.

3.7.2.i Key Concerns of CAG

Comptroller and Auditor General (CAG) have made its concern over the accounting of LSGs including ULBs based on CBSESA. The major concerns were differences in opening and closing balances of cash book, non-accounting of receipts, incorrect and incomplete postings, non-reconciliation of cash book with bank passbook, delay in preparation of monthly and annual accounts, lack of up-to-date accounts by the local bodies leading to an incomplete picture of their financial position, non-maintenance of accounts in the accounts formats prescribed by CAG, the absence of a comprehensive database on finances of local bodies, lack of receipts and expenditure controls resulting in huge savings and excess expenditure, weak asset management - missing asset registers, inadequate physical verification, lack of effective control and no institutional mechanism to track assets, absence or arrears in internal audit in the local bodies etc. are some of the key concerns that need to be addressed.

3.7.3 A Leap towards Double-Entry Accounting

The Eleventh National Finance Commission (EFC), had expressed concern over the maintenance of accounts of Local Bodies and their audit. The Commission recommended that, in view of an unsatisfactory system of accounts and audit with accounting formats not reflecting the changing realities and the lack of trained staff, the system of accounting and auditing needed improvement under the close supervision of the CAG (GoI, 2025). In the words of the Commission, “The C&AG should be entrusted with the responsibility of exercising control and supervision over the proper maintenance of accounts and their audit for all the tiers/levels of Panchayats and Urban Local Bodies” (GoI, 2025).

In a landmark decision in Almitra Patel Vs Union of India, the Supreme Court expressed concern on the weak financial reporting system in Urban Local Bodies and ordered the Government to develop guidelines for a full cost-based accrual accounting system for ULBs. Conversion to accrual accounting has been identified as a mandatory reform for enlisting a City Corporation under the Jawaharlal Nehru National Urban Renewal Mission (JnNURM).

3.7.3.i Initiatives at the National Level

In pursuance of the observations of the Supreme Court and recommendations of EFC, the Government of India (GoI) initiated reforms in the accounting of ULBs. Accordingly, the Department of Expenditure of the Ministry of Finance, GoI, has entrusted the CAG to prescribe formats for the preparation of the budget and keeping accounts of all ULBs in India (GoI, 2025). The CAG had set up a Task Force in February 2002 to recommend appropriate accounting and budget formats for Urban Local Bodies, which suggested moving to the accrual basis of accounting.

The task force noted the urgent need for an Accrual-Based Double Entry System of Accounting (ABDESA) because it would serve as an effective management tool concerning ULBs' financial aspects and financial position, promote more effective and timely decision making and facilitate greater accountability and transparency. The accounts would be accompanied by significant accounting policies, cost of important utilities and services and MIS reports. Based on the Task Force Report finalised in December 2002, which recommended an accrual accounting system for Municipalities, the National Municipal Accounts Manual (NMAM) was formally launched in December 2004 (GoI, 2005). The NMAM comprehensively details the accounting principles, policies, procedures and guidelines designed to ensure correct, complete and timely recording of municipal transactions and produce accurate and relevant financial reports. The NMAM provides a codification structure that facilitates the capture of all types of financial information within an ULB, which is essential in a government set-up (Economic Survey, 2025).

Accounting by both functional and head of account levels as suggested in the NMAM enables placing each transaction within the context of the function or budget center that it comes under, while at the same time providing a clear indication as to the nature of the accounting entries involved (i.e. revenue or expenditure, asset or liability) and the overall impact of the transaction on income and expenditure statements and also the balance sheet. Almost all the States have agreed to this pattern of accounting, and they

are in the process of customising and adapting the NMAM suitably to meet State-specific requirements (Financial Statement, GoI, 2023).

3.7.3 ii Initiatives in Kerala

In the tune of NMAM, the Government of Kerala (GoK) has developed the Kerala Municipal Accounts Manual (KMAM) for ULBs in 2007, in technical consultation with Ferguson and Company. Fergusan and Company has developed an Accounting Software based on Double accounting in the tune of Municipality Accounts Rule and KMAM. This was piloted in all five Municipal Corporations Viz. Trivandrum, Kollam, Cochin, Thrissur and Kozhicode and 3 Municipalities, Viz. Alapuzha, Thalassery, and Palakad with effect from 1st April 2007 (as per GO MS/8/2007/LSGD).

However, the software was not comprehensive, and ULBs faced difficulties integrating the accounting software with other software already in practice. There are different software developed and operated in ULBs by the Information Kerala Mission (IKM), a GoK undertaking; for revenue collection, plan monitoring, file tracking, salary administration, etc. In the context of continued technical difficulties, the Information Kerala Mission (IKM) has shouldered the task of designing alternate accounting software for ULBs (GoK, 2007). In 2008, an application software named SAANKHYA was developed and has been piloted in Kozhikode Corporation and Kaimoor Municipality. On successful completion of this, the GoK decided and introduced the SAANKHYA to all the Municipalities from April 2010, except where piloted by Fergusan and Company. In 2011-12, Saankhya was made applicable to the pilot ULBs by replacing the accounting software of Fergusan and Company. Thus, Saankhya is made applicable to all the ULBs in Kerala from 2011-12.

Thus, the local government emerges as a democratically elected functional, political and administrative unit that exercises relative autonomy over decision-making with regards to affairs within its territorial jurisdiction and has certain powers over and responsibilities towards this territory and its people. It aligns with this that ULBs are formed and play an important role in the carrying out of local governance in demarcated areas.

3.8 Importance of Urban Local Bodies

Urban Local bodies perform a plethora of functions in the areas that they are entrusted with, both politically, administratively and fiscally (Bandopadhyay and Bohra, 2010). The most important function of the ULBs is local representation in popular democracy through the devolution of powers of a central authority, through the formation of various committees (Bandopadhyay and Bohra, 2010). The main functions of the ULBs have been specified in the Twelfth Schedule of the Indian Constitution (Bandopadhyay and Bohra, 2010). Some of those are discussed in detail here.

It has been noted that central finance commissions and state finance commissions have emphasised the need to completely transfer the functions listed in the Twelfth Schedule to the ULBs, only because much of these functions have not been actually transferred to them even if on paper (Bandopadhyay and Bohra, 2010). The NIUA (2000) comparison report has categorised the obligatory and discretionary functions of ULBs based on whether they fall under public health, education, public works, medical relief, development and other services (Bandopadhyay and Bohra, 2010).

However, a summary of the delegated functions of the ULBs has been noted by Chaubey (2004) by taking from the Twelfth Schedule as:

- Public health, sanitation, conservancy, and solid waste management;
- Urban amenities and facilities such as public parks and playgrounds;
- Burials and burial grounds, crematorium grounds and electric crematoriums;
- Registration of births and deaths;
- Regulation of slaughterhouses and tanneries.

From these, the importance of the ULBs in India can be gauged and inferred (Chaubey, 2004). Cross-nationally, too, the importance of urban local bodies and local governance has been noted by several scholars (Bandopadhyay and Bohra, 2010). For instance, Baker et al. (2012) have noted the role local governments play in preparing and adapting to global climate change through adapting climate change policies in Australia. It has been suggested that climate change risks need to be included in the

core functions list and council risk registers of ULBs to have a palpable influence on local planning outcomes (Bandopadhyay and Bohra, 2010). Ongoing financial liabilities need to be exempted, and long-term financial sources need to be arranged to equip them to deal with climate crises. Set standards also need to be redefined to have a proper impact on the risk-management strategies of ULBs, and public participation programmes need to be engaged with to ensure local community participation in climate adaptation (Chaubey, 2004) .

3.8.1 Municipal Council

It has been observed that among local government units, municipalities carry out important functions as regards to local needs and also play a major role in local governance' (Bojang and Bwando, 2018). In this light, municipalities have been defined as urban institutions that provide essential services to residents living in their respective urban neighbourhoods and their activities are determined by such regulations as decided through urban planning, infrastructure, mapping and other factors (Geyman et al., 2018). These have also been termed local self-governing bodies, which aim to solve the problems of citizens in their area of jurisdiction since a limited spatial administration can understand the needs and problems of the people better in that locality (Bandopadhyay and Bohra, 2010; Geyman et al., 2018).

3.8.2 Functions of Municipal Councils

Municipalities fall under the ambit of urban local governance. For larger cities, municipal corporations are pertinent, while the term municipal councils are used to refer to local governing bodies in smaller towns (Shah, 2006). . By definition, urban local governance refers to the formulation and execution of collective actions at the local level, which includes the roles and responsibilities of the institutions (Shah, 2006). To be able to do so, the decentralisation of powers and functions needs to take place, and subsequent delegation of authority to the municipal councils is imperative. Sharma (2020) has identified the three forms of decentralisation deconcentration as the formation of units of the centralised governing body locally, devolution as creating local governments with autonomous powers, and delegation as contracting governance

functions to a third-party organisation or body. Based on these three types, the essential functions of a municipal council can be traced.

i. **Planning of urban infrastructure:** This has been one of the main functions of municipal councils, alongside the functions already mentioned in the previous section. Owing to administrative and financial constraints, many municipal councils across the world are shifting to a corporate model of organisational management and decision-making (Seasons, 2002). Municipal planners have been noted to provide the policy and regulatory context necessary to direct the use of land, which has a direct impact on the quality of life that the community residing in these areas experiences. Municipalities globally have also developed sophisticated monitoring and evaluation systems over the past several decades, which are linked to the evaluation of growth management policies, sustainability and the regular review of comprehensive municipal plans (Bandopadhyay and Bohra, 2010.

ii. **Financing urban infrastructure:** Another major function of Municipal includes financing services like solid waste management, power generation plants, electricity and telecommunications, sewage systems, public transport, roads, etc. (CARE Report, 2012). Expenditure responsibilities are bore by ULBs like municipal councils, which also receive financing for the same. Such decentralisation measures are also based on ideas of federalism, which propound that local interests and tastes can be best administered and catered to by local governmental bodies. Such expenditures also include planning, financing, operating and maintaining capital projects relevant to the areas assigned to them (CARE Report, 2012).

iii. **Regulation of land use and construction of buildings**: It has been mentioned in the Twelfth schedule of the Indian constitution that the municipal councils are endowed with the authority to cease, tax, rearrange or maintain any land within its jurisdiction to the benefit of the local population. They can also sell or buy land to and from private entities in the public interest. They can construct buildings which are of public relevance and serve public administration within the jurisdictional authority and can demolish such buildings as dilapidated and considered dangerous

(CARE Report, 2012).

iv. **Public Health and Sanitation**: The municipal councils are also responsible for carrying out health drives, maintaining public hospitals and healthcare units in the jurisdictional area, maintain water supply, ensure proper vaccination camps for the local population under the state guidelines, make the necessary provisions to contain diseases by implementing measures like proper cleaning of sewage and bleaching of drainage systems, maintenance of sewers, and disposal of rubbish (CARE Report, 2012).

v. **Education**: The municipal councils are also responsible for the maintenance and construction of public educational institutions in their administrative areas (CARE Report, 2012). Even though the Twelfth Schedule makes no explicit mention of the municipal bodies endowing educational facilities to the local population, it does mention vaguely the Promotion of Cultural, Educational and Aesthetic Aspects (Entry 13, Schedule XII), and it is under this provision that municipal councils have taken the responsibility to promote education (Sharma, 2007).

vi. **Developmental Functions:** The municipal councils are responsible for the construction and maintenance of markets, shopping centres, drinking water standposts, parks, gardens, wells, and making plans for the development and growth of the respective areas (Sharma, 2007).

vii. **Waste Disposal**: The disposal of solid waste and its management have been entrusted to the local municipal councils (Bandopadhyay and Bohra, 2010). Due to increasing urbanisation, a humungous amount of waste is being generated in the urban areas, which needs to be disposed of, including its recycling and collection (Kumar et al., 2014). Usually, the municipal council is entrusted with the incineration or storage of such waste in selected areas within their jurisdiction (Bandopadhyay and Bohra, 2010. About 80 per cent of the total finances of municipal councils in India is accounted for the salaries of people who are somehow associated with Municipal Solid Waste (MSW) disposal (Kumar et al., 2014).

viii. **Safeguarding Weaker Sections**: The municipal councils are also responsible for ameliorating the conditions of the marginalised and disadvantaged groups in their areas (Kumar et al., 2014), through the implementation of various government schemes such as Sasthyasathi and Kanyashree in West Bengal, and also carry out periodical campaigns such as food and clothes distribution programmes, local awareness campaigns and educational drives for underprivileged children. It can also construct homes for the elderly and provide special public facilities for such individuals as identified under differently abled (Bandopadhyay and Bohra, 2010.

In relation to such financial and fiscal functions, globalisation has had a significant role to play in the distribution and management of public resources (Bandopadhyay and Bohra, 2010). Serageldin et al.(2008) have noted two major issues emerging out of globalisation for local bodies like municipal councils. Firstly, the increase in fiscal responsibility has increased the burden on these ULBs worldwide. Secondly, the rapidly evolving relationship between the local and the regional fiscal authorities in developing countries like India has implications in the sense that an increasing control of the central authorities on the ULBs has been noted, thus denting their autonomy to a significant extent in fiscal matters (Bandopadhyay and Bohra, 2010.

3.9 Fiscal Decentralisation and Financial Framework

Urban Local Bodies (ULBs)- both Corporations and Municipalities- are entrusted with a wide range of functions related to urban governance, planning, and service delivery. To effectively discharge these responsibilities, they require substantial financial resources. However, the gap between the expenditure obligations and revenue generation capabilities of municipal councils has often been a cause for concern.

3.9.1 Income Sources of Urban Local Bodies

a. Internal and External Sources of Revenue

According to Aijaz (2008), the revenue base of municipal councils and corporations in India can be broadly categorized into internal and external sources. Internal sources include tax and non-tax revenues, while external sources comprise grants and loans

from state and central governments, and increasingly, borrowings and public-private partnerships. In recent years, there has been a growing emphasis on strengthening municipal financial practices, especially in the area of internal revenue generation. This shift is aimed at improving fiscal autonomy and reducing dependence on higher levels of government for funding urban infrastructure and service delivery.

However, in the absence of sufficient internal revenue, many municipal councils are compelled to rely on external financing mechanisms such as state transfers, centrally sponsored schemes, and contracting out services to private agencies. This has resulted in a growing trend of outsourcing key functions—particularly in construction, solid waste management, and water supply—through public-private partnerships (PPPs) and concessions.

The broader framework of fiscal decentralisation, as defined by Fukasaku and de Mello Jr. (1999), involves the devolution of taxing and spending powers to lower tiers of government. In the context of municipal councils, this implies greater authority to mobilise resources, decide expenditure priorities, and manage finances independently. However, the actual financial autonomy of ULBs remains constrained due to state-level control over key revenue instruments and limited local tax bases.

In Kerala, while the State Finance Commission and institutional mechanisms like the Decentralisation Support Programme have attempted to improve fiscal devolution, challenges remain in fully empowering municipal councils to raise and utilise their revenues.

b. Major Income Sources of Urban Local Bodies in Kerala

ULBs in most of the states have been empowered to raise their finance from several sources such as taxes, fees, fines and penalties and by running remunerative enterprises (Economic Review, 2023). Apart from these, local bodies also depend upon grants and contributions, loans and some miscellaneous sources. The sources of finances of ULBs are classified into four categories viz. Tax revenue, Non-tax revenue. Grants and Contributions and Loans (Budget Report, 2024).

i) **Tax Revenue of ULBs:**Tax Revenue is the largest source of the Own Source Revenue (OSR) of ULBs. According to the study by the National Institute of Urban Affairs, income from taxes constitutes about two-thirds of the revenue accounts of the municipalities and over one half of the total income from all sources (Economic Survey, 2024). A variety of taxes are levied by the ULBs in different States. The most common taxes are property tax/house tax, professional tax, vehicle tax, tolls, technical tax, tax on animals, entertainment tax, tax on transfer of property and tax on advertisements (Budget Report, 2024).

ii) **Non-Tax Revenue of ULBs:** Another important source of income of ULBs comes from non-tax revenues. These are mainly derived from fees levied in markets, bus stands, car stands, slaughter houses, rents from Municipal property such as land and buildings (especially shopping centers), income from public utilities and interest on investments (Economic Survey, 2024). Apart from taxes and rates there are some sources of revenue such as fines, fees, penalties, rents and income from other minor sources (Economic Survey, 2024). This source further includes income from water supply, electricity, fees, fines and charges in relation to performance of statutory and regulatory functions (Economic Survey, 2024). Income from all these sources is generally not substantial.

iii) **Grant-in-Aid:** Grant-in-aid forms an important constituent of ULB finance (Economic Survey, 2024). A payment made from the treasury of the State Government to a Local Authority for the purpose of assisting that authority in carrying out a part or all of its activities are known as Grant-in-aid (Budget Report, 2024). Grant-in-aid can be defined as "Money payments furnished by a higher to a lower level of government to be used for specific purposes and subject to conditions spelled out in law or administrative regulations." Grants constitute one of the most crucial sources of revenue for urban local bodies (ULBs) in developing countries such as India, where the central and state governments control the most productive sources of public revenue. Consequently, they are obliged to support local bodies through fiscal transfers (Rao & Singh, 2003). In discussions related to the finance of urban local

governments, the role of government grants and contributions emerges as a key component of their financial sustainability.

In federal systems, intergovernmental fiscal relations are generally defined by constitutional provisions. In India, the 74th Constitutional Amendment Act of 1992 granted constitutional status to ULBs and mandated the creation of State Finance Commissions (SFCs), modeled after the Finance Commission of India, to recommend mechanisms for fiscal devolution to local governments (Government of India, 1992). Since independence, there has been a clear and sustained increase in the role of grant-in-aid in the ordinary income of ULBs. The Committee for Augmentation of Financial Resources of ULBs observed that no strong correlation existed between the size of a ULB and the volume of grants it received, indicating a lack of objective allocation criteria (Ministry of Urban Development, 2000). Government grants are generally classified into three broad categories:

- General Purpose Grants: These are untied grants primarily aimed at bridging the fiscal gap between the needs and the resources of ULBs.
- Specific Purpose Grants: These are tied grants allocated for designated services or tasks, such as water supply, drainage, housing, public works, roads, maintenance of footpaths, latrines, dispensaries, hospitals, and schools. Statutory and Compensatory Grants: These are provided under specific legal provisions as compensation to local bodies for loss of revenue, particularly in cases where the state government has taken over a tax or revenue source previously assigned to local governments (Mathur, 2006).

While the grants system plays a pivotal role in sustaining local governance, it is imperative to examine the actual pattern of State Plan Fund allocation to Local Self-Governments (LSGs) in Kerala, especially in light of the state's decentralisation reforms and pioneering role in participatory planning since the late 1990s. Municipalities and Municipal Corporations in Kerala derive their income from a mix of tax and non-tax revenues, supplemented by grants, shared revenues, and project-based funding. The major sources are listed in Table 3.1

Table 3.1

Source of Income of Urban Local Bodies in Kerala

Category	Source of Income	Details
I. Tax Revenues	Property Tax	Principal own-source revenue based on annual rental or unit area value; efficiency affected by outdated assessments.
	Profession Tax	Levied on salaried individuals and professionals; steady and predictable income source.
	Entertainment Tax	Levied on entertainment facilities; now reduced due to GST subsumption.
	Advertisement Tax	Levied on public hoardings, and enforcement issues due to evasion and local pressures.
	Land and Building Tax (Shared Revenue)	Collected by State Government and shared with local bodies; a vital supplementary source.
II. Non-Tax Revenues	Fees & User Charges	Includes charges for services (water supply, waste, parking), and fees for licenses, permits, and certificates.
	Rent from Municipal Properties	Income from leased markets, shops, and community halls has the potential for significant returns if managed efficiently.
	Fines and Penalties	Levied for municipal rule violations such as encroachments or sanitation issues.
	Revenue from Municipal Enterprises	Generated from ULB-run services like buses, slaughterhouses, etc.
III. Grants & Transfers	State Finance Commission (SFC) Grants	Untied grants recommended by SFCs; essential for operational and developmental expenditure.
	Central Finance Commission Grants	Includes basic and performance-linked grants; enhances fiscal capacity of ULBs.
	Centrally Sponsored Schemes (CSS)	Project-based grants under AMRUT, Smart Cities, PMAY-U, SBM, etc., need ULB contribution.
IV. Loans & Borrowings	Institutional Loans (e.g., KIIFB, HUDCO)	Used for capital-intensive urban infrastructure projects; subject to creditworthiness and state guarantees.

Sources: Budget Documents Various Years, Compiled by the Researcher, 2024

3.9.2 Expenditures of Urban Local Bodies

It has been observed that expenditures, which are an important part of the economy, are required to operate the general administration and carry out development activities in an

economy (Kafle, 2016). Expenditures can be subdivided into regular and development expenditures. The latter refers to the type of expenditure incurred while making infrastructural development in an economy, while the former refers to costs and finances that are exhausted in the daily functioning of a municipal council.

Regular expenditures can be further subdivided into current expenditure and repayment of interest loan. Current expenditures refer to the wages and raw materials that the municipal council utilizes on a regular basis in order to prove its existence and keep itself running. Such an expenditure is running and is annually renewable. It has been observed that in municipal councils of Nepal, the majority of the regular expenditure is undertaken as current expenditure.

Development expenditure on the other hand has been carried out under the rubric of social programs and capital investment. It has been advocated that the type of infrastructural expenditure made is also similarly important to the nature of infrastructure investment. All such expenditures are said to go not just into the hard activities that the municipal councils perform, such as the construction of roads, parks, sewage systems and other similar infrastructure, but also certain soft activities such as construction and development of parks, libraries, recreational facilities, etc.

The Constitution of India grants Municipal Councils the power to perform services which have characteristics of both “private goods” such as sanitation, water supply, conservation, etc. and “public goods” such as street lighting and municipal lights (Shah, 2006). These are coherent with Smithsonian principles of localisation (Smith, 1776), which suggests that local bodies are best suited to cater to the needs of the local population. In order to do so, the expenditures of local bodies need to be considered. It has been noted that the provision of water supply, conservation and sanitation services are the main services that are offered by the municipal councils. Such functions of the municipal councils are engraved in the 12th Schedule of the Indian Constitution, which is ratified by the 74th Amendment (1992). However, incomplete decentralisation of powers and finances has led to disparities in jurisdiction.

Table 3.2

Components of Expenditure of Urban Local Bodies in Kerala

Category	Component	Description
Regular Expenditure	Current Expenditure	Day-to-day operational costs, including salaries, maintenance, utilities, etc.
	Administrative Costs	Expenses related to governance, office management, and human resources.
	Operation & Maintenance	Routine repairs and upkeep of municipal assets like buildings, roads, and parks.
	Debt Servicing	Repayment of interest and principal on loans availed by the municipality.
	Contractual Services	Payments to private contractors for outsourced services (sanitation, etc.).
	Utility Payments	Electricity, water, and communication bills for municipal facilities.
	Pension & Welfare	Pensions and welfare payments to retired municipal staff.
	Miscellaneous Administrative Costs	Stationery, legal fees, IT services, and other recurring costs.
Development Expenditure	Capital Infrastructure Projects	Investments in physical infrastructure such as roads, bridges, and drains.
	Water Supply & Sanitation Projects	Construction and upgrading of water systems and sewage treatment plants.
	Public Health & Solid Waste Management	Development of healthcare facilities and waste disposal systems.
	Public Education and Literacy	Development of Schools
	Housing & Slum Upgradation	Construction of affordable housing and urban renewal schemes.

Sources: Budget Documents Various Years, Compiled by the Researcher, 2024

3.9.3 Problems Related to Income and Expenditures of Urban Local Bodies

Bandopadhyay (2014) has noted that estimations of expenditure requirements are useful in guiding the cities in expenditure management, as they can help quantify fiscal transfers from above (state governments). Mohanty et al. (2007) has also shown that the

actual spendings of municipal councils in India from 1999-2000 to 2003-2004 were only 24 per cent of the overall financial requirements. Bandyopadhyay and Rao (2009) have observed that other than five small ULBs in Hyderabad, the others cannot cover their expenses from the finance and revenue they collect/receive. Thus, this micro-perspective can give us an eagle's eye view into the larger fiscal processes that go on in the country, where Municipal Councils are unable to cope with their expenditure needs.

Bhujbal (2012) has analysed the relationship between local government expenditure and inter-governmental fiscal transfer. It was found that the three variables- Grants, Tax Price and Private Income- are able to explain the variation in local government expenditure. It was also observed that fiscal authority was a heterogeneous phenomenon, with different municipal councils of different areas having different expenditure processes. Inequalities in fiscal powers and obligations arise when local governments such as Municipal Councils have more expenditure responsibilities than revenue incomes. It has also been noted that the existing local government expenditure plan was not oriented towards alleviating poverty and thus needed reorientation in the future.

Despite the continuous flow of financial resources to the municipal councils in India, several regional and national particularities have reduced the decentralisation and devolution of financial autonomy and the sourcing of these respective ULBs. The studies highlight that the major problems are government control or restrictions, operational barriers, human resource-related barriers, administrative barriers, financial barriers, and transfer of funds-related barriers.

The Second Global Report on Decentralisation and Global Planning notes that even though progress has been made in developing tax sharing and intergovernmental transfers, certain key problems related to transfers persist. Fiscal distributions may be unequal across communities, which also signifies a disproportionate distribution of resources across localities and populations. It has been noted that there is a continuous deficit in establishing a balance between unconditional grants (ones that promote local autonomy) and conditional grants (ones that prioritise national matters). Thus, the

transfer of funds has been a major area of contestation for many municipal councils across the globe.

In India, transfers consist of shared taxes between the municipalities or municipal councils and the state governments, such as entertainment tax, motor vehicles tax, surcharge, etc. It has been noted that almost 66 per cent of revenues of ULBs like Bhopal, Bhubaneshwar and Puri come from non-plan transfers (NIUA, 2011). However, the progressive reforms made under the 13th Finance Commission (devolution packages for more transfer of funds) could not be adequately implemented owing to factors like ULBs not being able to levy property taxes without exemptions and others. Additionally, grant-in-aid was also a diverse practice that is subject to regional variations when it comes to non-plan transfers. Mathur and Peterson (2006) have observed that in many areas, the recommendations of the State Finance Commissions have not been adhered to by the State governments, which also makes difficult the transfer of functions and funds to ULBs like municipal councils.

3.10 Finance and Accounts of Urban Local Bodies

Kautilya, the great Indian Philosopher, aptly states that, "all undertakings depend upon finance; hence foremost attention should be paid to the treasury". Every administrative act has its financial implications (Mohanty et al., 2007), either by making a contribution or by creating a charge to the treasury. In fact, it is right to state that finance is the life and blood of government, it constitutes the backbone of government and it provides fuel to the administrative machinery (Mohanty et al., 2007). Sound fiscal policy, therefore, has crucial importance to the government, whether Central, State, Urban or Rural (Mohanty et al., 2007). Prudent financial management not only brings dishonour to the government but also makes an unfriendly nature that may endanger its very existence (Mohanty et al., 2007). Felix A. Nigro has rightly remarked that: "Finance administration is of great importance today because of the tremendous increase in the amount of money expended for government services. Every government requires money. Sound principles and techniques of financial administration must be employed."

As mentioned earlier in this chapter, the ever-rising urban population has put enormous pressure on ULBs in India. The total ULBs are some 4000 in number and are statutorily responsible for providing civic services and urban infrastructure at a satisfactory level to the urban people in the country. However, there are various constraints in front of ULBs. The land area in the municipality is limited; more facilities are required, like water supply, drainage, conservancy, electricity, etc. These constraints will lead to life in the municipal area being highly miserable and even dangerous to public health.

3.10.1 Need for Finance in Urban Local Bodies

Because of the ever-increasing needs of urban people, municipal governments are forced to search for more effective and efficient ways to utilise all available resources and to search for further resources. Taxes and other revenues are the main sources of finance with ULBs to support municipal services. Sound fiscal policy at the municipal level is the crying need of the hour. Improper financial management not only brings a bad name to the government but also alienates it from the people (Mohanty et al., 2007). Therefore, studies have been instituted by the Government of India from time to time to appraise the financial position of the Local Governments and recommend measures for their augmentation (Mohanty et al., 2007).

ULBs have been statutorily entrusted with the role of providing and maintaining urban services like education, health and sanitation, housing, recreation, drinking water etc. Such accelerated growth in the urban population has put tremendous pressure on ULBs, who are constantly facing the challenges of providing services and amenities within the available resources. The last few years witnessed many States delegating a significant number of functions to the LSGs. This devolution of functions meant that the LSGs have to strengthen their support processes and also look out for effective modes of financing for the new functions (Mohanty et al., 2007).

3.10.2 Importance of Urban Finance

The Reserve Bank of India (RBI) opined on the importance of local finance as: "with the increasing industrialisation and urbanisation under the impetus of development and

planning, the local authorities form a growing part of the expanding public sector, with powers to raise and spend considerable amounts of public funds for development purpose. Local authorities form an important segment of the public sector in India. The contribution of the local bodies to income in general and capital formation is of considerable significance, in view of their large number and the area and population they cover."

In India, the functions and finances of ULBs are provided in the acts passed by the state legislatures. Any mismatch or discrepancy between the two is likely to create confusion and chaos. Urban-Local Government finances have received little attention from the Union or the State Governments in the past. Even the social scientists and the students of public finance had paid only less attention to ULB finance. The basic problem with the Indian local system of government and administration today is "economic chaos" and "financial bankruptcy".

3.11 Financial Sustainability in Urban Local Bodies

Profits and profitability are to businesses what blood is to the human body—essential for survival. Just as a person cannot live without an adequate supply of blood and the capacity to regenerate it, Urban Local Bodies (ULBs), though primarily public service institutions, require sufficient revenue to function effectively. While the analogy applies in a limited sense due to their non-profit nature, ULBs cannot sustain their operations without robust revenue streams.

Financial viability, much like profitability in a business, forms the backbone of ULBs. Without adequate financial resources, their very existence is threatened, much like a body lacking structural support. Financial sustainability, in essence, refers to the capacity of a ULB to generate sufficient revenue to meet its operational and developmental needs.

This sustainability is closely linked to the ability of ULBs to mobilize resources from their own sources. The greater the share of revenue derived from internal sources—such

as taxes, fees, and user charges—the higher the degree of financial autonomy and sustainability the local government can achieve.

Conclusion

The evolution of local government reflects a dynamic interplay of historical, legal, administrative, and political factors. From being service providers to becoming engines of development and pillars of democracy, local governments have undergone a significant transformation. Strengthening them through greater autonomy, capacity-building, and citizen participation is essential for achieving inclusive and sustainable development.

Although indigenous systems of local governance did exist in India's historical past, the modern conception of LSGs—as elective, representative, and administratively empowered institutions—is a product of British colonial policy. These institutions marked a significant departure from earlier forms of local organisation, both in terms of structure and intent, serving as both administrative units and instruments of political socialisation.

The financial health of municipal councils is a crucial determinant of their ability to deliver quality urban services and undertake development planning. While Kerala's municipalities benefit from a relatively well-structured decentralisation framework and timely SFC grants, they continue to face challenges related to low tax buoyancy, inefficient revenue collection, and heavy dependence on external funding. Strengthening local capacities, expanding the revenue base, and improving governance mechanisms will be essential for ensuring the financial sustainability of ULBs in Kerala and elsewhere in India.

CHAPTER IV

FINANCIAL PERFORMANCE OF SELECTED URBAN LOCAL BODIES IN THIRUVANANTHAPURAM, KERALA

This chapter examines the financial performance of selected Urban Local Bodies in Kerala. This chapter covers the revenue (both tax and non-tax) and expenditure trend, funding to health, education, sanitation and infrastructure. More specifically, the chapter looks into the revenue and expenditure under different heads of the last three financial years

4.1 Indicators for Financial Assessment

Urban Local Bodies (ULBs) play a pivotal role in implementing decentralised governance through the planning and execution of local development initiatives. These institutions handle multiple responsibilities, including revenue generation, service delivery, welfare activities, and infrastructure development. The financial data related to these functions reveals how public funds are allocated across various sectors, reflecting the developmental priorities and functional focus of ULBs. This thematic consolidation identifies and elaborates on the key components funded and executed by ULBs, grouped under distinct heads.

Tax Revenue for ULBs comprises the funds collected through various municipal-level taxes. The principal components include Property Tax, Profession Tax, Entertainment Tax, and Advertisement Tax. Property Tax is the most significant and stable source of income, levied on residential, commercial, and industrial properties. Profession Tax is collected from individuals engaged in professions, trades, or employment within municipal limits. Entertainment Tax, where applicable, includes levies on cinema halls, amusement parks, and events. Advertisement Tax is imposed on hoardings, signboards, and posters displayed within municipal boundaries. These tax heads reflect the statutory authority of ULBs to mobilise resources directly from the local economy.

Non-Tax Revenue in Urban Local Bodies (ULBs) constitutes various income sources that are not derived from taxes. The major components under Non-Tax Revenue include license fees, rent from buildings, fees and user charges, income from investments, and miscellaneous receipts. License fees may arise from commercial,

construction, or trade licenses issued by the ULBs. Rent from buildings refers to income from municipal properties leased out for residential, commercial, or institutional use. User charges typically include water charges, sanitation charges, and fees for using public facilities such as markets and slaughterhouses. Investment income refers to interest or dividends from fixed deposits or other financial instruments maintained by the ULB. Miscellaneous receipts encompass irregular or occasional incomes like penalties, auction proceeds, or forfeitures. These components are vital for the financial autonomy of ULBs, as they reflect the service-delivery efficiency and asset utilisation of the local bodies.

Revenue Expenditure of ULBs includes recurring expenses essential for maintaining daily administrative and service delivery functions. Major components are Establishment Expenditure (Salaries and Wages), Operating and Maintenance (O&M) expenses, Electricity Charges, Water Supply Costs, and Sanitation & Waste Management Expenditure. Establishment expenditure covers salaries, allowances, and pensions of municipal staff. O&M includes regular upkeep of roads, buildings, vehicles, street lighting, etc. Electricity and water charges pertain to the functioning of public utilities and municipal buildings. Sanitation expenditure includes costs for solid waste management, drainage, and health services.

Capital Expenditure refers to long-term investments made by ULBs to create durable assets or upgrade infrastructure. The main heads under capital expenditure are the construction of roads and buildings, the development of water supply and sewerage systems, public health infrastructure, and urban housing and slum improvement. These expenses aim to enhance the quality of life in urban areas and support urbanisation sustainably.

Grants, loans, and transfers head includes external sources of revenue such as state and central government grants, plan assistance, and loans from financial institutions. These are crucial for bridging the financial deficit of ULBs and for implementing specific state-sponsored or centrally-sponsored schemes. Grants may be untied or tied to particular purposes like health, sanitation, or housing. Loans, while repayable, often support capital projects that the ULB cannot fund internally.

Urban Local Bodies play a supplementary but significant role in urban education. Expenditure in the education sector generally includes salaries of school staff, maintenance of municipal schools, mid-day meal contributions, and infrastructure development for primary and secondary schools. Some ULBs also support scholarships, student welfare schemes, and capacity-building programs for teachers. These expenditures reflect the ULBs' commitment to enhancing access and quality in primary education, especially in urban poor localities.

In the health sector, ULBs allocate funds toward urban primary health centers, immunisation drives, vector and disease control programs, maternal and child health services, and health awareness campaigns. Salaries of medical and paramedical staff, supply of medicines, purchase and maintenance of medical equipment, and running of dispensaries and maternity homes are included.

Sanitation forms a core municipal function. Expenditure heads include solid waste collection and disposal, public toilet construction and maintenance, drainage system cleaning, vector control, and septic tank desludging. Salaries for sanitation workers, procurement of cleaning vehicles and protective gear, and maintenance of infrastructure like landfills and compost plants are also included. Many ULBs now incur expenses for door-to-door waste collection, segregation at source, and awareness programs as part of the Swachh Bharat Mission.

Water supply is a major urban service managed partly or wholly by ULBs. Key expenditure items include water source development, treatment plant operation, distribution network maintenance, pumping and storage, and metering and billing systems. Investments in leakage control, non-revenue water reduction, and quality testing also form part of this category. Sewerage-related spending includes construction and maintenance of sewer lines, wastewater treatment plants, stormwater drains, and urban flood management systems. Some ULBs also allocate funds for recycling and reuse initiatives.

The Decentralised Plan Programme (DPP) is a flagship initiative of the Government of Kerala that empowers Local Self-Governments (LSGs) to plan and implement development projects suited to local needs. Under this programme, a substantial

portion of funds is earmarked for infrastructure development, particularly in Urban Local Bodies (ULBs).

The key components of infrastructure expenditure under the DPP include:

- Road Infrastructure: Construction, widening, and maintenance of municipal roads, footpaths, culverts, and bridges. This also includes street lighting installations and repairs.
- Public Buildings: Construction and renovation of community halls, anganwadis, municipal office buildings, health centres, and other civic infrastructure.
- Drainage and Stormwater Management: Development and desilting of open and closed drainage systems, especially to address urban flooding and sanitation issues.
- Market and Commercial Infrastructure: Upgrading urban markets, constructing vendor stalls, and building municipal shopping complexes to promote local economy.
- Urban Transport Facilities: Bus stands, waiting sheds, traffic signage, and parking lots come under this head.
- ICT and e-Governance Infrastructure: Investment in digital infrastructure for service delivery improvements like online tax collection, grievance redressal systems, and smart city elements.
- Public Utility Infrastructure: Water tanks, pipelines, borewells, solar lighting, and electrification for underserved areas.

4.2 Analysis of Revenue Trends of Selected ULBs

Thiruvananthapuram Corporation, the largest urban local body (ULB), exhibits a strong and consistent growth in both tax and non-tax revenues. The total tax revenue increased significantly from ₹1.68 billion in 2022–23 to ₹2.14 billion in 2023–24 and is projected to reach ₹2.396 billion in 2024–25. Similarly, non-tax revenues rose from ₹691 million in 2022–23 to ₹822 million in 2023–24, with a further projected

increase to ₹1.073 billion in 2024–25. Consequently, Thiruvananthapuram's total revenue surged from ₹2.37 billion in 2022–23 to ₹2.96 billion in 2023–24 and is expected to touch ₹3.47 billion in 2024–25 — a remarkable overall increase of 46 per cent over three years. This robust financial trajectory highlights Thiruvananthapuram's expanding tax base and improved non-tax revenue generation capacity.

Varkala Municipality shows a fluctuating trend. Its total tax revenue increased from ₹31.4 million in 2022–23 to ₹48.5 million in 2023–24 and marginally to ₹51.2 million in 2024–25. However, non-tax revenue declined sharply from ₹52 million in 2022–23 to ₹17.9 million in 2023–24, before a modest recovery to ₹21.2 million in 2024–25. This drop in non-tax income significantly impacted overall earnings, with total revenue dropping from ₹83.4 million in 2022–23 to ₹66.5 million in 2023–24, then slightly rising to ₹72.4 million in 2024–25. The instability in non-tax revenue indicates potential issues in service-based or asset-related income sources.

Attingal Municipality exhibits a consistent and healthy growth trajectory. Tax revenue nearly doubled from ₹58.3 million in 2022–23 to ₹102.9 million in 2023–24 and further increased to ₹112.4 million in 2024–25. Non-tax revenue also improved, from ₹25.8 million in 2022–23 to ₹32 million in 2023–24 and ₹39.3 million in 2024–25. As a result, total revenue increased from ₹84.1 million in 2022–23 to ₹134.9 million in 2023–24 and is projected to reach ₹151.7 million in 2024–25, indicating robust and balanced revenue growth.

Nedumangad Municipality displays a modest but steady upward trend in revenue collection. Its tax revenue grew from ₹53.2 million in 2022–23 to ₹59.7 million in 2023–24 and further to ₹71.7 million in 2024–25. Non-tax revenue increased as well from ₹21.8 million in 2022–23 to ₹32.7 million in 2023–24, and ₹42.9 million in 2024–25. The total revenue figures reflect this growth, rising from ₹75 million in 2022–23 to ₹92.5 million in 2023–24 and ₹114.6 million in 2024–25. This suggests a well-rounded improvement in both tax administration and non-tax income streams.

Neyattinkara Municipality also demonstrates consistent revenue enhancement. Tax revenue increased from ₹44.8 million in 2022–23 to ₹61 million in 2023–24, with a notable jump to ₹90.5 million projected for 2024–25.

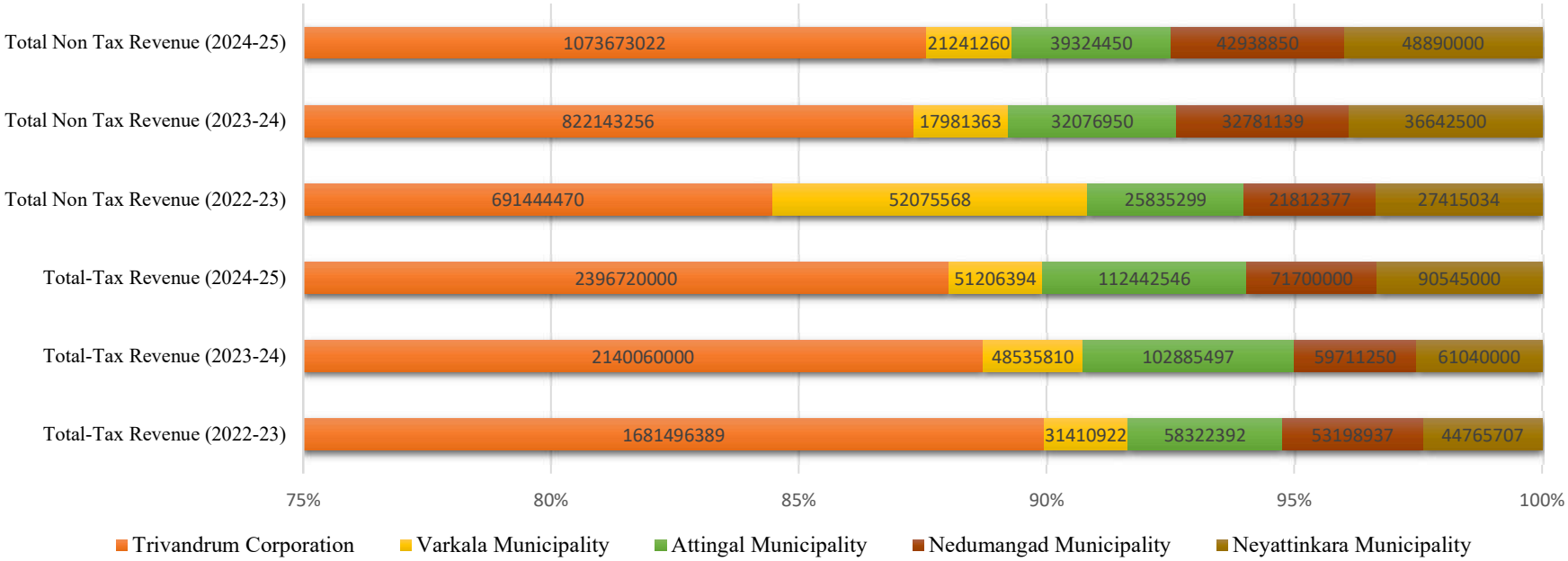
Table 4.1

Revenue of Selected Urban Local Bodies (Tax and Non-Tax Revenue)

ULBs	Total-Tax Revenue			Total Non-Tax Revenue			Total Revenue		
	2022-23	2023-24	2024-25	2022-23	2023-24	2024-25	2022-23	2023-24	2024-25
Thiruvananthapuram Corporation	1681496389	2140060000	2396720000	691444470	822143256	1073673022	2372940859	2962203256	3470393022
Varkala Municipality	31410922	48535810	51206394	52075568	17981363	21241260	83486490	66517173	72447654
Attingal Municipality	58322392	102885497	112442546	25835299	32076950	39324450	84157691	134962447	151766996
Nedumangad Municipality	53198937	59711250	71700000	21812377	32781139	42938850	75011314	92492389	114638850
Neyattinkara Municipality	44765707	61040000	90545000	27415034	36642500	48890000	72180741	97682500	139435000

Source: Annual Report of ULBs, Consolidated by the Researcher, 2025

Figure 4.1
Tax Revenue and Non Tax Revenue at a Glance



Non-tax revenue improved from ₹27.4 million to ₹36.6 million and is expected to rise to ₹48.9 million by 2024–25. Consequently, total revenue rose from ₹72.2 million in 2022–23 to ₹97.7 million in 2023–24, and will likely reach ₹139.4 million in 2024–25 — a growth of nearly 93 per cent over the period. Neyattinkara's consistent upward trajectory reflects effective fiscal management and revenue mobilisation.

Across all municipalities, tax revenue has consistently increased, showing improved compliance or reassessment. However, non-tax revenue is more variable, particularly in the Varkala municipality. Thiruvananthapuram remains the largest and fastest-growing in absolute terms, while Neyattinkara municipality shows the highest relative growth.

In tax revenue, the Thiruvananthapuram Corporation stands far ahead of the other municipalities, with figures rising steadily from approximately ₹1.68 billion in 2022–23 to ₹2.14 billion in 2023–24 and reaching ₹2.396 billion in 2024–25. This performance underscores the city's large tax base and efficient collection mechanisms. The other municipalities operate at much smaller scales. Among them, Attingal municipality demonstrates solid growth, increasing from ₹58.3 million in 2022–23 to ₹102.8 million in 2023–24 and further to ₹112.4 million in 2024–25. Neyattinkara municipality follows a similar upward trend, growing from ₹44.8 million to ₹90.5 million over the same period, showing the highest relative growth among the smaller towns. Nedumangad municipality also shows improvement, but at a slower pace, while Varkala municipality remains the lowest tax revenue generator, with only modest increases year-on-year.

Thiruvananthapuram Corporation again leads by a significant margin in non-tax revenue, growing from ₹691 million in 2022–23 to ₹822 million in 2023–24, and projecting a substantial rise to over ₹1.07 billion in 2024–25. This indicates strong income from sources such as fees, fines, rents, and services. Among the remaining municipalities, Neyattinkara municipality performs best, with non-tax revenue rising from ₹27.4 million to ₹48.9 million over the three years. Nedumangad and Attingal also show consistent improvements in this area, signalling a steady enhancement in their non-tax revenue streams. Varkala municipality experiences a troubling decline, dropping from ₹52 million in 2022–23 to just ₹17.9 million in 2023–24, with only a

minor recovery to ₹21.2 million the following year. This inconsistency could point to inefficiencies or loss of significant non-tax revenue sources.

In terms of total revenue, Thiruvananthapuram Corporation again dominates, increasing its revenue from ₹2.37 billion in 2022–23 to ₹2.96 billion in 2023–24, and is expected to exceed ₹3.47 billion by 2024–25. This continued growth reflects the municipality's effective revenue systems and expanding economic base. Among the smaller municipalities, Attingal and Neyattinkara are the top performers. Attingal's total revenue nearly doubles from ₹84.1 million to ₹151.7 million over the period, while Neyattinkara jumps from ₹72.1 million to ₹139.4 million — an impressive 93 per cent increase. Nedumangad, though improving steadily, remains behind these two, reaching ₹114.6 million by 2024–25. Varkala underperforms significantly, with total revenue dropping from ₹83.4 million in 2022–23 to ₹66.5 million in 2023–24 and only slightly recovering to ₹72.4 million in 2024–25. This decline is mainly due to the sharp drop in non-tax revenue.

4.3 Analysis of Expenditure Trends of Selected ULBs

Thiruvananthapuram exhibits a sharp increase in overall expenditure across all categories, reflecting its status as the largest and most resource-intensive urban local body in the region. Total revenue expenditure surges from ₹2.9 billion in 2022–23 to a massive ₹8.06 billion in 2024–25, suggesting rapid administrative expansion and increased service delivery obligations. The expenditure on transferred institutions — schools, health centres, and similar functions — more than doubles, rising from ₹1.03 billion to ₹2.53 billion, indicating a growing responsibility toward decentralised functions. While loan repayments remain constant at around ₹70 million annually, the capital expenditure also sees substantial growth, from ₹1.28 billion to nearly ₹3 billion. This points to significant infrastructure investments in the coming years, likely in urban transport, utilities, and public services.

Varkala Municipality shows significant growth in expenditure despite its relatively smaller size. Revenue expenditure doubles from ₹140.6 million in 2022–23 to ₹281 million in 2024–25, indicating expansion of municipal services. A noteworthy trend is the steep rise in expenditure on transferred institutions, which increases by nearly 2.5 times from ₹68.4 million to ₹169.2 million.

Table 4.2

Expenditure of Selected Urban Local Bodies (Total Revenue Expenditure and Capital Expenditure)

ULBs	Total Revenue Expenditure			Total Expenditure of Transferred Institutions (not included under the decentralised plan programme)			Total-Loan Repayments			Total Capital Expenditure		
	2022-23	2023-24	2024-25	2022-23	2023-24	2024-25	2022-23	2023-24	2024-25	2022-23	2023-24	2024-25
Thiruvananthapuram Corporation	2901117433	3837694731	8057150000	1030968980	2065758000	2530713600	69093334	70000000	70000000	1288227133	1736060873	2999100000
Varkala Municipality	140609020	242650621	281045000	68419400	159985520	169175360	0	1000000	2000000	22204444	100889399	122300000
Attingal Municipality	99909614	217075404	222380000	57515700	112570600	123796660	4728797	6600000	7625000	13312046	103679992	126100000
Nedumangad Municipality	151113605	272901758	533706000	110617132	141125000	147422500	20496205	19500000	21500000	84818271	103095295	132500000
Neyattinkara Municipality	152265882	337631739	403105778	117402436	199900000	269850000	0	17500000	200000000	12445754	9500000	13850000

Source: Annual Report of ULBs, Consolidated by the Researcher, 2025

Varkala has minimal loan repayments, with only ₹1–2 million allocated in recent years, suggesting a conservative debt strategy. Capital expenditure, however, jumps drastically from ₹22.2 million to ₹122.3 million, possibly indicating new infrastructure projects or upgrades — a fivefold increase signalling a shift in developmental priorities.

Attingal Municipality shows a strong upward trend in all major expenditure heads. Revenue expenditure grows from ₹99.9 million to ₹222.4 million, more than doubling over three years. The spending on transferred institutions increases significantly as well, from ₹57.5 million in 2022–23 to ₹123.8 million in 2024–25, aligning with a growing local responsibility in education, health, and welfare services. Loan repayments rise steadily but remain moderate, indicating manageable debt levels. The most remarkable aspect of Attingal's fiscal trajectory is the capital expenditure, which soars from just ₹13.3 million to ₹126.1 million — a ninefold increase — suggesting major investments in civic infrastructure, possibly water supply, road networks, or public amenities.

Nedumangad shows the highest growth rate in total revenue expenditure, more than tripling from ₹151.1 million to ₹533.7 million. This suggests a significant scaling up of municipal operations and services. However, the growth in expenditure on transferred institutions is more moderate, increasing from ₹110.6 million to ₹147.4 million. Loan repayments remain fairly stable, indicating controlled borrowing practices. The municipality also steadily increases its capital expenditure from ₹84.8 million to ₹132.5 million, pointing to consistent investment in infrastructure rather than sudden expansion. Overall, Nedumangad appears to be balancing aggressive service expansion with measured capital investment.

Neyattinkara shows consistent increases in revenue expenditure, which grows from ₹152.3 million to ₹403.1 million over three years, reflecting expansion in recurring costs and administrative functions. The expenditure on transferred institutions nearly doubles as well, rising from ₹117.4 million to ₹269.9 million — one of the highest shares among the smaller municipalities, indicating strong focus on health and education services. Notably, loan repayments remain negligible in the first two years but spike dramatically to ₹200 million in 2024–25. This suggests either the settlement of major past debts or the initiation of a large project through borrowing. Despite this,

capital expenditure stays surprisingly low and fluctuates only marginally, suggesting underutilisation of development budgets or reliance on external funding for capital works.

Thiruvananthapuram Corporation overwhelmingly leads in revenue expenditure, increasing from ₹2.90 billion in 2022–23 to ₹8.06 billion in 2024–25, nearly tripling in three years. This reflects its size, urban complexity, and expanding civic responsibilities. In contrast, Neyattinkara also shows significant growth, from ₹152.3 million to ₹403.1 million, indicating substantial administrative and service expansion. Nedumangad and Attingal follow similar trends, both more than doubling their revenue expenditure. Varkala registers a less dramatic increase in comparison but still nearly doubles its expenditure, growing from ₹140.6 million to ₹281 million. Overall, all municipalities are expanding their operational scope, with Thiruvananthapuram outpacing the rest by a large margin.

In terms of capital expenditure, Thiruvananthapuram again stands out, with investment rising from ₹1.29 billion to nearly ₹3 billion over the three-year period. This points to a major push in infrastructure development. Among smaller municipalities, Attingal shows the sharpest increase — from ₹13.3 million to ₹126.1 million — a nearly tenfold jump, suggesting ambitious development projects are underway. Varkala also shows a substantial rise, from ₹22.2 million to ₹122.3 million. Nedumangad maintains steady but moderate growth, increasing from ₹84.8 million to ₹132.5 million. Neyattinkara, however, lags behind with minimal capital spending, rising only slightly from ₹12.4 million to ₹13.9 million, despite its high operating costs — a potential concern for long-term infrastructure growth.

Spending on transferred institutions (like schools, health centers, etc.) shows clear upward trends across the board, underscoring the deepening of decentralisation. Thiruvananthapuram leads with a massive jump from ₹1.03 billion in 2022–23 to ₹2.53 billion in 2024–25. Neyattinkara follows as the second highest in this category among the smaller municipalities, increasing from ₹117.4 million to ₹269.9 million. This shows Neyattinkara's strong emphasis on institutional responsibilities. Nedumangad, Attingal, and Varkala each exhibit steady growth, with Varkala going from ₹68.4 million to ₹169.2 million, closely mirroring Attingal's rise from ₹57.5 million to ₹123.8 million. Nedumangad climbs from ₹110.6 million to ₹147.4

million. All municipalities show commitment to core public services, with Thiruvananthapuram and Neyattinkara emerging as leaders in this aspect.

Loan repayments remain relatively stable for most municipalities, but two outliers emerge. Thiruvananthapuram consistently repays about ₹70 million annually, showing responsible debt management. Neyattinkara, in contrast, shows a massive spike in 2024–25 with ₹200 million allocated for loan repayment — a dramatic increase from zero in the previous two years, indicating either a one-time debt clearance or a major loan maturing. Attingal shows gradual and modest growth from ₹4.7 million to ₹7.6 million, reflecting a conservative borrowing profile. Nedumangad maintains higher repayments compared to peers (₹20.5 million to ₹21.5 million), likely tied to past infrastructure loans. Varkala has the lowest overall loan repayment burden, rising from zero to ₹2 million by 2024–25.

Thiruvananthapuram dominates across all four expenditure areas, reflecting its scale and responsibilities as a major urban centre. Attingal and Varkala are rapidly expanding capital investments, indicating infrastructure prioritisation. Neyattinkara is notable for its focus on transferred institutions and a sharp rise in loan repayments, suggesting an evolving fiscal strategy. Nedumangad balances moderate growth in all categories. While the overall trend across municipalities is upward, the pace and focus vary, indicating diverse development strategies tailored to local needs and capacities.

4.4 Components of Expenditure in the Selected ULBs

Expenditures include establishment expenses, administrative expenses, operations and maintenance expenses, interest finance charges, statutory expenses and other expenses are discussed below.

4.4.1 Establishment Expenses in Selected ULBs

Establishment expenses represent a major chunk of expenditure across all ULBs, reflecting staff salaries and related personnel costs. Thiruvananthapuram Corporation, being the largest urban local body, consistently incurs the highest establishment expenses. It shows a strong upward trajectory from ₹1.59 billion in 2022–23 to ₹2.17 billion in 2024–25, suggesting either staff expansion or increasing salary burdens due to pay revisions. Neyattinkara Municipality follows as the second highest, escalating

from ₹80 million to ₹128.25 million — a nearly 60% increase, indicating substantial growth in human resources or administrative scaling. Attingal Municipality also shows a significant rise, from ₹71 million to over ₹105 million in three years, reflecting increasing internal staff costs aligned with urban service expansion. Nedumangad and Varkala maintain relatively modest but steady increases, with Nedumangad moving from ₹53 million to ₹73 million and Varkala from ₹62 million to ₹81 million. The pattern indicates a general trend of rising wage-related expenses across municipalities with variations. This is shown in table 4.3

Table 4.3

Establishment Expenses in Selected ULBs

ULB	Total-Establishment Expenses		
	2022-23	2023-24	2024-25
Thiruvananthapuram Corporation	1591800904	1882667660	2169550000
Varkala Municipality	62644285	75724877	81392876
Attingal Municipality	71032789	81510956	105230000
Nedumangad Municipality	53210608	65098850	73895000
Neyattinkara Municipality	80061756	91760000	128250000

Source: Annual Report of ULBs, Consolidated by the Researcher, 2025

4.4.2 Administrative Expenses in Selected ULBs

Administrative expenses, which typically cover office functioning, logistics, and operational governance costs, are highest in Thiruvananthapuram Corporation, rising from ₹55 million in 2022–23 to ₹87.5 million in 2024–25. This reflects its complex governance needs and larger administrative apparatus. Neyattinkara ranks second with a sharp increase from ₹7.6 million to ₹14.85 million, indicating growing administrative overheads as it possibly scales up services or adopts newer governance mechanisms. Attingal also shows a steady climb from ₹3.2 million to ₹8.5 million, more than doubling in three years, suggesting institutional strengthening. Nedumangad's administrative expenses increase modestly to ₹7.7 million, aligning with its moderate growth profile. Varkala remains the leanest in this category, with

expenses moving from ₹2.7 million to just ₹4.12 million, indicating a minimal administrative footprint or efficient cost containment.

Table 4.4

Administrative Expenses in Selected ULBs

ULB	Administrative Expenses		
	2022-23	2023-24	2024-25
Thiruvananthapuram Corporation	55576957	69375590	87530000
Varkala Municipality	2726230	3346100	4120000
Attingal Municipality	3202028	7330000	8485000
Nedumangad Municipality	2758261	6506000	7736300
Neyattinkara Municipality	7586880	11800000	14850000

Source: Annual Report of ULBs, Consolidated by the Researcher, 2025

4.4.3 Operations and Maintenance Expenses in Selected ULBs

Operations and Maintenance (O&M) expenses indicate a municipality's commitment to service delivery and infrastructure upkeep. Thiruvananthapuram Corporation again leads, nearly doubling its O&M spending from ₹469 million in 2022–23 to a significant ₹983 million by 2024–25.

Table 4.5

Operations & Maintenance Expenses in Selected ULBs

ULB	Operations & Maintenance Expenses		
	2022-23	2023-24	2024-25
Thiruvananthapuram Corporation	469436944	425825000	983580000
Varkala Municipality	6931177	8981869	10551000
Attingal Municipality	6709024	12880000	17250000
Nedumangad Municipality	11187158	20660200	27022300
Neyattinkara Municipality	15947111	25190000	21920000

Source: Annual Report of ULBs, Consolidated by the Researcher, 2025

This points to aggressive infrastructure maintenance and perhaps smart city or urban renewal projects. Neyattinkara shows a notable rise as well, from ₹15.9 million to ₹21.9 million, suggesting enhanced focus on local service delivery. Nedumangad records a striking increase from ₹11.2 million to ₹27 million, possibly due to expanded road maintenance, waste management, or public utilities. Attingal, although smaller, increases its O&M outlay from ₹6.7 million to ₹17.25 million, tripling in three years, indicating improving public services. Varkala, while showing a rising trend, remains on the lower side, reaching just ₹10.5 million by 2024–25, possibly a result of limited infrastructure or conservative budgeting.

4.4.4 Interest Finance Charges in Selected ULBs

Interest finance charges reflect the municipalities' debt obligations and borrowing levels. Neyattinkara stands out with a sharp rise from ₹1.99 million in 2022–23 to ₹6.03 million in 2024–25, the highest among all ULBs.

Table 4.6

Interest Finance Charges in Selected ULBs

ULB	Interest Finance Charges		
	2022-23	2023-24	2024-25
Thiruvananthapuram Corporation	119395	320000	400000
Varkala Municipality	28580	30000	35000
Attingal Municipality	250187	3590000	3893000
Nedumangad Municipality	205613	395000	505000
Neyattinkara Municipality	1998559	5025000	6030000

Source: Annual Report of ULBs, Consolidated by the Researcher, 2025

This suggests either recent infrastructure loans or accumulated debt servicing requirements. Attingal also shows a notable increase from ₹250K to ₹3.89 million, indicating a similar trend of rising debt commitments. Nedumangad and Thiruvananthapuram maintain relatively low levels, with Thiruvananthapuram's charges increasing modestly from ₹119K to ₹400K, showing strong financial health or preference for internal funding. Varkala has minimal finance charges, rising only from ₹28K to ₹35K, indicating no substantial borrowings or loan dependence.

4.4.5 Other Expenses in Selected ULBs

"Other Expenses" vary widely across ULBs, possibly covering discretionary spending or unforeseen obligations. Thiruvananthapuram Corporation tops the list, rising from ₹56.8 million to ₹131 million in three years. This could reflect increased allocations for city-level programs or flexible funding needs. Attingal also shows a marked rise from ₹10 million to ₹21.5 million, aligning with its overall expansion in spending. Nedumangad's other expenses decline after a peak in 2022–23, stabilising at ₹2.95 million in 2024–25, suggesting better cost control or one-time expenditures being phased out. Neyattinkara, which had no such expenses in 2022–23, starts incurring ₹5.5 million by 2024–25, indicating the inclusion of new expense heads. Varkala remains extremely conservative, with a marginal increase to ₹100K reinforcing its minimalist budgeting style.

Table 4.7

Other Expenses in Selected ULBs

ULB	Other Expenses		
	2022-23	2023-24	2024-25
Thiruvananthapuram Corporation	56873576	97800000	131000000
Varkala Municipality	0	50000	100000
Attingal Municipality	10025422	13000000	21500000
Nedumangad Municipality	13711825	2550000	2950000
Neyattinkara Municipality	0	4500000	5500000

Source: Annual Report of ULBs, Consolidated by the Researcher, 2025

4.4.6. Total Statutory Expenditure in Selected ULBs

Total statutory expenditure summarises all mandatory expense heads and reflects overall fiscal size and obligations. Thiruvananthapuram Corporation has the highest and steepest growth, increasing from ₹2.17 billion to ₹3.37 billion — a clear sign of rapid urban expansion, increased staffing, and services. Neyattinkara follows with a significant leap from ₹105 million to ₹176.5 million, reflecting expanded infrastructure and human resource investment. Attingal's statutory expenditure also surges, reaching ₹156 million, closely trailing Neyattinkara, and is indicative of growing municipal responsibilities. Nedumangad's figures grow more modestly from

₹67 million to ₹112 million, showing a stable and measured expansion. Varkala remains the most fiscally conservative, moving only from ₹72 million to ₹96 million, indicating limited growth or tight budget control. The data clearly shows a tiered structure in the ULB scale, with Thiruvananthapuram operating at a magnitude higher than the rest, while smaller municipalities show varied trajectories of financial growth.

Table 4.8

Total Statutory Expenditure in Selected ULBs

ULB	Total Statutory Expenditure		
	2022-23	2023-24	2024-25
Thiruvananthapuram Corporation	2173807776	2475988250	3372060000
Varkala Municipality	72330272	88132846	96198876
Attingal Municipality	91219450	118310956	156358000
Nedumangad Municipality	67833465	95210050	112108600
Neyattinkara Municipality	105594306	138275000	176550000

Source: Annual Report of ULBs, Consolidated by the Researcher, 2025

Thiruvananthapuram Corporation stands out with the highest expenditure across all major heads, significantly surpassing other ULBs in establishment costs, operations & maintenance, and statutory spending. This highlights the scale of urban governance challenges and the operational intensity required in a metropolitan setup. Its statutory expenditure jumps from approximately ₹2,173 crore in 2022-23 to over ₹3,372 crore in 2024-25, indicating a strong upward trend in institutional and service delivery costs, possibly driven by infrastructure expansion and administrative growth. Varkala Municipality, on the other end of the spectrum, maintains a modest and relatively stable expenditure profile. Its consistent yet limited increases in establishment and administrative costs suggest controlled urban growth or limited financial resources. With a statutory expenditure rising from ₹7.2 crore to ₹9.6 crore over three years, the growth is incremental, indicating restrained capital expansion or reliance on higher-tier funding for development activities.

Attingal Municipality shows a sharper increase in expenditures compared to Varkala, particularly in operations & maintenance and administrative costs. The steep rise in interest finance charges in 2023-24 and 2024-25 implies recent borrowings, possibly for capital-intensive projects. The increase in statutory expenditure from ₹9.1 crore in 2022-23 to ₹15.6 crore in 2024-25 suggests an ambitious developmental push. Nedumangad Municipality maintains moderate but steadily growing expenses. Notably, it balances its rising establishment and operations costs with relatively conservative administrative and interest finance charges. Its statutory expenditure growth, from ₹6.7 crore to ₹11.2 crore, aligns with steady urban development without overextending financial commitments. Neyyattinkara Municipality displays one of the more aggressive growth trajectories in expenditure. Its administrative and operations & maintenance expenses more than double over the three years, and a steep rise in statutory expenditure—from ₹10.5 crore in 2022-23 to ₹17.6 crore in 2024-25—reflects substantial expansion in governance scope.

4.5 Decentralised Plan Programme in the Selected ULBs

Thiruvananthapuram Corporation exhibits the most expansive growth, with its total decentralised plan outlay increasing from ₹144.7 crore in 2022–23 to ₹358.3 crore in 2024–25. Most of this is directed towards the service sector, which alone accounts for ₹349.6 crore in 2024–25. Interestingly, infrastructure spending shows fluctuations—after a dip in 2023–24, it rebounds sharply in 2024–25. This pattern suggests that while Thiruvananthapuram prioritises human development services, capital-intensive infrastructure projects are planned in phases.

Varkala Municipality, by contrast, operates on a much smaller fiscal scale. Its total plan outlay grows moderately from ₹3.17 crore to ₹5.99 crore over three years, with a higher emphasis on the service sector, though its infrastructure allocation also shows a gradual increase. The figures suggest a cautious and steady approach to development, with Varkala likely balancing limited resources against essential service needs. Attingal Municipality reflects a more dynamic trajectory. Its decentralised plan nearly triples between 2022–23 and 2024–25, with substantial increases in both service and infrastructure sectors. This indicates a strategic expansion of urban development initiatives, aligning with the municipality's likely aspirations for integrated growth.

Nedumangad Municipality also shows impressive growth in its decentralised plan spending, with total allocations jumping from ₹2.41 crore to ₹8.68 crore. A significant increase is seen in service sector investments, reaching ₹39.5 crore in 2024–25. Infrastructure spending also increases, though at a slightly more moderate pace.

This suggests a strong shift toward social development and public welfare while maintaining infrastructure improvement. Meanwhile, Neyyattinkara Municipality displays a mixed pattern. Its plan spending rises sharply in 2023–24 but then declines to ₹2.01 crore in 2024–25. However, despite the drop in total allocation, spending on both service and infrastructure sectors continues to grow, indicating that other sources or fund reallocations may be supplementing these initiatives.

There is a clear trend across ULBs is that prioritises of the service sector, with infrastructure receiving rising attention as capacity and resources permit. Thiruvananthapuram remains the fiscal leader, while municipalities like Nedumangad and Attingal demonstrate forward momentum. Varkala maintains stability, and Neyyattinkara reflects volatility with potential re-strategisation in its financial planning. These patterns collectively underscore the diverse developmental stages and priorities of urban local bodies in the region.

The total decentralised plan programme represents the overall investment each ULB allocates for local development under decentralised governance. Thiruvananthapuram Corporation leads by a wide margin, increasing its allocation from ₹144.7 crore in 2022–23 to ₹358.3 crore in 2024–25. This sharp rise signifies a strong push towards comprehensive development and service delivery reforms. Neyyattinkara and Nedumangad show substantial increases as well, with Neyyattinkara peaking in 2023–24 (₹146.1 crore) before a sharp drop in 2024–25. Nedumangad steadily rises from ₹2.41 crore to ₹8.68 crore. Attingal exhibits a gradual and consistent increase, showing growth from ₹85.7 lakh to ₹2.24 crore, while Varkala remains modest and stable, increasing from ₹3.17 crore to ₹5.99 crore. This component reveals that larger ULBs like Thiruvananthapuram are rapidly scaling up their decentralised investments, while smaller municipalities are growing steadily but with lower fiscal bandwidth.

Table 4.9

Decentralised Plan Programme in the Selected ULBs

ULBs	Total Decentralised Plan Programme			Total Decentralised Plan Programme - Service Sector			Total-Decentralised Plan Programme - Infrastructure Sector		
	2022-23	2023-24	2024-25	2022-23	2023-24	2024-25	2022-23	2023-24	2024-25
Thiruvananthapuram Corporation	1447437120	1681692692	3582860000	820956449	1898502039	3495740000	632723864	257500000	978550000
Varkala Municipality	31697279	49317138	59905000	91855267	146377638	170490000	17056474	46955845	50650000
Attingal Municipality	8579007	17917290	22410000	59887398	143984245	140470000	31443209	55173869	59500000
Nedumangad Municipality	24132334	76154287	86806000	101453983	144633940	395400000	25527288	52113531	51500000
Neyattinkara Municipality	44308405	146140372	20173978	880082542	117152951	124835000	19948935	71838416	74596800

Source: Annual Report of ULBs, Consolidated by the Researcher, 2025

Decentralised plan programme – service sector reflects allocations toward human-centric development—health, education, sanitation, welfare schemes, and livelihood programs. Thiruvananthapuram dominates again with a massive rise from ₹82.1 crore in 2022–23 to ₹349.6 crore in 2024–25, indicating a service-sector-first approach in urban development. Nedumangad follows with a striking increase from ₹10.1 crore to ₹39.5 crore, signifying a shift toward citizen welfare initiatives. Attingal and Varkala both demonstrate aggressive service sector growth, reaching over ₹14 crore and ₹17 crore respectively by 2024–25.

Neyyattinkara invests consistently in this sector, maintaining strong figures across all years, reaching ₹12.48 crore in 2024–25, despite its dip in total plan allocation. This component indicates that all ULBs prioritise the service sector, likely due to its direct impact on quality of life and public satisfaction.

The infrastructure sector component includes roads, public utilities, drainage, buildings, and other physical development projects. Thiruvananthapuram's infrastructure spending fluctuates, starting at ₹63.3 crore in 2022–23, dipping in 2023–24, and climbing again to ₹97.9 crore in 2024–25, suggesting phased project implementation. Attingal, Nedumangad, and Neyyattinkara all show moderate but steady increases, crossing ₹5 crore each by 2024–25. These ULBs appear to be gradually upgrading urban infrastructure in line with service improvements. Varkala follows a similar trend, increasing from ₹1.7 crore to ₹5.06 crore, reflecting its growing urban needs despite limited budgets. This component underscores a growing emphasis on physical development, though the magnitude varies based on municipality size and fiscal capacity.

4.6 Finance to Education in the Selected ULBs

The analysis of education-related financial allocations by the selected Urban Local Bodies (ULBs) reveals distinct patterns in priority, consistency, and investment strategy toward the education sector between 2022–23 and 2024–25. Thiruvananthapuram Corporation, being the largest and most resource-rich ULB among the five, shows the highest absolute allocation across all years. It began with ₹5.75 crore in 2022–23 and peaked at ₹7 crore in 2023–24, indicating a strong commitment to educational development.

Table 4.10

Finance to Education in the Selected ULBs

ULB	Finance to Education-Related Activities		
	2022-23	2023-24	2024-25
Thiruvananthapuram Corporation	57549424	70000000	36000000
Varkala Municipality	2220770	2500000	3000000
Attingal Municipality	3926319	2364076	2500000
Nedumangad Municipality	5860563	4000000	6500000
Neyattinkara Municipality	325000	1674900	500000

Source: Annual Report of ULBs, Consolidated by the Researcher, 2025

However, there is a significant drop to ₹3.6 crore in 2024–25, a reduction of nearly 49 per cent. This may reflect a shift in funding strategy, project completion in prior years, or reallocation of funds to other service sectors. Still, Thiruvananthapuram's investment level remains substantially higher than other ULBs, underlining its role as a regional educational hub.

Varkala Municipality shows a steady, incremental increase in educational expenditure from ₹22.2 lakh in 2022–23 to ₹30 lakh in 2024–25. This consistent upward trend, although modest in volume, reflects a stable commitment to improving local education services. The investment levels likely align with its population size and fiscal capacity, suggesting careful planning within available resources.

Attingal Municipality presents a fluctuating pattern. It began with ₹39.2 lakh in 2022–23, saw a sharp decline to ₹23.6 lakh in 2023–24, and then a slight increase to ₹25 lakh in 2024–25. This inconsistency could indicate short-term project-based allocations or adjustments in priority due to fiscal pressures or reallocation toward other sectors. Despite this, Attingal's average investment remains among the top three in the group.

Nedumangad Municipality has shown a consistently proactive approach toward education funding. Starting with ₹58.6 lakh in 2022–23, it dipped slightly in 2023–24 to ₹40 lakh but rebounded to ₹65 lakh in 2024–25—the highest allocation among all ULBs except Thiruvananthapuram in that year. This upward trajectory signals a

deliberate and increasing focus on educational development, possibly driven by infrastructure upgrades or service expansion.

Neyyattinkara Municipality, on the other hand, has the lowest and most erratic investment pattern. With just ₹3.25 lakh in 2022–23, it jumped unexpectedly to ₹16.7 lakh in 2023–24, followed by a sharp drop to ₹5 lakh in 2024–25. These sharp variations may point to one-time project funding or ad-hoc budgeting rather than a long-term strategy for educational development.

Thiruvananthapuram and Nedumangad emerge as the leading ULBs in terms of commitment to education, both in terms of volume and growth. Varkala maintains a reliable, though small, upward trend, while Attingal displays fluctuations that may merit closer planning. Neyyattinkara's erratic pattern and relatively low funding highlight the need for more strategic, sustained investments in education to ensure equity in educational service delivery across all municipalities.

4.7 Finance to the Health Sector in the Selected ULBs

The analysis of funding allocated to health-related programs across the selected Urban Local Bodies (ULBs) from 2022–23 to 2024–25 highlights varying degrees of commitment, fiscal trends, and likely responsiveness to public health needs. Thiruvananthapuram Corporation, as the capital city and the largest ULB in the dataset, allocated ₹2.56 crore in 2022–23, which surged dramatically to ₹6 crore in 2023–24 an increase of over 134 per cent. This steep rise may reflect intensified health interventions during or after public health emergencies, capacity building, or expansions in public health infrastructure. However, a substantial reduction is seen in 2024–25, where the allocation dips to ₹2.95 crore. While still relatively high, the drop suggests a possible tapering off of temporary programs or a strategic reallocation of funds after peak interventions.

Nedumangad Municipality stands out as a smaller ULB that shows sustained and growing investment in health. From ₹29.1 lakh in 2022–23, the funding more than doubled to ₹77.8 lakh in 2023–24 and further increased to ₹85 lakh in 2024–25. This steady and significant rise underscores a clear prioritisation of health over the three years, likely in response to community health demands, strengthening of primary care services, or infrastructure upgrades.

Table 4.11

Finance to Health in the Selected ULBs

ULB	Finance to Health-related Programs		
	2022-23	2023-24	2024-25
Thiruvananthapuram Corporation	25633614	60000000	29500000
Varkala Municipality	3759082	3855000	4000000
Attingal Municipality	1682149	5005690	6500000
Nedumangad Municipality	2914890	7783978	8500000
Neyattinkara Municipality	3736965	450000	3000000

Source: Annual Report of ULBs, Consolidated by the Researcher, 2025

Attingal Municipality also shows a sharply upward trajectory. Its health spending rose from ₹16.8 lakh in 2022–23 to ₹50 lakh in 2023–24 and then reached ₹65 lakh in 2024–25. This consistent increase signals a growing focus on health services, perhaps in response to demographic changes or public expectations. Attingal's pace of growth is particularly notable considering its lower starting base.

Varkala Municipality presents a much more modest increase. Health funding was ₹37.6 lakh in 2022–23 and only gradually rose to ₹40 lakh by 2024–25. Although the trend is upward, the increase is relatively flat and may suggest either limited fiscal space or a lower prioritisation of health compared to other sectors.

Neyyattinkara Municipality displays a highly irregular trend. While the allocation in 2022–23 was a healthy ₹37.3 lakh, it unexpectedly plummeted to just ₹4.5 lakh in 2023–24—a drastic 88 per cent cut. In 2024–25, it rebounded slightly to ₹30 lakh but remained below its 2022–23 level. This volatile funding pattern may indicate abrupt policy shifts, reallocation of health budgets, or dependency on external funding sources that vary across years.

Nedumangad and Attingal emerge as consistent climbers in terms of health investment, reflecting growing strategic emphasis. Thiruvananthapuram Corporation maintains leadership in absolute volume but shows signs of de-escalation after a peak. Varkala follows a flat but steady path, while Neyyattinkara reveals significant

volatility, suggesting a need for more stable and strategic planning in its health sector financing.

4.8 Finance to Drinking Water, Sanitation and Waste Management in the Selected ULBs

The analysis of public investments in Drinking Water and Sanitation & Waste Management across the selected Urban Local Bodies (ULBs) reveals distinct trends in priorities, scalability, and infrastructure planning over the period 2022–23 to 2024–25.

Thiruvananthapuram Corporation leads with the most aggressive expansion in both sectors. In terms of Drinking Water, the allocation increased sharply from just ₹94.95 lakh in 2022–23 to ₹5 crore in 2023–24, and then exponentially to ₹222 crore in 2024–25. This extraordinary leap may suggest the launch of major city-wide water infrastructure projects or central/state-funded schemes in the final year. Similarly, Sanitation & Waste Management shows a substantial jump from ₹2.25 crore in 2022–23 to ₹9 crore in 2023–24 and further to ₹209.09 crore in 2024–25. This indicates a strategic focus on environmental hygiene, urban cleanliness drives, or the development of waste-to-energy and decentralised waste treatment systems. Thiruvananthapuram's investment scale highlights its metropolitan character and evolving urban needs.

Varkala Municipality, though significantly smaller, shows consistent progress. In Drinking Water, allocations rose steadily from ₹2.12 lakh in 2022–23 to ₹2.85 crore in 2024–25. The sanitation allocations also show a steady upward trend—from ₹61.91 lakh in 2022–23 to ₹2.1 crore in 2024–25. These increases suggest an effort to systematically strengthen the basic amenities and improve service coverage for residents, though on a modest financial scale compared to the capital city.

Attingal Municipality presents one of the most dramatic percentage increases in both sectors. Starting from a negligible ₹30,000 in drinking water in 2022–23, it ramped up to ₹2.55 crore by 2024–25, indicating a shift from neglect to active investment. In Sanitation, the rise is equally impressive, from ₹20.3 lakh in 2022–23 to over ₹3 crore in 2023–24, though dipping slightly to ₹1.8 crore in 2024–25. This may indicate peaking project-based expenditure followed by operational or maintenance budgeting.

Table 4.12

Finance to Drinking Water, Sanitation and Waste Management in the Selected ULBs

ULBs	Drinking Water - Public			Sanitation & Waste Management - Public		
	2022-23	2023-24	2024-25	2022-23	2023-24	2024-25
Thiruvananthapuram Corporation	9495769	50000000	222000000	22535129	90000000	209090000
Varkala Municipality	212618	20550000	28500000	6191555	19000000	21000000
Attingal Municipality	30000	22367399	25560000	2031292	30436746	18000000
Nedumangad Municipality	1618741	9142929	9500000	10955161	7118000	8500000
Neyattinkara Municipality	6443040	5000000	5000000	25009113	3500000	3500000

Source: Annual Report of ULBs, Consolidated by the Researcher, 2025

Attingal seems to be catching up quickly to address previously underfunded urban services. Nedumangad Municipality shows moderate and steady investment growth. Drinking Water allocations grew from ₹16.18 lakh to ₹95 lakh over three years, and Sanitation funding rose from ₹1.09 crore to ₹85 lakh. While the sanitation budget decreases by 2024–25, it's possible that prior-year investments created infrastructure that now requires reduced funding. The trend overall reflects a balanced and possibly resource-constrained yet sustainable approach to utility provisioning.

Neyyattinkara Municipality stands out for its stagnation in Drinking Water at ₹50 lakh per year from 2023–24 to 2024–25, following an initial ₹64.43 lakh in 2022–23. This flat trend could imply either completed projects or budgetary limitations. However, in Sanitation, there's a sharp drop from ₹2.5 crore in 2022–23 to just ₹35 lakh in subsequent years. This abrupt decline raises concerns about continuity, capacity to manage urban waste, or shifting priorities, possibly due to changing governance or reallocation of funds.

Thiruvananthapuram Corporation dominates both sectors in terms of total allocation and growth trajectory, indicating its preparedness for long-term infrastructure upgrades. Attingal and Varkala show noteworthy increases, especially from low baselines, highlighting improving focus on basic urban amenities. Nedumangad maintains moderate yet consistent investment patterns, while Neyyattinkara reveals declining or stagnant trends, especially concerning in sanitation. These variations reflect both the differentiated needs and capacities of these municipalities and underscore the importance of tailored, sustainable urban utility planning across Kerala's ULBs.

4.9 Finance to Local Government Service Delivery Improvement

Thiruvananthapuram Corporation shows a significant and sustained commitment to enhancing local government service delivery over the three-year period. Starting with ₹1.05 crore in 2022–23, the investment leaps to ₹5 crore in 2023–24 and slightly increases to ₹5.58 crore in 2024–25. This steep growth suggests an aggressive push towards administrative reforms, digital governance initiatives, citizen service portals, and possibly decentralised service delivery systems. The Corporation's large-scale investment reflects its role as a metropolitan hub, necessitating efficient governance frameworks to match the growing urban population and administrative complexity.

Varkala Municipality has shown a gradual but consistent increase in funding, from ₹5.97 lakh in 2022–23 to ₹7 lakh in 2023–24 and ₹10.2 lakh in 2024–25. Although the absolute figures remain modest, the rising trend reflects a growing recognition of the importance of service delivery mechanisms, likely in areas such as grievance redressal, automation of public services, and improvements in civic infrastructure accessibility.

Table 4.13

Finance to Local Government Service Delivery Improvement in the Selected ULBs

ULB	Local Government Service Delivery Improvement		
	2022-23	2023-24	2024-25
Thiruvananthapuram Corporation	10594610	50000000	55800000
Varkala Municipality	597368	700000	1020000
Attingal Municipality	206958	2371963	2500000
Nedumangad Municipality	792488	2113902	2500000
Neyattinkara Municipality	0	1500000	350000

Source: Annual Report of ULBs, Consolidated by the Researcher, 2025

Attingal Municipality demonstrates a notable jump in its allocation toward service delivery enhancement, from just ₹2.07 lakh in 2022–23 to a substantial ₹23.72 lakh in 2023–24 and ₹25 lakh in 2024–25. This increase suggests a strategic shift, perhaps with support from state programs, to improve administrative responsiveness, citizen engagement, and infrastructure monitoring systems. The consistent increase also indicates an ongoing or phased implementation of service modernisation projects.

Nedumangad Municipality exhibits a similar trajectory to Attingal, beginning with ₹7.92 lakh in 2022–23 and rising to ₹21.13 lakh in 2023–24 and ₹25 lakh in 2024–25. This growth reflects the municipality's increasing focus on e-governance, real-time monitoring, and possibly enhancing transparency and efficiency in public services.

Neyyattinkara Municipality's performance is mixed. While there was no allocation in 2022–23, it invested ₹15 lakh in 2023–24, indicating a late but promising entry into service delivery improvement efforts. However, the allocation drops to ₹3.5 lakh in

2024–25, signalling either project completion, reallocation of resources, or a reduction in priority. This decline could hinder long-term benefits unless alternative strategies are being pursued.

Across all ULBs, there is a positive trend toward improving service delivery, with marked disparities in the scale and consistency of investment. Thiruvananthapuram Corporation stands out with robust and growing allocations, underscoring its leadership in urban governance innovation. Attingal and Nedumangad reflect a strong intent to modernise service delivery, while Varkala shows steady, incremental progress. Neyyattinkara, although late to initiate investment, needs to maintain consistency to ensure sustained impact. The overall data suggests a growing awareness across municipalities of the need to strengthen citizen-facing services, but the scale and pace vary widely based on local capacities, priorities, and possibly access to external funding.

4.10 Finance to Transferred Institution Service Delivery Improvement

Thiruvananthapuram Corporation shows a steady investment pattern in improving service delivery for transferred institutions, such as primary health centres, schools, and welfare centres, which are now under municipal administration. The allocation begins at ₹1.20 crore in 2022–23, slightly increases to ₹1.25 crore in 2023–24, and then tapers off to ₹1 crore in 2024–25.

Table 4. 14

Finance to Transferred Institution Service Delivery Improvement in the Selected ULBs

ULB	Transferred Institution Service Delivery Improvement		
	2022-23	2023-24	2024-25
Thiruvananthapuram Corporation	12023466	12500000	10000000
Varkala Municipality	815741	900000	1000000
Attingal Municipality	836927	280000	1000000
Nedumangad Municipality	812263	330959	900000
Neyattinkara Municipality	0	700000	595000

Source: Annual Report of ULBs, Consolidated by the Researcher, 2025

This trend suggests a strong initial focus on strengthening institutional frameworks, perhaps through infrastructure, staff capacity building, or integration of digital systems. The marginal dip in the final year may reflect the completion of major planned interventions or a strategic shift toward other priorities.

Varkala Municipality demonstrates a consistent and incremental approach to service delivery improvements for transferred institutions. Starting from ₹8.15 lakh in 2022–23, the municipality raises its allocation to ₹9 lakh in 2023–24 and ₹10 lakh in 2024–25. This steady growth, although modest in scale, suggests a structured plan to enhance local institutional performance, possibly focusing on areas like school maintenance, basic facility upgrades, and streamlined local health delivery systems.

Attingal Municipality reflects a less consistent pattern. While it allocated ₹8.37 lakh in 2022–23, funding dropped significantly to ₹2.8 lakh in 2023–24 before rising again to ₹10 lakh in 2024–25. The dip may indicate funding bottlenecks, policy realignment, or a delay in project implementation. However, the sharp increase in the final year suggests a renewed or deferred investment in this area, possibly influenced by program reassessments or additional support from state schemes.

Nedumangad Municipality also shows irregularity in its allocations. The initial funding of ₹8.12 lakh in 2022–23 declines to ₹3.31 lakh in 2023–24, before increasing to ₹9 lakh in 2024–25. Similar to Attingal, this inconsistency may indicate challenges in project execution or prioritisation. The final year's increased funding could signify an attempt to complete pending improvements in facilities like anganwadis, libraries, or local clinics transferred from state departments to the municipality.

Neyyattinkara Municipality had no allocation toward transferred institutions in 2022–23, but it invested ₹7 lakh in 2023–24 and slightly reduced the figure to ₹5.95 lakh in 2024–25. This late initiation highlights either delayed decentralisation processes or a lack of initial capacity to support transferred functions. Despite a downward trend in the third year, the introduction of funds shows an emerging recognition of the need to enhance institutional service quality under its purview.

The analysis of transferred institutional service delivery investments reveals varied municipal responses to decentralisation mandates. Thiruvananthapuram Corporation

leads in both consistency and magnitude of funding, indicative of a proactive approach to institutional development and governance efficiency. In contrast, Varkala maintains a slow but steady investment trajectory, while Attingal and Nedumangad struggle with consistency despite eventually allocating adequate resources. Neyyattinkara, although a late entrant, signals positive intent but needs to ensure continuity in efforts. The disparities underscore differing levels of administrative readiness, resource availability, and prioritisation across ULBs in managing and upgrading transferred public institutions.

Conclusion

Thiruvananthapuram consistently outperforms all other municipalities in every revenue category, reflecting its scale, infrastructure, and administrative efficiency. Among the smaller municipalities, Attingal and Neyattinkara show the most promising growth across both tax and non-tax revenue, with total revenues rising accordingly. Nedumangad presents steady but slower progress. Varkala stands out for its weak and inconsistent performance, especially in non-tax revenue, which significantly affects its overall fiscal health. This analysis highlights the need for targeted revenue strategies and capacity building, particularly in underperforming municipalities.

Across all municipalities, there is a clear trend of rising revenue and capital expenditures, indicating broader roles, greater administrative costs, and ambitious development agendas. Thiruvananthapuram remains the leader in both scale and investment, while Attingal and Varkala show aggressive capital spending growth. Nedumangad leads in proportional revenue expenditure growth, and Neyattinkara presents a unique case with high institutional spending and a sudden loan repayment jump, potentially heralding major future infrastructure investments. The data reveals a collective movement toward greater decentralisation, improved urban services, and infrastructure expansion in Kerala's urban local bodies.

A detailed analysis indicates that establishment expenses dominate the expenditure structure in all ULBs, especially Thiruvananthapuram, indicating personnel-heavy operations. Operations and maintenance expenses show sharp increases, especially in Neyyattinkara and Attingal, suggesting a focus on service delivery improvements. Administrative Expenses remain relatively controlled across all ULBs, though they

are rising in Neyyattinkara and Attingal. Interest Finance Charges are notably high in Neyyattinkara and Attingal, implying a reliance on debt to finance recent capital activities. Other Expenses are minimal or non-existent in smaller municipalities but contribute significantly in Thiruvananthapuram, indicating the scale of discretionary or contingency-based spending.

Across all components, the trend is clear: Thiruvananthapuram Corporation leads in scale and growth, while other ULBs are progressively increasing their decentralised investments with a shared focus on service sector development. The infrastructure component is gaining traction across the board, albeit more gradually. This component-wise view highlights a developmental transition across municipalities, where governance is becoming more citizen-centric while simultaneously preparing for urban expansion and infrastructure needs.

Thiruvananthapuram and Nedumangad emerge as the leading ULBs in terms of commitment to education, both in terms of volume and growth. Varkala maintains a reliable, though small, upward trend, while Attingal displays fluctuations that may merit closer planning. Neyyattinkara's erratic pattern and relatively low funding highlight the need for more strategic, sustained investments in education to ensure equity in educational service delivery across all municipalities.

Nedumangad and Attingal emerge as consistent climbers in terms of health investment, reflecting growing strategic emphasis. Thiruvananthapuram Corporation maintains leadership in absolute volume but shows signs of de-escalation after a peak. Varkala follows a flat but steady path, while Neyyattinkara reveals significant volatility, suggesting a need for more stable and strategic planning in its health sector financing.

The most striking increase in drinking water investments is seen in Thiruvananthapuram Corporation, where allocations surged from ₹94.95 lakh in 2022–23 to a massive ₹222 crore by 2024–25. This exponential growth indicates large-scale water infrastructure projects possibly supported by state or central funding. Other ULBs such as Attingal and Varkala also demonstrated significant increases, suggesting efforts to improve water accessibility and quality in smaller municipalities. Nedumangad showed a steady but modest rise, while Neyyattinkara

maintained a consistent ₹50 lakh allocation over the last two years, suggesting either stable infrastructure or funding stagnation.

In sanitation, Thiruvananthapuram Corporation again leads with investment rising from ₹2.25 crore to ₹209.09 crore, reflecting major initiatives likely aimed at urban cleanliness and waste processing. Attingal saw an impressive spike in 2023–24, peaking at over ₹3 crore, before slightly declining. Varkala maintained a steady upward trend in sanitation investments, while Nedumangad displayed moderate funding. Neyyattinkara, however, recorded a steep drop from ₹2.5 crore in 2022–23 to ₹35 lakh in the subsequent years, indicating a potential decline in sanitation focus or completion of major projects.

The analysis of service delivery improvements across the selected Urban Local Bodies (ULBs) reveals key trends in the decentralisation and functional strengthening of urban governance, particularly in two critical domains: Local Government Service Delivery Improvement and Transferred Institution Service Delivery Improvement. Thiruvananthapuram Corporation, as the capital city and the most resource-rich ULB, consistently emerges as the frontrunner in both categories. It demonstrates a strong and sustained focus on improving service delivery, with substantial financial outlays. The corporation's increasing allocation towards local government service improvement, from ₹1.06 crore to ₹5.58 crore, alongside its significant and relatively stable support for transferred institutions, indicates a mature governance model. There is a clear divide between larger, resource-endowed ULBs like Thiruvananthapuram and smaller municipalities, where capacity gaps and inconsistent allocations challenge sustained service delivery improvement. Effective decentralisation requires not only the transfer of responsibilities but also adequate financial and administrative capacity at the local level. For future reforms, there is a strong case for targeted capacity building, performance-linked grants, and technical support for weaker municipalities to ensure that service delivery improvements, especially in transferred functions, translate into tangible outcomes for urban citizens.

In all financial matters, Thiruvananthapuram Corporation performed well compared to other ULBs. Thus, the policymakers set the benchmark to enhance the financial allocation to other ULBs as well.

CHAPTER V

TECHNICAL EFFICIENCY OF THE HEALTHCARE SYSTEM IN URBAN LOCAL BODIES IN THIRUVANANTHAPURAM DISTRICT

This chapter looks into the technical efficiency of the healthcare systems in the selected ULBs in the Thiruvananthapuram district. The chapter starts with a detailed profile of selected hospitals, then analyses the technical efficiency of the last 10 years using the DEA model. This chapter also discussed the perceptions of staff and patients/bystanders in relation to management efficiency, accessibility of health care services, hospital facilities and quality of treatment.

5.1 Overview of Selected Hospitals

Thaluk and District hospitals from the selected municipalities were considered for measuring the technical efficiency. The profile of the sample hospitals is explained below.

5.1.1 Number of Medical Staff in the Selected Hospitals.

Thiruvananthapuram Corporation, being the largest urban centre and administrative hub, consistently leads across all categories. The number of permanent doctors increased from 68 in 2014 to 78 in 2024, with temporary doctors' stable around 7–8, reflecting institutional stability and sufficient workforce allocation. For paramedical staff, the numbers grew from 420 (permanent) in 2014 to 450 in 2024. Temporary staff showed moderate expansion from 121 to 131–132, indicating auxiliary support to meet rising service demand without making permanent appointments. In the case of nurses, the Corporation had 165 permanent nurses consistently until 2020, which then rose to 168 in 2020 and 170 by 2022, reflecting service expansion. Temporary nurses were few (5 throughout), indicating a strong reliance on full-time staff. The Corporation's consistent and well-planned staffing reflects a robust healthcare policy and resource prioritisation.

Neyyattinkara Municipality has demonstrated significant strides in scaling up its healthcare staff. Permanent doctors increased from 31 in 2014 to 38 in 2024, and temporary doctors from 4 to 7, suggesting progressive expansion of clinical

capacity. The paramedical staff strength remained fixed at 205 permanent staff, but temporary staff witnessed a steep surge**,** from 43 in 2014 to 147 in 2024. This indicates a flexible hiring model, perhaps to adapt to rising demand without incurring long-term expenditure.

Regarding nurses, the number of permanent staff remained fixed at 72, whereas temporary nurses increased notably**,** from 3 in 2014 to 24 in 2024. The significant reliance on temporary nurses after 2020 (jumping from 3 to 21 in 2021 and then to 24) suggests intensified demand or special initiatives, possibly tied to public health missions, post-COVID health system strengthening, or population growth.

Nedumangad Municipality presents a stable but relatively flat growth curve. Permanent doctors increased modestly from 21 in 2014 to 24 in 2024, and temporary doctors hovered between 2 and 3, indicating maintenance-level staffing rather than dynamic expansion.

The number of paramedical staff remained nearly static: permanent staff ranged between 38 and 40, while temporary staff remained constant at 3–4. This implies minimal expansion in healthcare support services. As for nurses, the data shows 28 permanent nurses until 2021, dropping slightly to 27 in the final years. Temporary nurses remained consistent at 4, rising only marginally to 6 in later years. The low variation across all staffing categories points to the constrained financial resources, administrative inertia, and a relatively static demand for healthcare services.

Attingal Municipality has shown moderate but steady development. Permanent doctors rose from 18 in 2014 to 23 in 2024, with temporary doctors fluctuating between 2 and 4. While the numbers remain modest, there's clear growth over the decade. Paramedical staff has also increased incrementally. Permanent staff hovered around 44–45, while temporary staff increased from 2 in 2014 to 5 in 2024, showing limited but noticeable reliance on non-permanent staff.

For nurses, permanent positions declined slightly from 25 to 23, while temporary appointments increased from 5 to 8. This trend suggests a shift from permanent to contract-based hiring, possibly reflecting budget-conscious staffing policies while ensuring uninterrupted services.

Table 5.1

Number of Doctors in the Selected Hospitals

Year	Varkala Municipality		Nedumangad Municipality		Thiruvananthapuram Corporation		Neyyattinkara Municipality		Attingal Municipality	
	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary
2014	18	4	21	3	68	7	31	4	18	3
2015	18	3	21	3	68	7	33	4	19	4
2016	18	2	21	3	68	8	33	5	19	4
2017	21	2	21	3	69	7	35	5	20	3
2018	21	1	23	2	70	7	34	6	20	3
2019	20	3	23	2	72	7	38	7	21	3
2020	20	3	23	2	72	7	36	7	23	2
2021	20	2	23	2	72	7	39	6	24	2
2022	20	3	24	2	75	7	38	7	24	1
2023	20	3	24	3	74	7	38	7	23	2
2024	21	3	24	3	78	7	38	7	23	2

Source: Data Collected by the researcher from hospital logs, 2025

Table 5.2

Number of Nurses in the Selected Hospitals

Year	Varkala Municipality		Nedumangad Municipality		Thiruvananthapuram Corporation		Neyyattinkara Municipality		Attingal Municipality	
	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary
2014	23	4	28	4	165	5	72	3	25	5
2015	23	4	28	4	165	5	72	3	25	5
2016	23	4	28	4	165	5	72	3	25	5
2017	23	4	28	4	165	5	72	3	24	6
2018	23	4	28	4	165	5	72	3	23	7
2019	23	5	28	4	165	5	72	3	23	7
2020	23	5	28	4	168	5	72	3	23	7
2021	23	5	28	4	168	5	72	21	23	7
2022	23	4	27	6	170	5	72	23	23	7
2023	23	6	27	6	170	5	72	24	23	8
2024	23	8	27	6	170	5	72	24	23	8

Source: Data Collected by the researcher from hospital logs, 2025

Table 5.3

Number of Paramedical Staff in the Selected Hospitals

Year	Varkala Municipality		Nedumangad Municipality		Thiruvananthapuram Corporation		Neyyattinkara Municipality		Attingal Municipality	
	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary
2014	47	3	38	3	420	121	205	43	45	2
2015	47	3	38	3	420	121	205	53	44	3
2016	47	3	38	3	425	121	205	65	44	3
2017	49	3	38	3	430	121	205	81	43	2
2018	48	8	38	3	430	121	205	92	42	4
2019	48	8	39	3	435	125	205	98	42	5
2020	47	10	39	4	435	121	205	107	42	5
2021	47	17	39	4	435	121	205	116	43	5
2022	49	29	39	4	450	131	205	120	44	5
2023	49	33	39	4	448	132	205	146	44	5
2024	49	33	40	4	450	131	205	147	44	5

Source: Data Collected by the researcher from hospital logs, 2025

Varkala Municipality shows the lowest growth and staffing levels among the five ULBs. Permanent doctors increased from 18 in 2014 to 21 in 2024, while temporary doctors slightly declined from 4 to 3. This reflects minimal investment in expanding medical personnel.

Paramedical staffing remained largely unchanged at around 47–49 permanent staff, but temporary paramedics rose from 3 to 33, especially after 2020. This disproportionate increase in temporary staff suggests reactive hiring to short-term service needs or pandemic-era support.

In terms of nurses, permanent staff remained constant at 23, and temporary nurses increased from 4 to 8. The slow growth, with rising reliance on temporary hires, points to financial constraints or a conscious policy of flexible staffing to manage operational costs.

The data reveals a clear urban health service hierarchy, with Thiruvananthapuram Corporation serving as the flagship provider, followed by dynamic performers like Neyyattinkara. Smaller municipalities such as Varkala and Nedumangad show limited growth, potentially due to resource constraints. The increasing use of temporary staff across all ULBs — especially in nursing and paramedical roles — reflects a structural shift toward flexible and contractual healthcare human resources, which may serve short-term needs but raises questions about long-term service quality and continuity.

5.1.2 Inpatient and Outpatient

Table 5.4 shows Inpatients and Outpatients in Selected Hospitals (2014–2024) across five urban local bodies in the Thiruvananthapuram district**.**

In the Thiruvananthapuram Corporation, a remarkably high and consistent increase in outpatient numbers, rising from 705,421 in 2014 to 1,461,753 in 2024—more than doubling over a decade. A slight dip in 2020 (983,157) is observed due to the COVID-19 pandemic, but a sharp recovery and further growth are evident post-2021.

Table 5.4

Inpatients and Outpatients in the Selected Hospitals

Year	Varkala Municipality		Nedumangad Municipality		Thiruvananthapuram Corporation		Neyyattinkara Municipality		Attingal Municipality	
	Inpatients	Outpatients	Inpatients	Outpatients	Inpatients	Outpatients	Inpatients	Outpatients	Inpatients	Outpatients
2014	3929	269078	4211	284691	28428	705421	14266	493603	3769	37921
2015	2478	325375	4298	296918	35351	971359	11819	769105	3828	38369
2016	2904	311256	4319	299719	37390	998412	13591	489632	3917	39548
2017	2612	341444	4369	301542	39410	1092130	15684	690413	3997	40260
2018	2761	321587	4520	304526	41218	1139574	13270	724422	4521	40587
2019	2494	359044	4618	314618	42196	1265454	15532	751650	4618	41641
2020	1488	213976	907	41527	21617	983157	7829	430146	1008	21320
2021	1324	227912	641	12637	27598	1170645	12048	512041	824	20121
2022	1838	316120	4869	226518	39436	1303678	14335	602059	3241	22463
2023	1690	339468	5213	281614	43252	1430648	15071	618209	3261	23618
2024	1691	331964	5318	298321	45927	1461753	15414	574130	3308	24017

Source: Data Collected by the researcher from hospital logs, 2025

Similarly, the number of inpatients increased from 28,428 (2014) to 45,927 (2024), indicating steady growth in indoor care. This underscores Thiruvananthapuram Corporation's dominance in healthcare infrastructure and service delivery within the district. The District Hospital (General Hospital) is likely better equipped, more accessible, and provides comprehensive care, attracting large patient loads from both within and outside its jurisdiction. The Corporation's urban character and referral facilities could explain these high figures.

In Neyyattinkara Municipality, Outpatient numbers increased from 493,603 in 2014 to a peak of 751,650 in 2019, with a dip in 2020 due to COVID-19 (430,146), followed by a strong rebound to 574,130 by 2024. Inpatient numbers fluctuated, peaking at 15,684 in 2017, then dropping to 7,829 in 2020, with a partial recovery to 15,414 in 2024. Neyyattinkara demonstrates a resilient outpatient base, with moderate inpatient utilisation. Recovery post-pandemic has been solid. Infrastructure and public trust may be improving.

In Nedumangad Municipality, the outpatients show a consistent growth until 2019 (314,618), with a sharp decline in 2020 (41,527), likely pandemic-driven. However, a dramatic recovery occurred post-2020, hitting 298,321 by 2024, suggesting a robust post-COVID rebound. The number of inpatients rose steadily from 4,211 (2014) to 5,318 (2024)—a modest increase. Nedumangad has shown stable inpatient services and impressive post-pandemic outpatient recovery, indicating improved patient confidence, outreach, or service access.

In Attingal Municipality, the outpatients were low but stable, from 37,921 in 2014 to 24,017 in 2024. Unlike others, Attingal shows a declining trend post-COVID. A Minor fluctuation was observed in inpatients, rising from 3,769 in 2014 to 3,308 in 2024, with a dip in 2020 (1,008). Attingal reflects weaker healthcare demand and possibly lower capacity, especially in outpatient care. There is little sign of recovery or growth, suggesting the need for improved infrastructure, outreach, or quality enhancement.

In Varkala Municipality, the outpatients grew until 2019 (359,044), dipped in 2020 (213,976), and rebounded significantly to 331,964 in 2024. There was a fluctuation in the number of inpatients, peaking in 2014 (3,929), then declining to 1,691 by

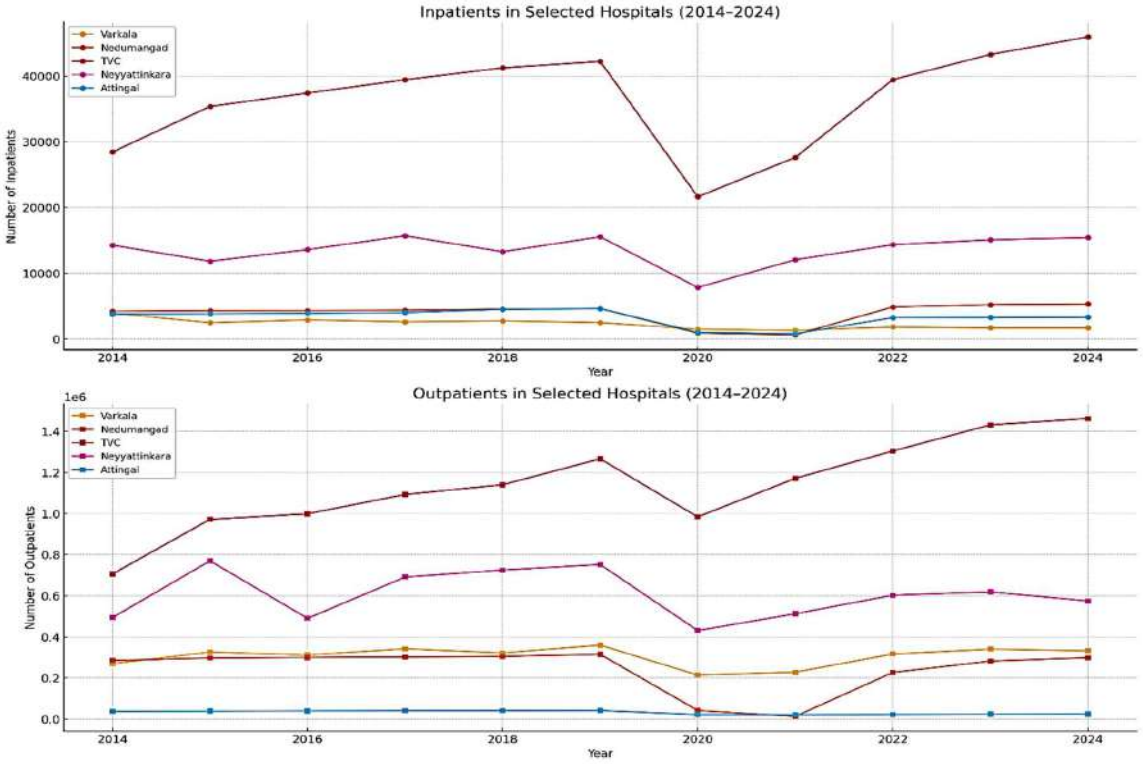
2024. While Varkala shows moderate outpatient recovery, the inpatient care demand has shrunk, possibly due to migration to better facilities, referral practices, or perceived quality issues.

Cross-Cutting Observations:

1. COVID-19 Impact (2020–2021):
    - Every ULB shows a significant drop in both inpatients and outpatients in 2020–21.
    - Outpatient care was more resilient and bounced back faster than inpatient services, which reflects lingering pandemic-related hesitation or procedural backlogs.
2. Post-Pandemic Recovery:
    - Thiruvananthapuram Corporation, Neyyattinkara, and Nedumangad exhibit strong recovery and growth in both patient categories.
    - Attingal and Varkala are lagging—especially in inpatient services—indicating potential gaps in hospital management, public trust, or investment.
3. Service Utilisation Pattern:
    - Thiruvananthapuram Corporation stands out in both absolute terms and growth rates, being the clear healthcare hub.
    - Neyyattinkara plays a significant secondary role.
    - Nedumangad is on a stable growth path.
    - Attingal and Varkala show comparatively lower utilisation, needing policy attention.

Figure 5.1

Inpatient and Outpatient Trend



Source: Table 5.4

5.1.3 Operational Expenditure- Hospitals

Varkala Municipality witnessed a steady and significant rise in operational expenditure from ₹11.92 lakhs in 2014 to ₹113.86 lakhs in 2024. The trend shows consistent year-on-year growth, with sharper increases observed after 2016. For instance, operational expenditure nearly doubled from ₹31.99 lakhs in 2016 to ₹56.24 lakhs by 2018. A temporary decline in growth was noted in 2020 due to plateauing (₹66.13 lakhs), but it surged again post-2021, reaching its peak in 2024. This growth pattern suggests a deliberate expansion of hospital operations, possibly reflecting both inflation-adjusted costs and an attempt to enhance service quality or capacity to meet increasing patient demand.

Operational expenditure in Nedumangad shows a more conservative and steady growth trajectory compared to other ULBs. Starting from ₹26.49 lakhs in 2014, the increase over the decade was modest, reaching ₹49.29 lakhs in 2024. This reflects a more restrained growth rate, with annual increases typically falling within a narrow band of ₹1–2 lakhs. The period from 2021 to 2024 shows relatively higher increases, possibly indicating post-pandemic adjustments or upgrades. However, when compared to similarly sized municipalities, Nedumangad's healthcare expenditure growth appears subdued, suggesting limited resource mobilisation or minimal expansion in hospital services.

Thiruvananthapuram Corporation demonstrates the highest operational expenditure throughout the period, beginning at ₹212.24 lakhs in 2014 and rising steeply to ₹736.75 lakhs in 2024. The corporation maintained strong year-on-year growth until 2020, reflecting its central role as a metropolitan healthcare hub. A notable anomaly occurred in 2021 when expenditure dropped to ₹258.37 lakhs—a substantial decrease likely attributed to budget restructuring or pandemic-induced operational constraints. However, the post-2021 recovery is sharp and significant, with spending rebounding to ₹636.07 lakhs in 2023 and peaking further in 2024. This surge suggests strategic reinvestment in healthcare infrastructure post-COVID, consistent with urban healthcare demand and pressure on tertiary care facilities.

Neyyattinkara Municipality showcases consistent and high growth in hospital operational expenditure from ₹328.42 lakhs in 2014 to ₹743.30 lakhs in 2024, the

second highest after Thiruvananthapuram. The expenditure steadily increased until 2019, and after a slight decline in 2020 (₹417.47 lakhs), it rebounded sharply post-pandemic. By 2021, expenditure jumped to ₹537.62 lakhs and continued its upward momentum. This pattern indicates a robust commitment to scaling up public healthcare delivery, potentially in response to growing population pressure or increased outpatient and inpatient loads. The consistency and scale of Neyyattinkara's health spending underscore its emerging role as a key sub-regional health centre.

Table 5.5

Operational Expenditure in the Selected Hospitals

Year	Varkala Municipality	Nedumangad Municipality	Thiruvananthapuram Corporation	Neyyattinkara Municipality	Attingal Municipality
2014	1191984	2649546	21224325	32842508	1528426
2015	1938241	2698681	29313185	39853607	1647388
2016	3199944	2718639	31225144	39942802	1669576
2017	4423211	2725326	38611112	40825312	1722987
2018	5624321	3015148	40315110	42735618	1769726
2019	6462933	3075616	41962362	44765226	1929548
2020	6613261	3015321	42469817	41747248	2048524
2021	7450469	3098417	25837630	53762471	2060123
2022	11217550	4168427	45897137	61734168	2548347
2023	8571744	4399528	63607167	73933302	3969178
2024	11386153	4928611	73675771	74330041	4538244

Source: Data Collected by the researcher from hospital logs, 2025

Attingal Municipality shows moderate but consistent growth in operational expenditure, increasing from ₹15.28 lakhs in 2014 to ₹45.38 lakhs in 2024. The growth is incremental with no sharp fluctuations, pointing towards stable budgeting and service delivery expansion. A particularly noticeable rise is seen in 2022 and 2023, indicating enhanced investment, possibly due to COVID-19 recovery efforts or infrastructural upgrades. Despite being the smallest spender among the five ULBs, Attingal's growth in operational expenditure over the decade has nearly tripled, reflecting a deliberate strengthening of its primary healthcare system.

Thiruvananthapuram Corporation and Neyyattinkara dominate operational health spending, aligning with their urban scale and wider patient base. Varkala shows the most accelerated growth rate in percentage terms, indicating a substantial

transformation in its healthcare provisioning. Nedumangad and Attingal reflect conservative, steady expansion with relatively limited allocation, possibly constrained by fiscal or administrative factors. The COVID-19 period (2020–2021) created noticeable distortions, especially in Thiruvananthapuram, but was followed by aggressive recovery in most ULBs, underlining healthcare reprioritisation.

5.2 Efficiency Analysis of Urban Healthcare Systems

This analysis applies the Data Envelopment Analysis (DEA) framework to assess the technical efficiency of hospitals functioning under five selected Urban Local Bodies (ULBs) in Thiruvananthapuram District, Kerala, from 2014 to 2024. The municipalities covered include Varkala, Nedumangad, Thiruvananthapuram Corporation, Neyyattinkara, and Attingal. DEA enables a comparative performance analysis of these Decision-Making Units (DMUs) by evaluating how effectively they convert inputs (such as human resources, infrastructure, and financial expenditure) into outputs (including the number of inpatients/outpatients, and bed occupancy rates). The technical efficiency score ranges from 0 to 1, with a score of 1 denoting full efficiency in utilising resources.

5.2.1 Technical Efficiency

The selected hospital under Varkala Municipality has demonstrated exceptional performance by achieving a technical efficiency score of 1 consistently over the 11 years from 2014 to 2024. This implies that the hospital has operated at the most efficient frontier every year, effectively utilising its doctors, nurses, paramedical staff, and infrastructure without waste. The consistent efficiency also suggests robust internal management practices, balanced service delivery, and sustained patient satisfaction. Such stable and optimal performance positions Varkala as a benchmark hospital, offering a model for replication by other ULBs aiming to improve their efficiency.

Similar to Varkala, Nedumangad Municipality's hospital has also consistently maintained a technical efficiency score of 1 throughout the study period. This consistency reflects a high level of operational discipline and suggests that the hospital has been able to match its input resources with corresponding outputs such as patient treatment and satisfaction without significant shortfalls. The hospital

likely exhibits an appropriate scale of operation, ensuring that its resources—particularly its human workforce and financial inputs—are neither underutilized nor overburdened. This remarkable performance further supports the credibility of DEA as an effective evaluation method and highlights the efficiency potential of smaller municipalities.

As the largest hospital facility among the selected DMUs, the Thiruvananthapuram Corporation General Hospital's achievement of a perfect technical efficiency score across all years from 2014 to 2024 is particularly notable. Managing healthcare delivery at an urban scale involves greater complexity in terms of volume, variety of services, and patient expectations. Therefore, the continuous full efficiency indicates an exceptional capacity for resource management, scalability of operations, and technological support systems. It is likely that the hospital benefits from both state-level support and urban demand, facilitating continuous monitoring, automation, and service delivery innovations that ensure optimal input-output alignment.

Unlike the consistently efficient hospitals, Neyyattinkara Municipality's Thaluk Hospital exhibited a varied performance over the years. While it maintained full efficiency in most years between 2014 and 2021, minor inefficiency was observed in 2016, and more pronounced declines occurred in the years 2022, 2023, and 2024, with technical efficiency scores falling to 0.94912, 0.918232, and 0.940574, respectively. These scores, although not drastically low, indicate growing inefficiencies. The possible causes may include an imbalance in human resources, increased operational expenditure without proportional growth in output, declining bed occupancy rates, or reduced patient satisfaction. The decline may also be symptomatic of structural challenges such as ageing infrastructure, staff attrition, or administrative lapses. The trend calls for a focused performance audit and suggests that Neyyattinkara may benefit from benchmarking its practices against more efficient peers such as Varkala or Nedumangad.

The Taluk Hospital in Attingal Municipality has exhibited full efficiency throughout the period under review. The DEA score of 1 for all years indicates that the hospital has consistently succeeded in balancing its inputs with outputs, thereby maintaining operational effectiveness.

Table 5.6

Technical Efficiency in the Selected Hospitals

DMU	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Varkala Municipality	1	1	1	1	1	1	1	1	1	1	1
Nedumangad Municipality	1	1	1	1	1	1	1	1	1	1	1
Thiruvananthapuram Corporation	1	1	1	1	1	1	1	1	1	1	1
Neyyattinkara Municipality	1	1	0.999859	1	1	1	1	1	0.94912	0.918232	0.940574
Attingal Municipality	1	1	1	1	1	1	1	1	1	1	1

Source: Data Collected by the researcher from hospital logs, 2025, Computed by the researcher

This sustained efficiency is especially commendable in the context of relatively smaller municipalities, which often struggle with resource constraints. The hospital's ability to deliver healthcare services optimally with the available infrastructure and human resources implies strong managerial oversight and adaptability. Its consistency places it alongside Varkala and Nedumangad as a high-performing ULB in terms of healthcare service delivery.

A comparative analysis reveals that four out of the five municipalities—Varkala, Nedumangad, Thiruvananthapuram Corporation, and Attingal—have consistently operated at full technical efficiency over the past decade. This indicates a high degree of uniformity in effective healthcare resource utilisation in the district. However, Neyyattinkara stands out with its recent dip in performance, breaking the uniform efficiency trend. This decline signals emerging inefficiencies that must be addressed through strategic interventions such as capacity building, staff deployment optimisation, and performance monitoring.

The DEA results suggest that most hospitals in the selected ULBs are well-managed and efficient. However, the experience of Neyyattinkara underscores the need for regular performance evaluations to identify early signs of inefficiency. Municipalities must institutionalise continuous training for staff, modernise infrastructure, and adopt data-driven health management systems to maintain or improve efficiency. DEA benchmarking should also be adopted as a policy tool to facilitate knowledge sharing among ULBs. Specifically, Neyyattinkara can benefit from a detailed diagnostic study to identify whether the observed inefficiencies are due to scale inefficiency or pure technical issues.

5.2.2 Constant Return to Scale (CRS)

The hospital in Varkala Municipality has demonstrated exemplary performance under the CRS framework, achieving a perfect efficiency score of 1 for all years from 2014 to 2024. This consistent score confirms that the hospital has maintained an ideal balance between its input resources (such as medical staff, beds, and expenditure) and its output performance (including patient services). The constant efficiency under CRS also suggests that the hospital operates at an appropriate scale, and any increase in resources would likely lead to a proportionate increase in

service output. Varkala thus represents a model of sustained operational efficiency and scalability in the public health sector.

Similar to Varkala, the hospital under Nedumangad Municipality recorded CRS efficiency scores of 1 across the entire 11-year period. This indicates optimal functioning not only in terms of resource utilisation but also scale of operation. The hospital's consistent ability to match input growth with output expansion reflects strong internal coordination, effective planning, and responsiveness to community health needs. Moreover, it shows that Nedumangad has been successful in aligning its human resources, financial expenditure, and physical infrastructure with service demand without over- or under-scaling its operations.

As the largest urban healthcare provider among the selected DMUs, the Thiruvananthapuram Corporation hospital's CRS efficiency scores of 1 from 2014 to 2024 are particularly significant. The urban complexity, high patient turnover, and extensive service portfolio add layers of difficulty to healthcare delivery. Yet, this hospital has managed to perform efficiently at scale throughout the study period. The results suggest well-coordinated management, likely supported by advanced hospital information systems, effective resource scheduling, and continuous quality monitoring. The perfect CRS efficiency further indicates that this hospital can serve as a central reference for policy replication in other large urban areas.

The CRS efficiency scores for Neyyattinkara Municipality reveal some variation over the years, diverging from the uniform efficiency pattern of the other municipalities. The hospital was fully efficient in most years, except in 2016 (0.9999), 2022 (0.9491), 2023 (0.9182), and 2024 (0.9406). These minor yet significant deviations suggest that the hospital struggled to maintain proportionality between its resource utilisation and service output during those periods. Factors contributing to these declines could include inefficiencies in managing human resources, delays in infrastructure expansion, rising operational costs without matching service improvement, or patient dissatisfaction. The CRS model identifies that Neyyattinkara may not be operating at the optimal scale during these years, highlighting a need for strategic reevaluation of input-output alignment and operational workflow improvements.

Table 5.7

Constant Return to Scale (CRS) in the Selected Hospitals

DMU	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Varkala Municipality	1	1	1	1	1	1	1	1	1	1	1
Nedumangad Municipality	1	1	1	1	1	1	1	1	1	1	1
Thiruvananthapuram Corporation	1	1	1	1	1	1	1	1	1	1	1
Neyyattinkara Municipality	1	1	0.9999	1	1	1	1	1	0.9491	0.9182	0.9406
Attingal Municipality	1	1	1	1	1	1	1	1	1	1	1

Source: Data Collected by the researcher from hospital logs, 2025, Computed by the researcher

Attingal Municipality's hospital has shown a consistent CRS efficiency score of 1 across all years from 2014 to 2024. This reflects that the hospital has continuously delivered health services at a technically efficient and scale-appropriate level. Attingal's ability to sustain this level of efficiency over an extended period suggests disciplined resource allocation, effective governance, and adaptability to changing healthcare needs. Despite being a smaller municipality, the hospital has evidently succeeded in maximising patient outcomes relative to available inputs, setting a positive example for similar ULBs across the district and state.

Among the five hospitals analysed, four (Varkala, Nedumangad, Thiruvananthapuram, and Attingal) achieved consistent CRS efficiency over the entire period of analysis. This indicates a stable and mature healthcare delivery mechanism supported by optimal resource utilisation and service scaling. In contrast, Neyyattinkara Municipality's hospital showed efficiency shortfalls during four years, pointing toward underlying operational or structural issues. While the deviation in Neyyattinkara's case is not extreme, it nonetheless draws attention to the challenges of sustaining efficiency, especially in resource-constrained or rapidly changing environments.

The findings under the CRS model underscore the importance of not only being technically sound but also operating at the right scale. Hospitals that are too large for their demand base or too small for patient loads may suffer from efficiency losses. The consistent performance of most hospitals demonstrates the feasibility of high CRS efficiency in the public sector when there is effective governance, proper infrastructure planning, and responsive health service delivery. Neyyattinkara's variation presents a learning opportunity for targeted intervention. DEA efficiency tracking can therefore be institutionalised as a performance management tool to enable timely corrective measures.

5.2.3 Variable Return to Scale (VRS)

The Variable Returns to Scale (VRS) model in Data Envelopment Analysis (DEA) allows for the possibility that hospitals may not operate at an optimal scale. It distinguishes between pure technical efficiency (how well inputs are converted into outputs) and scale efficiency (whether the unit is operating at an optimal size). A

VRS efficiency score of 1 indicates that a hospital is not only technically efficient but also operating independently of scale-related inefficiencies. This model is particularly useful in identifying managerial or operational inefficiencies that may be hidden under the Constant Returns to Scale (CRS) model.

The hospital in Varkala Municipality has achieved a perfect VRS efficiency score of 1 throughout the 11-year period (2014–2024). This confirms that the hospital has consistently operated with pure technical efficiency, implying excellent management practices, effective use of available staff and infrastructure, and responsiveness to patient needs. Under the VRS framework, this result means that Varkala's hospital is functioning well irrespective of its scale, suggesting both technical competence and operational flexibility. It demonstrates that the hospital is not constrained by overcapacity or underutilization and reflects sound healthcare governance.

Nedumangad Municipality's hospital also maintains a VRS efficiency score of 1 across all years, indicating that the unit has demonstrated pure technical efficiency consistently. This reveals a strong alignment between resource allocation and service delivery performance. In practical terms, it means the hospital is well-managed, making optimal use of its human resources, infrastructure, and budget to meet healthcare demands. Its ability to stay efficient under the VRS model, like under CRS, further confirms that the hospital is not affected by internal inefficiencies, and managerial effectiveness remains high throughout the observation period.

The Thiruvananthapuram Corporation hospital, the largest facility among the DMUs, also exhibits continuous VRS efficiency (score = 1) from 2014 to 2024. This suggests a high degree of managerial efficiency, even in a complex urban hospital setting. Managing a large hospital under conditions of variable returns to scale presents challenges such as diverse patient needs, staffing complexity, and infrastructural stress. Despite this, the consistent VRS score of 1 reveals that the hospital's internal processes are highly efficient and capable of maintaining output levels without resource waste or mismanagement. This performance sets an important precedent for other large public health institutions in urban areas.

Table 5.8

Variable Return to Scale (VRS) in the Selected Hospitals

DMU	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Varkala Municipality	1	1	1	1	1	1	1	1	1	1	1
Nedumangad Municipality	1	1	1	1	1	1	1	1	1	1	1
Thiruvananthapuram Corporation	1	1	1	1	1	1	1	1	1	1	1
Neyyattinkara Municipality	1	1	1	1	1	1	1	1	0.9668	0.9206	1
Attingal Municipality	1	1	1	1	1	1	1	1	1	1	1

Source: Data Collected by the researcher from hospital logs, 2025, Computed by the researcher

Neyyattinkara Municipality presents a variation in VRS efficiency scores, breaking from the consistent trend seen in other municipalities. The hospital achieved a perfect score of 1 from 2014 to 2021, but in 2022 and 2023, the scores dropped to 0.9668 and 0.9206 respectively, before returning to 1 in 2024. These temporary declines suggest the presence of pure technical inefficiency, which may arise from operational bottlenecks, staff misallocation, or lapses in service delivery. Since this inefficiency is isolated from scale factors (as CRS scores were also low during these years), it directly points to internal issues—perhaps inadequate coordination, unoptimized patient workflows, or reduced patient satisfaction. However, the return to full efficiency in 2024 indicates that corrective measures may have been implemented, such as staff restructuring, improved service quality, or process upgrades.

Attingal Municipality's hospital has recorded a VRS efficiency score of 1 for each year from 2014 to 2024. This stability points to consistent managerial and technical excellence. It shows that, despite being a relatively smaller municipality, Attingal has successfully managed its healthcare delivery system without allowing for wastage or underperformance. The VRS model confirms that any variation in scale has not hampered the hospital's technical functioning. It reflects a well-coordinated effort in resource management, responsiveness to community health needs, and continuous monitoring of performance indicators.

When comparing across all five municipalities, four hospitals—Varkala, Nedumangad, Thiruvananthapuram, and Attingal—exhibited constant pure technical efficiency under the VRS model for the entire period. This suggests strong internal management and service consistency. In contrast, Neyyattinkara's hospital experienced a dip in VRS efficiency during 2022 and 2023, although it recovered in 2024. This indicates a temporary lapse in internal operations and points to an opportunity for further strengthening hospital management practices. These results, when cross-referenced with CRS and overall technical efficiency scores, help differentiate between scale-related and management-related inefficiencies.

The VRS analysis has key implications for hospital administrators and policymakers. The fact that most hospitals have achieved pure technical efficiency consistently means that managerial systems are largely robust. However, the

fluctuations in Neyyattinkara's hospital underscore the need for continuous quality improvement programs, performance tracking systems, and internal audits to preempt operational inefficiencies. DEA under VRS provides a lens for evaluating hospital governance independent of size, allowing focused interventions that improve staff efficiency, patient flow, and satisfaction outcomes.

5.2.4 Scale Efficiency

Scale Efficiency in the context of Data Envelopment Analysis (DEA) assesses whether a hospital is operating at an optimal scale of production. It is calculated as the ratio of Constant Returns to Scale (CRS) efficiency to Variable Returns to Scale (VRS) efficiency. A scale efficiency score of 1 implies that the hospital is operating at its most productive scale size—neither too small nor too large. Scores less than 1 indicate scale inefficiency, meaning the unit is either experiencing increasing returns to scale (IRS) (it could benefit from expanding) or decreasing returns to scale (DRS) (it might be too large and benefit from downsizing).

Varkala Municipality has achieved full-scale efficiency (score = 1) consistently from 2014 to 2024. This indicates that the hospital has operated at its optimal size and that the resources it uses—doctors, nurses, beds, and operational expenses—are well matched to the volume of services it provides. The consistent score reflects stable patient demand, aligned resource planning, and well-structured hospital management. The hospital's ability to maintain scale efficiency over a decade signifies that it is neither under-resourced nor over-resourced, a key indicator of sustainable operational planning in healthcare delivery.

Nedumangad Municipality's hospital has also maintained a scale efficiency score of 1 across all 11 years, mirroring the performance of Varkala. This highlights the hospital's structural and administrative efficiency, indicating that it has not only been productive internally (as shown by CRS and VRS efficiency) but also operated at the ideal scale of service. The stable scale efficiency also suggests that its input-output balance has been appropriate for the patient population it serves, and the hospital is neither constrained by size nor stretched beyond capacity. This sustained performance validates the effectiveness of healthcare planning and oversight in Nedumangad.

Table 5.9

Scale Efficiency in the Selected Hospitals

DMU	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Varkala Municipality	1	1	1	1	1	1	1	1	1	1	1
Nedumangad Municipality	1	1	1	1	1	1	1	1	1	1	1
Thiruvananthapuram Corporation	1	1	1	1	1	1	1	1	1	1	1
Neyyattinkara Municipality	1	1	0.9999	1	1	1	1	1	0.9817	0.9975	0.9406
Attingal Municipality	1	1	1	1	1	1	1	1	1	1	1

Source: Data Collected by the researcher from hospital logs, 2025, Computed by the researcher

Despite being a large and complex urban healthcare institution, the Thiruvananthapuram Corporation hospital has remarkably maintained a perfect scale efficiency score of 1 throughout 2014–2024. This means the hospital operates precisely at its optimal scale, successfully meeting a high demand while managing resources efficiently. Urban hospitals are typically challenged by overcrowding, budget constraints, and unpredictable service demand. However, this hospital's consistent performance reveals robust strategic planning and capacity management. The results reinforce that even large-scale hospitals can maintain optimal efficiency when equipped with strong leadership, adequate funding, and responsive service systems.

Neyyattinkara Municipality exhibits minor variations in scale efficiency over the years, particularly in 2016 (0.9999), 2022 (0.9817), 2023 (0.9975), and 2024 (0.9406). Although the efficiency scores remain relatively high, they still indicate slight scale inefficiency, suggesting the hospital did not operate at its most productive size during these years. This inefficiency could reflect either a mismatch between input levels and patient volume or transitional challenges such as expanding facilities, staff turnover, or fluctuating patient demand.

The score of 0.9406 in 2024 is the lowest in the series and implies a notable deviation from the ideal scale, possibly linked to overcapacity or underutilization. This highlights a need for reviewing infrastructure expansion, patient load forecasting, or resource deployment. Nevertheless, the recovery of scale efficiency in earlier years shows resilience and potential for recalibration.

Attingal Municipality has maintained perfect scale efficiency (score = 1) throughout the 11 years, signifying strong alignment between hospital size and service requirements. This persistent scale efficiency reflects thoughtful planning and ongoing evaluation of hospital needs. Even in a relatively smaller municipality, achieving and sustaining scale efficiency confirms that the hospital is appropriately sized for its service population and capable of adjusting to changes in patient flow, staffing needs, or resource allocations without slipping into inefficiency.

The analysis shows that four out of the five hospitals—Varkala, Nedumangad, Thiruvananthapuram Corporation, and Attingal—have consistently achieved full

scale efficiency. These hospitals demonstrate both technical and structural optimality, suggesting they are well-managed in terms of both internal processes and external alignment with demand. In contrast, Neyyattinkara stands out for experiencing occasional scale inefficiencies, especially in 2024, pointing to a potential mismatch between input levels and healthcare service delivery. These findings are consistent with Neyyattinkara's fluctuating performance in CRS and VRS models, reinforcing the idea that periodic performance audits and strategic adjustments are essential.

Scale efficiency is crucial for long-term financial sustainability, patient satisfaction, and resource optimisation. Hospitals operating below optimal scale may suffer from underutilised infrastructure and staff inefficiency, while those operating above scale may face overcrowding and reduced quality of care.

The near-uniform scale efficiency among the selected hospitals reflects effective decentralisation and planning at the ULB level. For Neyyattinkara, a detailed operational assessment should be conducted, focusing on patient inflow patterns, resource scaling, and possible redundancies to restore scale efficiency. Local governments should institutionalise regular DEA-based evaluations to monitor scale efficiency trends and make evidence-based policy decisions.

5.3 Profile of the Sample Respondents- Health Sector

Table 5.1 provides a well-structured snapshot of the health sector respondent profile across the five urban local bodies in Thiruvananthapuram district. The respondents comprise the patients, bystanders, doctors, nurses, and paramedical staff.

Attingal Municipality contributed a total of 294 respondents, which accounts for 19.9 per cent of the overall sample. Among these, 274 were from the public category, comprising 129 bystanders (21.8%) and 145 patients (18.2%), together representing 19.7 per cent of total bystanders and patients. Notably, no doctors were included among the health staff respondents from this municipality. However, 17 nurses (29.8%) and 3 paramedical staff (10.0%), summing up to 20 health staff (21.7% of the health workforce sample) were responded to this survey.

Table 5.10

Health Sector Sample Respondents at a Glance

Urban Local Bodies in the Thiruvananthapuram District	Category of the Respondents in the Health Sector							
	Bystander	Patient	Total Bystander & Patient	Doctor	Nurse	Paramedical Staff	Total (Health Staff)	Total Respondents
Attingal Municipality	129 (21.8)	145 (18.2)	274 (19.7)	0 (0.0)	17 (29.8)	3 (10.0)	20 (21.7)	294 (19.9)
Nedumangad Municipality	136 (23.0)	153 (19.2)	289 (20.8)	0 (0.0)	7 (12.3)	6 (20.0)	13 (14.1)	302 (20.5)
Neyyattinkara Municipality	119 (20.1)	157 (19.7)	276 (19.9)	2 (40.0)	13 (22.8)	10 (33.3)	25 (27.2)	301 (20.3)
Thiruvananthapuram Corporation	138 (23.4)	133 (16.7)	271 (19.5)	2 (40.0)	14 (24.6)	11 (36.7)	27 (29.3)	298 (20.1)
Varkala Municipality	69 (11.7)	209 (26.2)	278 (20.0)	1 (20.0)	6 (10.5)	0 (0.0)	7 (7.6)	285 (19.3)
Total	591 (100.0)	797 (100.0)	1388 (100.0)	5 (100.0)	57 (100.0)	30 (100.0)	92 (100.0)	1480 (100.0)

Source: Primary Survey,2025; Values within the parentheses shows respondent-wise per cent

Nedumangad Municipality had the highest number of total respondents (302 or 20.5%). It also recorded the largest share of public users, with 136 bystanders (23.0%) and 153 patients (19.2%), jointly constituting 289 respondents or 20.8 per cent of the total public sample. However, despite the high number of users, only 13 healthcare providers responded to the survey here, accounting for just 14.1 per cent of the health staff. Of these, there were no doctors, 7 nurses (12.3%), and 6 paramedical staff (20.0%).

Neyyattinkara Municipality showed a balanced and robust participation from both service users and healthcare providers, contributing 301 respondents (20.3%). Among the public, there were 119 bystanders (20.1%) and 157 patients (19.7%), amounting to a combined total of 276 public respondents (19.9%). From the provider side, Neyyattinkara stood out with 25 health staff respondents, making up 27.2 per cent of the total health workforce sample surveyed —the second-highest among all municipalities. This included 2 doctors (40.0% of total doctors sampled), 13 nurses (22.8%), and 10 paramedical staff (33.3%).

Thiruvananthapuram Corporation, being the capital city and the largest ULB, contributed 298 respondents, which is 20.1 per cent of the total sample. Interestingly, the number of public users was relatively lower compared to other municipalities, with 138 bystanders (23.4%) and 133 patients (16.7%), summing to 271 public respondents (19.5%). On the other hand, the highest number of healthcare staff respondents (27 or 29.3%), including 2 doctors (40.0%), 14 nurses (24.6%), and 11 paramedical staff (36.7%), were also surveyed.

Varkala Municipality had a total of 285 respondents (ie, 19.3%), where 209 were patients. On the provider side, only 7 healthcare workers (7.6%) responded, the lowest among all municipalities. This included 1 doctor (20.0%) and 6 nurses (10.5%), with no paramedical staff represented in the sample.

5.4 Healthcare Service Accessibility in Hospitals in the Selected ULBs

This section gives a comprehensive analysis of health service accessibility in the selected hospital in the eyes of patients/bystanders.

5.4.1 Average Waiting Time

In Attingal Municipality, a substantial proportion of patients (38.7%) reported a waiting time between 30 minutes and 1 hour, followed by 25.5 per cent experiencing less than 30 minutes of waiting. A noticeable 16.8 per cent waited 1 to 1.5 hours, while 12.4 per cent had to wait 1.5 to 2 hours. Only a small fraction waited over 2 hours (2.2% for 2–2.5 hours and 4.4% above 2.5 hours). This distribution suggests moderate efficiency in patient handling, with about 64.2 per cent receiving services within an hour, though longer waits are not uncommon.

Nedumangad shows remarkable efficiency in terms of patient waiting time. Over 86.8 per cent of patients were attended to within one hour (33.9% under 30 minutes, and 52.9 per cent between 30 minutes to 1 hour). Waiting beyond 1 hour is rare, with only 13.2 per cent falling in that range, and just two patients reporting waiting over 1.5 hours. This indicates a highly responsive hospital administration, possibly due to better scheduling or lower patient congestion**.**

Neyyattinkara also demonstrates high efficiency, with 89.5 per cent of patients served within an hour. Among them, 51.8 per cent were attended to in 30 minutes to 1 hour, and 37.7 per cent in under 30 minutes. Waiting beyond one hour is limited to 6.2 per cent, while only 4.3 per cent reported waiting above 2.5 hours. This suggests strong time management practices and potentially adequate staffing levels.

In Thiruvananthapuram Corporation, the data reveals a very efficient service in terms of short waiting times. A striking 69 per cent of respondents waited between 30 minutes and 1 hour, while 12.2 per cent received service in less than 30 minutes. Although 16.2 per cent waited between 1 and 1.5 hours, the incidence of delays beyond that is minimal (2.6% total). As the largest ULB, this performance is notable and suggests the presence of streamlined administrative mechanisms despite higher patient loads.

Varkala Municipality presents a contrast to the above ULBs. Only 50.4 per cent of patients were attended to within an hour, and a significant 31.3 per cent reported waiting between 1 hour and 2.5 hours. Alarmingly, 12.2 per cent waited between 2 and 2.5 hours— the highest in any municipality.

Table 5.11

Average Waiting Time in the Hospital

Urban Local Body	Less than 30 Minutes	30 Minutes – 1 Hour	1 Hour -1.30 Hours	1.30 Hours – 2 Hours	2 Hours- 2.30 Hours	Above 2.30 Hours	Total
Attingal Municipality	70	106	46	34	6	12	274
	(25.5)	(38.7)	(16.8)	(12.4)	(2.2)	(4.4)	(100.0)
Nedumangad Municipality	98	153	36	1	0	1	289
	(33.9)	(52.9)	(12.5)	(0.3)	(0.0)	(0.3)	(100.0)
Neyyattinkara Municipality	104	143	17	0	0	12	276
	(37.7)	(51.8)	(6.2)	(0.0)	(0.0)	(4.3)	(100.0)
Thiruvananthapuram Corporation	33	187	44	6	1	0	271
	(12.2)	(69.0)	(16.2)	(2.2)	(0.4)	(0.0)	(100.0)
Varkala Municipality	73	67	51	53	34	0	278
	(26.3)	(24.1)	(18.3)	(19.1)	(12.2)	(0.0)	(100.0)
Total	378	656	194	94	41	25	1388
	(27.2)	(47.3)	(14.0)	(6.8)	(3.0)	(1.8)	(100.0)

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	380.911[a]	20	.000
Likelihood Ratio	394.174	20	.000
N of Valid Cases	1388	a 3 cells (10.0%) have expected count less than 5. The minimum expected count is 4.88.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

In Varkala, no cases of above 2.5 hours were reported, which could reflect upper capping in records. This data highlights inefficiencies in the system, possibly due to staff shortages, scheduling issues, or inadequate facilities.

Across all municipalities, 74.5 per cent of patients were served within one hour, indicating a reasonably efficient service delivery. However, differences across municipalities are statistically significant, pointing to systemic and administrative disparities in healthcare delivery at the urban local level.

The Pearson Chi-Square value is 380.911, with 20 degrees of freedom, and a p-value < 0.001. This strongly indicates that there is a statistically significant association between the Urban Local Body and the average waiting time. Similarly, the Likelihood Ratio Chi-Square (394.174) confirms this conclusion. There are significant differences in waiting time distributions across the municipalities, which are not due to random chance. These differences likely arise from variations in infrastructure, staffing, patient inflow, and administrative efficiency.

5.4.2 The Rationale for the Waiting Time to Consult

Table 5.12 shows the perception of waiting time to see a doctor across urban local bodies. This data indicates a generally favourable trend, though significant disparities are evident. On the whole, 71.3 per cent of respondents agreed and 5.8 per cent strongly agreed that waiting times were reasonable. Varkala Municipality had the most positive response, with a remarkable 95.7 per cent agreement and negligible dissatisfaction, suggesting exceptionally efficient OPD flow and scheduling. Thiruvananthapuram Corporation followed with 78.2 per cent agreement, demonstrating the city's capacity to manage high patient volumes without excessive delay.

Nedumangad Municipality also fared well, with 70.2 per cent of respondents agreeing and 14.2 per cent strongly agreeing, reflecting a comparatively smooth system with minor dissatisfaction. Attingal Municipality, even though smaller in sample size, it displayed 62.8 per cent agreement and 9.1 per cent strong agreement, suggesting moderate satisfaction but also room for improvement, particularly as 24.5 per cent of respondents remained neutral.

Table 5.12

The Rationale for the Waiting Time to Consult

Urban Local Body	The waiting time to see a doctor was reasonable.					Total
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	0	10	67	172	25	274
	(0.00)	(3.60)	(24.50)	(62.80)	(9.10)	(100.00)
Nedumangad Municipality	4	15	26	203	41	289
	(1.40)	(5.20)	(9.00)	(70.20)	(14.20)	(100.00)
Neyyattinkara Municipality	8	76	53	136	3	276
	(2.90)	(27.50)	(19.20)	(49.30)	(1.10)	(100.00)
Thiruvananthapuram Corporation	2	17	30	212	10	271
	(0.70)	(6.30)	(11.10)	(78.20)	(3.70)	(100.00)
Varkala Municipality	0	3	8	266	1	278
	(0.00)	(1.10)	(2.90)	(95.70)	(0.40)	(100.00)
Total	**14**	**121**	**184**	**989**	**80**	**1388**
	(1.00)	**(8.70)**	**(13.30)**	**(71.30)**	**(5.80)**	**(100.00)**

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	335.696[a]	16	.000
Likelihood Ratio	321.284	16	.000
N of Valid Cases	1388	a. 5 cells (20.0%) have expected count less than 5. The minimum expected count is 2.7.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

In contrast, Neyyattinkara Municipality exhibited notable dissatisfaction, where 27.5 per cent disagreed and 19.2 per cent remained neutral, while only 49.3 per cent agreed and only 1.1 per cent strongly agreed, signifying persistent issues in OPD management, possibly due to understaffing, poor queue systems, or high patient loads.

The chi-square test result ($\chi^2 = 335.696$, $p < 0.001$) confirms a statistically significant difference across urban bodies, highlighting varied patient experiences in accessing doctors promptly. Municipalities could improve appointment scheduling, add more staff during peak hours, and use digital queuing and token systems to alleviate the discrepancies, especially in Neyyattinkara and Attingal. Time-motion studies should also be carried out on a regular basis to find bottlenecks and improve doctor-patient ratios.

Replicating effective techniques in underperforming areas could be modelled after high-performing towns such as Varkala. Incorporating wait time-specific patient feedback loops can help direct real-time service modifications and guarantee prompt, fair, and effective access to healthcare for all urban local bodies.

5.4.3 Information on Diagnosis and Treatment Plan

The data in Table 5.13 presents respondents' feedback on whether they were appropriately informed about their diagnosis and treatment plan across five urban local bodies. Overall, the responses indicate a high level of satisfaction, but there are nuanced differences across municipalities.

In Attingal Municipality, a striking 80.7 per cent of respondents agreed and 7.3 per cent strongly agreed that they were properly informed, representing effective communication practices in healthcare facilities. Similarly, Nedumangad Municipality shows a generally positive trend with 74.4 per cent agreement and a relatively higher 15.2 per cent strong agreement, suggesting stronger confidence in information delivery. Though a small but notable 2 per cent expressed dissatisfaction.

Table 5.13

Information on Diagnosis and Treatment Plan

Urban Local Body	I was properly informed about my diagnosis and treatment plan.					Total
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	0 (0.00)	0 (0.00)	33 (12.00)	221 (80.70)	20 (7.30)	274 (100.00)
Nedumangad Municipality	1 (0.30)	5 (1.70)	24 (8.30)	215 (74.40)	44 (15.20)	289 (100.00)
Neyyattinkara Municipality	0 (0.00)	18 (6.50)	26 (9.40)	230 (83.30)	2 (0.70)	276 (100.00)
Thiruvananthapuram Corporation	2 (0.70)	12 (4.40)	43 (15.90)	201 (74.20)	13 (4.80)	271 (100.00)
Varkala Municipality	0 (0.00)	2 (0.70)	17 (6.10)	255 (91.70)	4 (1.40)	278 (100.00)
Total	3 (0.20)	37 (2.70)	143 (10.30)	1122 (80.80)	83 (6.00)	1388 (100.00)

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	123.536[a]	16	.000
Likelihood Ratio	127.208	16	.000
N of Valid Cases	1388	a. 5 cells (20.0%) have expected count less than 5. The minimum expected count is .59.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Neyyattinkara Municipality represents the highest agreement rate at 83.3 per cent, though it is accompanied by 6.5 per cent disagreement, the highest among the five, signifying that while most patients are satisfied, there is a minority that experienced significant communication gaps. Thiruvananthapuram Corporation, being the largest urban body, records slightly lower satisfaction (74.2 per cent agree and 4.8 per cent strongly agree) and a comparatively higher percentage of neutral responses (15.9 per cent), representing potential inconsistencies in patient communication across facilities. Varkala Municipality performed the best in terms of patient satisfaction, with 91.7 per cent agreeing and only 0.7 per cent disagreeing, though the proportion of strong agreement was modest (1.4 per cent).

The Chi-square test result ($p < 0.001$) confirms that the differences in responses across municipalities are statistically significant, meaning that urban location does impact how well patients feel informed about their diagnosis and treatment.

A consistent communication structure must be implemented across all municipal healthcare facilities due to the statistically substantial disparities in patient views between urban local bodies. In addition to improving health outcomes, a patient's comprehension of their diagnosis and treatment plan is essential for fostering confidence in public health systems. With comparatively greater levels of neutrality and disagreement, municipalities like Neyyattinkara and Thiruvananthapuram Corporation ought to give priority to organised training programs for administrative and medical personnel that emphasise compassionate, transparent communication.

5.4.4 Smooth and Hassle-free Hospital Admission Process

The table 5.14 presents respondents' feedback on the hospital admission process across five urban local bodies. The responses to the smoothness of the hospital admission process across different urban local bodies indicate generally high satisfaction, but with noteworthy local-level variations. Varkala Municipality leads with an exceptional 95 per cent of respondents agreeing and no strong disagreement, representing an extremely efficient admission system. Very low neutrality (2.2 per cent) also recommends clear, positive experiences without ambiguity.

Table 5.14

Smooth and Hassle-free Hospital Admission Process

Urban Local Body	The hospital admission process was smooth and hassle-free					Total
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	0	4	40	200	30	274
	(0.00)	(1.50)	(14.60)	(73.00)	(10.90)	(100.00)
Nedumangad Municipality	1	7	27	220	34	289
	(0.30)	(2.40)	(9.30)	(76.10)	(11.80)	(100.00)
Neyyattinkara Municipality	0	18	25	232	1	276
	(0.00)	(6.50)	(9.10)	(84.10)	(0.40)	(100.00)
Thiruvananthapuram Corporation	0	15	44	198	14	271
	(0.00)	(5.50)	(16.20)	(73.10)	(5.20)	(100.00)
Varkala Municipality	0	8	6	264	0	278
	(0.00)	(2.90)	(2.20)	(95.00)	(0.00)	(100.00)
Total	1	52	142	1114	79	1388
	(0.10)	(3.70)	(10.20)	(80.30)	(5.70)	(100.00)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	124.405[a]	16	.000
Likelihood Ratio	148.619	16	.000
N of Valid Cases	1388	a. 5 cells (20.0%) have expected count less than 5. The minimum expected count is .20.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Neyyattinkara Municipality also recorded a high satisfaction level (84.1 per cent agreement), but with a concerning 6.5 per cent of respondents disagreeing, pointing to possible isolated incidents of inefficiency or communication issues during admission.

Nedumangad Municipality and Attingal Municipality replicate a solid levels of satisfaction (76.1 per cent and 73 per cent agreement respectively), coupled with higher strong agreement rates (11.8 per cent and 10.9 per cent), signifying that these municipalities have broadly functional systems with room for improvement. In contrast, Thiruvananthapuram Corporation stands out with the highest neutrality (16.2 per cent) and relatively lower strong agreement (5.2 per cent), hinting at inconsistencies in service delivery or a lack of uniform procedures during hospital admissions in this major urban centre.

The Pearson Chi-Square value ($p < 0.001$) confirms that these inter-municipality differences are statistically significant, indicating that patient experiences of the admission process vary meaningfully based on location. A steady communication structure must be executed across all municipal healthcare facilities due to the statistically substantial disparities in patient views between urban local bodies. Along with this, to improve health outcomes, a patient's comprehension of their diagnosis and treatment plan is essential for fostering confidence in public health systems. With relatively greater levels of neutrality and disagreement, municipalities like Neyyattinkara and Thiruvananthapuram Corporation should give priority to organised training programs for administrative and medical personnel that emphasise compassionate, transparent communication.

5.4.5 Availability of Prescribed Medicines in the Hospital.

Table 5.15 presents respondents' feedback on the availability of the prescribed medicines plan across five urban local bodies. The data reveals contrasts in the availability of prescribed medicines across urban local bodies, indicating uneven performance in essential drug distribution systems. Neyyattinkara Municipality performs exceptionally well, with 80.8 per cent agreeing and only 8.3 per cent disagreeing, reflecting a robust and consistent medicine supply system. Similarly,

Table 5.15

Availability of Prescribed Medicines in the Hospital.

Urban Local Body	I received all the prescribed medicines from the hospital.					Total
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	9	73	50	128	14	274
	(3.30)	(26.60)	(18.20)	(46.70)	(5.10)	(100.00)
Nedumangad Municipality	5	78	66	104	36	289
	(1.70)	(27.00)	(22.80)	(36.00)	(12.50)	(100.00)
Neyyattinkara Municipality	0	23	26	223	4	276
	(0.00)	(8.30)	(9.40)	(80.80)	(1.40)	(100.00)
Thiruvananthapuram Corporation	0	18	40	197	16	271
	(0.00)	(6.60)	(14.80)	(72.70)	(5.90)	(100.00)
Varkala Municipality	3	147	15	113	0	278
	(1.10)	(52.90)	(5.40)	(40.60)	(0.00)	(100.00)
Total	1	52	142	1114	79	1388
	(0.10)	(3.70)	(10.20)	(80.30)	(5.70)	(100.00)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	347.169[a]	16	.000
Likelihood Ratio	360.600	16	.000
N of Valid Cases	1388	a. 5 cells (20.0%) have expected count less than 5. The minimum expected count is 3.32.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Thiruvananthapuram Corporation illustrates strong performance with 72.7 per cent agreement and negligible disagreement of 6.6 per cent, representing effective inventory management in most public hospitals in this city.

On the other side, Attingal and Nedumangad Municipalities present substantial challenges. In Attingal, 29.9 per cent of respondents disagreed or strongly disagreed, and only 46.7 per cent agreed, reflecting major gaps in medicine availability or supply chain efficiency. Nedumangad also showed identical results, with 28.7 per cent disagreement and a lower agreement level (36 per cent), although it had a comparatively higher strong agreement rate (12.5 per cent), indicating that some facilities may be performing better than others. Varkala Municipality shows the most critical shortfall: over 50 per cent (52.9 per cent) disagreed, and no respondents reported strong agreement. This recommends systemic issues, possibly related to budgeting, procurement delays, or poor inventory management.

The Chi-square result ($p < 0.001$) underscores that the differences in medicine availability across urban bodies are statistically significant and cannot be attributed to chance. This variation has direct implications for treatment adherence and patient satisfaction in public healthcare.

The substantial disparities in medicine availability point to the urgent need for a centralised drug procurement and circulation monitoring system across municipalities. Municipalities like Varkala, Attingal, and Nedumangad must undergo supply chain audits to identify bottlenecks in ordering, stocking, or distribution.

Drawing lessons from the positive models in Neyyattinkara and Thiruvananthapuram, the government can implement real-time inventory tracking and automated reorder systems to ensure uninterrupted availability of essential medicines. Furthermore, a state-level drug logistics cell could standardise procurement events, negotiate better pricing, and ensure equitable allocation across urban bodies. Ensuring timely medicine supply is not just a logistical problem but a critical support of effective public health service delivery.

5.5 Governance and Management Efficiency

In this session, the opinions were collected from the staff.

5.5.1 Staff's Perception of the Management Committee.

The table 5.16 shows the hospital well well-functioning management committee in the five urban local bodies. In Neyyattinkara and Varkala Municipalities, there is complete consensus (100 per cent), indicating a robust and uniform perception of effective management systems. Similarly, Thiruvananthapuram Corporation is the only body with significant 'strong agreement' replies, with 92.6 per cent of respondents agreeing and just 7.4 per cent strongly agreeing.

Table 5.16

Staff's Perception of the Management Committee

	The hospital has a well-functioning management committee.				
ULBs	Disagree	Neutral	Agree	Strongly Agree	Total
Attingal Municipality	2 (10)	4 (20)	13 (65.00)	1 (5.00)	20 (100)
Nedumangad Municipality	1 (7.70)	1 (7.70)	11 (84.60)	0 (0.00)	13 (100.00)
Neyyattinkara Municipality	0 (0.00)	0 (0.00)	25 (100.00)	0 (0.00)	25 (100.00)
Thiruvanathpuram Corporation	0 (0.00)	0 (0.00)	25 (92.60)	2 (7.40)	27 (100.00)
Varkala Municipality	0 (0.00)	0 (0.00)	7 (100.00)	0 (0.00)	7 (100.00)
Total	3 (3.30)	5 (5.40)	81 (88.00)	3 (3.30)	92 (100.00)
Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)		
Pearson Chi-Square	21.511a	12	0.043		
Likelihood Ratio	23.359	12	0.025		
N of Valid Cases	92	a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .23.			

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total

This could be a sign of increased committee job satisfaction or visibility. With 84.6 per cent of respondents agreeing, Nedumangad Municipality likewise exhibits a high degree of confidence; but, the 15.4 per cent of neutral or disagreeing replies points to some hesitancy or discontent. On the other hand, Attingal Municipality has the lowest level of approval, with only 65 per cent of respondents agreeing and 30 per cent opposing or being neutral. This points to problems with communication, involvement, or openness in relation to the hospital's governance systems in that field.

As the chi-square ($p=0.043$) proves, the difference in perception in the surveyed urban bodies is statistically significant. This implies that some local administration practice levels may be affecting public trust and satisfaction with hospital governance. Municipalities like Attingal and Nedumangad will benefit from better transparency and improved community engagement, while consistently high-performing areas should start with feedback mechanisms to ensure sustained effectiveness and critical participation.

Policy measures such as strengthening participatory governance in weaker areas and maintaining accountability frameworks in high-performing ones. Best practices from the Thiruvananthapuram corporation could be adapted for smaller municipalities to ensure equity in health governance outcomes.

5.5.2 Regularity on Hospital Performance Reviews.

The table 5.17 shows the perception about how often hospital performance reviews are held reflects a generally positive trend among the urban local bodies, with 79.3 per cent agreeing and another 5.4 per cent strongly agreeing. Neyyattinkara Municipality and Varkala Municipality report the highest levels of agreement (84 per cent and 85.7 per cent, respectively), with Neyyattinkara also having the highest level of strong agreement (16 per cent). Thiruvananthapuram Corporation records an 81.5 per cent level of agreement but also has 14.8 per cent in disagreement, thus indicating a small but important segment perceiving a lapse in review practices. Satisfaction levels are comparably lower in Attingal and Nedumangad, as is seen from the higher neutral responses received (20 per cent and 30.8 per cent, respectively), indicating either ambiguity about or lack of awareness of the performance review processes.

Table 5.17

Regularity on Hospital Performance Reviews

	Hospital performance reviews are conducted regularly.				
ULBs	Disagree	Neutral	Agree	Strongly Agree	Total
Attingal Municipality	1 (5)	4 (20.00)	15 (75.00)	0 (0.00)	20 (100.00)
Nedumangad Municipality	0 (0)	4 30.80)	9 69.20)	0 (0.00)	13 100.00)
Neyyattinkara Municipality	0 (0)	0 (0.00)	21 (84.00)	4 16.00)	25 100.00)
Thiruvanathapuram Corporation	4 (14.8)	0 (0.00)	22 81.50)	1 (3.70)	27 100.00)
Varkala Municipality	0 (0)	1 (14.30)	6 (85.70)	0 (0.00)	7 (100.00)
Total	5 (5.4)	9 (9.8)	73 (79.3)	5 (5.4)	92 (100.00)

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	21.511a	12	0.043
Likelihood Ratio	23.359	12	0.025
N of Valid Cases	92	a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .23.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total

The Pearson Chi-square test (p=0.043) again confirms statistically significant differences across urban bodies, pointing to differences in the execution or communication of performance evaluations. These variations shows the possibility of differences in administrative rigour, documentation, or stakeholders' participation in the review processes.

Municipalities with high levels of neutrality or disagreement, such as Attingal and Nedumangad, should increase transparency by announcing the results of performance reviews and incorporating local stakeholders in order to improve overall governance. Better-performing regions should, meanwhile, concentrate on maintaining uniformity and implement digital monitoring mechanisms to guarantee ongoing responsibility. Standardising hospital performance review procedures can

also be facilitated by municipalities sharing best practices and learning from one another.

5.5. 3 Use of Effective Performance Monitoring Tools.

According to the data in Table 5.18, a significant majority of respondents (79.3%) agree and 7.6% strongly agree that hospitals use effective performance monitoring tools. This suggests that monitoring mechanisms are generally viewed favourably by urban local bodies. Limited dissatisfaction or uncertainty was indicated by the small percentage of respondents who disagreed (4.4%) or were neutral (8.7%).

Table 5.18

Use of Effective Performance Monitoring Tools.

	The hospital uses effective performance monitoring tools.					
ULBs	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Attingal Municipality	1 (5.00)	1 (5.00)	4 (20.00)	13 (65.00)	1 (5.00)	20 (100.00)
Nedumangad Municipality	0 (0.00)	1 (7.70)	3 (23.10)	9 (69.20)	0 (0.00)	13 (100.00)
Neyyattinkara Municipality	0 (0.00)	0 (0.00)	0 (0.00)	23 (92.00)	2 (8.00)	25 (100.00)
Thiruvanathpuram Corporation	0 (0.00)	1 (3.70)	0 (0.00)	22 (81.50)	4 (14.80)	27 (100.00)
Varkala Municipality	0 (0.00)	0 (0.00)	1 (14.30)	6 (85.70)	0 (0.00)	7 (100.00)
Total	1 (1.10)	3 (3.30)	8 (8.70)	73 (79.30)	7 (7.60)	92 (100.00)
Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)			
Pearson Chi-Square	21.223a	16	0.17			
Likelihood Ratio	25.34	16	0.064			
N of Valid Cases	92	a. 20 cells (80.0%) have expected count less than 5. The minimum expected count is .08.				

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total

At the 5 per cent level, the p-value of 0.17 obtained from the Pearson Chi-square test is statistically non-significant. This suggests that, despite variations in the descriptive statistics, the observed variations in responses across urban local bodies might not be directly attributable to the urban context.

Neyyattinkara Municipality has the most positive response among urban local bodies, with 92 per cent of respondents agreeing and 8 per cent strongly agreeing, while there are no neutral or negative responses, indicating a very successful and noticeable performance. With 81.5 per cent agreement and the largest percentage (14.8%) of strong agreement, Thiruvananthapuram Corporation comes in second, indicating thorough and reliable monitoring procedures.

With 85.7 per cent of respondents agreeing, Varkala Municipality also shows a positive perception; however, 14.3% are neutral, perhaps as a result of the monitoring procedures' limited visibility. Nearly one-third of respondents are neutral or disagree, suggesting potential implementation or communication gaps, while 69.2 per cent of respondents agree, giving Nedumangad Municipality a somewhat mixed picture. Despite registering 65 per cent agreement, Attingal Municipality has the highest percentage of neutral (20%) and both types of disagreement (10%), indicating either a lack of stakeholder awareness or relatively weaker systems.

These results highlight how crucial it is to improve stakeholder participation and communication in performance monitoring, especially in municipalities like Attingal and Nedumangad. Training health administrators on data-driven governance and ensuring public access to monitoring outcomes can enhance trust and effectiveness.

Municipalities like Neyyattinkara and Thiruvananthapuram can serve as models, offering templates for digital dashboards, periodic reporting, and community feedback loops, which can be replicated across lower-performing areas to improve accountability and service quality in the public health sector.

5.5.4 Staff Training for Skill Development.

The table 5.19 shows the data of staff receive adequate training for skill development. With 78.3 per cent of respondents agreeing and 13 per cent strongly agreeing, the data shows a strong general consensus that hospital staff receive adequate training for skill development. Just a tiny percentage (1.1 per cent strongly disagree, 4.3 per cent disagree, and 3.3 per cent neutral) indicated any hesitancy or discontent. Crucially, the Chi-square test result is statistically significant ($p = 0.001$), suggesting that perceptions of training vary significantly among urban local bodies.

Table 5.19

Staff Training for Skill Development.

	Staff receive adequate training for skill development.					
ULBs	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Attingal Municipality	1 (5.0)	0 (0.0)	3 (15.0)	14 (70.0)	2 (10.0)	20 (100.0)
Nedumangad Municipality	0 (0.0)	3 (23.1)	0 (0.0)	5 (38.5)	5 (38.5)	13 (100.0)
Neyyattinkara Municipality	0 (0.0)	0 (0.0)	0 (0.0)	23 92.0)	2 (8.0)	25 (100.0)
Thiruvanathapuram Corporation	0 (0.0)	1 (3.7)	0 (0.0)	24 (88.9)	2 (7.4)	27 (100.0)
Varkala Municipality	0 (0.0)	0 (0.0)	0 (0.0)	6 (85.7)	1 (14.3)	7 (100.0)
Total	1 (1.1)	4 (4.3)	3 3.3)	72 (78.3)	12 (13.0)	92 100.0)

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	38.758[a]	16	.001
Likelihood Ratio	32.034	16	.010
N of Valid Cases	92	a. 20 cells (80.0%) have expected count less than 5. The minimum expected count is .08.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total

In terms of urban local bodies, Neyyattinkara Municipality, Thiruvananthapuram Corporation, and Varkala Municipality exhibit very favourable opinions; more than 85 per cent of respondents concur, and very few express any kind of discontent. Although 15 per cent of respondents are neutral and 5 per cent strongly disagree, Attingal Municipality also receives positive feedback (70 per cent agree, 10 per cent strongly agree), indicating a small gap in regular training access or awareness.

Notably, opinions in Nedumangad Municipality are divided: 38.5 per cent strongly agree that training is sufficient, while 23.1 per cent disagree. The remaining respondents are neutral or generally in agreement. This disparity draws attention to irregularities in the municipality's staff development initiatives or unequal access to capacity-building initiatives.

These results imply that in order to guarantee fair access to skill development programs and standardised training procedures, municipalities such as Nedumangad and Attingal require focused interventions. Consistency can be increased through organised follow-up procedures, staff input in training design, and routine training audits. To encourage more consistent care quality across urban health facilities, high-performing municipalities can exchange training models and resource strategies.

5.5.5 System for Recording and Tracking Patient Data

In Attingal Municipality, among the 20 respondents, 70 per cent agreed that the hospital had a standardised patient data system, while 15 per cent disagreed, and only 5 per cent strongly agreed. A small fraction (10%) remained neutral. While a majority supported the presence of a system, the low percentage of 'Strongly Agree' responses indicates possible limitations in system robustness or functionality.

In Nedumangad Municipality, the response pattern is more evenly spread. Of the 13 respondents, 38.5 per cent agreed, 30.8 per cent were neutral, and 23.1 per cent disagreed, with only 7.7 per cent strongly agreeing. This distribution suggests a lack of uniformity or partial implementation of standardised data systems. The relatively high proportion of neutral and disagree responses reflects ambivalence and potential gaps in system effectiveness.

In Neyyattinkara Municipality, an overwhelming 100 per cent of respondents (25 out of 25) agreed that a standardised data recording and tracking system was present. This unanimity suggests a fully functional and recognised system within the hospital, reflecting strong adherence to record-keeping norms and possibly effective IT or EMR (Electronic Medical Records) integration.

Table 5.20

System for Recording and Tracking Patient Data

	The hospital has a standardised system for recording and tracking patient data				
	Disagree	Neutral	Agree	Strongly Agree	Total
Attingal Municipality	3 (15.0)	2 (10.0)	14 (70.0)	1 5.0)	20 (100.0)
Nedumangad Municipality	3 (23.1)	4 (30.8)	5 38.5)	1 (7.7)	13 (100.0)
Neyyattinkara Municipality	0 (0.0)	0 (0.0)	25 (100.0)	0 (0.0)	25 (100.0)
Thiruvanathpuram Corporation	0 (0.0)	0 (0.0)	21 (77.8)	6 (22.2)	27 (100.0)
Varkala Municipality	0 (0.0)	1 (14.3)	5 (71.4)	1 (14.3)	7 (100.0)
Total	6 (6.5)	7 (7.6)	70 (76.1)	9 (9.8)	92 (100.0)
Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)		
Pearson Chi-Square	37.010[a]	12	.000		
Likelihood Ratio	39.690	12	.000		
N of Valid Cases	92	a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .46.			

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total

In Thiruvananthapuram Corporation, a combined 100 per cent of respondents affirmed the presence of standardised systems, with 77.8 per cent agreeing and 22.2 per cent strongly agreeing. The high proportion of strong agreement indicates both the presence and perceived efficiency of such systems, consistent with the Corporation's more advanced infrastructure and resource base.

In Varkala Municipality, Out of 7 respondents, 71.4 per cent agreed, and 14.3 per cent strongly agreed, while one respondent (14.3%) remained neutral. Although the sample size is small, the majority's positive view suggests basic implementation of a standardised data system, possibly in early stages or limited in scope.

Across all municipalities, 76.1 per cent of respondents agreed and 9.8 per cent strongly agreed that their hospitals maintained standardised systems for recording and tracking patient data. Only 6.5 per cent disagreed, and 7.6 per cent remained neutral. The dominance of agreement (over 85%) across the sample suggests widespread adoption of patient data systems in urban healthcare settings, though variations in the strength of agreement point to differences in operational maturity and technological integration.

The Chi-Square test results indicate a statistically significant association between the municipality and the perception of standardized data system availability (Pearson Chi-Square value = 37.010, df = 12, $p < 0.001$). This suggests that the variation in responses is not due to chance, and that differences in infrastructure, administrative capability, and IT adoption levels

The results suggest a general trend toward digitisation and data system standardisation in urban hospitals under various ULBs in the Thiruvananthapuram district. However, disparities in perception—particularly between larger urban centres like Thiruvananthapuram Corporation and smaller municipalities like Nedumangad and Attingal—point to a digital divide in health information systems. The high levels of agreement in Neyyattinkara and Thiruvananthapuram highlight these ULBs as potential models for best practices in patient data management.

5.5.6 Staff's Perception of Feedback Surveys

The data in Table 5.21 shows that different urban local bodies in the area have rather varying opinions about how well patient records have been digitalised. Thiruvananthapuram Corporation and Neyyattinkara Municipality have the greatest satisfaction rates, with 88.1 per cent and 92 per cent of respondents, respectively, agreeing or strongly agreeing that patient records are successfully digitalised. Despite having a limited sample size, Nedumangad Municipality likewise shows good agreement (76.9 per cent). Attingal Municipality, on the other hand, received a

mixed answer, with 40 per cent agreeing and 40 per cent disagreeing, suggesting discontent or inconsistent application. With the most neutrality (42.9 per cent) and disagreement (42.9 per cent), Varkala Municipality stands out and may indicate either inadequate digitalisation initiatives or a lack of awareness among respondents.

Table 5.21

Staff's Perception of Feedback Surveys

	The hospital conducts surveys to assess patient satisfaction.					
ULBs	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Attingal Municipality	1 (5.00)	3 (15.00)	4 (20.00)	12 (60.00)	0 (0.00)	20 (100.00)
Nedumangad Municipality	1 (7.70)	1 (7.70)	3 (23.10)	6 (46.20)	2 (15.40)	13 (100.00)
Neyyattinkara Municipality	0 (0.00)	23 (92.00)	0 (0.00)	2 (8.00)	0 (0.00)	25 (100.00)
Thiruvanathapuram Corporation	0 (0.00)	24 (88.90)	0 (0.00)	3 (11.10)	0 (0.00)	27 (100.00)
Varkala Municipality	0 (0.00)	0 (0.00)	1 (14.30)	5 (71.40)	1 (14.30)	7 (100.00)
Total	2 (2.20)	51 (55.40)	8 (8.70)	28 (30.40)	3 (3.30)	92 (100.00)

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	70.177[a]	16	.000
Likelihood Ratio	79.468	16	.000
N of Valid Cases	92	a. 18 cells (72.0%) have expected count less than 5. The minimum expected count is .15.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total

The scenario is extremely different in Neyyattinkara Municipality and Thiruvananthapuram Corporation, where 92 per cent and 88.9 per cent of respondents, respectively, disagreed with the statement. This indicates a severe deficiency in feedback practices in these urban bodies, suggesting either the non-existence of formal patient feedback systems or a lack of transparency and awareness among the public. Such conditions are detrimental to service quality, as

patient voices remain unrecorded and unaddressed.

In contrast, Varkala Municipality stands out with a significantly higher proportion of positive responses, 85.7 per cent agreed or strongly agreed, which suggests that the municipality has implemented a functional feedback system that may be contributing to improved service delivery and patient trust. The strong significance level in the Chi-Square test ($\chi^2 = 70.177$, $p < 0.001$) confirms that the differences in survey implementation across urban local bodies are statistically significant and not due to chance. This underscores the influence of local governance, institutional commitment, and administrative practices on the implementation of patient satisfaction assessment mechanisms.

It is essential to implement a uniform and required approach for evaluating patient satisfaction in all urban healthcare institutions in light of the discrepancies that have been identified. Periodic patient feedback surveys, ideally integrated inside digital health information systems to provide accessibility, real-time data collecting, and effective analysis, could be required by a single policy issued by the state health department. Other local bodies, especially those that are behind, like Neyyattinkara and Thiruvananthapuram Corporation, can learn from and adopt the practices and operational modalities of municipalities like Varkala, which can be used as model instances.

5.6 Patient Satisfaction and Outcomes in the Selected ULBs

5.6.1 Satisfaction with Overall Treatment.

The table 5.22 shows the Overall satisfaction with the treatment received. The data highlights that, high level of contentment exists across all urban local bodies, with important but nuanced differences. Varkala Municipality stands out with an impressive 89.2 per cent agreement and very low neutrality or dissatisfaction, suggesting a highly effective healthcare delivery system.

Also, Thiruvananthapuram Corporation and Neyyattinkara Municipality each reported 79 per cent agreement, though Neyyattinkara saw slightly higher disagreement (6.2 per cent), which may indicate minor service inconsistencies or higher patient expectations.

With 70.1 per cent agreeing and 17.2 per cent strongly agreeing, Attingal Municipality's customer satisfaction rate is likewise high, indicating generally positive service reception. Despite having 74.4 per cent agreement, Nedumangad Municipality has the highest neutral response (13.8 per cent) and comparatively lower strong agreement (9.7 per cent) than other municipalities. This could indicate areas that require improvement in follow-up care and doctor-patient interactions, or where treatment quality may not be consistent. A statistically significant difference in satisfaction levels between the municipalities is indicated by the p-value of 0.000 and the Pearson Chi-Square value of 118.410.

Table 5.22

Satisfaction with Overall Treatment.

	I was satisfied with the overall treatment I received.					
ULBs	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Attingal Municipality	0 (0.00)	4 (1.50)	31 (11.30)	192 (70.10)	47 (17.20)	274 (100.00)
Nedumangad Municipality	2 (0.70)	4 (1.40)	40 (13.80)	215 (74.40)	28 (9.70)	289 (100.00)
Neyyattinkara Municipality	0 (0.00)	17 (6.20)	32 (11.60)	218 (79.00)	9 (3.30)	276 (100.00)
Thiruvanathapuram Corporation	0 (0.00)	5 (1.80)	42 (15.50)	214 (79.00)	10 (3.70)	271 (100.00)
Varkala Municipality	0 (0.00)	15 (5.40)	12 (4.30)	248 (89.20)	3 (1.10)	278 (100.00)
Total	2 (0.10)	45 (3.20)	157 (11.30)	1087 (78.30)	97 (7.00)	1388 (100.00)

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	118.410[a]	16	.000
Likelihood Ratio	117.724	16	.000
N of Valid Cases	1388	a. 18 cells (72.0%) have expected count less than 5. The minimum expected count is .39.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total

Despite the high level of general satisfaction, towns like Nedumangad and Neyyattinkara should focus on improving patient involvement and follow-up care,

particularly in cases of neutrality and mild dissatisfaction. Enhancing patient experiences can be achieved through grievance redressal procedures, standard

operating procedures for treatment and patient counselling services. The successful models of Varkala and Thiruvananthapuram can be replicated with the help of peer learning platforms in different municipalities. In addition, regular patient satisfaction surveys, training for medical personnel, and a greater integration of community input into hospital management can guarantee inclusive and long-lasting service enhancements throughout the urban healthcare system.

5.6.2 Recovery within the Expected Time Frame

The table 5.23 shows that 'I recovered within the expected time frame'. The data regarding the statement shows a generally positive trend across urban local bodies, with most respondents representing timely recovery.

Neyyattinkara Municipality with the highest level of agreement with 82.2 per cent, though it has a comparatively low percentage of strong agreement of 1.4 per cent, signifying a broad but moderate level of satisfaction. Following closely with 74.5 per cent and 70.9 per cent agreement, respectively. Thiruvananthapuram Corporation and Nedumangad Municipality have balanced support in strong agreement. In line with the general trend, Attingal Municipality also notes a good 69 per cent agreement and 9.9 per cent strong agreement.

However, Varkala Municipality shows the lowest strong agreement of 0.4 per cent and the highest neutral responses of 19.1 per cent, signifying a lack of great confidence or clarity in recovery outcomes. Though 71.6 per cent of respondents agree to timely recovery, the lower confidence levels could be a reflection of variations in post-treatment care or treatment techniques. The statistical significance of the differences, as reflected by the Pearson Chi-Square value of 69.169 and a p-value of 0.000, underscores that these patterns are not due to chance.

Even though most patients in urban areas report improving quickly, Varkala Municipality needs a more thorough evaluation. Authorities ought to investigate elements like follow-up services, discharge planning, and patient education regarding recovery expectations that have an impact on treatment consistency.

Table 5.23

Recovery within the Expected Time Frame

ULBs	I recovered within the expected time frame					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Attingal Municipality	0	18	40	189	27	274
	(0.00)	(6.60)	(14.60)	(69.00)	(9.90)	(100.00)
Nedumangad Municipality	2	14	39	205	29	289
	(0.70)	(4.80)	(13.50)	(70.90)	(10.00)	(100.00)
Neyyattinkara Municipality	0	18	27	227	4	276
	(0.00)	(6.50)	(9.80)	(82.20)	(1.40)	(100.00)
Thiruvanathapuram Corporation	0	20	38	202	11	271
	(0.00)	(7.40)	(14.00)	(74.50)	(4.10)	(100.00)
Varkala Municipality	0	25	53	199	1	278
	(0.00)	(9.00)	(19.10)	(71.60)	(0.40)	(100.00)
Total	2	95	197	1022	72	1388
	(0.10)	(6.80)	(14.20)	(73.60)	(5.20)	(100.00)

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	69.169[a]	16	.000
Likelihood Ratio	74.596	16	.000
N of Valid Cases	1388	a. 18 cells (72.0%) have expected count less than 5. The minimum expected count is .39.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total

Aligning expectations and results can be achieved by standardising treatment schedules and enhancing doctor-patient communication. Neyyattinkara and Thiruvananthapuram, two municipalities with higher levels of agreement, can be used as benchmarks for process comparison.

5.6.3 Perception on Emergency Services

The table 5.24 shows that the hospital's emergency services were efficient. The data on shows a strong performance across most urban local bodies, with high levels of agreement.

Neyyattinkara Municipality with 83.7 per cent agreement, though the strong

agreement is comparatively low at 1.8 per cent, representing general satisfaction but a possible lack of exceptional service experiences. Attingal with 75.9 per cent and Nedumangad of 74.4 per cent also show solid satisfaction levels, supported by roughly 9 per cent strong agreement in both cases. Thiruvananthapuram Corporation records a 70.8 per cent agreement, though it also records a higher-than-average neutral response (22.1 per cent), possibly signifying mixed experiences.

Table 5.24

Perception on Emergency Services

	The hospital's emergency services were efficient.					
ULBs	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Attingal Municipality	0 (0.00)	3 (1.10)	39 (14.20)	208 (75.90)	24 (8.80)	274 (100.00)
Nedumangad Municipality	1 (0.30)	11 (3.80)	37 (12.80)	215 (74.40)	25 (8.70)	289 (100.00)
Neyyattinkara Municipality	0 (0.00)	16 (5.80)	24 (8.70)	231 (83.70)	5 (1.80)	276 (100.00)
Thiruvanathapuram Corporation	0 (0.00)	5 (1.80)	60 (22.10)	192 (70.80)	14 (5.20)	271 (100.00)
Varkala Municipality	8 (2.90)	119 (42.80)	10 (3.60)	141 (50.70)	0 (0.00)	278 (100.00)
Total	9 (0.60)	154 (11.10)	170 (12.20)	987 (71.10)	68 (4.90)	1388 (100.00)

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	447.243[a]	16	.000
Likelihood Ratio	385.933	16	.000
N of Valid Cases	1388	a. 5 cells (20.0%) have expected count less than 5. The minimum expected count is 1.76	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total

Varkala Municipality shows a deeply concerning pattern where 42.8 per cent of respondents disagreed and 2.9 per cent strongly disagreed, with no strong agreement at all. Only 50.7 per cent agreed, and the neutral and strong positive responses are among the lowest. This points to systemic inefficiencies or public

dissatisfaction with emergency care delivery in Varkala. The Pearson Chi-Square value of 447.243 and p-value of 0.000 confirm that the observed differences in perception across municipalities are statistically significant and not due to chance.

Given the vital nature of emergency services, Varkala Municipality—where almost half of the respondents express unhappiness—needs immediate attention. Strengthening triage systems, enhancing ambulance response times, training emergency staff, and guaranteeing round-the-clock availability of vital services could all be part of this. Infrastructure investments are crucial; they include dedicated emergency wings featuring contemporary tools. Models for emergency efficiency are municipalities like Neyyattinkara and Attingal. Furthermore, including performance criteria, real-time patient comments, and emergency response audits will help all urban entities increase public confidence and responsiveness.

5.6.4 Clarity on Discharge Instructions

The table shows that the weather people were given clear and proper discharge instructions. The responses to the statement reflect a generally high level of satisfaction across urban local bodies, though with noticeable variation in the strength of response.

Neyyattinkara Municipality records the highest agreement at 82.6 per cent, but only 2.5 per cent strongly agreed, suggesting that while instructions were clear, they may not have felt extremely comprehensive.

Varkala has no strong agreement and a high neutral response with 24.5 per cent, indicating procedural appropriateness but no impact or interaction during the discharge process. Attingal, with 77 per cent, and Varkala, with 75.5 per cent, also exhibit high agreement.

There is a high degree of clarity and confidence in the discharge communication process in Nedumangad Municipality, as evidenced by the high satisfaction rate of 74 per cent agreement and 11.8 per cent strong agreement.

Table 5.25

Clarity on Discharge Instructions

	I was given clear and proper discharge instructions.				
	Disagree	Neutral	Agree	Strongly Agree	Total
Attingal Municipality	1 (0.40)	42 (15.30)	211 (77.00)	20 (7.30)	274 (100.00)
Nedumangad Municipality	8 (2.80)	33 (11.40)	214 (74.00)	34 (11.80)	289 (100.00)
Neyyattinkara Municipality	16 (5.80)	25 (9.10)	228 (82.60)	7 (2.50)	276 (100.00)
Thiruvanathpuram Corporation	25 (9.20)	42 (15.50)	197 (72.70)	7 (2.60)	271 (100.00)
Varkala Municipality	0 (0.00)	68 (24.50)	210 (75.50)	0 (0.00)	278 (100.00)
Total	50 (3.60)	210 (15.10)	1060 (76.40)	68 (4.90)	1388 (100.00)

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	124.294[a]	12	.000
Likelihood Ratio	137.122	12	.000
N of Valid Cases	1388	a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.76	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total

Thiruvananthapuram Corporation, reports the highest dissatisfaction with 9.2 per cent and a relatively high neutral response with 15.5 per cent, which points to inconsistent communication or procedural lapses during the process of patient discharge. The statistical significance confirmed by the Pearson Chi-Square value of 124.294 and p-value of 0.000 underscores the real differences across municipalities.

Thiruvananthapuram Corporation and Varkala Municipality should give organised discharge protocols, which include written summaries in local languages, verbal explanations, and, where necessary, visual aids, top priority in improving discharge

communication. Effective communication should be taught to staff members so they may make sure patients and caregivers follow dietary recommendations, warning signs, medication schedules, and follow-up visits. Using phone or digital follow-ups, feedback systems post-discharge can help to clarify misconceptions and enhance results. Best practice models can come from towns like Nedumangad, which exhibit more confidence. Using discharge checklists and including patient navigators or nursing staff in the process will guarantee consistency, clarity, and patient satisfaction all around urban local bodies.

Conclusion

Thiruvananthapuram Corporation has the highest overall staffing across all categories, with a strong preference for permanent staff, ensuring stability and quality. Neyyattinkara has made rapid strides, especially through temporary staffing, indicating aggressive service expansion. Varkala and Attingal show modest growth, with increasing dependence on temporary paramedics and nurses to support static doctor numbers. Nedumangad remains relatively stagnant, suggesting minimal policy-driven staffing interventions.

From 2014 to 2024, Thiruvananthapuram Corporation consistently recorded the highest number of both inpatients and outpatients, reflecting its superior healthcare infrastructure and referral capacity. Neyyattinkara and Nedumangad Municipalities exhibited moderate but stable service utilisation, with strong outpatient recovery post-COVID-19. Varkala showed fluctuating trends with declining inpatient numbers, while Attingal consistently recorded the lowest figures across both categories, indicating limited capacity or demand. The COVID-19 pandemic in 2020–2021 caused a marked drop in patient numbers across all ULBs, but recovery was most significant in the Corporation and Neyyattinkara, whereas Attingal and Varkala showed weaker post-pandemic rebounds, highlighting disparities in healthcare access and service quality across the region.

A comparative analysis reveals that four out of the five municipalities—Varkala, Nedumangad, Thiruvananthapuram Corporation, and Attingal—have consistently operated at full technical efficiency over the past decade. This indicates a high degree of uniformity in effective healthcare resource utilisation in the district.

However, Neyyattinkara stands out with its recent dip in performance, breaking the uniform efficiency trend. This decline signals emerging inefficiencies that must be addressed through strategic interventions such as capacity building, staff deployment optimisation, and performance monitoring.

The application of DEA in evaluating hospital efficiency across selected municipalities in Thiruvananthapuram District highlights the effectiveness of public health institutions in resource utilisation. While most municipalities show consistent and optimal performance, Neyyattinkara's recent efficiency dip indicates the dynamic nature of healthcare delivery and the need for timely corrective measures. DEA has not only provided a quantifiable measure of efficiency but also pointed to actionable insights for local governments to sustain and improve healthcare delivery. By learning from high-performing peers and regularly auditing performance drivers, all municipalities can strive toward consistent technical efficiency and improved healthcare outcomes for their populations.

The CRS-based DEA analysis of hospital efficiency across selected municipalities in Thiruvananthapuram District shows an encouraging picture of public health system performance. With the exception of Neyyattinkara, all hospitals have operated at full efficiency for over a decade, showcasing strong institutional capacity and policy effectiveness. Neyyattinkara's case illustrates the importance of continuous monitoring and strategic planning to ensure that deviations from optimal performance are identified and rectified in a timely manner. Overall, this analysis affirms the value of DEA in guiding local health authorities in maintaining high service quality, accountability, and resource efficiency.

The VRS efficiency analysis of hospitals in selected municipalities provides a clear picture of managerial effectiveness and operational discipline. With the exception of Neyyattinkara, all hospitals demonstrated pure technical efficiency over the past decade, reflecting a strong foundation of health system governance in the district. Neyyattinkara's temporary inefficiency draws attention to the need for localised problem-solving and capacity building. Overall, the DEA VRS model validates the efficiency of public hospitals in Kerala's municipal settings and supports their continued use as performance benchmarking tools in healthcare planning and monitoring.

The Scale Efficiency analysis highlights that most hospitals in Thiruvananthapuram's selected municipalities have consistently operated at an ideal size, ensuring effective and sustainable healthcare delivery. With the exception of Neyyattinkara, all hospitals achieved scale efficiency scores of 1 across all years. The occasional scale inefficiencies in Neyyattinkara underscore the importance of dynamic resource planning and structural adaptability. Overall, this analysis reaffirms the strength of public healthcare systems in Kerala and the utility of DEA as a tool for continuous monitoring and strategic alignment in the health sector.

Across all municipalities, 74.5 per cent of patients were served within one hour, indicating a reasonably efficient service delivery. Thiruvananthapuram and Neyyattinkara show better performance in average waiting time. However, differences across municipalities are statistically significant, pointing to systemic and administrative disparities in healthcare delivery at the urban local level.

Perception on governance and management efficiency shows that Thiruvananthapuram performed extremely well. In the perception analysis, Neyyattinkara performed well in all the variables considered. However, the DEA values on some indicators are less than one, which indicates over oversupply of the input variables, such as the number of medical staff and hospitals' infrastructure.

CHAPTER VI

EFFICIENCY OF THE SCHOOL EDUCATION SYSTEM UNDER SELECTED URBAN LOCAL BODIES

In the absence of quantitative data such as exam results and teacher-student ratios, perception-based variables are considered a proxy to assess the stakeholders feel about efficiency, which is used for the computation of technical efficiency. In this context, the input variables comprise governance and leadership, faculty quality, infrastructure, pedagogical practices, and financial and administrative efficiency. The output variables for measuring school education performance include academic performance, teaching quality, physical and digital infrastructure.

6.1 Overview of Sample Data in the Education Sector

In the education sector, data were captured from students and teachers from the selected schools in the ULBs. The number of respondents in education is presented in the Table 6.1

Table 6.1
Sample Respondents in the Education Sector

Selected ULBs	No. of Teachers Responded	No. of Students Responded	Total Respondents
Attingal Municipality	21 (13.0)	278 (2(0.0)	299 (19.30)
Nedumangad Municipality	12 (7.5)	284 (20.5)	296 (19.11)
Neyyattinkara Municipality	43 (26.7)	274 (19.7)	317 (20.46)
Thiruvananthapuram Corporation	42 (26.1)	275 (19.8)	317 (20.46)
Varkala Municipality	43 (26.7)	277 (2(0.0)	320 (20.66)
Total	161 (100.0)	1388 (100.0)	1549(100.0)

Source: Primary Survey, 2025
Values within the parentheses indicate per cent of the total

In Attingal Municipality, a total of 299 respondents participated in the survey, comprising 21 teachers and 278 students. This municipality accounts for 19.30 per cent of the total respondents. Although the number of teachers who responded

(13.0%) is relatively low compared to other ULBs, the student response (20.0%) is slightly above average. This suggests that while student engagement with the study was robust, efforts may be needed to enhance teacher participation or representation. The moderate overall contribution to the total sample implies that Attingal plays a notable but not dominant role in shaping educational trends within the district.

Nedumangad Municipality recorded the lowest proportion of teacher responses, with only 12 teachers participating, just 7.5 Municipality of the total teacher respondents. In contrast, the student response stood at 284 (20.5%), placing it among the highest in terms of student participation. The total number of respondents from Nedumangad Municipalityis 296, making up 19.11 per cent of the entire sample. The disparity between teacher and student responses may point toward administrative or accessibility issues in teacher engagement or survey outreach in this area. Nonetheless, the high student response ensures that the data collected still holds strong insights into student perspectives.

With a total of 317 respondents, Neyyattinkara Municipality accounts for 20.46 percent of the entire sample. This ULB shows one of the highest teacher participation rates (26.7%), alongside a decent number of student responses (274, or 19.7%). The balanced participation from both educators and students enhances the reliability of the data collected from this region. Neyyattinkara Municipality's high level of teacher involvement may reflect a greater willingness among educators to engage in public research or better communication and coordination mechanisms at the institutional level.

Thiruvananthapuram Corporation, the only city corporation among the ULBs studied, also recorded 317 total respondents (20.46%), similar to Neyyattinkara. Of these, 42 were teachers (26.1%) and 275 were students (19.8%). The high teacher participation is consistent with that of Neyyattinkara and Varkala, suggesting that urban centres may have better awareness or responsiveness to educational surveys. The balance of teacher and student responses reflects a comprehensive capture of perspectives, crucial for drawing reliable conclusions about education delivery in the capital city area.

Varkala Municipality had the highest number of total respondents at 320, which is 20.66 per cent of the total sample. Teacher participation was also among the highest at 43 teachers (26.7%), matching Neyyattinkara Municipality and exceeding Thiruvananthapuram. Student responses totalled 277 (20.0%), placing Varkala at the top in terms of comprehensive participation.

The data from Varkala are likely to be the most representative due to the robust engagement from both students and teachers. This high level of participation could be attributed to active school management, better institutional networks, or stronger interest in contributing to educational research.

6.2 Indicators of Governance and Leadership

This session covers the key variables such as teacher's perception on student' enrolment, student-teacher ratio, teaching load, administrative support. external collaboration and overall system evaluation. These components are the indicators of leadership effectiveness, administrative support, and involvement in planning.

6.2.1 Teachers' Perception on Enrolment

The teacher responses regarding students' enrolment performance, relative to nearby schools, revealed significant variations across the five Urban Local Bodies (ULBs) under study. The findings are statistically significant, as confirmed by the Pearson Chi-Square value of 35.502 (df = 12, p = .000), indicating considerable differences in teacher perceptions across ULBs.

In Attingal Municipality, a substantial majority of respondents (81.0%) agreed that enrolment in their schools was better than that in nearby institutions, with an additional 14.3 per cent strongly agreeing. Only 4.8 per cent remained neutral, and none disagreed. This suggests a relatively positive view among teachers regarding their schools' enrolment performance compared to other local options.

In Nedumangad Municipality, the perception was even more favourable, with 66.7 per cent agreeing and 33.3 per cent strongly agreeing that their schools had better enrolment.

Table 6.2

School Enrolment Compared to Nearby Schools

Urban Local Body	Students' enrolment in this school is better than that of other schools.				Total
	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	0	1	17	3	21
	(0.0)	(4.8)	(81.0)	(14.3)	(100.0)
Nedumangad Municipality	0	0	8	4	12
	(0.0)	(0.0)	(66.7)	(33.3)	(100.0)
Neyyattinkara Municipality	2	1	38	2	43
	(4.7)	(2.3)	(88.4)	(4.7)	(100.0)
Thiruvananthapuram Corporation	6	1	35	0	42
	(14.3)	(2.4)	(83.3)	(0.0)	(100.0)
Varkala Municipality	1	3	39	0	43
	(2.3)	(7.0)	(90.7)	(0.0)	(100.0)
Total	9	6	137	9	161
	(5.6)	(3.7)	(85.1)	(5.6)	(100.0)

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	35.502[a]	12	.000
Likelihood Ratio	31.147	12	.002
N of Valid Cases	161		

a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .45.

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

There were no neutral or negative responses, indicating high confidence among teachers in the enrolment status of their schools relative to nearby alternatives.

Neyyattinkara Municipality recorded the highest level of agreement overall, with 88.4 per cent agreeing and 4.7 per cent strongly agreeing. However, a small percentage of respondents (4.7% disagreeing and 2.3% neutral) expressed a degree of reservation. While the majority were positive, this slight divergence suggests potential localised issues affecting enrolment perceptions in a few schools.

Thiruvananthapuram Corporation revealed the most mixed results among the ULBs. Although 83.3 per cent of the respondents agreed that their schools performed better in terms of enrolment, 14.3 per cent disagreed, and 2.4 per cent were neutral. Notably, no respondent strongly agreed, which contrasts sharply with the other ULBs. This could reflect greater competition among schools in the urban core or other systemic challenges influencing teacher perceptions of enrolment strength.

Varkala Municipality presented highly favourable responses, with 90.7 per cent of respondents agreeing and 7.0 per cent remaining neutral. Only 2.3 per cent disagreed, and none strongly agreed. This pattern reflects strong, though not deeply empathetic, confidence in the relative enrolment performance of Varkala's schools.

Across all ULBs, the overall trend is positive, with 85.1 per cent of teachers agreeing and 5.6 per cent strongly agreeing that their schools have better enrolment than nearby ones. Yet, the variation in strength of responses, particularly the lower rate of "strongly agree" in Thiruvananthapuram and Varkala, suggests that while public school enrolment is viewed favourably in most ULBs, urban competition and demographic factors may be tempering perceptions in more urbanised jurisdictions.

The Pearson Chi-Square value for the association between teachers' perception of school enrolment (relative to nearby schools) and the Urban Local Bodies (ULBs) is 35.502, with 12 degrees of freedom and a p-value of .000. This result is statistically significant at the 1 per cent level, indicating that there is a strong and significant association between the location of the school (ULB) and the perception of better enrolment performance compared to nearby schools.

This implies that the perception of enrolment advantage is not uniform across ULBs, and is significantly influenced by the geographical and administrative context in which the school operates. Urban density, competition from private schools, and local policy implementation could be contributing factors to these differentiated perceptions.

6.2.2 Teachers' Perception on Student-Teacher Ratio

The responses from Attingal Municipality reveal a mixed perception regarding the appropriateness of the student-teacher ratio in the selected schools. Out of the 21 respondents, 42.9 per cent agreed that the ratio was suitable for effective learning, while a substantial 47.6 per cent expressed disagreement, 14.3 per cent strongly disagreed, and 33.3 per cent disagreed. Only one respondent remained neutral (4.8%), and another one strongly agreed (4.8%). This distribution reflects a significant degree of dissatisfaction or concern among nearly half the respondents, suggesting that schools under Attingal Municipality might grapple with overcrowded classrooms or inadequate teacher availability. These findings call for a thorough examination of teacher deployment and classroom size in this municipality.

In Nedumangad Municipality, the perception regarding the student-teacher ratio appears more favourable. Of the 12 respondents, half (50%) agreed that the ratio was appropriate, while a noteworthy 16.7 per cent strongly agreed. A third of the respondents (33.3%) chose to remain neutral, indicating a degree of uncertainty or a lack of strong opinion on the matter. Notably, there were no responses in the categories of disagreement or strong disagreement. This suggests that while the general sentiment is positive, the presence of a significant neutral segment indicates potential variability in classroom experiences across different schools. Addressing these ambiguities through qualitative engagement could provide deeper insights.

The responses from Neyyattinkara Municipality are strikingly uniform. All 43 respondents (100%) agreed that the student-teacher ratio is appropriate for effective learning.

Table 6.3

Student-Teacher Ratio and Its Appropriateness

Urban Local Body	The student-teacher ratio in my school is appropriate for effective learning.					Total
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	3 (14.3)	7 (33.3)	1 (4.8)	9 (42.9)	1 (4.8)	21 (100.0)
Nedumangad Municipality	0 (0.0)	0 (0.0)	4 (33.3)	6 (5(0.0)	2 (16.7)	12 (100.0)
Neyyattinkara Municipality	0 (0.0)	0 (0.0)	0 (0.0)	43 (100.0)	0 (0.0)	43 (100.0)
Thiruvananthapuram Corporation	0 (0.0)	0 (0.0)	0 (0.0)	42 (100.0)	0 (0.0)	42 (100.0)
Varkala Municipality	1 (2.3)	0 (0.0)	0 (0.0)	42 (97.7)	0 (0.0)	43 (100.0)
Total	**4 (2.5)**	**7 (4.3)**	**5 (3.1)**	**142 (88.2)**	**3 (1.9)**	**161 (100.0)**

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	126.424[a]	16	.000
Likelihood Ratio	79.480	16	.000
N of Valid Cases	161	a. 20 cells (80.0 %) have expected count less than 5. The minimum expected count is .22.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

This level of unanimous agreement is exceptional and points toward a highly favourable teaching environment in terms of teacher availability and manageable class sizes. Such a uniformly positive response may reflect effective staffing policies, adequate recruitment, or successful local education governance. Neyyattinkara could serve as a model for other municipalities aiming to improve student-teacher ratios and classroom learning conditions.

A similar trend of unanimous approval is observed in Thiruvananthapuram Corporation. All 42 respondents (100%) agreed with the statement that the student-teacher ratio is conducive to effective learning. The absence of any disagreement or neutral responses suggests a high degree of satisfaction among students, teachers, or respondents familiar with the educational infrastructure. Given that Thiruvananthapuram Corporation is the largest urban local body in the district, this result may be attributed to its relatively better educational infrastructure, greater resource allocation, and more efficient management of teaching staff across public schools.

In Varkala Municipality, the responses also reflect overwhelming agreement. Out of 43 respondents, 97.7 per cent agreed that the student-teacher ratio is appropriate for effective learning. Only one respondent (2.3%) strongly disagreed, and there were no responses in the disagree, neutral, or strongly agree categories. This overwhelming consensus suggests a broadly favourable perception of classroom conditions in Varkala. However, the presence of a single strongly negative response may warrant attention to ensure that isolated concerns do not reflect broader hidden issues in certain schools within the municipality.

The aggregate responses from all 161 participants across the five urban local bodies suggest that 88.2 per cent agree and 1.9 per cent strongly agree with the appropriateness of the student-teacher ratio in their schools. Only 6.8 per cent (combining strong disagreement and disagreement) expressed dissatisfaction. However, the Chi-Square test results show a statistically significant association ($p < 0.001$) between the urban local body and the perception of student-teacher ratio. This confirms that opinions vary significantly by location.

6.2.3 Teachers' Perception on Teaching Load

a) Increasing Trend of Teachers' Workload

The survey assessed the perception of teachers regarding whether their workload has increased in recent years across five Urban Local Bodies (ULBs). In Attingal Municipality, a strong majority of 76.2 per cent agreed and 14.3 per cent strongly agreed that teacher workload has increased, totalling 90.5 per cent. Only a small minority express disagreement or neutrality (4.8% each). This indicates a broad recognition among teachers in Attingal of a growing workload.

In Nedumangad Municipality, the perceptions are more divided. While 50.0 per cent strongly agreed that workload has increased, 25.0 per cent disagreed, and another 25.0 per cent were neutral. No respondents agreed without strongly agreeing, suggesting polarisation; half the teachers feel a significant increase, but a notable fraction do not share this perception.

In Neyyattinkara Municipality, almost all the respondents (97.7%) agreed that the workload has increased, with a minimal 2.3% strongly disagreeing. This indicates near-unanimous consensus on increased teacher workload.In Thiruvananthapuram Corporation, the perception is similarly strong, with 97.6 per cent agreeing and 2.4 per cent strongly agreeing. There are no neutral or disagreeing responses, reflecting a clear acknowledgement of workload increases. In Varkala Municipality, a majority (90.7%) agreed, and a small 2.3 per cent strongly agreed that workload has increased. Minor disagreement (4.7%) and neutrality (2.3%) exist but represent a small fraction, indicating overall consensus on the issue.

Across all ULBs, 85.7 per cent agree and 6.8 per cent strongly agree that teacher workload has increased in recent years, representing 92.5 per cent combined agreement. Only 4.3 per cent express disagreement or neutrality.

The Pearson Chi-Square test statistic is 93.991 with 16 degrees of freedom and a p-value of 0.000, indicating a highly statistically significant difference in perception across the municipalities. The Likelihood Ratio test (74.549, df=16, p=0.000) confirms this result.

Table 6.4

Increasing Trend of Teachers' Workload

Urban Local Body	The workload on teachers has increased in recent years.					Total
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	0 (0.0)	1 (4.8)	1 (4.8)	16 (76.2)	3 (14.3)	21 (100.0)
Nedumangad Municipality	0 (0.0)	3 (25.0)	3 (25.0)	0 (0.0)	6 (5(0.0)	12 (100.0)
Neyyattinkara Municipality	1 (2.3)	0 (0.0)	0 (0.0)	42 (97.7)	0 (0.0)	43 (100.0)
Thiruvananthapuram Corporation	0 (0.0)	0 (0.0)	0 (0.0)	41 (97.6)	1 (2.4)	42 (100.0)
Varkala Municipality	0 (0.0)	2 (4.7)	1 (2.3)	39 (90.7)	1 (2.3)	43 (100.0)
Total	1 (0.6)	6 (3.7)	5 (3.1)	138 (85.7)	11 (6.8)	161 (100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	93.991[a]	16	.000
Likelihood Ratio	74.549	16	.000
N of Valid Cases	161	a. 20 cells (80.0%) have expected count less than 5. The minimum expected count is .07.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

The significant Chi-Square result reveals that perceptions of increased teacher workload vary significantly by municipality. Neyyattinkara and Thiruvananthapuram exhibit the strongest consensus that workload has risen sharply, with nearly all teachers agreeing.

In contrast, Nedumangad shows a divided view, with half the respondents strongly agreeing and the rest split between disagreement and neutrality, suggesting varying experiences or expectations in that locality. Attingal and Varkala reflect broad agreement but also include small proportions of dissent or neutrality, possibly reflecting differences in school contexts, administrative support, or workload distribution.

b) Teaching Load per Day

Table 6 presents the perceptions of school-level stakeholders concerning the manageability of daily teaching hours under five Urban Local Bodies (ULBs) in the Thiruvananthapuram district. The analysis reveals a predominantly positive perception regarding the manageability of teaching hours. Out of 161 valid responses, 144 respondents (89.4%) agreed that their teaching load is manageable, 3 respondents (1.9%) strongly agreed, 11 respondents (6.8%) disagreed, and 3 respondents (1.9%) remained neutral. These results indicate that, across the board, the majority of teachers consider their daily teaching hours to be within acceptable and sustainable limits.

Attingal Municipality shows 76.2 per cent agreement and 9.5 per cent strong agreement. However, a small segment expressed disagreement (9.5%) and neutrality (4.8%). Nedumangad Municipality recorded the highest level of agreement at 91.7 per cent, though it had one respondent (8.3%) who disagreed. Neyyattinkara Municipality displayed highly positive responses with 90.7 per cent agreement and only minor instances of disagreement (4.7%) or neutrality (2.3%).

Thiruvananthapuram Corporation reflected a strong majority support at 88.1 per cent agreement, though it had the highest proportion of disagreement among all ULBs at 11.9 per cent.

Table 6. 5

Teaching Load per Day

Urban Local Body	The number of teaching hours per day is manageable.				Total
	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	2	1	16	2	21
	(9.5)	(4.8)	(76.2)	(9.5)	(100.0)
Nedumangad Municipality	1	0	11	0	12
	(8.3)	(0.0)	(91.7)	(0.0)	(100.0)
Neyyattinkara Municipality	2	1	39	1	43
	(4.7)	(2.3)	(90.7)	(2.3)	(100.0)
Thiruvananthapuram Corporation	5	0	37	0	42
	(11.9)	(0.0)	(88.1)	(0.0)	(100.0)
Varkala Municipality	1	1	41	0	43
	(2.3)	(2.3)	(95.3)	(0.0)	(100.0)
Total	11	3	144	3	161
	(6.8)	(1.9)	(89.4)	(1.9)	(100.0)

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	14.546[a]	12	.267
Likelihood Ratio	13.938	12	.305
N of Valid Cases	161	a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .22.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Varkala Municipality recorded the highest agreement rate overall (95.3%), with only two respondents (2.3% each) falling into the disagreement and neutral categories. The data suggests that the perception of teaching load as manageable is broadly shared, with minor differences across municipalities. Disagreement levels are generally low, though slightly elevated in Attingal and Thiruvananthapuram Corporation.

To determine whether the perception of teaching load varies significantly across different Urban Local Bodies, a Pearson Chi-Square test was conducted. The Pearson Chi-Square Value is computed as 14.546 with a Degrees of Freedom (df) of 12, and p- value is 0.267.

The p-value of 0.267 is greater than the conventional threshold of 0.05, indicating that there is no statistically significant association between the Urban Local Body and the perception of manageability of daily teaching hours. This suggests that the distribution of responses is independent of the ULB, and the consensus about teaching load being manageable is uniformly shared across different municipalities.

The uniformly positive perception of teaching load management across ULBs is a noteworthy finding. It suggests that the school scheduling, teacher allocation, and instructional planning strategies employed by municipal education departments are broadly effective in maintaining a sustainable workload for teachers. Such a finding is especially relevant in the context of increasing administrative and co-curricular responsibilities faced by teaching staff.

The slightly higher disagreement levels observed in Attingal Municipality and Thiruvananthapuram Corporation warrant further qualitative investigation. These may be due to localised staffing shortages, larger student-teacher ratios, or extended academic programs, which may increase perceived workload.

From a policy perspective, while the data does not suggest urgent structural reforms in teaching hour allocations, it highlights the value of periodic workload assessments and feedback mechanisms to ensure teacher well-being and retention. Moreover, municipalities that demonstrate high consensus on manageability (e.g., Varkala, Neyyattinkara) may serve as models for best practices in scheduling and workload distribution.

The analysis of Table 6.5 demonstrates that the majority of respondents across all five Urban Local Bodies perceive their daily teaching hours as manageable. The lack of statistically significant variation across municipalities underscores a system-wide effectiveness in teaching load management. While a few outliers exist, particularly in Thiruvananthapuram Corporation and Attingal, the general pattern points to equitable and sustainable practices in daily teaching hour assignments across the Thiruvananthapuram district's urban schools.

6.2.4 Teachers' Perception on Administrative Support

This session covers three important dimensions of administrative support: administrative support for classroom management, administration is responsive to teacher concerns, and government policies for school efficiency.

a) Administrative Support for Classroom Management

Effective classroom management is essential to maintaining conducive learning environments, and administrative support plays a critical role in facilitating this. Table 6.5 presents the perceptions of teachers across five Urban Local Bodies (ULBs) in Thiruvananthapuram district regarding the sufficiency of administrative support for managing their classrooms.

Among the 21 respondents from Attingal Municipality, 85.7 per cent agreed that they received sufficient administrative support for classroom management, while 9.5 per cent strongly agreed. Only 4.8 per cent reported a neutral stance, and none disagreed. This suggests that while the overall perception is largely favourable, there remains a small fraction of teachers who are not fully convinced of the adequacy of the support. The presence of both agreement and strong agreement indicates moderate strength and some depth in administrative backing.

In Nedumangad Municipality, the pattern is similar, with 91.7 per cent of respondents agreeing and 8.3 per cent strongly agreeing that they receive adequate administrative support.

Table 6.6

Administrative Support for Classroom Management

Urban Local Body	I receive sufficient administrative support for classroom management.			Total
	Neutral	Agree	Strongly Agree	
Attingal Municipality	1 (4.8)	18 (85.7)	2 (9.5)	21 (100.0)
Nedumangad Municipality	0 (0.0)	11 (91.7)	1 (8.3)	12 (100.0)
Neyyattinkara Municipality	0 (0.0)	43 (100.0)	0 (0.0)	43 (100.0)
Thiruvananthapuram Corporation	0 (0.0)	42 (100.0)	0 (0.0)	42 (100.0)
Varkala Municipality	0 (0.0)	43 (100.0)	0 (0.0)	43 (100.0)
Total	1 (0.6)	157 (97.5)	3 (1.9)	161 (100.0)

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	18.784[a]	8	.016
Likelihood Ratio	14.031	8	.081
N of Valid Cases	161		

a. 10 cells (66.7%) have expected count less than 5. The minimum expected count is .07.

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total

The absence of neutral or negative responses highlights a consensus of satisfaction among teachers. Compared to Attingal, Nedumangad shows a slightly stronger consensus, with no neutral responses, although the proportion of strong agreement is slightly lower.

In Neyyattinkara, all 43 respondents (100%) agreed that they received sufficient administrative support for classroom management. Notably, none expressed strong agreement or neutrality. This uniformity reflects a stable, positive perception but also suggests that administrative support, while consistent, may not be perceived as exceptional or exemplary. The absence of strong agreement could signal opportunities for deeper engagement or proactive support from school leadership.

Similarly, all 42 teachers surveyed in Thiruvananthapuram Corporation agreed with

the statement, with no responses indicating neutrality or strong agreement. This reinforces the perception that administrative support is both reliable and universal, but not necessarily viewed as exceptional. The lack of variation suggests that teachers have a uniform experience, likely due to standardised administrative practices in the Corporation schools.

The Varkala Municipality also recorded a unanimous 100 per cent agreement among its 43 respondents, with no neutral or strong agreement responses. This consistent agreement across all respondents points to effective administrative structures. However, as with the previous two ULBs, the absence of stronger endorsement implies there is room to enhance the quality or responsiveness of administrative support mechanisms.

Across all Urban Local Bodies, 97.5 per cent of the 161 respondents agreed that they receive sufficient administrative support for classroom management, while 1.9 per cent strongly agreed and only 0.6 per cent remained neutral. No respondents expressed disagreement. These results reflect an overwhelmingly positive perception of administrative backing across the district, underscoring the institutional stability in terms of support for day-to-day classroom functioning.

The low levels of strong agreement suggest that while support is present and consistent, it may not be perceived as outstanding or highly personalised. This uniformity could point to a need for a more dynamic, feedback-based administrative approach that is tailored to individual classroom needs, particularly in more urbanised contexts like Thiruvananthapuram Corporation.

The Pearson Chi-Square test value is 18.784 with 8 degrees of freedom, and the associated p-value is .016, which is statistically significant at the 5% level. This suggests that the differences in perception of administrative support across municipalities are not due to random chance and may reflect real variations in administrative practices or communication strategies.

b) Administration is Responsive to Teacher Concerns

The researcher captures teachers' perceptions of how responsive their school administration is to their concerns across five ULBs. In Attingal Municipality, the

large majority (76.2%) agree that the school administration is responsive, with an additional 14.3 per cent strongly agreeing, totalling 90.5 per cent positive responses. However, 9.5 per cent of respondents disagree, indicating a small portion of dissatisfaction or perceived lack of responsiveness.

In the Nedumangad Municipality, all respondents (100%) agree that the administration is responsive. No neutral or negative responses were recorded, reflecting unanimous confidence in administrative responsiveness. Similar to Nedumangad, in Neyyattinkara Municipality, 100 per cent of teachers agree with the responsiveness of the administration. This indicates a strong positive consensus. Again, 100 per cent agreement was observed in Thiruvananthapuram Corporation, showing that teachers unanimously feel supported by their school administration in this ULB. In Varkala Municipality, most respondents (95.3%) agree that administration is responsive, with a small 2.3 per cent neutral and 2.3 per cent disagreeing. This indicates strong overall satisfaction but a small proportion of uncertainty or dissatisfaction.

Across all ULBs, 95.7 per cent of respondents agree and 1.9 per cent strongly agree that their school administration is responsive to their concerns, making a combined positive response rate of 97.6 per cent. Only 1.9 per cent disagree and 0.6 per cent remain neutral, suggesting overwhelmingly positive perceptions overall.

The Pearson Chi-Square statistic is 32.238 with 12 degrees of freedom and a p-value of 0.001, indicating a statistically significant difference in teacher perceptions of administrative responsiveness across the ULBs. The Likelihood Ratio test also supports this conclusion with a p-value of 0.028, confirming the significance of the observed differences.

The significant Chi-Square test suggests that while most ULBs show very high levels of perceived administrative responsiveness, slight variations exist.

Table 6. 7

The school administration is responsive to teacher concerns.

Urban Local Body	The school administration is responsive to teacher concerns.				Total
	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	2	0	16	3	21
	(9.5)	(0.0)	(76.2)	(14.3)	(100.0)
Nedumangad Municipality	0	0	12	0	12
	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Neyyattinkara Municipality	0	0	43	0	43
	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Thiruvananthapuram Corporation	0	0	42	0	42
	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Varkala Municipality	1	1	41	0	43
	(2.3)	(2.3)	(95.3)	(0.0)	(100.0)
Total	3	1	154	3	161
	(1.9)	(0.6)	(95.7)	(1.9)	(100.0)

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	32.238[a]	12	.001
Likelihood Ratio	22.914	12	.028
N of Valid Cases	161	a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .07.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Attingal Municipality, for example, shows a small but notable minority (9.5%) who disagree, unlike Nedumangad, Neyyattinkara, and Thiruvananthapuram, where unanimous agreement prevails. Varkala also demonstrates strong agreement but includes minor neutrality and disagreement, indicating areas where administrative responsiveness could be improved. Such differences might be due to varying administrative practices, communication effectiveness, or the responsiveness culture in schools under different ULBs.

c) Government Policies for School Efficiency

The study examines perceptions of whether government policy interventions have improved school efficiency across five Urban Local Bodies (ULBs). It is observed that in the Attingal Municipality, a significant majority of respondents (81.0%) agree that government policy interventions have positively influenced school efficiency. A small proportion remains neutral (14.3%), and only 4.8 per cent disagree, indicating generally favourable perceptions but with some uncertainty. In Nedumangad Municipality, all respondents (100%) agree that government policies have improved school efficiency, showing unanimous confidence in the effectiveness of these interventions in this municipality. In Neyyattinkara Municipality, 81.4 per cent agree and 18.6 per cent strongly agree that government policies have contributed positively, with no neutrality or disagreement. This suggests strong approval and trust in the policy's impact on school efficiency.

In the Thiruvananthapuram Corporation, the respondents show a slightly lower but still strong level of agreement, with 64.3 per cent agreeing and 35.7 per cent strongly agreeing, reflecting solid confidence in policy interventions. In the Varkala Municipality, a very high 95.3 per cent agree that government policies have improved efficiency, with a minimal 2.3 per cent neutral and 2.3 per cent disagreeing. This reflects a broad positive perception with very little dissent.

Across all ULBs, an overwhelming 82.0 per cent agree and 14.3 per cent strongly agree that government policy interventions have improved school efficiency. Only 1.2 per cent disagree, and 2.5 per cent remain neutral. This indicates widespread acceptance of the positive role played by government policies in enhancing educational efficiency.

Table 6.8

Government Policies for School Efficiency

Urban Local Body	Government policy interventions have improved school efficiency.				Total
	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	1	3	17	0	21
	(4.8)	(14.3)	(81.0)	(0.0)	(100.0)
Nedumangad Municipality	0	0	12	0	12
	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Neyyattinkara Municipality	0	0	35	8	43
	(0.0)	(0.0)	(81.4)	(18.6)	(100.0)
Thiruvananthapuram Corporation	0	0	27	15	42
	(0.0)	(0.0)	(64.3)	(35.7)	(100.0)
Varkala Municipality	1	1	41	0	43
	(2.3)	(2.3)	(95.3)	(0.0)	(100.0)
Total	2	4	132	23	161
	(1.2)	(2.5)	(82.0)	(14.3)	(100.0)

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	45.831[a]	12	.000
Likelihood Ratio	49.092	12	.000
N of Valid Cases	161	a. 12 cells (60.0%) have expected count less than 5. The minimum expected count is .15.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

The Pearson Chi-Square test yields a value of 45.831 with 12 degrees of freedom and a p-value of 0.000, which is highly significant ($p < 0.05$). The Likelihood Ratio test corroborates this with a value of 49.092 and the same degrees of freedom, also with a p-value of 0.000. These results indicate that the differences in perceptions across municipalities about the impact of government policy interventions on school efficiency are statistically significant and unlikely to have occurred by chance.

The significant Chi-Square result suggests meaningful variation in how different municipalities perceive the effectiveness of government policy interventions. While overall perception is positive, municipalities like Nedumangad and Varkala show near-unanimous or very strong agreement, implying effective implementation or communication of policies there. In contrast, Attingal's slightly higher neutral and disagreement percentages may point to challenges in policy execution, awareness, or perceived impact in that locality. Thiruvananthapuram's strong but relatively lower agreement rate compared to others could indicate diversity in experiences across schools or varying effectiveness of policies in different contexts within the corporation.

6.2.5 Teachers' Perception on Collaboration with ULBs

This session looks at the teachers' perceptions of whether collaboration with local bodies has improved school efficiency. Attingal Municipality:
In Attingal Municipality, the majority of respondents (71.4%) agree that collaboration with local bodies has improved school efficiency, while 14.3 per cent disagree and 9.5 per cent remain neutral. There was a small 4.8 per cent who strongly disagreed, and none strongly agreed, indicating a moderately positive perception overall but with some dissent.

In Nedumangad Municipality, most teachers (75%) agree and 16.7 per cent strongly agree with the positive impact of collaboration, while only 8.3 per cent disagreed. There were no neutral or strongly disagree responses, showing a generally favourable view of local body collaboration. All respondents in Neyyattinkara (100%) expressed agreement, with 81.4 per cent agreeing and 18.6 per cent strongly agreeing, indicating very strong positive perceptions about the role of local bodies in improving school efficiency.

Table 6. 9

Collaboration with Local Bodies and School Efficiency

Urban Local Body	Collaboration with local bodies has improved school efficiency.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	1	3	2	15	0	21
	(4.8)	(14.3)	(9.5)	(71.4)	(0.0)	(100.0)
Nedumangad Municipality	0	1	0	9	2	12
	(0.0)	(8.3)	(0.0)	(75.0)	(16.7)	(100.0)
Neyyattinkara Municipality	0	0	0	35	8	43
	(0.0)	(0.0)	(0.0)	(81.4)	(18.6)	(100.0)
Thiruvananthapuram Corporation	0	0	0	23	19	42
	(0.0)	(0.0)	(0.0)	(54.8)	(45.2)	(100.0)
Varkala Municipality	0	2	0	41	0	43
	(0.0)	(4.7)	(0.0)	(95.3)	(0.0)	(100.0)
Total	1	6	2	123	29	161
	(0.6)	(3.7)	(1.2)	(76.4)	(18.0)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	63.871[a]	16	.000
Likelihood Ratio	62.920	16	.000
N of Valid Cases	161	a. 17 cells (68.0%) have expected count less than 5. The minimum expected count is .07.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

In the Thiruvananthapuram Corporation, the teachers here also show high agreement, with 54.8 per cent agreeing and 45.2 per cent strongly agreeing. There were no disagreements or neutral responses, indicating a very positive consensus on collaboration effectiveness. In Varkala, a large majority (95.3%) agreed that collaboration improved school efficiency. However, 4.7 per cent disagreed and none strongly agreed or were neutral, showing some minor reservations despite an overall positive outlook.

Combining all municipalities, 76.4 per cent of teachers agree and 18% strongly agree that collaboration with local bodies has led to improvements in school efficiency. Only 3.7 per cent disagreed, 1.2 per cent were neutral, and a minimal 0.6 per cent strongly disagreed.

The Pearson Chi-Square value is 63.871 with 16 degrees of freedom, and a p-value of .000, indicating a statistically significant association between the municipality and perceptions about collaboration impact at the 1 per cent significance level. The Likelihood Ratio test confirms this with a value of 62.920 and the same level of significance.

The significant Chi-Square test shows that perceptions of how collaboration with local bodies affects school efficiency differ across municipalities. Neyyattinkara and Thiruvananthapuram exhibit the strongest positive sentiments, with unanimous or near-unanimous agreement and no disagreement. Nedumangad and Varkala show strong but slightly more mixed responses, where some respondents express disagreement or remain neutral. Attingal displays the widest variation, including some disagreement and even strong disagreement, indicating that collaboration efforts may be perceived as less effective or inconsistently implemented there.

6.2.6 Teachers' Perception on Overall System Evaluation

In Attingal Municipality, the majority of teachers (81%) agreed with the statement, while 4.8 per cent strongly agreed. A small proportion expressed dissent, with 4.8 per cent each marking "strongly disagree," "disagree," and "neutral," indicating a limited yet notable presence of skepticism regarding system improvement.

Table 6. 10

Teachers' Perception on Overall System Evaluation

Urban Local Body	The overall education system in urban local body schools is improving.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	1	1	1	17	1	21
	(4.8)	(4.8)	(4.8)	(81.0)	(4.8)	(100.0)
Nedumangad Municipality	0	0	0	12	0	12
	(0.0)	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Neyyattinkara Municipality	0	0	0	43	0	43
	(0.0)	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Thiruvananthapuram Corporation	0	0	0	39	3	42
	(0.0)	(0.0)	(0.0)	(92.9)	(7.1)	(100.0)
Varkala Municipality	0	2	0	36	5	43
	(0.0)	(4.7)	(0.0)	(83.7)	(11.6)	(100.0)
Total	1	3	1	147	9	161
	(0.6)	(1.9)	(0.6)	(91.3)	(5.6)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	24.951[a]	16	.071
Likelihood Ratio	23.145	16	.110
N of Valid Cases	161	a. 20 cells (80.0%) have expected count less than 5. The minimum expected count is .07.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

In Nedumangad Municipality, the sentiment is unanimously positive,100 per cent of teachers agreed with the statement, showcasing complete confidence in the ongoing improvement of the education system. A similar pattern is observed in Neyyattinkara Municipality, where all respondents (100%) also agreed, pointing to a highly positive assessment.

Thiruvananthapuram Corporation exhibited a slightly more varied pattern. While 92.9 per cent of teachers agreed, a noteworthy 7.1 per cent strongly agreed. This reflects both general satisfaction and a segment that views the improvements as particularly impactful. Varkala Municipality reported slightly more diversity in response: 83.7 per cent agreed, 11.6 per cent strongly agreed, while 4.7 per cent disagreed. This small dissent may be attributed to local challenges or perceived implementation gaps.

In general, out of 161 respondents, 91.3 per cent agreed and 5.6 per cent strongly agreed that the education system is improving in ULB schools, suggesting a highly positive consensus. Only a marginal proportion of respondents expressed neutrality (0.6%), disagreement (1.9%), or strong disagreement (0.6%). This overwhelming agreement across municipalities points to systemic reforms or programmatic enhancements being well-received by teachers.

From a statistical standpoint, the Pearson Chi-Square value is 24.951 with 16 degrees of freedom, and the asymptotic significance (p-value) is 0.071, which is slightly above the conventional threshold of 0.05. This implies that while differences in perception across urban local bodies are noticeable, they are not statistically significant at the 5 per cent level.

The findings reveal a broadly optimistic view among teachers regarding improvements in the education system under urban local bodies. Despite some mild variation across municipalities, particularly in Attingal and Varkala, the overarching trend reflects strong teacher endorsement of recent changes or reforms. Policymakers and administrators can build on this momentum by addressing pockets of dissent and ensuring continued, inclusive progress across all urban jurisdictions.

6.3. Indicators of Faculty Quality

6.3.1 Teachers' Perception on Professional Development

This section analyses teachers' perceptions across selected Urban Local Bodies (ULBs) in Thiruvananthapuram district regarding the adequacy of training and professional development opportunities provided by their schools. The data, derived from a primary survey, are summarised in Table 6.10

Among the 21 respondents from Attingal Municipality, the majority (71.4%) agreed that their school provides adequate training and professional development opportunities, while 4.8 per cent strongly agreed. However, 14.3 per cent remained neutral and 9.5 per cent expressed disagreement. This shows that although the dominant perception is positive, there exists a notable minority (nearly one in four respondents) who are either uncertain or dissatisfied. This split highlights a potential gap in either the consistency or the relevance of training programs offered in this municipality.

In Nedumangad Municipality, all 12 respondents reported positive perceptions: 75.0 per cent agreed and 25.0 per cent strongly agreed that they had adequate access to training and professional development. No respondents selected neutral or disagree. This entirely affirmative feedback suggests a highly favourable training environment, with some respondents even perceiving opportunities as exceptionally sufficient. Nedumangad thus stands out for offering both access and perceived quality in professional development.

Responses from Neyyattinkara Municipality demonstrate overwhelmingly positive perceptions. Of the 43 respondents, 95.3 per cent agreed and 4.7 per cent strongly agreed that training opportunities are adequate. No respondent selected neutral or disagree. This consistency mirrors the pattern observed in Nedumangad and highlights Neyyattinkara as a locality with strong support structures for professional growth. The high agreement levels indicate that professional development is both widely accessible and well-regarded by the teaching staff.

Table 6. 11

Training and Professional Development Opportunities

Urban Local Body	The school provides enough training and professional development opportunities.				**Total**
	Disagree	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	2	3	15	1	21
	(9.5)	(14.3)	(71.4)	(4.8)	(100.0)
Nedumangad Municipality	0	0	9	3	12
	(0.0)	(0.0)	(75.0)	(25.0)	(100.0)
Neyyattinkara Municipality	0	0	41	2	43
	(0.0)	(0.0)	(95.3)	(4.7)	(100.0)
Thiruvananthapuram Corporation	0	0	41	1	42
	(0.0)	(0.0)	(97.6)	(2.4)	(100.0)
Varkala Municipality	0	1	42	0	43
	(0.0)	(2.3)	(97.7)	(0.0)	(100.0)
Total	2	4	148	7	161
	(1.2)	(2.5)	(91.9)	(4.3)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	43.243[a]	12	.000
Likelihood Ratio	30.043	12	.003
N of Valid Cases	161	a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .15.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

In Thiruvananthapuram Corporation, 97.6 per cent of the 42 respondents agreed, while 2.4 per cent strongly agreed that their schools offer sufficient training and professional development. The complete absence of disagreement or neutrality is consistent with the broader district-wide trend of satisfaction. However, the relatively lower percentage of strongly agree responses may imply that while training is present, it might be more standardised than personalised or cutting-edge in content. Among the 43 respondents from Varkala Municipality, 97.7 per cent agreed that they had adequate access to training, and 2.3 per cent remained neutral. Notably, no respondents expressed either strong agreement or strong disagreement. This suggests a consensus that training provision is satisfactory, although the absence of strong agreement could indicate a need for enhancements in training relevance, frequency, or impact.

Across all five Urban Local Bodies, a total of 91.9 per cent of the 161 respondents agreed that their schools provide adequate training and professional development, while 4.3 per cent strongly agreed. A small portion expressed neutrality (2.5%) or disagreement (1.2%). These results illustrate a district-wide consensus on the availability and adequacy of professional development, with nearly 96 per cent expressing satisfaction. However, the consistently low proportion of strong agreement across municipalities could reflect latent dissatisfaction with the depth, quality, or frequency of such programs.

The Pearson Chi-Square value is 43.243 with 12 degrees of freedom, and a p-value of .000, indicating a statistically significant association between the Urban Local Body and the teachers' perception of professional development opportunities. The Likelihood Ratio test supports this conclusion ($p = .003$). These findings confirm that perceptions of training adequacy differ significantly across ULBs.

6.3.2 Teachers' Perception on Motivation & Job Satisfaction

a) Job Satisfaction as a Teacher.

This session highlights teachers' levels of job satisfaction across five ULBs. In the Attingal Municipality, the majority of teachers (90.5%) agreed that their job satisfaction is high, with a small percentage remaining neutral (4.8%) or disagreeing (4.8%). No teachers strongly agreed or strongly disagreed with the statement. In the

Nedumangad Municipality, a notable proportion (66.7%) agree that their job satisfaction is high, while 25 per cent strongly agree, demonstrating a higher level of enthusiasm compared to Attingal. Only a small fraction is neutral (8.3%), and none disagreed or strongly disagreed.

In Neyyattinkara Municipality, teachers show overwhelming satisfaction, with 95.3 per cent agreeing and 4.7 per cent strongly agreeing. No respondents indicated neutrality or dissatisfaction, signalling very high job satisfaction in this ULB. In the Thiruvananthapuram Corporation, there is very high job satisfaction with 95.2% per cent agreeing and 4.8 per cent strongly agreeing. There are no neutral or negative responses. Varkala Municipality shows more variation, with 72.1 per cent agreeing and 20.9 per cent strongly agreeing. However, there are small percentages expressing disagreement (4.7%) and strong disagreement (2.3%), indicating some dissatisfaction among a minority of teachers.

Across all ULBs, a substantial majority (86.3%) agree that their job satisfaction is high, with an additional 9.9 per cent strongly agreeing. Only 2.5 per cent of respondents expressed disagreement, and a minimal 1.2 per cent remained neutral.

The Pearson Chi-Square value is 30.610 with 16 degrees of freedom, yielding a p-value of 0.015. This indicates a statistically significant difference in job satisfaction levels among teachers across the different ULBs at the 5 per cent significance level. The Likelihood Ratio test also supports this result with a p-value of 0.018, confirming the significant association between ULB and teachers' job satisfaction levels. The statistically significant Chi-Square results imply that teacher job satisfaction varies across municipalities. Neyyattinkara and Thiruvananthapuram show the highest overall satisfaction, with no respondents indicating dissatisfaction.

Varkala exhibits relatively more dissatisfaction compared to other municipalities, with some teachers disagreeing or strongly disagreeing about high job satisfaction. Nedumangad shows strong positive sentiments with a high percentage of strong agreement. Attingal maintains a high level of agreement but lacks any strong agreement responses, possibly reflecting a more moderate satisfaction level compared to others.

Table 6. 12

Job Satisfaction as a Teacher

Urban Local Body	My job satisfaction as a teacher is high.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	0	1	1	19	0	21
	(0.0)	(4.8)	(4.8)	(90.5)	(0.0)	(100.0)
Nedumangad Municipality	0	0	1	8	3	12
	(0.0)	(0.0)	(8.3)	(66.7)	(25.0)	(100.0)
Neyyattinkara Municipality	0	0	0	41	2	43
	(0.0)	(0.0)	(0.0)	(95.3)	(4.7)	(100.0)
Thiruvananthapuram Corporation	0	0	0	40	2	42
	(0.0)	(0.0)	(0.0)	(95.2)	(4.8)	(100.0)
Varkala Municipality	1	2	0	31	9	43
	(2.3)	4.7)	(0.0)	(72.1)	(20.9)	(100.0)
Total	1	3	2	139	16	161
	0.6)	(1.9)	(1.2)	(86.3)	(9.9)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	30.610[a]	16	.015
Likelihood Ratio	30.093	16	.018
N of Valid Cases	161	a. 20 cells (80.0%) have expected count less than 5. The minimum expected count is .07.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

b) Fairness in the Appraisal System for Teachers

The data presented in Table 6.13 explores the perceptions of teachers regarding the fairness and transparency of the performance appraisal system across five Urban Local Bodies (ULBs) in Thiruvananthapuram district. In Attingal Municipality, 71.4 per cent of teachers agreed that the performance appraisal system is fair and transparent, while 23.8 per cent remained neutral and 4.8 per cent disagreed. The absence of strong opinions—either agreement or disagreement—suggests that while a majority are satisfied, a notable section of teachers might not be fully convinced or well-informed about the process. In Nedumangad Municipality, 58.3 per cent of respondents agreed with the statement, but 41.7 per cent remained neutral. This high level of neutrality suggests a lack of engagement or clarity regarding the appraisal system. Notably, there were no strong agreements or disagreements, pointing to a passive or uncertain perception among the teaching staff.

In contrast, Neyyattinkara Municipality shows a strong positive sentiment, with 86 per cent agreeing and 7 per cent strongly agreeing with the fairness and transparency of the system. However, 7 per cent disagreed, suggesting the presence of isolated dissatisfaction, possibly due to individual experiences.

A similarly high level of agreement was observed in Thiruvananthapuram Corporation, where 85.7 per cent of teachers agreed. However, 14.3 per cent disagreed, indicating that despite the broad approval, a significant minority perceives issues in the appraisal process. Varkala Municipality recorded the most positive responses, with 97.7 per cent of teachers agreeing with the statement. Only one respondent strongly disagreed, suggesting near-universal confidence in the system's fairness and transparency in this municipality.

On the whole, out of 161 valid responses, 85.1 per cent of teachers agreed that the appraisal system is fair and transparent, while 6.2 per cent were neutral, 6.2 per cent disagreed, 1.9 per cent strongly agreed, and 0.6 per cent strongly disagreed.

Table 6.13

Fairness in the Appraisal System for Teachers

Urban Local Body	The performance appraisal system for teachers is fair and transparent.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	0	1	5	15	0	21
	(0.0)	4.8)	23.8)	71.4)	(0.0)	(100.0)
Nedumangad Municipality	0	0	5	7	0	12
	(0.0)	(0.0)	41.7)	58.3)	(0.0)	(100.0)
Neyyattinkara Municipality	0	3	0	37	3	43
	(0.0)	7.0)	(0.0)	86.0)	7.0)	(100.0)
Thiruvananthapuram Corporation	0	6	0	36	0	42
	(0.0)	14.3)	(0.0)	85.7)	(0.0)	(100.0)
Varkala Municipality	1	0	0	42	0	43
	2.3)	(0.0)	(0.0)	97.7)	(0.0)	(100.0)
Total	1	10	10	137	3	161
	0.6)	6.2)	6.2)	85.1)	1.9)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	63.899[a]	16	.000
Likelihood Ratio	55.587	16	.000
N of Valid Cases	161	a. 20 cells (80.0%) have expected count less than 5. The minimum expected count is .07.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

The Pearson Chi-Square test value of 63.899 with 16 degrees of freedom and a p-value of 0.000 indicates a statistically significant association between the urban local body and teachers' perception of the appraisal system. This means that the differences observed across municipalities are not due to chance.

The overall analysis reveals that while a substantial majority of teachers across municipalities perceive the performance appraisal system as fair and transparent, there exists a segment, particularly in Nedumangad and Thiruvananthapuram Corporation, that either harbours doubts or has had inconsistent experiences. These findings call for a more transparent, consistent, and participatory approach to performance evaluation, with efforts to sensitise and engage teachers across all urban local bodies to improve the credibility and acceptance of the appraisal system.

6.4. Indicators of Infrastructure and Resources

6.4.1 Teachers' Perception on Teaching-Learning Materials and Resources

a) Access to Adequate Materials

This section examines the perceptions of school teachers across selected Urban Local Bodies (ULBs) in Thiruvananthapuram district regarding their access to adequate teaching materials and resources. All 21 respondents from Attingal Municipality reported that they agree they have access to adequate teaching materials and resources. This accounts for 100 per cent of the sample from this ULB, with none selecting strongly agree. While the complete agreement suggests a broadly satisfactory level of resource provision, the absence of stronger affirmation may reflect a perception of adequacy rather than excellence, implying room for improvement in the quality or sufficiency of materials.

Similar to Attingal, all 12 respondents from Nedumangad Municipality agreed that teaching resources are adequately available, with none indicating strong agreement. This uniform response indicates a perception of baseline sufficiency, though it lacks the strength of endorsement that might be expected from highly resource-rich environments.

Among the 43 respondents in Neyyattinkara Municipality, every participant also selected agree, with no responses in the strongly agree category. This unanimity mirrors the trend observed in Attingal and Nedumangad, pointing to the perceived adequacy of teaching resources without exceptional satisfaction.

Table 6. 14

Access to Materials and Resources

Urban Local Body	As a Teacher, I have access to adequate teaching materials and resources.		
	Agree	Strongly Agree	Total
Attingal Municipality	21 (100.0)	0 (0.0)	21 (100.0)
Nedumangad Municipality	12 (100.0)	0 (0.0)	12 (100.0)
Neyyattinkara Municipality	43 (100.0)	0 (0.0)	43 (100.0)
Thiruvananthapuram Corporation	41 (97.6)	1 (2.4)	42 (100.0)
Varkala Municipality	43 (100.0)	0 (0.0)	43 (100.0)
Total	160 (99.4)	1 (0.6)	161 (100.0)

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.851[a]	4	.583
Likelihood Ratio	2.705	4	.608
N of Valid Cases	161	a. 5 cells (50.0%) have expected count less than 5. The minimum expected count is .07.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row

Of the 42 teachers surveyed from Thiruvananthapuram Corporation, 41 (97.6%) agreed that they had access to adequate teaching materials and resources, while only one respondent (2.4%) selected strongly agree. This slight deviation from the complete agreement seen in other municipalities may suggest that, while the vast majority are content with available materials, isolated instances of superior provisioning exist, potentially reflecting better infrastructure or support in specific schools.

All 43 respondents from Varkala Municipality expressed agreement with the statement, yielding a 100 per cent affirmative response. As with other

municipalities, however, none indicated strongly agree, pointing once again to a generally adequate but not exceptional level of material support.

Out of the total 161 respondents across all five ULBs, 160 (99.4%) indicated agreement regarding access to teaching materials, with only one respondent (0.6%) selecting strongly agree. Notably, there were no responses indicating disagreement across any municipality, highlighting a consistent perception of minimum adequacy in resource access.

This trend reflects a uniform baseline level of satisfaction among educators concerning the availability of teaching materials. However, the virtual absence of strong agreement suggests a potential stagnation at the level of adequacy, with limited movement towards excellence or innovation in teaching resource provisioning.

The Pearson Chi-Square value of 2.851 with 4 degrees of freedom yields a p-value of 0.583, which is not statistically significant at conventional levels ($p > 0.05$). Similarly, the Likelihood Ratio test value of 2.705 also confirms a lack of statistically significant association. These results suggest that the perception of access to teaching materials does not significantly differ across urban local bodies.

b) Availability and Quality of Library Resources

In the Attingal Municipality, a majority of respondents (61.9%) agreed that library resources are adequate, but 23.8 per cent disagreed and 14.3 per cent were neutral. This indicates a mixed perception, suggesting that while some schools are well-resourced, others may have notably inadequate library facilities. In the Nedumangad Municipality, only 25 per cent agreed and another 25 per cent strongly agreed with the adequacy of library resources. However, half the respondents (50.0%) disagreed, which is concerning. This reveals a significant inadequacy in library resources within schools in this ULB.

In the Neyyattinkara Municipality, a highly positive response, 93.0 per cent agreed and 4.7 per cent strongly agreed. Only one teacher (2.3%) strongly disagreed. This points to a well-established and functional library infrastructure in most schools.

Table 6. 15

Library Resources

Urban Local Body	10. The library resources (books and digital materials) are sufficient for students					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	0	5	3	13	0	21
	(0.0)	(23.8)	(14.3)	(61.9)	(0.0)	(100.0)
Nedumangad Municipality	0	6	0	3	3	12
	(0.0)	(50.0)	(0.0)	(25.0)	(25.0)	(100.0)
Neyyattinkara Municipality	1	0	0	40	2	43
	(2.3)	(0.0)	(0.0)	(93.0)	(4.7)	(100.0)
Thiruvananthapuram Corporation	0	0	0	42	0	42
	(0.0)	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Varkala Municipality	0	2	1	40	0	43
	(0.0)	(4.7)	(2.3)	(93.0)	(0.0)	(100.0)
Total	1	13	4	138	5	161
	(0.6)	(8.1)	(2.5)	(85.7)	(3.1)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	87.211[a]	16	.000
Likelihood Ratio	67.808	16	.000
N of Valid Cases	161	a. 20 cells (80.0%) have expected count less than 5. The minimum expected count is .07.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

In the Thiruvananthapuram Corporation, a unanimous agreement (100.0%) that library facilities are adequate. This indicates the presence of well-maintained and uniformly distributed library resources across schools in the Corporation. In the Varkala Municipality, Majority agreement (93.0%) with minor disagreement (4.7%) and neutrality (2.3%). This shows overall satisfaction, though a few schools may still need improvements.

Pearson Chi-Square Value is 87.211 with Degrees of Freedom (df) 16, and p = .000. The result is highly statistically significant, indicating that perceptions about the adequacy of library resources significantly vary across the Urban Local Bodies (ULBs). Although most ULBs, especially Neyyattinkara, Thiruvananthapuram, and Varkala, show high satisfaction, Nedumangad and Attingal show relatively poor ratings, which contribute significantly to the variation. This suggests that resource allocation and infrastructure development in libraries are uneven, and targeted policy attention is necessary for underperforming ULBs.

c) Financial Constraints and Quality of Teaching Learning Materials

In Attingal Municipality, the responses here are fairly divided. While nearly half (47.6%) agree that financial constraints limit the quality of teaching materials, a substantial 33.3 per cent disagree, and 14.3 per cent strongly agree. This indicates mixed perceptions—some stakeholders feel that limited finances affect material quality, but a significant proportion does not perceive it as a limiting factor.

In Nedumangad Municipality, the responses are split evenly, with 50 per cent agreeing that financial constraints impact teaching materials quality, and the other 50 per cent disagreeing. This polarisation suggests varying experiences or viewpoints within this ULB, possibly reflecting differences between schools or stakeholders.

In Neyyattinkara Municipality, an overwhelming majority (97.7%) agree that financial constraints limit the quality of teaching materials, with only a tiny neutral response (2.3%) and no disagreement. This indicates a strong consensus that financial challenges are a significant barrier in this area.

Table 6. 16

Financial Constraints and the Quality of Teaching Materials

Urban Local Body	26. Financial constraints limit the quality of teaching and learning materials.				Total
	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	7	1	10	3	21
	33.3)	4.8)	47.6)	14.3)	(100.0)
Nedumangad Municipality	6	0	6	0	12
	5(0.0)	(0.0)	5(0.0)	(0.0)	(100.0)
Neyyattinkara Municipality	0	1	42	0	43
	(0.0)	2.3)	97.7)	(0.0)	(100.0)
Thiruvananthapuram Corporation	0	0	42	0	42
	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Varkala Municipality	15	6	22	0	43
	34.9)	14.0)	51.2)	(0.0)	(100.0)
Total	28	8	122	3	161
	17.4)	5.0)	75.8)	1.9)	(100.0)

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	75.690[a]	12	.000
Likelihood Ratio	78.732	12	.000
N of Valid Cases	161	a. 12 cells (60.0%) have expected count less than 5. The minimum expected count is .22.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Thiruvananthapuram Corporation, all respondents (100%) agree that financial constraints limit teaching and learning materials. This unanimity reflects a clear perception of financial limitations affecting educational resources in the corporation.

In Varkala Municipality, just over half (51.2%) agree that financial constraints limit the quality of teaching materials, while a large portion (34.9%) disagree, and 14% remain neutral. This again reflects mixed perceptions, with a notable group not perceiving financial issues as a major constraint.

The Pearson Chi-Square value is 75.690 with 12 degrees of freedom and a p-value of .000, indicating a statistically significant difference in perceptions among ULBs regarding financial constraints affecting teaching materials quality. The data shows strong agreement in Neyyattinkara Municipality and Thiruvananthapuram Corporation that financial constraints severely limit the quality of teaching and learning materials. In contrast, Attingal and Varkala Municipalities exhibit more divided opinions, reflecting either variation in financial management, resource availability, or perception among respondents. Nedumangad Municipality presents a clear split, highlighting that financial constraints might be a significant issue in some schools while less so in others. The statistical significance confirms that these differences are not by chance, emphasising the varied financial realities across the ULBs.

6.4.2 Teachers' Perception on Infrastructure & Institutional Support

a) Classroom Infrastructure

In Attingal Municipality, a majority of teachers (61.9%) agreed that classrooms are well-equipped with necessary infrastructure, while 28.6 per cent strongly agreed. However, a small minority expressed dissatisfaction, with 4.8 per cent each choosing Disagree and Neutral. This reflects a generally positive perception with minor concerns that may point to uneven distribution or access to infrastructure across schools in this ULB.

In the Nedumangad Municipality, A striking 75.0 Per cent of respondents in Nedumangad strongly agreed that classrooms are well-equipped, while 25.0 Per

cent agreed. No teacher expressed disagreement or neutrality, indicating a unanimous positive perception of classroom infrastructure. This suggests that investments in classroom infrastructure in this ULB have been particularly effective and appreciated.

In Neyyattinkara Municipality, 79.1 per cent of teachers agreed and 20.9 per cent strongly agreed with the statement, with no dissenting or neutral responses. This reflects high satisfaction levels regarding classroom amenities, though slightly less intense than in Nedumangad. The responses indicate consistency in infrastructure availability across the schools surveyed in Neyyattinkara.

In the Thiruvananthapuram Corporation area, 64.3 per cent of the teachers agreed, and a relatively high 35.7 per cent strongly agreed. There were no negative responses. This suggests a generally high level of satisfaction with classroom infrastructure, potentially reflecting the benefits of urban resource concentration and higher funding allocations.

In Varkala Municipality, a unanimous 100 per cent of teachers in Varkala agreed (but did not strongly agree) that classrooms were well-equipped. While this suggests satisfaction, the absence of “strongly agree” responses may imply that infrastructure standards are adequate but not exceptional. Further qualitative inquiry may help clarify whether this reflects merely functional adequacy or unmet expectations for modernisation.

The Pearson Chi-Square value is 48.019 with 12 degrees of freedom and a p-value of .000, indicating a highly significant association between Urban Local Body (ULB) and teachers’ perception of classroom infrastructure. The result confirms that the perceived adequacy of infrastructure is not uniformly distributed across municipalities. Local differences in funding, planning, and implementation quality likely explain this variation.

Table 6. 17

Classroom Infrastructure

Urban Local Body	Classrooms are well-equipped with necessary infrastructure (blackboards, furniture, etc.).				Total
	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	1	1	13	6	21
	(4.8)	(4.8)	(61.9)	(28.6)	(100.0)
Nedumangad Municipality	0	0	3	9	12
	(0.0)	(0.0)	(25.0)	(75.0)	(100.0)
Neyyattinkara Municipality	0	0	34	9	43
	(0.0)	(0.0)	(79.1)	(20.9)	(100.0)
Thiruvananthapuram Corporation	0	0	27	15	42
	(0.0)	(0.0)	(64.3)	(35.7)	(100.0)
Varkala Municipality	0	0	43	0	43
	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Total	1	1	120	39	161
	(0.6)	(0.6)	(74.5)	(24.2)	(100.0)

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	48.019[a]	12	.000
Likelihood Ratio	49.412	12	.000
N of Valid Cases	161		

a. 11 cells (55.0%) have expected count less than 5. The minimum expected count is .07.

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

b) Digital Infrastructure

i) Availability of Adequate Digital Learning Tools

This session describes the availability of adequate digital learning tools across the Urban Local Bodies (ULBs). In the Attingal Municipality, the majority of respondents (76.2%) agree that there are adequate digital learning tools available, while 14.3 per cent remain neutral and 9.5 per cent disagree. No one strongly agrees, indicating moderate satisfaction with some uncertainty or dissatisfaction.

In the Nedumangad Municipality, the responses are more mixed: 41.7 per cent agree and 8.3 per cent strongly agree that digital tools are adequate, but a significant proportion (50%) disagree, indicating notable concerns about the availability of digital learning resources.

In the Neyyattinkara Municipality, universal agreement with 100 per cent of respondents agreeing that adequate digital learning tools are available, suggesting strong resource availability in this ULB.

In the Thiruvananthapuram Corporation, almost a unanimous positive response, 95.2 per cent agree and 4.8 per cent strongly agree, indicating very high satisfaction regarding digital learning tools. In Varkala Municipality, high agreement at 93 per cent, with 2.3 per cent neutral and 4.7 per cent disagreeing, showing overall positive perceptions with minor concerns.

Across all ULBs, 89.4 per cent agree and 1.9 per cent strongly agree that there are adequate digital learning tools available. Only 6.2 per cent disagree, and 2.5 per cent are neutral. This indicates a broadly positive perception of digital learning tool availability, though with variations among municipalities.

The results of the Chi-Square test reveal a statistically significant association between Urban Local Bodies (ULBs) and respondents' perceptions regarding the adequacy of digital learning tools. The Pearson Chi-Square value is 67.864 with 12 degrees of freedom, and the corresponding p-value is 0.000, which is less than the conventional significance level of 0.05.

Table 6. 18

Availability of Adequate Digital Learning Tools

Urban Local Body	There are adequate digital learning tools available for students.				Total
	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	2	3	16	0	21
	9.5)	14.3)	76.2)	(0.0)	(100.0)
Nedumangad Municipality	6	0	5	1	12
	5(0.0)	(0.0)	41.7)	8.3)	(100.0)
Neyyattinkara Municipality	0	0	43	0	43
	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Thiruvananthapuram Corporation	0	0	40	2	42
	(0.0)	(0.0)	95.2)	4.8)	(100.0)
Varkala Municipality	2	1	40	0	43
	4.7)	2.3)	93.0)	(0.0)	(100.0)
Total	10	4	144	3	161
	6.2)	2.5)	89.4)	1.9)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	67.864[a]	12	.000
Likelihood Ratio	47.686	12	.000
N of Valid Cases	161	a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .22.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

This indicates that there are significant differences in the perceptions of digital learning tool adequacy among the various ULBs. Additionally, the Likelihood Ratio test, with a value of 47.686 and a p-value of 0.000, further supports this finding, confirming that the availability and adequacy of digital learning tools are significantly associated with the specific ULBs.

The data suggests a clear disparity across municipalities regarding the adequacy of digital learning tools. While Neyyattinkara and Thiruvananthapuram show strong agreement on the availability of adequate digital tools, Nedumangad shows substantial disagreement, indicating potential resource gaps or accessibility issues there. Attingal and Varkala municipalities show high agreement but still present some neutral or disagree responses, indicating areas for improvement. The significant Chi-Square result emphasises that these differences are not due to random variation but likely reflect real differences in infrastructure or resource allocation across municipalities.

ii) Availability of Adequate Internet and Technology Support

Teachers' perception of the internet and technology support across Urban Local Bodies is discussed here. In Attingal Municipality, 76.2 per cent of teachers agreed and 4.8 per cent strongly agreed that internet and technology support was sufficient. However, 14.3 per cent disagreed, indicating that while the majority found the infrastructure satisfactory, there are gaps that need attention, possibly due to uneven access or outdated systems in specific schools.

In Nedumangad Municipality, concerning 66.7 per cent of teachers *disagreed* with the adequacy of internet and technology support, and only a minority agreed (8.3%) or strongly agreed (25.0%). This reflects a significant deficiency in digital infrastructure and support, which could hinder the effective integration of technology in pedagogy in this ULB. In Neyyattinkara Municipality, a high 79.1 per cent agreed and 20.9 per cent strongly agreed that adequate support exists, with no neutral or negative responses. This suggests strong digital infrastructure and positive teacher experiences with technological integration in the classroom.

Table 6. 19

Internet and Technology Support

Urban Local Body	The school provides adequate internet and technology support for teaching				Total
	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	3	1	16	1	21
	(14.3)	(4.8)	(76.2)	(4.8)	(100.0)
Nedumangad Municipality	8	0	1	3	12
	(66.7)	(0.0)	(8.3)	(25.0)	(100.0)
Neyyattinkara Municipality	0	0	34	9	43
	(0.0)	(0.0)	(79.1)	(20.9)	(100.0)
Thiruvananthapuram Corporation	0	0	26	16	42
	(0.0)	(0.0)	(61.9)	(38.1)	(100.0)
Varkala Municipality	2	0	41	0	43
	(4.7)	(0.0)	(95.3)	(0.0)	(100.0)
Total	13	1	118	29	161
	(8.1)	(0.6)	(73.3)	(18.0)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	96.629[a]	12	.000
Likelihood Ratio	79.890	12	.000
N of Valid Cases	161	12 cells (60.0%) have expected count less than 5. The minimum expected count is .07.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

In the Thiruvananthapuram Corporation, 61.9 per cent agreed and 38.1 per cent strongly agreed with the adequacy of internet and technology support. The complete absence of disagreement indicates broad satisfaction, likely reflecting the benefit of urban technological investments and better administrative prioritisation.

In Varkala Municipality, a remarkable 95.3 per cent of teachers agreed that internet and technology support is adequate, although none strongly agreed. This indicates widespread satisfaction, albeit possibly with room for enhancements in speed, accessibility, or advanced tools that could elevate the rating to "strongly agree."The Pearson Chi-Square value is 96.629 with 12 degrees of freedom and a p-value of .000, indicating a highly statistically significant association between the Urban Local Body and teachers' perception of internet and technology support. This clearly shows that access to and satisfaction with digital infrastructure vary significantly across municipalities. Nedumangad is a clear outlier with substantial dissatisfaction, in contrast to Neyyattinkara and the Corporation, which demonstrate high levels of support and satisfaction.

6.4.3 Teachers' Perception on Drinking Water & Sanitation

This session examines teachers' perceptions of the availability of clean drinking water and sanitation in the selected schools across urban local bodies. In the Attingal Municipality, a majority (71.4%) of teachers agreed that clean drinking water and sanitation are adequately available, while 9.5 per cent strongly agreed. However, 14.3 per cent disagreed and 4.8 per cent strongly disagreed. This indicates that although most schools in Attingal meet basic water and sanitation standards, some schools still face deficiencies.

In Nedumangad Municipality, a strong 75.0 per cent agreed and 25.0 per cent strongly agreed that clean drinking water and sanitation are available, with no disagreement reported. This reflects a high level of satisfaction among teachers in Nedumangad.

In Neyyattinkara Municipality, an overwhelming 95.3 per cent of teachers agreed and 4.7 per cent strongly agreed with the adequacy of drinking water and sanitation facilities. This suggests strong infrastructure and hygiene standards in schools under this ULB.

Table 6. 20

Availability of Clean Drinking Water and Sanitation

Urban Local Body	9. The availability of clean drinking water and sanitation facilities are satisfactory				Total
	Strongly Disagree	Disagree	Agree	Strongly Agree	
Attingal Municipality	1	3	15	2	21
	(4.8)	(14.3)	(71.4)	(9.5)	(100.0)
Nedumangad Municipality	0	0	9	3	12
	(0.0)	(0.0)	(75.0)	(25.0)	(100.0)
Neyyattinkara Municipality	0	0	41	2	43
	(0.0)	(0.0)	(95.3)	(4.7)	(100.0)
Thiruvananthapuram Corporation	0	0	42	0	42
	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Varkala Municipality	0	0	43	0	43
	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Total	1	3	150	7	161
	(0.6)	(1.9)	93.2)	4.3)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	45.375[a]	12	.000
Likelihood Ratio	32.249	12	.001
N of Valid Cases	161	a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .07.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

In the Thiruvananthapuram Corporation, all respondents (100.0%) agreed that the facilities are sufficient, with no one selecting “strongly agree,” indicating uniform satisfaction, possibly with a conservative tendency in response scale usage. In Varkala Municipality, a perfect 100.0 per cent agreement (all teachers selected “agree”) shows consistent availability of drinking water and sanitation facilities across schools.

The Chi-Square test results show a Pearson Chi-Square value of 45.375 with 12 degrees of freedom and a p-value of 0.000, indicating a highly statistically significant association between teachers’ perceptions of drinking water and sanitation availability and their respective Urban Local Bodies (ULBs). This suggests that perceptions vary meaningfully across ULBs. While most ULBs reported high levels of satisfaction, the presence of negative responses, particularly in Attingal, contributes to the observed variation and drives the statistical significance. This implies that infrastructure adequacy related to water and sanitation is not evenly distributed, highlighting the need for targeted improvements in areas like Attingal. The result is highly statistically significant, indicating that teachers’ perceptions about drinking water and sanitation availability significantly vary across Urban Local Bodies. Although almost all ULBs report high satisfaction, the variation (especially in Attingal, where negative responses are present) drives the statistical significance. This implies that infrastructure adequacy is not uniformly distributed, and targeted interventions may be required for Attingal.

6.5 Indicators of Pedagogical Practices

6.5.1 Teachers’ Perception on Capacity Building

a) School Offers Extra-Curricular Activities

The data collected from five Urban Local Bodies reveals varied perceptions regarding the availability and effectiveness of extra-curricular activities aimed at promoting holistic development among students. In the Attingal Municipality, a majority of respondents (76.2%) agree that their schools offer extra-curricular activities supporting holistic development, though 14.3 per cent disagree and 9.5 per cent remain neutral. This suggests a generally positive perception, but with a notable minority expressing some dissatisfaction or uncertainty.

Table 6. 21

School Offers Extra-Curricular Activities

Urban Local Body	The school offers extra-curricular activities to support holistic development.				Total
	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	3	2	16	0	21
	14.3)	9.5)	76.2)	(0.0)	(100.0)
Nedumangad Municipality	0	1	9	2	12
	(0.0)	8.3)	75.0)	16.7)	(100.0)
Neyyattinkara Municipality	0	0	36	7	43
	(0.0)	(0.0)	83.7)	16.3)	(100.0)
Thiruvananthapuram Corporation	0	0	26	16	42
	(0.0)	(0.0)	61.9)	38.1)	(100.0)
Varkala Municipality	1	2	39	1	43
	2.3)	4.7)	90.7)	2.3)	(100.0)
Total	4	5	126	26	161
	2.5)	3.1)	78.3)	16.1)	(100.0)

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	44.483[a]	12	.000
Likelihood Ratio	44.805	12	.000
N of Valid Cases	161	a. 12 cells (60.0%) have expected count less than 5. The minimum expected count is .30.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

In Nedumangad Municipality, most respondents (75%) agree, while a significant 16.7 per cent strongly agree on the availability of such activities, and only 8.3 per cent are neutral. No respondents disagreed, indicating a strong overall approval of extra-curricular provisions in this area. In Neyyattinkara Municipality, a very high 83.7 per cent agree, complemented by 16.3 per cent strongly agreeing, reflecting a very positive consensus on the availability of extra-curricular activities fostering holistic development. No neutrality or disagreement was recorded.

In Thiruvananthapuram Corporation, 61.9 per cent agree and a substantial 38.1 per cent strongly agree; this ULB shows the highest proportion of strong agreement among all ULBs, reflecting robust support for extra-curricular activities as a key component of student development.

In Varkala Municipality, an overwhelming 90.7 per cent agree, with 2.3 per cent strongly agreeing. Only a small fraction (2.3%) disagreed, and 4.7 per cent were neutral. This indicates broad recognition of extra-curricular activities in student development.

Across all surveyed ULBs, the overwhelming majority of 78.3 per cent agree and 16.1 per cent strongly agree that schools provide extra-curricular activities to support holistic development. Only 2.5 per cent disagree and 3.1 per cent remain neutral, demonstrating a strong overall endorsement of such programs.

The Pearson Chi-Square test produced a value of 44.483 with 12 degrees of freedom and an asymptotic significance (p-value) of 0.000, which is well below the conventional threshold of 0.05. Similarly, the Likelihood Ratio test yielded a value of 44.805 with the same degrees of freedom and a p-value of 0.000. These results indicate that the differences in perceptions about the availability and effectiveness of extra-curricular activities across the five ULBs are statistically significant and unlikely to be due to chance.

The statistically significant Chi-Square results suggest that while there is an overall positive perception regarding extra-curricular activities, the extent of this perception varies meaningfully across municipalities. For instance, Thiruvananthapuram shows the highest level of strong agreement, indicating particularly strong provision or recognition of such activities there, whereas Attingal has the highest disagreement

and neutrality, possibly highlighting areas where the implementation or awareness of such programs could be strengthened.

The data strongly supports that extra-curricular activities are widely offered and valued for holistic student development across all surveyed ULBs. However, the significant variation among municipalities calls for targeted efforts in places like Attingal to enhance the availability, diversity, and awareness of these programs. Strengthening extra-curricular initiatives will contribute to more balanced educational experiences, better student engagement, and improved overall outcomes.

b) Special Support Programs for Students with Learning Difficulties

In Attingal Municipality, the majority (85.7%) of respondents agree that their schools have special support programs, with 14.3 per cent disagreeing. No strong agreement was reported. In Nedumangad Municipality, a strong 83.3 per cent agree, and 16.7 per cent strongly agree that special support programs exist, indicating positive recognition of such initiatives. In Neyyattinkara Municipality, most respondents (90.7%) agree, and 2.3 per cent strongly agree, while 7 per cent disagree, showing substantial but not unanimous support. In Thiruvananthapuram Corporation, 83.3 per cent agree, 2.4 per cent strongly agree, and 14.3 per cent disagree, indicating some concerns or lack of awareness regarding special support programs. In Varkala Municipality, the highest agreement was with 95.3 per cent agreeing and 2.3 per cent strongly agreeing. Only 2.3 per cent disagreed.

Across all ULBs, 88.8 per cent agreed and 3.1 per cent strongly agreed that their schools have special support programs for students with learning difficulties, and a small proportion (8.1%) disagreed. This reflects a generally favourable perception about the availability of special support programs across the surveyed areas.

The Pearson Chi-Square value is 14.230 with 8 degrees of freedom and a p-value of 0.076. The Likelihood Ratio test gives a value of 12.364 with a p-value of 0.136. P-values are above the conventional 0.05 threshold, indicating no statistically significant difference in perceptions across the ULBs.

Table 6. 22

Special Support Programs for Students with Learning Difficulties

Urban Local Body	The school has special support programs for students with learning difficulties.			Total
	Disagree	Agree	Strongly Agree	
Attingal Municipality	3	18	0	21
	14.3)	85.7)	(0.0)	(100.0)
Nedumangad Municipality	0	10	2	12
	(0.0)	83.3)	16.7)	(100.0)
Neyyattinkara Municipality	3	39	1	43
	7.0)	90.7)	2.3)	(100.0)
Thiruvananthapuram Corporation	6	35	1	42
	14.3)	83.3)	2.4)	(100.0)
Varkala Municipality	1	41	1	43
	2.3)	95.3)	2.3)	(100.0)
Total	13	143	5	161
	8.1)	88.8)	3.1)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	14.230[a]	8	.076
Likelihood Ratio	12.364	8	.136
N of Valid Cases	161		

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

The data suggests that special support programs for students with learning difficulties are widely recognised across the Urban Local Bodies. The absence of statistically significant differences indicates a fairly uniform perception about the existence of such programs. The slight disagreement in some areas, especially Thiruvananthapuram and Attingal, might suggest variability in program reach or awareness.

There is broad agreement among school teachers that special support programs for students with learning difficulties are in place across ULBs. However, to ensure all schools effectively implement these programs, attention could be given to enhancing awareness and accessibility, particularly in areas showing some disagreement.

6.5.2 Teachers' Perception on Assessment Practices

a) Measures to Track Students' Academic Progress

The data on the effectiveness of measures to track student academic progress across various Urban Local Bodies (ULBs) generally reflects a strong positive perception among the respondents. In Attingal Municipality, 90.5% of the 21 respondents agreed that their schools have effective mechanisms in place to monitor academic progress, with a small number expressing disagreement (4.8%) or neutrality (4.8%). The absence of any "strongly agree" responses suggests moderate confidence in the existing tracking measures, indicating potential room for improvement in this area.

In Nedumangad Municipality, 83.3 per cent of respondents agreed, while 16.7 per cent strongly agreed that their schools possess effective tracking systems. The presence of strongly positive responses here implies a higher level of confidence in the monitoring processes compared to Attingal. No respondents expressed neutrality or disagreement, showing a relatively unanimous endorsement of academic tracking measures.

Neyyattinkara Municipality demonstrated the highest agreement rate, with 97.7 per cent of respondents agreeing and a small 2.3 per cent neutral response, indicating broad satisfaction with academic tracking tools. No disagreement was reported, reflecting well-established systems in place to follow student progress effectively.

Table 6. 23

Measures to Track Students' Academic Progress

Urban Local Body	The school has effective measures to track student academic progress.				Total
	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	1	1	19	0	21
	(4.8)	(4.8)	(90.5)	(0.0)	(100.0)
Nedumangad Municipality	0	0	10	2	12
	(0.0)	(0.0)	(83.3)	(16.7)	(100.0)
Neyyattinkara Municipality	0	1	42	0	43
	(0.0)	(2.3)	(97.7)	(0.0)	(100.0)
Thiruvananthapuram Corporation	0	0	41	1	42
	(0.0)	(0.0)	(97.6)	(2.4)	(100.0)
Varkala Municipality	0	0	42	1	43
	(0.0)	(0.0)	(97.7)	(2.3)	(100.0)
Total	1	2	154	4	161
	(0.6)	(1.2)	(95.7)	(2.5)	(100.0)

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	21.986[a]	12	.038
Likelihood Ratio	15.724	12	.204
N of Valid Cases	161	a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .07.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Similarly, in Thiruvananthapuram Corporation, 97.6 per cent agreed and 2.4 per cent strongly agreed, which indicates a robust confidence in the schools' ability to monitor academic development. The lack of any neutral or negative responses suggests that most respondents view their institutions' tracking mechanisms as efficient.

In Varkala Municipality, 97.7 per cent of respondents agreed and 2.3 per cent strongly agreed on the effectiveness of academic progress tracking. This consistency with other high-performing ULBs further underscores the general belief in well-functioning academic monitoring systems in these schools.

The data shows that most ULBs maintain effective systems for tracking student academic progress, with over 95 per cent of total respondents either agreeing or strongly agreeing on the issue. The chi-square test indicates a statistically significant difference ($p = 0.038$) in responses across ULBs, suggesting some variation in perceptions that might warrant further qualitative exploration. Despite this, the overall positive consensus highlights that schools across these ULBs largely value and implement measures to assess and support student academic development.

The chi-square test result for this question shows a Pearson Chi-Square value of 21.986 with 12 degrees of freedom and an asymptotic significance (p-value) of 0.038, which is below the conventional 0.05 threshold. This indicates that the differences in responses among the various Urban Local Bodies are statistically significant. In other words, the perception of how effectively schools track student academic progress varies meaningfully across the different ULBs surveyed.

This significance suggests that although the overall majority across ULBs agree that effective measures exist, the degree of agreement differs depending on the ULB. For instance, Nedumangad Municipality, Neyyattinkara Municipality, Thiruvananthapuram Corporation, and Varkala Municipality show very high agreement levels (above 95%), while Attingal Municipality displays a slightly lower level of consensus, with some disagreement and neutral responses.

These variations may be influenced by several factors, including:

- Differences in administrative focus on resources allocated toward academic monitoring across ULBs.
- Variations in school infrastructure and availability of academic tracking tools or technologies.
- Differences in teacher training and awareness related to student assessment mechanisms.
- Socioeconomic or demographic differences that may affect schools' capacities or priorities.

Given these findings, policymakers and educational administrators should consider targeted interventions for ULBs like Attingal, where perceptions of effectiveness are comparatively lower. Further qualitative inquiry could help identify specific challenges faced in such areas, enabling tailored improvements in academic progress monitoring systems.

b) Students' Performance in Standardised Examinations

The analysis of students' performance in standardised examinations across various Urban Local Bodies (ULBs) reveals a generally positive perception among the respondents. In Attingal Municipality, out of 21 respondents, the majority (85.7%) agreed that students perform well in examinations, though a small proportion expressed neutrality (9.5%) and disagreement (4.8%). Notably, none strongly agreed, which may indicate moderate confidence among educators and possibly some concerns regarding consistent academic outcomes in this municipality. In contrast, Nedumangad Municipality demonstrated the highest level of confidence in student performance, with all 12 respondents (100%) agreeing that students perform well. This unanimous consensus suggests strong faith in the effectiveness of teaching methods and student preparedness within this area. Similarly, Neyyattinkara Municipality showed overwhelming positivity, where 95.3 per cent of the 43 respondents agreed and an additional 2.3 per cent strongly agreed with the statement on student performance. The very low percentage of neutral responses highlights a broad agreement among educators that student outcomes in standardised exams are satisfactory or better.

Table 6. 24

Students' Performance in the Examinations

Urban Local Body	Students perform well in standardised examinations.				Total
	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	1	2	18	0	21
	(4.8)	(9.5)	(85.7)	(0.0)	(100.0)
Nedumangad Municipality	0	0	12	0	12
	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Neyyattinkara Municipality	0	1	41	1	43
	(0.0)	(2.3)	(95.3)	(2.3)	(100.0)
Thiruvananthapuram Corporation	0	0	40	2	42
	(0.0)	(0.0)	(95.2)	(4.8)	(100.0)
Varkala Municipality	1	1	41	0	43
	(2.3)	(2.3)	(95.3)	(0.0)	(100.0)
Total	2	4	152	3	161
	(1.2)	(2.5)	(94.4)	(1.9)	(100.0)

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.822[a]	12	.382
Likelihood Ratio	13.472	12	.336
N of Valid Cases	161	a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .15.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

The pattern continues with Thiruvananthapuram Corporation, where 95.2 per cent of respondents agreed and 4.8 per cent strongly agreed that students perform well in examinations. The presence of "strongly agree" responses here suggests slightly higher confidence levels compared to other ULBs, indicating a perceived strong academic environment in schools under this Corporation.

In Varkala Municipality, 95.3 per cent of the 43 respondents agreed with the statement, while a small minority remained neutral (2.3%) or disagreed (2.3%). This reflects a generally positive view of student performance, though the slight dissent points to the possibility of isolated issues that may require attention.

Despite minor variations across municipalities, the consensus is predominantly favourable toward students' examination performance. The nonsignificant chi-square result further supports the interpretation that perceptions do not differ substantially across ULBs. This uniformity indicates a broadly consistent academic standard within the schools surveyed, though municipalities like Attingal may benefit from targeted efforts to address educators' moderate confidence and concerns.

To assess whether teachers' perceptions regarding students' examination performance differ significantly across the selected Urban Local Bodies (ULBs), a chi-squared test of independence was conducted. The test yielded a Pearson Chi-Square value of 12.822 with 12 degrees of freedom, and the associated p-value (Asymptotic Significance) was 0.382. Additionally, the Likelihood Ratio was calculated at 13.472, and the analysis was based on a total of 161 valid cases.

Since the p-value is greater than the conventional significance threshold of 0.05, the result indicates that there is no statistically significant difference in perceptions across the municipalities. This suggests a relatively uniform or consistent view among teachers regarding students' examination performance across all the surveyed ULBs.

The overwhelmingly positive perception regarding students' performance in standardised examinations suggests that schools in the Thiruvananthapuram district are largely successful in preparing students for formal assessments. This consistency across multiple municipalities points to:

- Effective teaching methodologies and possibly strong academic support systems.
- Robust school environments that promote learning and exam readiness.
- The possible success of curriculum implementation and teacher training programs.

The lack of significant difference in perceptions between ULBs indicates that students across different municipalities perform similarly well in exams, reflecting an equitable level of academic achievement in the district.

The small minority expressing disagreement or neutrality, particularly in Attingal and Varkala Municipalities, highlights areas where further support or investigation may be beneficial. Understanding any localised challenges, such as resource limitations, socio-economic factors, or gaps in student engagement, could help improve outcomes even further.

Teachers' perceptions suggest a generally strong and uniform performance of students in standardised examinations across all surveyed Urban Local Bodies in the district. The findings imply that the district's educational system is functioning effectively in terms of examination preparation, although minor localised concerns may exist that deserve targeted attention.

c) Feedback on Students' Learning Outcomes from the School Authorities

The data reveals that a vast majority of respondents across all Urban Local Bodies (ULBs) agree that they receive timely feedback from school authorities regarding student learning outcomes. The total combined agreement (Agree + Strongly Agree) is remarkably high at 96.9 per cent, indicating a generally positive perception about communication related to student performance.

In Attingal Municipality, most respondents (81.0%) agree that feedback is timely, a noticeable portion (19.1%) either disagree or remain neutral. This suggests some scope for improvement in communication effectiveness within this ULB. In Nedumangad Municipality, all respondents (100%) agree that feedback is timely, reflecting strong satisfaction in this region.

Table 6. 25

Feedback on Student Learning Outcomes

Urban Local Body	I receive timely feedback from school authorities about student learning outcomes.				Total
	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	1	3	17	0	21
	(4.8)	(14.3)	(81.0)	(0.0)	(100.0)
Nedumangad Municipality	0	0	12	0	12
	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Neyyattinkara Municipality	0	0	43	0	43
	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Thiruvananthapuram Corporation	0	1	41	0	42
	(0.0)	(2.4)	(97.6)	(0.0)	(100.0)
Varkala Municipality	0	0	42	1	43
	(0.0)	(0.0)	(97.7)	(2.3)	(100.0)
Total	1	4	155	1	161
	(0.6)	(2.5)	(96.3)	(0.6)	(100.0)

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	24.227[a]	12	.019
Likelihood Ratio	17.761	12	.123
N of Valid Cases	161	a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .07.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

In Neyyattinkara Municipality, a perfect 100 per cent agreement, showing highly effective feedback mechanisms. In the Thiruvananthapuram Corporation, nearly unanimous agreement (97.6%), with only a small fraction neutral (2.4%), demonstrating robust feedback practices. In Varkala Municipality, almost all agree (97.7%) with just one respondent strongly agreeing, reinforcing the consistency in timely feedback.

The Pearson Chi-Square test yields a value of 24.227 with 12 degrees of freedom and a p-value of 0.019, which is below the 0.05 threshold. This confirms that there is a statistically significant difference in feedback reception perceptions across ULBs. However, given that the percentages are quite high across most ULBs, except for a slight dip in Attingal, this difference likely reflects Attingal's comparatively lower agreement levels rather than any drastic disparity.

The high levels of agreement across ULBs highlight the success of communication channels between schools and stakeholders in reporting student learning outcomes, which is crucial for timely intervention and support. The relatively lower agreement and presence of some disagreement in Attingal Municipality indicate an area requiring focused attention, possibly to enhance the feedback frequency, clarity, or modes of communication.

Since feedback is a critical component of student learning improvement, ULBs with slightly lower feedback satisfaction could benefit from strengthening teacher training on parent engagement, implementing more systematic feedback mechanisms, or employing digital tools to ensure prompt and clear communication.

The data reflect a positive scenario for feedback on student learning outcomes in the studied ULBs, with Nedumangad, Neyyattinkara, Thiruvananthapuram, and Varkala leading in effectiveness. Attingal Municipality should be prioritised for improvement to bring its feedback practices up to par with other ULBs, thereby enhancing the overall quality of student monitoring and parental involvement.

d) Perception on the Effectiveness of the Current Evaluation and Assessment System

This session shows a detailed analysis of the data on the effectiveness of the current

evaluation and assessment system across Urban Local Bodies (ULBs). In Attingal Municipality, the majority of respondents (66.7%) *agree* that the current evaluation system is effective, though a notable proportion (23.8%) remain neutral, and 4.8 per cent disagree. This suggests general satisfaction but with some reservations. In the Nedumangad Municipality, 83.3 per cent agreed on the system's effectiveness, while 16.7 per cent were neutral. No disagreement was recorded, indicating a positive perception overall. In Neyyattinkara Municipality, nearly unanimous positive feedback, with 97.7 per cent agreeing and 2.3 per cent strongly agreeing on the system's effectiveness. No neutrality or disagreement. The Thiruvananthapuram Corporation, similar to Neyyattinkara, 95.2 per cent agreed and 4.8 per cent strongly agreed, showing overwhelming confidence in the evaluation system. In Varkala Municipality, almost all respondents (97.7%) agree with the effectiveness, with a very small neutral proportion (2.3%) and no disagreement.

Across all ULBs, 91.9 per cent agreed and 1.9 per cent strongly agreed that the current evaluation and assessment system is effective; only 0.6 per cent disagreed, and 5 per cent remained neutral. This reflects a very high overall satisfaction with the evaluation and assessment mechanisms in place.

The Pearson Chi-Square value is 41.740 with 16 degrees of freedom and a p-value of 0.000, indicating that differences in perceptions across the ULBs are statistically significant. The Likelihood Ratio test also supports this significance ($p = 0.007$). While the system is generally perceived as effective across all ULBs, slight differences exist, particularly with a higher neutral response in Attingal, possibly indicating room for improvement or variations in implementation. The high agreement rates in Neyyattinkara, Thiruvananthapuram, and Varkala highlight successful adoption and trust in the current system. The statistically significant variation suggests some contextual factors influencing perceptions, such as administrative support, training, or communication about the evaluation system.

The data strongly suggest that the current evaluation and assessment system is broadly accepted and regarded as effective by school staff across the surveyed ULBs. However, targeted efforts may be needed to address the neutral or sceptical views in some areas, such as Attingal Municipality, to further enhance confidence and effectiveness.

Table 6.26

Effectiveness of the Current Evaluation and Assessment System

Urban Local Body	The current evaluation and assessment system is effective.				Total
	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	1	5	1	14	0
	(4.8)	(23.8)	(4.8)	(66.7)	(0.0)
Nedumangad Municipality	0	2	0	10	0
	(0.0)	(16.7)	(0.0)	(83.3)	(0.0)
Neyyattinkara Municipality	0	0	0	42	1
	(0.0)	(0.0)	(0.0)	(97.7)	(2.3)
Thiruvananthapuram Corporation	0	0	0	40	2
	(0.0)	(0.0)	(0.0)	(95.2)	(4.8)
Varkala Municipality	0	1	0	42	0
	(0.0)	(2.3)	(0.0)	(97.7)	(0.0)
Total	1	8	1	148	3
	(0.6)	(5.0)	(0.6)	(91.9)	(1.9)

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	41.740[a]	16	.000
Likelihood Ratio	33.400	16	.007
N of Valid Cases	161		

a. 20 cells (80.0%) have expected count less than 5. The minimum expected count is .07.

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

6.5.3 Teachers' Perception on Curriculum Relevance

a) Curriculum and Students' Learning Needs

Curriculum alignment is crucial to ensuring that students' developmental, cognitive, and academic needs are effectively addressed. Table 6.26 presents the responses of teachers across five Urban Local Bodies (ULBs) regarding whether the current curriculum meets the learning needs of their students. In Attingal Municipality, responses revealed a degree of divergence. While the majority, 76.2 per cent, agreed that the curriculum aligns with student learning needs, 19.0 per cent disagreed, and 4.8 per cent remained neutral. The presence of dissenting views, unlike in other ULBs, suggests that some teachers in Attingal find gaps between curricular content and classroom realities. These disparities could reflect localised challenges such as socio-economic diversity, linguistic heterogeneity, or lack of supplementary support systems.

All 12 respondents from Nedumangad Municipality (100%) agreed that the curriculum is aligned with student learning needs, indicating a uniform positive perception. This unanimity suggests a strong coherence between curricular goals and classroom implementation. It also reflects the possible success of teacher training or curricular adaptation mechanisms that allow educators to tailor content to student profiles effectively. Similarly, in Neyyattinkara Municipality, all 43 respondents (100%) agreed with the statement. This complete agreement demonstrates a clear alignment between curriculum structure and student capabilities, possibly aided by efficient administrative oversight and teacher preparedness. Notably, the absence of strong agreement responses may point to a functional but unexceptional curriculum delivery model.

Teachers from Thiruvananthapuram Corporation largely echoed this consensus, with 97.6 per cent agreeing and 2.4 per cent strongly agreeing. While the overwhelming majority affirmed curriculum adequacy, the presence of strong agreement (though minimal) indicates a slightly higher confidence in curriculum relevance compared to the other ULBs. This could be attributed to the Corporation's access to better infrastructural and academic resources, enabling smoother curriculum implementation.

Table 6. 27

Curriculum and Students' Learning Needs

Urban Local Body	The current curriculum aligns well with student learning needs.				**Total**
	Disagree	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	4	1	16	0	21
	(19.0)	(4.8)	(76.2)	(0.0)	(100.0)
Nedumangad Municipality	0	0	12	0	12
	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Neyyattinkara Municipality	0	0	43	0	43
	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Thiruvananthapuram Corporation	0	0	41	1	42
	(0.0)	(0.0)	(97.6)	(2.4)	(100.0)
Varkala Municipality	1	2	40	0	43
	(2.3)	(4.7)	(93.0)	(0.0)	(100.0)
Total	5	3	152	1	161
	(3.1)	(1.9)	(94.4)	(0.6)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	28.638[a]	12	.004
Likelihood Ratio	23.178	12	.026
N of Valid Cases	161	a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .07.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

In Varkala Municipality, 93.0 per cent of respondents agreed with the alignment of the curriculum to student needs, while 2.3 per cent disagreed and 4.7 per cent remained neutral. This mild deviation from complete consensus, though still overwhelmingly positive, suggests minor inconsistencies in how the curriculum is perceived or delivered. The presence of neutral and dissenting opinions may indicate contextual issues such as diverse student backgrounds or evolving learning requirements that are not fully captured in the existing curriculum.

At the aggregate level, 94.4 per cent of respondents agreed that the curriculum aligns with student learning needs, while 0.6 per cent strongly agreed, and a small proportion expressed disagreement (3.1%) or neutrality (1.9%). These findings indicate a high degree of curriculum relevance as perceived by educators across ULBs. However, the relatively low incidence of strong agreement may reflect that while the curriculum is functional and broadly adequate, it may not be optimally tailored to the dynamic or individualised learning needs of all student groups.

The Pearson Chi-Square test yielded a value of 28.638 with 12 degrees of freedom and a p-value of .004, indicating a statistically significant difference in perceptions among municipalities at the 1 per cent level. The Likelihood Ratio test also supports this result ($p = .026$). These findings suggest that the variation in responses is meaningful and not due to random chance.

The results demonstrate that teachers overwhelmingly perceive the curriculum as aligned with student learning needs, with minor exceptions. The dissenting views in Attingal and Varkala call attention to the need for context-sensitive curriculum adaptation, especially in areas with socio-economic or demographic heterogeneity. Additionally, the low proportion of strong agreement across all ULBs signals an opportunity for curriculum enrichment initiatives, such as integration of local knowledge systems, inclusion of experiential learning components, and enhancement of student-centred pedagogies.

From a policy standpoint, education authorities might consider facilitating periodic curriculum feedback mechanisms from teachers, ensuring greater adaptability and responsiveness to ground-level needs. Municipalities with slight dissent could also benefit from targeted academic audits and teacher support programs to close

perceived gaps between curriculum design and implementation.

6.6 Indicators of Financial and Administrative Efficiency

6.6.1 Teachers' Perception on Utilisation of Available Funds

This session indicates a detailed Urban Local Body (ULB) wise analysis on school administration and efficient utilisation of available funds. In Attingal Municipality, a large majority of respondents (90.5%) believe that school administration efficiently utilises available funds, with 85.7 per cent agreeing and 4.8 per cent strongly agreeing. A small portion (9.5%) remained neutral, but no disagreement was reported. This indicates a positive perception of fund management efficiency in this ULB.

In Nedumangad Municipality, Respondents overwhelmingly agree (91.7%) that the school administration efficiently manages funds, although 8.3 per cent strongly disagree, indicating some concerns about fund utilisation in certain schools. The presence of disagreement suggests a need to explore administrative practices here more closely.

In Neyyattinkara Municipality, all respondents (100%) agree or strongly agree that funds are efficiently utilised, with 97.7 per cent agreeing and 2.3 per cent strongly agreeing. This reflects strong confidence in the administration's financial management capabilities.

In Thiruvananthapuram Corporation, the respondents overwhelmingly perceive fund utilisation as efficient, with 95.2 per cent agreeing and 4.8 per cent strongly agreeing, showing solid administrative performance in financial matters. In Varkala Municipality, while the majority (93%) agree or strongly agree on efficient fund utilisation, there is a slight presence of disagreement (4.7%) and neutrality (2.3%), suggesting some variability in perceptions and possibly in fund management practices.

The Pearson Chi-Square test value is 28.465 with 16 degrees of freedom and a p-value of 0.028, indicating a statistically significant difference among ULBs regarding perceptions of fund utilisation efficiency.

Table 6. 28

Efficient Utilisation of Available Funds.

Urban Local Body	The school administration efficiently utilises available funds					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	0	0	2	18	1	21
	(0.0)	(0.0)	(9.5)	(85.7)	(4.8)	(100.0)
Nedumangad Municipality	1	0	0	11	0	12
	(8.3)	(0.0)	(0.0)	(91.7)	(0.0)	(100.0)
Neyyattinkara Municipality	0	0	0	42	1	43
	(0.0)	(0.0)	(0.0)	(97.7)	(2.3)	(100.0)
Thiruvananthapuram Corporation	0	0	0	40	2	42
	(0.0)	(0.0)	(0.0)	(95.2)	(4.8)	(100.0)
Varkala Municipality	0	2	1	37	3	43
	(0.0)	(4.7)	(2.3)	(86.0)	(7.0)	(100.0)
Total	1	2	3	148	7	161
	(0.6)	(1.2)	(1.9)	(91.9)	(4.3)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	28.465[a]	16	.028
Likelihood Ratio	20.031	16	.219
N of Valid Cases	161	a. 20 cells (80.0%) have expected count less than 5. The minimum expected count is .07.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

The data reveals a generally positive consensus across all ULBs on the efficient use of available funds by school administrations. Despite this overall agreement, the disagreement observed in Nedumangad Municipality is noteworthy and may point to isolated issues in fund management practices or communication gaps that need addressing. The high agreement levels in Neyyattinkara and Thiruvananthapuram Corporation indicate robust administrative systems with likely well-established financial controls and transparency. Varkala Municipality shows minor dissent and neutrality, which could indicate areas for improvement in the consistency of fund utilisation practices or administrative transparency.

While perceptions of efficient fund utilisation are strong in most ULBs, Nedumangad and Varkala Municipalities display some areas of concern that warrant further investigation. Strengthening administrative capacity, improving financial oversight, and enhancing communication about fund use could help address these issues, ensuring equitable and effective utilisation of resources across all ULBs.

6.6.2 Teachers' Perception on the Distribution of Government Grants and Financial Aid

This session indicates detailed Urban Local Body (ULB) wise analysis on fairness in government grants and financial aid distribution among schools. In Attingal Municipality, the majority (71.4%) of respondents agree that government grants and financial aid are distributed fairly among schools, though a notable 23.8 per cent remain neutral and 4.8 per cent disagree. This indicates a mostly positive perception, but the relatively high neutrality suggests some uncertainty or lack of clear information about the fairness of fund distribution.

In Nedumangad Municipality, the responses reveal considerable concern about fairness; only 25 per cent agree that grants are fairly distributed, while 50 per cent disagree and 25 per cent are neutral. This points to significant dissatisfaction or perceived inequities in financial aid allocation in this ULB.

Table 6. 29

Fairness in Government Grants and Financial Aid Distribution

Urban Local Body	Government grants and financial aid are distributed fairly among schools.				Total
	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	1	5	15	0	21
	(4.8)	(23.8)	(71.4)	(0.0)	(100.0)
Nedumangad Municipality	6	3	3	0	12
	(50.0)	(25.0)	(25.0)	(0.0)	(100.0)
Neyyattinkara Municipality	0	1	42	0	43
	(0.0)	(2.3)	(97.7)	(0.0)	(100.0)
Thiruvananthapuram Corporation	0	0	42	0	42
	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Varkala Municipality	1	2	39	1	43
	(2.3)	(4.7)	(90.7)	(2.3)	(100.0)
Total	8	11	141	1	161
	(5.0)	(6.8)	(87.6)	(0.6)	(100.0)

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	82.928[a]	12	.000
Likelihood Ratio	54.718	12	.000
N of Valid Cases	161	a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .07.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

In Neyyattinkara Municipality, almost all respondents (97.7%) agree on the fairness of grant distribution, with a small 2.3 per cent neutral response and no disagreement. This reflects strong confidence in equitable financial aid practices within this area. In Thiruvananthapuram Corporation, all respondents (100%) agree that government grants and financial aid are fairly distributed, demonstrating unanimous trust in the fairness of resource allocation in this ULB. In Varkala Municipality: A vast majority (90.7%) agree, with a small portion neutral (4.7%), some disagreement (2.3%), and 2.3 per cent strongly agreeing. This suggests overall confidence with a minor degree of dissent regarding fairness.

The Pearson Chi-Square value is 82.928 with 12 degrees of freedom and a p-value of .000, indicating a highly significant difference in perceptions among the ULBs on this issue. The data shows a strong overall perception of fairness in the distribution of government grants and financial aid, especially in Neyyattinkara and Thiruvananthapuram Corporation, where agreement is almost unanimous. However, Nedumangad Municipality stands out with substantial disagreement and neutrality, indicating either real disparities or perceptions of unfairness in grant distribution. The relatively high neutral responses in Attingal Municipality suggest that some stakeholders may lack adequate information or clarity about how financial aid is distributed, which could impact perceptions. Varkala Municipality demonstrates a solid majority agreement but also reflects minor concerns regarding fairness.

While most ULBs exhibit positive perceptions of fairness in government grant and financial aid distribution, Nedumangad Municipality experiences significant challenges in this regard, pointing to possible inequities or communication gaps. Efforts to increase transparency, ensure equitable allocation, and better inform stakeholders about the distribution process could help improve perceptions and actual fairness, particularly in areas with higher dissatisfaction.

6.6.3 Teachers' Perception on Per Student Cost

The data reflects perceptions among respondents about whether the current per-student expenditure is sufficient to ensure quality education across different ULBs. In Attingal Municipality, a significant portion (42.8%) of respondents either disagree or remain neutral about the sufficiency of per-student expenditure. Only

57.1 per cent agreed, and none strongly agreed, indicating mixed perceptions about resource adequacy here. This suggests potential concerns regarding funding levels impacting education quality.

Nedumangad Municipality shows the most scepticism, with 75 per cent of respondents disagreeing or neutral on sufficiency. Only 25 per cent agree, and none strongly agree, highlighting a pronounced perception that current expenditures are insufficient for quality education. This points to a critical area for review and possible budgetary enhancements.

In Neyyattinkara Municipality, an overwhelming majority (97.6%) of respondents believe expenditure is sufficient, with a small minority neutral or disagreeing. This indicates strong confidence in the adequacy of financial resources per student in this ULB. In Thiruvananthapuram Corporation, similarly, 97.6 per cent agree on sufficiency, reflecting positive perceptions about funding and resource availability for quality education. In Varkala Municipality, high agreement at 90.7 per cent, with a small fraction disagreeing or neutral, signalling general satisfaction with per-student spending levels.

The Pearson Chi-Square test results show a value of 62.926 with 12 degrees of freedom and a p-value of .000, indicating a highly statistically significant difference across ULBs regarding perceptions of expenditure adequacy. The data points to marked disparities in perceptions of funding adequacy, with Nedumangad and Attingal Municipalities showing substantial concerns compared to the other ULBs.

Nedumangad's high disagreement levels may signal systemic underfunding or ineffective utilisation of resources, which could be adversely affecting educational quality and requiring urgent attention from policymakers. Attingal's moderate scepticism suggests room for improvement in either budget allocation or transparency and communication about how funds are utilised.

The high agreement percentages in Neyyattinkara, Thiruvananthapuram, and Varkala suggest these ULBs have relatively adequate financial support for quality education, which might be linked to better resource management or higher budgetary allocations.

Table 6. 29

Teachers' Perception on Per Student Cost

Urban Local Body	The per-student expenditure is sufficient for quality education.				Total
	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	5	4	12	0	21
	(23.8)	(19.0)	(57.1)	(0.0)	(100.0)
Nedumangad Municipality	6	3	3	0	12
	(5(0.0)	(25.0)	(25.0)	(0.0)	(100.0)
Neyyattinkara Municipality	1	0	41	1	43
	(2.3)	(0.0)	(95.3)	(2.3)	(100.0)
Thiruvananthapuram Corporation	1	0	41	0	42
	(2.4)	(0.0)	(97.6)	(0.0)	(100.0)
Varkala Municipality	3	1	39	0	43
	(7.0)	(2.3)	(90.7)	(0.0)	(100.0)
Total	16	8	136	1	161
	(9.9)	(5.0)	(84.5)	(0.6)	(100.0)

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	62.926[a]	12	.000
Likelihood Ratio	52.460	12	.000
N of Valid Cases	161	a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .07.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

The findings indicate a need for a differentiated policy focus. While most ULBs are perceived as having sufficient per-student expenditure, Nedumangad and Attingal Municipalities must be prioritised for a review of funding levels, budget utilisation efficiency, and possibly additional resource allocation. Ensuring adequate financial resources per student is crucial to maintaining and improving education quality across all ULBs.

6.6.4 Teachers' Perception on Community Involvement

a) Parental Involvement in Student Learning

Parental involvement is widely recognised as a critical determinant of student achievement, motivation, and behavioural outcomes. Table 6.30 examines teacher perceptions regarding the adequacy of parental involvement in the learning process across different Urban Local Bodies (ULBs) in the Thiruvananthapuram district. Overall, a substantial 85.1 per cent of respondents agreed that parental involvement in student learning is adequate, with an additional 3.7 per cent strongly agreeing, bringing the total positive perception to 88.8 per cent. Only 0.6 per cent strongly disagreed, 3.7 per cent disagreed, and 6.8 per cent remained neutral.

Attingal Municipality reported a relatively moderate level of satisfaction. While 57.1 per cent agreed and 14.3 per cent strongly agreed, there was also 19.0 per cent disagreement and 9.5 per cent neutrality, suggesting that a subset of educators in this area experience insufficient parental engagement.

Nedumangad Municipality presented a concerning trend, with 58.3 per cent remaining neutral and 8.3 per cent disagreeing. Only 33.3 per cent agreed, and none strongly agreed, indicating uncertainty or dissatisfaction regarding the extent of parental involvement. In sharp contrast, Neyyattinkara Municipality and Thiruvananthapuram Corporation exhibited near-universal agreement, with 97.7% and 97.6 per cent of teachers, respectively, affirming adequate parental involvement, though strong agreement remained low (just 2.3% and 2.4%). Varkala Municipality also reported high agreement (88.4%) with minimal disagreement (2.3%) and low neutrality, portraying a generally favourable perception.

Table 6. 31

Parental Involvement in Student Learning

Urban Local Body	Parental involvement in student learning is adequate.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	0	4	2	12	3	21
	(0.0)	(19.0)	(9.5)	(57.1)	(14.3)	(100.0)
Nedumangad Municipality	0	1	7	4	0	12
	(0.0)	(8.3)	(58.3)	(33.3)	(0.0)	(100.0)
Neyyattinkara Municipality	0	0	0	42	1	43
	(0.0)	(0.0)	(0.0)	(97.7)	(2.3)	(100.0)
Thiruvananthapuram Corporation	0	0	0	41	1	42
	(0.0)	(0.0)	(0.0)	(97.6)	(2.4)	(100.0)
Varkala Municipality	1	1	2	38	1	43
	(2.3)	(2.3)	(4.7)	(88.4)	(2.3)	(100.0)
Total	1	6	11	137	6	161
	(0.6)	(3.7)	(6.8)	(85.1)	(3.7)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	87.685[a]	16	.000
Likelihood Ratio	60.115	16	.000
N of Valid Cases	161	a. 20 cells (80.0%) have expected count less than 5. The minimum expected count is .07.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

These variations suggest that while overall parental involvement is rated positively, some municipalities, especially Nedumangad and Attingal, may require targeted interventions to improve parent-school collaboration.

To determine whether the differences in perception across Urban Local Bodies are statistically significant, a Chi-Square Test of Independence was conducted. Pearson Chi-Square Value is 87.685 with the degrees of Freedom (df) 16 . With a p-value of 0.000, the test reveals a highly significant association between the Urban Local Body and the perceived adequacy of parental involvement in student learning. This indicates that the observed differences in responses across ULBs are not random but reflect real, contextual disparities.

These findings imply that local contextual factors play a critical role in shaping school–home engagement. High levels of parental involvement in municipalities like Neyyattinkara, Thiruvananthapuram Corporation, and Varkala may stem from effective communication practices, active parent-teacher associations, or strong community-school ties.

The analysis of Table 6.30 reveals that while a large majority of teachers perceive parental involvement in student learning as adequate, statistically significant differences exist among municipalities. These differences must be addressed through context-sensitive, localised strategies that promote inclusive and consistent parental participation across all educational jurisdictions.

6.6.5 Teachers' Perception on Safety and Security Measures

Table 6.32 provides an assessment of stakeholder perceptions regarding the adequacy of safety and security measures in schools functioning under five selected Urban Local Bodies (ULBs) in the Thiruvananthapuram district, based on the primary data collected in 2025 . Out of a total of 161 valid responses, a vast majority—145 respondents (90.1%)—expressed agreement, and 7 respondents (4.3%) strongly agreed, indicating a high level of satisfaction with the safety and security measures implemented in these schools. Only 2 respondents (1.2%) expressed disagreement, while 7 respondents (4.3%) remained neutral, suggesting limited dissatisfaction or ambiguity.

Table 6. 32

Safety and Security Measures

Urban Local Body	The school has proper safety and security measures for students and staff.				Total
	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	1	1	19	0	21
	(4.8)	(4.8)	(90.5)	(0.0)	(100.0)
Nedumangad Municipality	0	6	1	5	12
	(0.0)	(5(0.0)	(8.3)	(41.7)	(100.0)
Neyyattinkara Municipality	0	0	41	2	43
	(0.0)	(0.0)	(95.3)	(4.7)	(100.0)
Thiruvananthapuram Corporation	0	0	42	0	42
	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Varkala Municipality	1	0	42	0	43
	(2.3)	(0.0)	(97.7)	(0.0)	(100.0)
Total	2	7	145	7	161
	(1.2)	(4.3)	(90.1)	(4.3)	(100.0)

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	119.628[a]	12	.000
Likelihood Ratio	72.001	12	.000
N of Valid Cases	161	a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .15.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Attingal Municipality recorded predominantly positive responses with 90.5 per cent agreement, while disagree and neutral responses were minimal (4.8% each). No respondent strongly agreed.

Nedumangad Municipality exhibited greater heterogeneity in perceptions. 50.0 per cent of respondents chose “Neutral”, which is the highest among all ULBs, indicating potential ambiguity or inconsistency in either policy implementation or communication regarding safety protocols. Only 8.3 per cent agreed, and 41.7 per cent strongly agreed.

Neyyattinkara Municipality reported 95.3 per cent agreement and 4.7 per cent strong agreement, without any negative or neutral responses, showcasing highly positive perceptions. Thiruvananthapuram Corporation had an exceptional response; 100 per cent of respondents agreed with the statement, marking a uniform perception of safety and security adequacy. Varkala Municipality also reported overwhelmingly positive feedback with 97.7 per cent agreement and only one respondent (2.3%) marking disagreement.

To assess whether the distribution of responses was independent of the Urban Local Body under which the school functions, a Pearson Chi-Square Test was performed. Pearson Chi-Square Value is 119.628 with Degrees of Freedom (df) 12, p= 0.000. The p-value of less than 0.001 indicates a statistically significant association between the ULB and the perception of school safety and security measures. This implies that the distribution of responses is not independent of the ULB, and that the urban local governance structure significantly influences stakeholder perceptions of safety in schools. The Likelihood Ratio Chi-Square value was 72.001 with the same degrees of freedom and significance level, reaffirming the association.

The overall results suggest that the majority of schools under all five ULBs are perceived to have adequate safety and security mechanisms in place, with particularly strong consensus in Thiruvananthapuram Corporation and Neyyattinkara and Varkala Municipalities. However, the relatively divergent pattern observed in Nedumangad Municipality, with a high proportion of neutral responses, indicates possible uncertainty or inconsistencies in implementation, awareness, or

stakeholder communication regarding safety measures.

These findings have important policy implications. While the general perception is positive, inter-municipality variations point to the need for standardised safety protocols, capacity-building for school administrations, and better stakeholder sensitisation, especially in municipalities where responses are mixed or ambiguous. Ensuring physical and psychological safety in school environments is crucial for educational quality and student well-being, and remains a core responsibility of urban local governance.

The analysis affirms that the safety and security measures in schools under Urban Local Bodies in Thiruvananthapuram district are generally well-perceived. Nevertheless, the statistically significant variation among municipalities, as evidenced by the Chi-Square test, highlights the importance of context-specific interventions and uniform standards to ensure that all schools, irrespective of the ULB, provide an equally safe and secure environment for students and staff alike.

6.7 Teachers' Perception on Student Performance and Learning Outcomes

Understanding the extent to which students are engaged and interested in learning is vital for assessing the quality and effectiveness of educational delivery. Table 6.32 presents perceptions of teachers across five Urban Local Bodies (ULBs) in Thiruvananthapuram district regarding student engagement levels.

The responses suggest a very high overall perception of student engagement, with 93.2 per cent of respondents agreeing and 1.2 per cent strongly agreeing that the majority of their students are engaged and interested in learning. Only 4.3 per cent disagreed, and a minimal 0.6 per cent each remained neutral or strongly disagreed.

Neyyattinkara Municipality and Thiruvananthapuram Corporation showed near-total affirmation, with 97.7 per cent and 97.6 per cent agreement, respectively, and minor expression of strong agreement (2.3% and 2.4%).

Varkala Municipality had slightly lower agreement at 93.0 per cent, with 4.7 per cent disagreement and 2.3 per cent strong disagreement, possibly reflecting minor concerns about specific groups of students.

Table 6. 33

Engagement and Interest in Learning

Urban Local Body	The majority of students are engaged and interested in learning.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	0	3	1	17	0	21
	(0.0)	(14.3)	(4.8)	(81.0)	(0.0)	(100.0)
Nedumangad Municipality	0	2	0	10	0	12
	(0.0)	(16.7)	(0.0)	(83.3)	(0.0)	(100.0)
Neyyattinkara Municipality	0	0	0	42	1	43
	(0.0)	(0.0)	(0.0)	(97.7)	(2.3)	(100.0)
Thiruvananthapuram Corporation	0	0	0	41	1	42
	(0.0)	(0.0)	(0.0)	(97.6)	(2.4)	(100.0)
Varkala Municipality	1	2	0	40	0	43
	(2.3)	(4.7)	(0.0)	(93.0)	(0.0)	(100.0)
Total	1	7	1	150	2	161
	(0.6)	(4.3)	(0.6)	(93.2)	(1.2)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	24.507[a]	16	.079
Likelihood Ratio	22.713	16	.122
N of Valid Cases	161	a. 20 cells (80.0%) have expected count less than 5. The minimum expected count is .07.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Attingal and Nedumangad Municipalities reported relatively higher disagreement levels (14.3% and 16.7%, respectively), though agreement still constituted the majority (81.0% and 83.3%). The neutral responses were marginal, indicating that most respondents held a definitive view.

To test whether differences in teacher responses across municipalities are statistically significant, a Chi-Square Test of Independence was employed. The Pearson Chi-Square Value is 24.507 with the Degrees of Freedom (df) 16. Although the Pearson Chi-Square value is relatively high, the p-value (0.079) is greater than the conventional threshold of 0.05, indicating that the observed differences in perception across ULBs are not statistically significant at the 5% level. Interpretation and Policy Implications

Despite minor disparities, the overall response pattern indicates a high level of student engagement and interest in learning across all Urban Local Bodies. This is a promising indicator of the effectiveness of instructional strategies, curriculum relevance, and perhaps student-teacher rapport within these schools.

However, the relatively higher disagreement levels in Attingal and Nedumangad warrant further exploration. Factors that might influence lower engagement could include:

- Classroom overcrowding or inadequate infrastructure
- Curricular misalignment with student interests
- Limited use of participatory or activity-based teaching methods

Interventions to enhance engagement may include:

- Professional development for teachers on active learning techniques
- Integration of digital and experiential learning tools
- School-level programs to monitor and support disengaged students

The findings from Table 6.32 reaffirm the encouraging perception among educators that most students are actively engaged in learning. While the Chi-Square analysis

does not confirm statistically significant differences across municipalities at the 5% level, the slight variation observed—especially in Attingal and Nedumangad—calls for localised strategies to maintain and further improve student engagement. This dimension, closely tied to educational quality, must remain a focal point for school administrators and policymakers alike.

6.8 Learning Environment

Learning Environment is one of the outcome variables which indicates technical efficiency. This session covers major components of the learning environment, such as classroom environment, physical and digital infrastructure, safety, and inclusivity. This is analysed below in detail.

6.8.1 School Physical Infrastructure

a) Students' Perception on Classrooms and Furniture

Table 6.33 presents the perceptions of the student respondents regarding the condition of classrooms and furniture in schools managed by Urban Local Bodies (ULBs) in Thiruvananthapuram district. The findings reveal that a vast majority of respondents across all municipalities perceive the school infrastructure, specifically classrooms and furniture, as well-maintained, though the extent of this satisfaction varies significantly among ULBs. In Neyyattinkara Municipality, an exceptional 100 per cent of respondents either agreed or strongly agreed with the statement, indicating unanimous satisfaction with the physical condition of school infrastructure. Similarly, Thiruvananthapuram Corporation recorded very high levels of satisfaction, with 98.5 per cent of the respondents expressing positive views, of which 77.5 per cent strongly agreed. Nedumangad Municipality also showed a high degree of satisfaction, with 95.4 per cent of respondents affirming the statement, although the proportion of "Strongly Agree" responses (35.9%) was noticeably lower than in Neyyattinkara and Thiruvananthapuram.

The ULB-wise analysis shows that Attingal Municipality recorded comparatively lower levels of strong agreement, with only 21.2 per cent of respondents strongly agreeing, while 65.8 per cent agreed, and nearly 13 per cent remained neutral or expressed disagreement.

Table 6. 34

Well-Maintained Classrooms and Furniture

Urban Local Body	The school has well-maintained classrooms and furniture.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	3	7	26	183	59	278
	(1.1)	(2.5)	(9.4)	(65.8)	(21.2)	(100.0)
Nedumangad Municipality	0	1	12	169	102	284
	(0.0)	(0.4)	(4.2)	(59.5)	(35.9)	(100.0)
Neyyattinkara Municipality	0	0	0	49	225	274
	(0.0)	(0.0)	(0.0)	(17.9)	(82.1)	(100.0)
Thiruvananthapuram Corporation	2	1	1	58	213	275
	(0.7)	(0.4)	(0.4)	(21.1)	(77.5)	(100.0)
Varkala Municipality	2	7	28	221	19	277
	(0.7)	(2.5)	(10.1)	(79.8)	(6.9)	(100.0)
Total	7	16	67	680	618	1388
	(0.5)	(1.2)	(4.8)	(49.0)	(44.5)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	527.764[a]	16	.000
Likelihood Ratio	593.948	16	.000
N of Valid Cases	1388	a. 10 cells (40.0%) have expected count less than 5. The minimum expected count is 1.38.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Varkala Municipality, though showing a relatively high agreement level at 79.8 per cent, stood out for having the lowest percentage of "Strongly Agree" responses (6.9%) among all the ULBs surveyed. This suggests that while many respondents in Varkala believe classrooms are adequately maintained, there is a perceived lack of excellence or consistency in infrastructure quality. The cumulative data across all municipalities confirms that 93.5 per cent of the total 1,388 respondents expressed agreement or strong agreement, underscoring a generally positive view of school infrastructure in the district.

To assess the statistical significance of these municipality-wise variations, a Pearson Chi-square test was conducted. The test yielded a high chi-square value of 527.764 with 16 degrees of freedom and a p-value of 0.000, which is well below the conventional threshold of 0.05. This strongly indicates that the observed differences in perception across the five municipalities are statistically significant and not due to random variation.

The significant chi-square results confirm that there are real and meaningful differences in the perception of school infrastructure quality across municipalities, possibly due to variations in funding, maintenance practices, governance efficiency, or community involvement. This analysis highlights the need for targeted infrastructural improvements, particularly in Attingal and Varkala, to ensure uniformity in quality across all ULB-managed schools in the district.

b) Students' Perception on Sanitation and Drinking Water

Attingal Municipality shows a strong but slightly tempered satisfaction level. A total of 87.0 per cent of respondents believe that classrooms and furniture are well maintained (65.8% agree, 21.2% strongly agree). However, 9.4 per cent remain neutral and 3.6 per cent express dissatisfaction (1.1% strongly disagree, 2.5% disagree). This distribution reflects a generally positive perception but hints at some inconsistencies, perhaps in older buildings or underfunded schools, that result in a higher neutral response than in some other municipalities.

In Nedumangad, satisfaction is high, with 59.5 per cent agreeing and a notably strong 35.9 per cent strongly agreeing, totalling 95.4 per cent favourable responses. Only 4.2 per cent are neutral, and a negligible 0.4 per cent disagree.

Table 6. 35

Sanitation and Drinking Water.

Urban Local Body	The school has adequate drinking water and sanitation facilities.					Total
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	11	14	30	170	53	278
	(4.0)	(5.0)	(10.8)	(61.2)	(19.1)	(100.0)
Nedumangad Municipality	5	62	63	103	51	284
	(1.8)	(21.8)	(22.2)	(36.3)	(18.0)	(100.0)
Neyyattinkara Municipality	0	0	0	66	208	274
	(0.0)	(0.0)	(0.0)	(24.1)	(75.9)	(100.0)
Thiruvananthapuram Corporation	3	2	1	64	205	275
	(1.1)	(0.7)	(0.4)	(23.3)	(74.5)	(100.0)
Varkala Municipality	4	7	26	223	17	277
	(1.4)	(2.5)	(9.4)	(80.5)	(6.1)	(100.0)
Total	23	85	120	626	534	1388
	(1.7)	(6.1)	(8.6)	(45.1)	(38.5)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	752.131[a]	16	.000
Likelihood Ratio	766.273	16	.000
N of Valid Cases	1388	a. 5 cells (20.0%) have expected count less than 5. The minimum expected count is 4.54.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

This indicates that classrooms are perceived as mostly well-maintained, though the lower "agree" figure relative to "strongly agree" may suggest greater certainty among a larger portion of respondents, a sign of good infrastructure or recent improvements.

Neyyattinkara Municipality stands out with a perfectly positive perception, 100 per cent of respondents agree that classrooms and furniture are well-maintained, with 82.1 per cent strongly agreeing and 17.9 per cent agreeing.

Thiruvananthapuram Corporation, the numbers are also strongly favourable; 98.6 per cent of respondents are satisfied (77.5% strongly agree, 21.1% agree), while only 1.5 per cent express any other view. The neutral and disagreement responses are all below 1 per cent. This reflects a highly positive view of infrastructure in urban schools under the Corporation's jurisdiction, which may benefit from superior funding and regular maintenance.

Varkala Municipality presents the most varied distribution. While 79.8 per cent agree and 6.9% strongly agree — totalling 86.7 per cent positive responses — there is a relatively higher 10.1% neutral stance and 3.2 per cent disagreement (2.5% disagree, 0.7% strongly disagree). Out of 1,388 respondents, 49.0 per cent agree and 44.5 per cent strongly agree, constituting 93.5 per cent positive responses.

The Pearson Chi-Square value of 527.764, with 16 degrees of freedom and a p-value of .000, indicates a highly significant association between municipality and perception of classroom/furniture maintenance. This means that urban context matters significantly in how respondents perceive school infrastructure quality.

Neyyattinkara and Thiruvananthapuram Corporation once again lead in performance, showing outstanding satisfaction levels. Nedumangad also performs strongly, with high "strongly agree" figures. Attingal presents decent performance but has a higher neutral share. Varkala, while still mostly positive, reflects the lowest confidence in infrastructure quality, evident in both low "strongly agree" and higher neutral/disagreement percentages. This calls for targeted infrastructure investment in Varkala and Attingal, while continuing maintenance and reinforcement efforts in other municipalities to sustain high standards.

c) Students' Perception on Library Resources

Attingal Municipality exhibits a moderately positive perception regarding library resources. 77.7 per cent of respondents agree (57.2% agree, 20.5% strongly agree) that their school library has sufficient study materials. However, 16.2% are neutral, and 6.1% disagree or strongly disagree (5.4% disagree, 0.7% strongly disagree), which is the highest level of dissatisfaction among the municipalities. This data suggests a noticeable inconsistency in library quality across schools in Attingal. The relatively high neutral and disagreeing responses could reflect outdated materials, limited book choices, or uneven distribution among institutions.

Nedumangad Municipality shows a stronger overall satisfaction level. A total of 86.6 per cent of respondents agree (63.0% agree, 23.6% strongly agree). 13.0% are neutral, while only 0.4 per cent disagree. This suggests that library resources are generally adequate and appreciated by students. The slightly high neutral share might point to differences in availability or usage of specialised academic resources, but overall, it indicates good library infrastructure.

Neyyattinkara Municipality again maintains its perfectly positive track record, with 100 per cent agreement on library adequacy (62.4% strongly agree, 37.6% agree). This high confidence underscores uniform access to quality library resources, possibly driven by proactive local education policies, effective monitoring, and student-centric infrastructure investments. The absence of neutral or disagreeing responses is notable and unique.

Thiruvananthapuram Corporation shows a similarly high level of satisfaction, with 98.2 per cent of respondents agreeing or strongly agreeing that their libraries are sufficient (36.7% agree, 61.5% strongly agree). Only 0.4% strongly disagree and 1.5 per cent remain neutral. This reflects strong institutional support and modernised libraries in urban schools. The high "strongly agree" share suggests that facilities are not only available but also well-used and valued by students.

Varkala Municipality presents a mixed picture. On the surface, the agreement level is high (89.8%), primarily driven by a large 81.9 per cent "agree" response. However, only 7.9 per cent strongly agree, which is significantly lower than all other municipalities, and 9.3 per cent are neutral or disagree.

Table 6. 36

Students' Perception on Library Resources

Urban Local Body	The library has sufficient resources for my studies.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	2	15	45	159	57	278
	(0.7)	(5.4)	(16.2)	(57.2)	(20.5)	(100.0)
Nedumangad Municipality	0	1	37	179	67	284
	(0.0)	(0.4)	(13.0)	(63.0)	(23.6)	(100.0)
Neyyattinkara Municipality	0	0	0	103	171	274
	(0.0)	(0.0)	(0.0)	(37.6)	(62.4)	(100.0)
Thiruvananthapuram Corporation	1	0	4	101	169	275
	(0.4)	(0.0)	(1.5)	(36.7)	(61.5)	(100.0)
Varkala Municipality	2	4	22	227	22	277
	(0.7)	(1.4)	(7.9)	(81.9)	(7.9)	(100.0)
Total	5	20	108	769	486	1388
	(0.4)	(1.4)	(7.8)	(55.4)	(35.0)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	385.494[a]	16	.000
Likelihood Ratio	413.581	16	.000
N of Valid Cases	1388	a. 10 cells (40.0%) have expected count less than 5. The minimum expected count is .99.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

This pattern is consistent with earlier tables — while facilities exist, they may lack the depth or richness of content to inspire strong endorsement. The high "agree" but low "strongly agree" figure suggests that libraries may be functional but not robust.

Across 1,388 respondents, 90.4 per cent are satisfied (55.4% agree, 35.0% strongly agree), 7.8 per cent are neutral, while only 1.8 per cent express dissatisfaction.

The Pearson Chi-Square value is 385.494, with df = 16 and $p < 0.001$, indicating a highly significant association between urban local bodies and student perceptions of library resource sufficiency. This means students' access to good libraries is clearly linked to their municipal context.

Neyyattinkara and Thiruvananthapuram Corporation lead in student satisfaction with library resources, with near or complete consensus. Nedumangad performs well overall but with slightly higher neutrality. Attingal shows the highest dissatisfaction and neutrality, suggesting that library quality or reach is uneven. Varkala's pattern of high agreement but low strong agreement continues, adequacy without excellence, implying a need for qualitative improvements.

Neyyattinkara and Thiruvananthapuram can act as benchmark models for library resource management. Attingal and Varkala require targeted interventions, either in terms of book quantity, content relevance, or upgrading the environment to make libraries more engaging and effective. State-level policy should focus on reducing inter-municipal disparities in library quality, ensuring all students have equal access to enriched learning spaces.

6.8.2 School Digital Infrastructure

a) Students' Perception on Computer and Internet Facilities

In Attingal Municipality, 83.8 per cent of students affirm that their school provides good digital infrastructure (58.6% agree and 25.2% strongly agree), while 10.1 per cent remain neutral and 6.1 per cent disagree to some extent. Although the majority view is positive, this mix of responses may reflect uneven access or inconsistencies in facility quality across schools in the area.

Nedumangad Municipality shows stronger affirmation, with 91.2% of students responding positively (61.6% agree and 29.6% strongly agree), and minimal disagreement (1.1%). The 7.7 per cent neutrality rate could suggest either variable student exposure or limitations in usage opportunities despite existing infrastructure.

In Neyyattinkara Municipality, the consensus is uniformly positive, with 100 per cent of students agreeing or strongly agreeing (71.2% and 28.8%, respectively). This reflects both strong infrastructure and likely universal accessibility of facilities, setting a high benchmark for digital inclusion.

Thiruvananthapuram Corporation also shows robust confidence, with 98.9 per cent agreement (60.7% agree, 38.2% strongly agree), and minimal dissent or neutrality. The high proportion of strong agreement suggests superior infrastructure and a proactive approach to integrating digital tools in education.

Varkala Municipality stands out for its extremely high agreement rate at 91 per cent, but this includes a notably low rate of strong agreement (6.5%), with 7.2% of students remaining neutral. This implies that while access is available, the quality, reliability, or modernity of resources might be lacking or underwhelming to many students.

Across the entire sample of 1,388 students, 92.9 per cent confirm the presence of good computer and internet facilities (67.3% agree, 25.6% strongly agree), while only 2 per cent expressed disagreement. A small 5.1 per cent of students chose a neutral stance, which could be addressed through targeted improvement or awareness initiatives.

The Chi-Square test result ($\chi^2 = 158.967$, $p < .001$, df = 16) shows a statistically significant difference in students' perceptions across municipalities, suggesting real variations in digital infrastructure and/or its usage. Neyyattinkara and Thiruvananthapuram emerge as clear leaders in digital readiness, offering widespread and strongly endorsed computer and internet access. Nedumangad and Attingal also perform well but with more variability, while Varkala, despite high agreement, shows signs of insufficiently strong infrastructure or limited student engagement with the resources available.

Table 6. 37

Computer and Internet Facilities

Urban Local Body	The school has good computer and internet facilities for students.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	2	15	28	163	70	278
	(0.7)	(5.4)	(10.1)	(58.6)	(25.2)	(100.0)
Nedumangad Municipality	0	3	22	175	84	284
	(0.0)	(1.1)	(7.7)	(61.6)	(29.6)	(100.0)
Neyyattinkara Municipality	0	0	0	195	79	274
	(0.0)	(0.0)	(0.0)	(71.2)	(28.8)	(100.0)
Thiruvananthapuram Corporation	1	1	1	167	105	275
	(0.4)	(0.4)	(0.4)	(60.7)	(38.2)	(100.0)
Varkala Municipality	1	4	20	234	18	277
	(0.4)	(1.4)	(7.2)	(84.5)	(6.5)	(100.0)
Total	4	23	71	934	356	1388
	(0.3)	(1.7)	(5.1)	(67.3)	(25.6)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	158.967[a]	16	.000
Likelihood Ratio	190.131	16	.000
N of Valid Cases	1388		

a. 10 cells (40.0%) have expected count less than 5. The minimum expected count is .79.

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

b) Students' Perception on Smart-Classes

The responses to the statement *"The school offers digital or smart-class learning"* reflect a broadly positive student perception across all urban local bodies, with 91.6 per centof the total 1388 respondents either agreeing (69.2%) or strongly agreeing (22.4%) that such facilities are available. This indicates widespread integration of digital tools into classroom learning, aligning with broader educational trends promoting smart learning environments.

At the local level, Attingal Municipality showed that 82 per cent of students affirm the presence of digital or smart-class facilities, although it also reported the highest percentage of students with neutral or negative views (17.9%). This could suggest uneven access within schools or a lack of consistency in the implementation of digital learning tools. A similar trend appears in Nedumangad Municipality, where 87.3 per cent of students responded positively, but a notable 12.3 per cent remained neutral, indicating possible room for improvement in either the quality or frequency of smart-class usage.

Neyyattinkara Municipality performed exceptionally well, with 99.6 per cent of students confirming the existence of smart-class facilities, and only a negligible 0.4% remaining neutral. There were no negative responses, indicating a highly digitised and technologically integrated classroom environment. Thiruvananthapuram Corporation also reported very strong outcomes, with 98.9 per cent positive responses, including the highest share of "strongly agree" responses (31.6%), reflecting both the quality and the perception of digital learning tools as being well-established.

Varkala Municipality, however, presents a contrasting scenario. While a significant 90.7 per cent of students agreed or strongly agreed on the availability of digital learning, only 5.1 per cent selected "strongly agree," the lowest among all municipalities. Additionally, 9.1 per cent of students expressed neutrality or disagreement. This suggests that although digital learning tools exist, they may not be as robust, engaging, or widely utilised as in other municipalities.

Table 6. 38

Smart-Classes

Urban Local Body	The school offers digital or smart-class learning.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	4	10	36	172	56	278
	(1.4)	(3.6)	(12.9)	(61.9)	(20.1)	(100.0)
Nedumangad Municipality	0	1	35	165	83	284
	(0.0)	(0.4)	(12.3)	(58.1)	(29.2)	(100.0)
Neyyattinkara Municipality	0	0	1	202	71	274
	(0.0)	(0.0)	(0.4)	(73.7)	(25.9)	(100.0)
Thiruvananthapuram Corporation	1	1	1	185	87	275
	(0.4)	(0.4)	(0.4)	(67.3)	(31.6)	(100.0)
Varkala Municipality	1	6	19	237	14	277
	(0.4)	(2.2)	(6.9)	(85.6)	(5.1)	(100.0)
Total	**6**	**18**	**92**	**961**	**311**	**1388**
	(0.4)	**(1.3)**	**(6.6)**	**(69.2)**	**(22.4)**	**(100.0)**

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	167.071[a]	16	.000
Likelihood Ratio	201.300	16	.000
N of Valid Cases	1388	a. 10 cells (40.0%) have expected count less than 5. The minimum expected count is 1.18.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

The Pearson Chi-Square result ($\chi^2 = 167.071$, df = 16, $p < .001$) indicates a statistically significant variation in responses across the urban local bodies. This confirms that the perception of digital or smart-class learning facilities is not uniform and varies meaningfully by location.

The digital learning has become a foundational element of the school experience across the board, with particularly strong implementation in Neyyattinkara and Thiruvananthapuram. Municipalities like Varkala and, to a lesser extent, Attingal may benefit from further investment, teacher training, or awareness-building to ensure that available digital tools are optimally utilised and perceived as integral to the learning experience.

6.8.3 Safety and Equality

a) Students' Perception on a Safe and Secure School Environment

In Attingal Municipality, the perception of safety in schools is predominantly positive, with 66.5 per cent of respondents agreeing and 23.0 per cent strongly agreeing that the school environment is safe and secure. Together, 89.5 per cent expressed satisfaction with the safety conditions. A small segment remains neutral (7.2%), while a combined 3.3 per cent (0.4% strongly disagree and 2.9% disagree) express concern or dissatisfaction. This indicates a generally favourable view, though the 2.9 per cent who actively disagree, higher than in some other municipalities, may point to isolated areas of concern or inconsistent implementation of safety protocols.

Nedumangad Municipality shows a very high level of perceived school safety, with 78.5 per cent agreeing and 19.4 per cent strongly agreeing, summing to 97.9 per cent positive responses. Only 0.4 per cent disagree, while 1.8% remain neutral. No respondents strongly disagree. This suggests an overwhelmingly secure environment, with negligible dissatisfaction. The very low level of dissent and neutrality further strengthens confidence in the municipality's school safety infrastructure and practices.

Table 6. 39

Students' Perception on a Safe and Secure School Environment

Urban Local Body	The school environment is safe and secure.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	1	8	20	185	64	278
	(0.4)	(2.9)	(7.2)	(66.5)	(23.0)	(100.0)
Nedumangad Municipality	0	1	5	223	55	284
	(0.0)	(0.4)	(1.8)	(78.5)	(19.4)	(100.0)
Neyyattinkara Municipality	0	0	0	48	226	274
	(0.0)	(0.0)	(0.0)	(17.5)	(82.5)	(100.0)
Thiruvananthapuram Corporation	2	1	0	87	185	275
	(0.7)	(0.4)	(0.0)	(31.6)	(67.3)	(100.0)
Varkala Municipality	0	8	23	230	16	277
	(0.0)	(2.9)	(8.3)	(83.0)	(5.8)	(100.0)
Total	3	18	48	773	546	1388
	(0.2)	(1.3)	(3.5)	(55.7)	(39.3)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	555.933[a]	16	.000
Likelihood Ratio	607.810	16	.000
N of Valid Cases	1388	a. 10 cells (40.0%) have expected count less than 5. The minimum expected count is .59.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total

Neyyattinkara Municipality displays the most remarkable consensus: 100 per cent of respondents believe the school environment is safe, 82.5 per cent strongly agree and 17.5 per cent agree. No respondent chose neutral, disagree, or strongly disagree. Such unanimous agreement is extremely rare in perception-based surveys and indicates not only the effectiveness of safety measures but possibly a well-communicated and well-trusted school governance system. However, the absence of any neutral or dissenting responses could also merit a closer look at response dynamics or local cultural influences on survey feedback.

In Thiruvananthapuram Corporation, 98.9 per cent of respondents view the school environment positively, 67.3 per cent strongly agree, and 31.6 per cent agree. Only 1.1 per cent express disagreement (0.7% strongly disagree and 0.4% disagree), and no respondents were neutral. This reflects high satisfaction in the state capital's schools, possibly due to better funding, infrastructure, and oversight. The slight presence of disagreement suggests that while the system is largely effective, a few pockets may require targeted intervention.

Varkala Municipality presents a slightly mixed picture. While a significant 83.0 per cent agree that the environment is safe, only 5.8 per cent strongly agree — the lowest across all municipalities. A notable 8.3 per cent are neutral, and 2.9% disagree. This distribution indicates that while most respondents believe the schools are safe, there is relatively lower conviction compared to other municipalities. The low percentage of "strongly agree" responses could imply a lack of confidence in certain aspects of safety, perhaps infrastructure, supervision, or emergency preparedness. Varkala may benefit from targeted improvements and community reassurance efforts.

Across all 1,388 valid responses, the perception of school safety is overwhelmingly positive, with 55.7 per cent agreeing and 39.3 per cent strongly agreeing — a combined 95.0 per cent in favour. Only 1.5 per cent express any form of disagreement, while 3.5 per cent remain neutral.

The Pearson Chi-Square value of 555.933 with 16 degrees of freedom and a p-value of .000 indicates a statistically significant association between urban local bodies and perceptions of school safety. In simpler terms, where a student is located (i.e.,

the municipality) significantly affects how safe they feel in school.

Neyyattinkara and Nedumangad set the benchmark for perceived safety in schools. Thiruvananthapuram follows closely, reinforcing its administrative efficiency. Attingal performs well, but with a slightly higher dissatisfaction rate. Varkala shows the lowest confidence, particularly in "strong agreement," indicating areas for improvement.

b) Students' Perception on Lack of Discrimination

The responses to the statement "I do not feel any discrimination in my school" indicate a largely positive perception of inclusivity among students across all urban local bodies. Overall, a significant 91.7 per cent of the 1,388 respondents either agreed (68.5%) or strongly agreed (23.2%) with the statement, underscoring a broadly inclusive environment within the schools surveyed. However, a closer examination of municipal-level data reveals some meaningful variations.

Neyyattinkara Municipality stands out with a perfect consensus, 100 per cent of the students either agreed (83.6%) or strongly agreed (16.4%) that they do not experience discrimination. This level of unanimity suggests a highly inclusive and respectful school environment in this region. Varkala Municipality also shows strong results, with 79.8 per cent agreeing and 9.4 per cent strongly agreeing, totalling 89.2 per cent of positive responses. However, the 2.9 per cent disagreement and 7.9 per cent neutrality point to a slightly less consistent perception of inclusivity compared to Neyyattinkara.

Thiruvananthapuram Corporation reports high levels of agreement as well, with 67.6 per cent agreeing and 30.9 per cent strongly agreeing—altogether 98.5 per cent expressing a positive view. Only a marginal percentage disagreed or remained neutral, suggesting that students in the capital city largely feel accepted and safe from discrimination. In Nedumangad Municipality, 54.2 per cent agreed and 34.9 per cent strongly agreed, totalling 89.1 per cent positive responses. However, 8.1 per cent of students chose neutral, and a small 2.9 per cent disagreed. While the overall sentiment is positive, the data indicates that some students remain unsure or feel excluded, warranting further investigation.

Table 6. 40

Lack of Discrimination

Urban Local Body	I do not feel any discrimination in my school.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	8	16	26	161	67	278
	(2.9)	(5.8)	(9.4)	(57.9)	(24.1)	(100.0)
Nedumangad Municipality	1	7	23	154	99	284
	(0.4)	(2.5)	(8.1)	(54.2)	(34.9)	(100.0)
Neyyattinkara Municipality	0	0	0	229	45	274
	(0.0)	(0.0)	(0.0)	(83.6)	(16.4)	(100.0)
Thiruvananthapuram Corporation	1	1	2	186	85	275
	(0.4)	(0.4)	(0.7)	(67.6)	(30.9)	(100.0)
Varkala Municipality	0	8	22	221	26	277
	(0.0)	(2.9)	(7.9)	(79.8)	(9.4)	(100.0)
Total	10	32	73	951	322	1388
	(0.7)	(2.3)	(5.3)	(68.5)	(23.2)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	169.955[a]	16	.000
Likelihood Ratio	193.189	16	.000
N of Valid Cases	1388	a. 5 cells (20.0%) have expected count less than 5. The minimum expected count is 1.97.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Attingal Municipality shows the most varied responses. Although 57.9 per cent of students agreed and 24.1 per cent strongly agreed (adding up to 82%), this municipality also recorded the highest combined disagreement (8.7%) and neutrality (9.4%) levels among all ULBs. This suggests a comparatively less inclusive atmosphere or possibly the presence of specific issues affecting students' sense of belonging.

The Pearson Chi-Square test result of 169.955 with df = 16 and a p-value < 0.001 confirms that these variations across municipalities are statistically significant. The likelihood ratio test further reinforces this conclusion, highlighting that the experience of discrimination (or lack thereof) is influenced by the urban local body context.

The overall picture reflects a commendably inclusive educational environment. Attingal Municipality emerges as an outlier with a notable proportion of students expressing neutrality or disagreement. This calls for targeted attention—possibly through awareness sessions, teacher training, and inclusion audits—to ensure that no student feels marginalised within the school community.

6.9 Academic Engagement

6.9.1 Teaching Quality and Engagement

a) Students' Perception on Teachers Explain Topics Clearly

In Attingal Municipality, 81.7 per cent of students affirm (59.4% agree, 22.3% strongly agree) that teachers explain topics clearly and effectively. However, a notable 14.4 per cent remain neutral, and 4 per cent disagree (2.9% disagree, 1.1% strongly disagree). This reflects a mostly positive but slightly inconsistent perception of teaching clarity. While the majority approve, the high neutrality may indicate variability across classrooms, possibly differences in pedagogical methods or teacher communication skills.

Nedumangad Municipality demonstrates a similar pattern: 84.5 per cent agreement (60.9% agree, 23.6% strongly agree), with 13 per cent neutral and 2.5 per cent disagreeing.

Table 6. 41

Teachers Explain Topics Clearly

Urban Local Body	Teachers explain topics clearly and effectively.					Total
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Attingal Municipality	3	8	40	165	62	278
	(1.1)	(2.9)	(14.4)	(59.4)	(22.3)	(100.0)
Nedumangad Municipality	1	6	37	173	67	284
	(0.4)	(2.1)	(13.0)	(60.9)	(23.6)	(100.0)
Neyyattinkara Municipality	0	0	0	157	117	274
	(0.0)	(0.0)	(0.0)	(57.3)	(42.7)	(100.0)
Thiruvananthapuram Corporation	2	0	1	136	136	275
	(0.7)	(0.0)	(0.4)	(49.5)	(49.5)	(100.0)
Varkala Municipality	5	10	24	222	16	277
	(1.8)	(3.6)	(8.7)	(80.1)	(5.8)	(100.0)
Total	11	24	102	853	398	1388
	(0.8)	(1.7)	(7.3)	(61.5)	(28.7)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	235.067[a]	16	.000
Likelihood Ratio	286.533	16	.000
N of Valid Cases	1388	a. 10 cells (40.0%) have expected count less than 5. The minimum expected count is 2.17.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Like Attingal, most students have a favourable opinion, yet the relatively elevated neutral share signals potential inconsistencies in teaching practices, especially when compared with Neyyattinkara or Thiruvananthapuram.

Neyyattinkara Municipality stands out for having 100 per cent of students agreeing that teachers explain concepts clearly, 42.7 per cent strongly agree and 57.3 per cent agree, with zero neutrality or disagreement. This exceptional result suggests remarkably consistent teacher performance, reflecting strong pedagogical training, better classroom engagement, or culturally reinforced respect for teacher roles.

Thiruvananthapuram Corporation matches Neyyattinkara in overall agreement (99%), though it shows a higher strongly agree score (49.5%) and smaller neutral (0.4%) and strongly disagree (0.7%) rates. This suggests very high teaching quality, likely supported by urban advantages — better-trained faculty, access to continuous professional development, and competitive hiring practices.

Varkala Municipality presents a unique pattern. A striking 80.1 per cent agree that teachers explain clearly, but only 5.8 per cent strongly agree, the lowest 'strongly agree' rate among all municipalities. It also has the highest negative sentiment, with 5.4 per cent disagreement and 8.7 per cent neutral. This may indicate that while students recognise basic teaching effort, the impact or clarity is not deeply felt. The lack of "strong" endorsements suggests a need for better engagement or instructional training.

Among all 1,388 surveyed students, 90.2 per cent are satisfied with teaching clarity (61.5% agree, 28.7% strongly agree). 7.3 per cent are neutral, and only 2.5 per cent express dissatisfaction (1.7% disagree, 0.8% strongly disagree).

The Pearson Chi-Square value is 235.067 ($df = 16$, $p < .001$), indicating a statistically significant association between municipality and student perception. The consistency in teaching quality is not uniform and varies significantly by location.

Thiruvananthapuram and Neyyattinkara excel, with near-perfect satisfaction and very high "strongly agree" rates, indicating strong pedagogical standards and effectiveness. Attingal and Nedumangad show good overall teaching clarity but

higher neutrality, pointing to moderate inconsistency in instructional effectiveness. Varkala's low "strongly agree" and highest disagreement level reveal a need for serious pedagogical improvement, even though overall agreement appears high.

Clear and effective explanation of topics is fundamental to student comprehension, confidence, and long-term academic performance. Addressing disparities here could lead to meaningful improvements in learning outcomes and educational equity across the region

b) Students' Perception on Teachers' Encouragement of Participation in the Class

Attingal shows a fairly positive classroom climate, with 86 per cent of students agreeing (64.4%) or strongly agreeing (21.6%) that teachers encourage questions and participation. However, 13.9 per cent are neutral or disagree (9.7% neutral, 3.2 % disagree, 1.1% strongly disagree). This suggests that while the majority feel supported, a non-negligible minority may experience hesitancy or lack of engagement, possibly due to teacher behaviour, classroom size, or school culture.

In Nedumangad Municipality, student perception is more divided. While 71.8 per cent agree (48.2%) or strongly agree (23.6%), a significant 26.1 per cent remain neutral, and 2.2 per cent disagree. This unusually high neutrality indicates that many students are unsure about their participation comfort, likely pointing to inconsistent teacher practices or an environment where questioning is technically allowed but not actively encouraged.

Neyyattinkara Municipality stands out for its perfect consensus, 100 per cent of students affirm teacher encouragement, with 52.2 per cent agreeing and an impressive 47.8 per cent strongly agreeing. Such unanimity reflects a deep-rooted culture of student engagement, suggesting that both school policy and teaching behaviour actively promote interaction and curiosity. Thiruvananthapuram Corporation mirrors Neyyattinkara's performance closely. An overwhelming 98.9 per cent of students feel encouraged (52.4% strongly agree, 46.5% agree), with only 1.2 per cent neutral or disagreeing. This is a hallmark of robust urban academic environments where teaching methods are student-centred and participatory learning is institutionalised.

Table 6. 42

Teachers' Encouragement of Participation in the Class

Urban Local Body	Teachers encourage students to ask questions and participate in class.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	3	9	27	179	60	278
	(1.1)	(3.2)	(9.7)	(64.4)	(21.6)	(100.0)
Nedumangad Municipality	1	5	74	137	67	284
	(0.4)	(1.8)	(26.1)	(48.2)	(23.6)	(100.0)
Neyyattinkara Municipality	0	0	0	143	131	274
	(0.0)	(0.0)	(0.0)	(52.2)	(47.8)	(100.0)
Thiruvananthapuram Corporation	1	1	1	128	144	275
	(0.4)	(0.4)	(0.4)	(46.5)	(52.4)	(100.0)
Varkala Municipality	1	11	23	224	18	277
	(0.4)	(4.0)	(8.3)	(80.9)	(6.5)	(100.0)
Total	6	26	125	811	420	1388
	(0.4)	(1.9)	(9.0)	(58.4)	(30.3)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	335.361[a]	16	.000
Likelihood Ratio	363.855	16	.000
N of Valid Cases	1388	a. 5 cells (20.0%) have expected count less than 5. The minimum expected count is 1.18.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Varkala Municipality presents a dual character: it has the highest agreement rate (87.4%), with 80.9 per cent agreeing, but only 6.5 per cent strongly agreeing, the lowest 'strongly agree' rate across all municipalities. Additionally, 12.3 per cent remain neutral or disagree. This indicates that while participation is broadly encouraged, the depth or enthusiasm of this encouragement may be limited, possibly due to mechanical or routine practices lacking genuine teacher-student interaction.

Among the total 1,388 students surveyed, 88.7 per cent feel encouraged to ask questions and participate in class (58.4% agree, 30.3% strongly agree). 9 per cent remain neutral, and only 2.3 per cent express disagreement (1.9% disagree, 0.4% strongly disagree).

The Pearson Chi-Square value is 335.361 ($df = 16$, $p < .001$), confirming that there is a statistically significant difference in student perceptions across municipalities. The variation is not random and reflects meaningful differences in school culture, teacher training, and community values. Neyyattinkara and Thiruvananthapuram deliver near-perfect performance, showing highly engaging, student-friendly classrooms. Attingal and Nedumangad reflect a mid-range performance, where encouraging environments exist but are not uniformly experienced by all students. Varkala, while showing high agreement, lags in deep conviction; the low "strongly agree" share suggests a lack of authentic encouragement or motivational energy in the classroom.

Promote peer-learning models from Neyyattinkara and Thiruvananthapuram for schools in Varkala, Attingal, and Nedumangad. Conduct student focus groups in Nedumangad to understand why participation feels unclear or discouraged to so many (26.1% neutral). Organise teacher development programs that focus on interactive pedagogies, especially in Varkala, where practices may need revitalisation despite high baseline agreement.

Student participation is a cornerstone of constructivist learning and critical thinking. The data reveals a generally healthy culture of encouragement, but with municipality-level disparities that, if addressed, can significantly improve classroom dialogue, confidence-building, and overall academic outcomes.

c) Students' Perception on Teachers' Care about Academic Progress

The perception that teachers care about students' academic progress is overwhelmingly positive across all surveyed urban local bodies (ULBs), with 88.2 per cent of the total 1,388 respondents either agreeing (68.5%) or strongly agreeing (19.7%) with the statement. However, a closer breakdown by municipality highlights some notable variations in student sentiment.

Neyyattinkara Municipality once again stands out, with 100 per cent of students affirming that their teachers care, 81.8 per cent agreed, and 18.2 per cent strongly agreed. This complete consensus reinforces the municipality's consistently high student satisfaction across other indicators as well.

Varkala Municipality also reflects a strong positive sentiment, with 84.1 per cent of students agreeing and 7.9 per cent strongly agreeing. Though the percentage of "strongly agree" responses is lower than in other municipalities, the high agreement rate (over 92%) suggests broad recognition of teacher support.

Thiruvananthapuram Corporation reports high levels of positive perception, with 69.8 per cent agreement and 28.7 per cent strong agreement, totalling 98.5 per cent, one of the highest among all ULBs. Only 0.8 per cent of responses were negative, indicating minimal discontent in this regard.

Attingal Municipality shows a similar positive trend, with 84.1 per cent of students affirming teacher support (60.4% agree, 23.7% strongly agree). However, a small share, 6.1 per cent, disagreed, and 9.7 per cent were neutral, reflecting some degree of ambivalence.

Nedumangad Municipality, while still mostly positive, presents a relatively weaker perception. While 67.3 per cent agreed or strongly agreed, it has the highest neutrality rate (28.5%) among all ULBs. This may suggest inconsistency in teacher-student engagement or communication, which could impact students' academic confidence or motivation.

Table 6. 43

Teachers' Care for Academic Progress

Urban Local Body	My teachers care about my academic progress.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	5	12	27	168	66	278
	(1.8)	(4.3)	(9.7)	(60.4)	(23.7)	(100.0)
Nedumangad Municipality	1	11	81	134	57	284
	(0.4)	(3.9)	(28.5)	(47.2)	(20.1)	(100.0)
Neyyattinkara Municipality	0	0	0	224	50	274
	(0.0)	(0.0)	(0.0)	(81.8)	(18.2)	(100.0)
Thiruvananthapuram Corporation	1	1	2	192	79	275
	(0.4)	(0.4)	(0.7)	(69.8)	(28.7)	(100.0)
Varkala Municipality	1	2	19	233	22	277
	(0.4)	(0.7)	(6.9)	(84.1)	(7.9)	(100.0)
Total	8	26	129	951	274	1388
	(0.6)	(1.9)	(9.3)	(68.5)	(19.7)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	268.588[a]	16	.000
Likelihood Ratio	277.142	16	.000
N of Valid Cases	1388	a. 5 cells (20.0%) have expected count less than 5. The minimum expected count is 1.58.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

The Pearson Chi-Square value of 268.588 with df = 16 and $p < 0.001$ indicates that these inter-municipality differences are statistically significant. The high variation, particularly the elevated neutrality in Nedumangad, deserves attention from educational administrators.

A majority of students feel supported by their teachers across all regions, but the intensity and clarity of this perception vary. Neyyattinkara and Thiruvananthapuram demonstrate exemplary student-teacher rapport, while Nedumangad may benefit from targeted interventions, such as mentorship programs, increased teacher feedback, or student-teacher engagement workshops, to foster a stronger sense of academic care among students.

d)Students' Perception on Teaching Methods Makes Learning Enjoyable.

In Attingal Municipality, the feedback on teaching methods is generally positive but not without concern. While 73.0 per cent of students agreed that teaching methods make learning enjoyable (57.2% agree, 15.8% strongly agree), the municipality also recorded the highest level of dissatisfaction, with 3.2 per cent strongly disagreeing and 11.9 per cent disagreeing. An equal 11.9 per cent of students remained neutral. This data suggests that although most students find the teaching methods engaging, a significant minority does not. The relatively high disagreement indicates that classroom practices may be inconsistent across schools, pointing to the need for more uniform, innovative pedagogical strategies.

Nedumangad Municipality shows a stronger performance, with 87.6 per cent of students endorsing their learning experiences (63.0% agree, 24.6% strongly agree). Only 1.5 per cent expressed any disagreement, and 10.9 per cent were neutral. These numbers reflect generally effective and engaging teaching methodologies, though the relatively high neutral responses indicate room for improvement in actively involving all students. Further integration of student-centric, activity-based, or tech-supported teaching might help convert these neutral perceptions into stronger approval.

Table 6. 44

Teaching Methods Make Learning Enjoyable

Urban Local Body	The teaching methods used in the school make learning enjoyable.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	9	33	33	159	44	278
	(3.2)	(11.9)	(11.9)	(57.2)	(15.8)	(100.0)
Nedumangad Municipality	1	3	31	179	70	284
	(0.4)	(1.1)	(10.9)	(63.0)	(24.6)	(100.0)
Neyyattinkara Municipality	0	0	1	164	109	274
	(0.0)	(0.0)	(0.4)	(59.9)	(39.8)	(100.0)
Thiruvananthapuram Corporation	1	1	1	143	129	275
	(0.4)	(0.4)	(0.4)	(52.0)	(46.9)	(100.0)
Varkala Municipality	1	5	28	227	16	277
	(0.4)	(1.8)	(10.1)	(81.9)	(5.8)	(100.0)
Total	12	42	94	872	368	1388
	(0.9)	(3.0)	(6.8)	(62.8)	(26.5)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	311.920[a]	16	.000
Likelihood Ratio	323.638	16	.000
N of Valid Cases	1388	a. 5 cells (20.0%) have expected count less than 5. The minimum expected count is 2.37.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

In Neyyattinkara Municipality, the results are overwhelmingly positive, with 99.6 per cent of students in agreement, 59.9 per cent agree, and 39.8 per cent strongly agree. Only a single student (0.4%) was neutral, and none disagreed. This remarkably high satisfaction level suggests an exceptionally dynamic learning environment. It is likely that schools in Neyyattinkara have adopted modern, engaging teaching methods that resonate well with students, possibly including interactive lessons, group activities, and multimedia resources.

Thiruvananthapuram Corporation also ranks among the top performers, with 98.9 per cent of students expressing satisfaction (52.0% agree, 46.9% strongly agree). Negative responses are negligible (0.8% combined), and only 0.4 per cent were neutral. This consistency likely reflects a robust academic framework that emphasises both content delivery and student engagement. Given that nearly half of the students strongly agreed, it is probable that many teachers in the Corporation are effectively combining traditional instruction with participatory methods that promote active learning.

On the other hand, Varkala Municipality displays a curious divergence. Although 87.7 per cent of students felt teaching methods were enjoyable (81.9% agree, 5.8% strongly agree), the “strongly agree” score is surprisingly low. Additionally, 10.1 per cent of students were neutral and 2.2 per cent disagreed. This indicates that while a majority finds the learning process acceptable, they may view it as functional rather than inspiring. The low intensity of positive feedback points to a need for greater innovation in pedagogy, possibly moving beyond rote methods and traditional instruction styles.

At the aggregate level, 89.3 per cent of the total 1,388 students agreed that teaching methods made learning enjoyable (62.8% agree, 26.5% strongly agree). Only 3.9 per cent expressed disagreement and 6.8 per cent were neutral. These results affirm that most schools across the five urban local bodies are succeeding in delivering education in a way that students find enjoyable and engaging. However, the variation in “strongly agree” responses suggests a spectrum of quality in teaching practices across different municipalities. The Chi-Square test results (Pearson χ^2 = 311.920, df = 16, $p < .001$) confirm a statistically significant difference in student responses across municipalities.

Neyyattinkara and Thiruvananthapuram demonstrate exemplary practices in making learning enjoyable through effective teaching methods. Nedumangad and Varkala also perform well but exhibit some gaps in depth or consistency. Attingal, while mostly positive, registers the highest dissatisfaction, indicating a need for targeted intervention. Strengthening teacher training programs, encouraging participatory and tech-enabled pedagogy, and sharing best practices between high- and low-performing municipalities can help ensure an enjoyable and enriching learning environment for all students.

e) Students' Perception on Teachers are Approachable for Academic Assistance

In Attingal Municipality, while a large majority of students (79.1%) feel comfortable approaching their teachers (63.3% agree, 15.8% strongly agree), a notable 4.6 per cent expressed discomfort (1.4% strongly disagree and 3.2% disagree), and 16.2 per cent were neutral. This relatively high neutrality and moderate discomfort suggest that while most students find their teachers approachable, a segment may still experience hesitance, possibly due to formal teacher-student dynamics or lack of individual attention. Addressing this requires reinforcing a more open and inclusive academic environment.

Nedumangad Municipality presents a more encouraging picture, with 87.7 per cent of students indicating they feel comfortable seeking academic help (59.9% agree, 27.8% strongly agree), and only 1.1 per cent registering any form of disagreement. However, 11.3 per cent were neutral, indicating that a small share of students may remain uncertain or indifferent about their teachers' approachability. Continuous efforts to nurture student confidence and teacher accessibility could help convert this neutrality into stronger affirmation.

In Neyyattinkara Municipality, the data is overwhelmingly positive, with 100 per cent of students feeling comfortable (67.5% agree, 32.5% strongly agree) and no students marking disagreement or neutrality. This perfect score points to an exceptionally supportive academic atmosphere. It suggests that teachers in Neyyattinkara are approachable, empathetic, and possibly offer proactive academic support. Such a model could serve as a benchmark for other municipalities.

Table 6. 45

Teachers are Approachable for Academic Assistance

Urban Local Body	I feel comfortable approaching teachers for academic help.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	4	9	45	176	44	278
	(1.4)	(3.2)	(16.2)	(63.3)	(15.8)	(100.0)
Nedumangad Municipality	1	2	32	170	79	284
	(0.4)	(0.7)	(11.3)	(59.9)	(27.8)	(100.0)
Neyyattinkara Municipality	0	0	0	185	89	274
	(0.0)	(0.0)	(0.0)	(67.5)	(32.5)	(100.0)
Thiruvananthapuram Corporation	1	1	0	162	111	275
	(0.4)	(0.4)	(0.0)	(58.9)	(40.4)	(100.0)
Varkala Municipality	1	6	32	224	14	277
	(0.4)	(2.2)	(11.6)	(80.9)	(5.1)	(100.0)
Total	7	18	109	917	337	1388
	(0.5)	(1.3)	(7.9)	(66.1)	(24.3)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	201.233[a]	16	.000
Likelihood Ratio	254.331	16	.000
N of Valid Cases	1388	a. 10 cells (40.0%) have expected count less than 5. The minimum expected count is 1.38.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Thiruvananthapuram Corporation also performs strongly, with 99.3 per cent of students in agreement (58.9% agree, 40.4% strongly agree). Only 0.8 per cent disagreed, and none were neutral. These results indicate a healthy academic culture where students feel secure in seeking help. The high "strongly agree" percentage reflects deep trust and familiarity between students and faculty, likely supported by effective mentorship and open-door policies.

Varkala Municipality shows mixed outcomes. A high 86.0 per cent of students agreed or strongly agreed (80.9% agree, 5.1% strongly agree), but the proportion who "strongly agree" is notably low. Moreover, 11.6 per cent were neutral and 2.6 per cent disagreed. While the general response is positive, the weak intensity of strong agreement could suggest that while teachers are formally available, students may not feel deeply connected or fully confident in initiating contact. Building more personalised student-teacher relationships may help bridge this gap.

Overall, across the total sample of 1,388 students, 90.4 per cent feel comfortable approaching teachers for academic help (66.1% agree, 24.3% strongly agree), with only 1.8 per cent expressing disagreement and 7.9 per cent remaining neutral. These results affirm that teacher accessibility is widely valued and experienced positively, although municipalities like Attingal and Varkala might benefit from enhancing interpersonal rapport and responsiveness.

The Chi-Square test (Pearson $\chi^2 = 201.233$, $df = 16$, $p < .001$) indicates a statistically significant difference in student responses across urban local bodies. Although 10 cells had expected counts below 5, the minimum expected value (1.38) remains acceptable, ensuring the reliability of findings. This variation across regions likely reflects differences in teacher behaviour, school policies, and the broader learning environment.

Neyyattinkara and Thiruvananthapuram Corporation set the gold standard for teacher approachability, followed closely by Nedumangad. Attingal and Varkala, while performing decently, have room to cultivate deeper comfort levels and reduce student hesitancy. To achieve this, schools can encourage open communication, strengthen mentorship systems, and promote a more emotionally supportive learning culture.

6.9.2 Access to Learning Resources

a) Students' Perception on the Availability of Books and Learning Materials

In Attingal Municipality, 84.2 per cent of respondents feel that schools provide sufficient books and learning materials (60.8% agree, 23.4% strongly agree). However, this municipality also shows a relatively high neutral response of 12.9 per cent, and 2.9 per cent of respondents actively disagree. While a majority are satisfied, the higher share of neutral and disagreeing voices, compared to more uniformly positive municipalities, suggests some inconsistency in access to educational materials, potentially due to distribution delays, varying school management quality, or differences across public vs. aided institutions.

Nedumangad Municipality displays a somewhat mixed perception. A combined 73.6 per cent of respondents agree or strongly agree that learning materials are adequate (47.9% agree, 25.7% strongly agree). However, a notably high 24.3% are neutral, and 2.1 per cent disagree. This indicates that while most schools meet material requirements, there are perceptual or actual gaps in some areas, possibly due to variability in textbook availability, supplementary resources, or digital access. The high neutral rate could also suggest ambiguity or non-uniform experience among students and parents.

Neyyattinkara Municipality once again demonstrates complete satisfaction, 100 per cent of respondents believe that schools provide enough books and learning materials, with 70.8 per cent strongly agreeing and 29.2 per cent agreeing. This level of consensus is exceptional and highlights the municipality's effectiveness in educational resource management. It suggests a robust distribution system and possibly better state support or community engagement in education delivery.

In Thiruvananthapuram Corporation, perceptions are again highly positive. 99.6 per cent of respondents are satisfied (68.0% strongly agree, 31.6% agree), and only one respondent (0.4%) strongly disagrees. Such near-total consensus in a large urban area underscores strong administrative capabilities and possibly a higher budget allocation, efficient school monitoring, and consistent supply chains for textbooks and materials.

Table 6.46

Availability of Books and Learning Materials

Urban Local Body	The school provides enough books and learning materials.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	0	8	36	169	65	278
	(0.0)	(2.9)	(12.9)	(60.8)	(23.4)	(100.0)
Nedumangad Municipality	0	6	69	136	73	284
	(0.0)	(2.1)	(24.3)	(47.9)	(25.7)	(100.0)
Neyyattinkara Municipality	0	0	0	80	194	274
	(0.0)	(0.0)	(0.0)	(29.2)	(70.8)	(100.0)
Thiruvananthapuram Corporation	1	0	0	87	187	275
	0.4)	(0.0)	(0.0)	(31.6)	(68.0)	(100.0)
Varkala Municipality	0	5	20	231	21	277
	(0.0)	(1.8)	(7.2)	(83.4)	(7.6)	(100.0)
Total	1	19	125	703	540	1388
	(0.1)	(1.4)	(9.0)	(50.6)	(38.9)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	487.198[a]	16	.000
Likelihood Ratio	529.950	16	.000
N of Valid Cases	1388		

a. 10 cells (40.0%) have expected count less than 5. The minimum expected count is .20.

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Varkala Municipality presents an interesting contrast: while 91.0 per cent agree (83.4%) or strongly agree (7.6%), the strongly agree figure is very low compared to other municipalities. Additionally, 7.2 per cent are neutral, and 1.8 per cent disagree. This pattern suggests that, while learning materials are mostly available, the quality, quantity, or timeliness may not inspire confidence in all respondents. The very low "strongly agree" response indicates a lukewarm level of satisfaction, and some improvement in consistency, especially in marginalised schools, may be needed.

Among the 1,388 total respondents, 89.5 per cent express satisfaction (50.6% agree, 38.9% strongly agree). Only 1.5 per cent disagree or strongly disagree. 9.0 per cent are neutral, a moderate figure suggesting some variability in experience.

The Pearson Chi-Square value of 487.198 with 16 degrees of freedom and p-value = .000 confirms a statistically significant association between the municipality and perceptions of learning material adequacy. This means that where a student is located strongly impacts their access to books and educational materials.

Neyyattinkara and Thiruvananthapuram Corporation demonstrate exemplary performance, with near or full consensus on the adequacy of books. Nedumangad has the highest neutral percentage (24.3%), indicating potential inconsistency. Attingal performs reasonably well but with a noticeable share of dissatisfaction. Varkala, while showing high agreement, suffers from very low "strongly agree" scores, suggesting a lack of deep satisfaction or possible resource quality concerns. Ensuring equity in resource access across municipalities is essential to bridge these perception gaps and improve educational outcomes statewide.

6.9.3 Extracurricular Activities

a) Students' Perception on Extra-curricular Activities

In Attingal Municipality, while 73.3 per cent of students felt their schools provided extracurricular activities (55% agree, 18.3% strongly agree), a notable minority expressed neutral (15.1%) or negative sentiments (11.5% combined strongly disagree and disagree). This indicates moderate engagement with extracurricular programming, but room remains for improvement, especially in inclusivity and

diversity of offerings.

Nedumangad Municipality presents a more positive picture, with 90.9 per cent of students agreeing (56.7%) or strongly agreeing (34.2%) that extracurricular activities are available. Only 9.2 per cent responded neutrally, and no respondents disagreed, reflecting a strong commitment to non-academic development.

In Neyyattinkara Municipality, all students (100%) affirmed the availability of such activities, with 74.1 per cent agreeing and 25.9 per cent strongly agreeing. This unanimous approval suggests excellent integration of arts, sports, and other enrichment programs into school life.

Thiruvananthapuram Corporation also demonstrates strong performance, with 98.5 per cent of students expressing positive views (70.9% agree, 27.6% strongly agree). Only 1.4 per cent expressed disagreement, and none were neutral, indicating that extracurricular engagement is nearly universal and well-recognised in the city's schools.

In Varkala Municipality, 85.2 per cent of students agreed or strongly agreed with extracurricular provisions. However, only 5.8 per cent strongly agreed, the lowest among all ULBs, while 8.7 per cent expressed disagreement. This suggests that while programs are present, they may be perceived as limited in quality, frequency, or accessibility.

In total, 89.5 per cent of students across the five urban local bodies reported positively on extracurricular offerings (67.1% agree, 22.4% strongly agree), with just 4.3 per cent showing disagreement and 6.1 per cent remaining neutral. These figures highlight a generally strong ecosystem of co-curricular enrichment across the urban education sector.

The Pearson Chi-Square value ($\chi^2 = 228.125$, $p < .001$, df = 16) indicates a statistically significant difference in responses across municipalities. This means disparities in access to or perception of extracurricular opportunities are not due to chance but reflect meaningful variations in institutional support or student experience.

Table 6. 47

Extra-Curricular Activities

Urban Local Body	The school offers extra-curricular activities such as sports, arts, and music.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	10	22	42	153	51	278
	(3.6)	(7.9)	(15.1)	(55.0)	(18.3)	(100.0)
Nedumangad Municipality	0	0	26	161	97	284
	(0.0)	(0.0)	(9.2)	(56.7)	(34.2)	(100.0)
Neyyattinkara Municipality	0	0	0	203	71	274
	(0.0)	(0.0)	(0.0)	(74.1)	(25.9)	(100.0)
Thiruvananthapuram Corporation	2	2	0	195	76	275
	(0.7)	(0.7)	(0.0)	(70.9)	(27.6)	(100.0)
Varkala Municipality	6	18	17	220	16	277
	(2.2)	(6.5)	(6.1)	(79.4)	(5.8)	(100.0)
Total	18	42	85	932	311	1388
	(1.3)	(3.0)	(6.1)	(67.1)	(22.4)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	228.125[a]	16	.000
Likelihood Ratio	275.433	16	.000
N of Valid Cases	1388	a. 5 cells (20.0%) have expected count less than 5. The minimum expected count is 3.55.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Neyyattinkara and Thiruvananthapuram clearly lead in promoting extracurricular engagement, with Nedumangad close behind. Varkala and Attingal, though performing reasonably well, may need to improve either the visibility, quality, or inclusiveness of their programs to ensure stronger student participation and satisfaction.

6.9.4 Academic Assessment

a) Students' Perception on the Relevance and Fairness of Exams

The data presented in Table 6.46 regarding the statement *"The exams and tests are fair and relevant"* reveals a broadly positive perception among students across all five urban local bodies (ULBs). An overwhelming 93.4 per cent of the total respondents either agreed (73.7%) or strongly agreed (19.7%) with the statement, indicating a high level of trust in the assessment practices. Neyyattinkara Municipality stood out with a perfect agreement—100 per cent of its students responded positively, with 81 per cent agreeing and 19 per cent strongly agreeing, suggesting complete satisfaction with the fairness and relevance of their exams.

Varkala Municipality also performed well, with 91 per cent of its students expressing agreement, though it had a slightly lower percentage of students strongly agreeing (5.8%) compared to Thiruvananthapuram Corporation (24.7%). In Nedumangad Municipality, while 89.5 per cent of students agreed or strongly agreed, a relatively higher proportion (9.9%) remained neutral, which might point to some ambiguity in students' experiences with exam practices.

Attingal Municipality, though showing a high level of agreement (87.8%), recorded the highest percentage of neutral (9.0%) and negative (3.2%) responses among the ULBs, indicating a need for further inquiry into assessment clarity or consistency. The Chi-square test confirms that these differences across ULBs are statistically significant ($\chi^2 = 115.690$, $df = 16$, $p < 0.001$), underscoring real variations in student experiences. The findings suggest that while most students view exams as fair and relevant, municipalities like Attingal and Nedumangad could benefit from greater transparency and alignment between learning and evaluation to ensure all students feel equally confident in the system.

Table 6. 48

The Exams and Tests are Fair and Relevant

Urban Local Body	The exams and tests are fair and relevant.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	2	7	25	181	63	278
	(0.7)	(2.5)	(9.0)	(65.1)	(22.7)	(100.0)
Nedumangad Municipality	0	2	28	180	74	284
	(0.0)	(0.7)	(9.9)	(63.4)	(26.1)	(100.0)
Neyyattinkara Municipality	0	0	0	222	52	274
	(0.0)	(0.0)	(0.0)	(81.0)	(19.0)	(100.0)
Thiruvananthapuram Corporation	1	0	2	204	68	275
	(0.4)	(0.0)	(0.7)	(74.2)	(24.7)	(100.0)
Varkala Municipality	0	5	20	236	16	277
	(0.0)	(1.8)	(7.2)	(85.2)	(5.8)	(100.0)
Total	3	14	75	1023	273	1388
	(0.2)	(1.0)	(5.4)	(73.7)	(19.7)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	115.690[a]	16	.000
Likelihood Ratio	147.312	16	.000
N of Valid Cases	1388	a. 10 cells (40.0%) have expected count less than 5. The minimum expected count is .59.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

b) Fair and Transparent Grading in Exams

In Attingal Municipality, while a strong majority (84.2%) of students agree (65.5%) or strongly agree (18.7%) that grading is fair, 15.9 per cent express neutrality or disagreement, with 10.8 per cent neutral, and a combined 5.1 per cent disagreeing. This suggests that although most students are satisfied, a sizable minority perceives opacity or inconsistency in assessment practices.

Nedumangad Municipality presents a more positive outlook, with 92.6 per cent of students in agreement, and only 7 per cent neutral. Disagreement is virtually absent (only 1 student, 0.4%), indicating a strong trust in the evaluation system.

Neyyattinkara Municipality demonstrates complete confidence among students; 100 per cent agree or strongly agree that grading is fair, with no disagreement or neutrality. This unanimous approval is an outlier, suggesting uniform and transparent practices that are well-communicated and accepted by all.

Thiruvananthapuram Corporation also shows very high satisfaction, with 99.3 per cent of students agreeing or strongly agreeing. Only two students (0.7%) strongly disagreed, and none were neutral or disagreed, reflecting systematic and credible grading practices in the city schools.

Varkala Municipality, while still showing strong overall approval (87.3% agree or strongly agree), exhibits a higher level of mild dissatisfaction. Around 12.6 per cent of students express neutrality (7.9%) or disagreement (4.7%), and its strong agreement level (4.3%) is the lowest among all municipalities. This pattern suggests a trust gap or less consistent implementation of transparent grading procedures.

At the aggregate level, 92.7 per cent of students across the five municipalities believe grading is fair, with 75.1 per cent agreeing and 17.6 per cent strongly agreeing. Only 1.7 per cent disagreed and 5.2 per cent remained neutral, confirming that faith in grading systems is strong and widespread among students in the region.

The Chi-Square test result ($\chi^2 = 145.467$, $p < .001$, df = 16) confirms a statistically significant variation in responses among the urban local bodies, highlighting real differences in student experiences of grading fairness.

Table 6. 49

Fair and Transparent Grading in Exams

Urban Local Body	The school provides fair and transparent grading in exams.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	1	13	30	182	52	278
	(0.4)	(4.7)	(10.8)	(65.5)	(18.7)	(100.0)
Nedumangad Municipality	0	1	20	186	77	284
	(0.0)	(0.4)	(7.0)	(65.5)	(27.1)	(100.0)
Neyyattinkara Municipality	0	0	0	228	46	274
	(0.0)	(0.0)	(0.0)	(83.2)	(16.8)	(100.0)
Thiruvananthapuram Corporation	2	0	0	216	57	275
	(0.7)	(0.0)	(0.0)	(78.5)	(20.7)	(100.0)
Varkala Municipality	3	10	22	230	12	277
	(1.1)	(3.6)	(7.9)	(83.0)	(4.3)	(100.0)
Total	6	24	72	1042	244	1388
	(0.4)	(1.7)	(5.2)	(75.1)	(17.6)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	145.467[a]	16	.000
Likelihood Ratio	185.895	16	.000
N of Valid Cases	1388	a. 10 cells (40.0%) have expected count less than 5. The minimum expected count is 1.18.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Neyyattinkara and Thiruvananthapuram lead in ensuring student confidence in grading, and Nedumangad also performs commendably. Attingal and particularly Varkala show relatively lower levels of strong agreement, suggesting a need for more consistent policies, better communication of grading criteria, or fairer evaluation practices to build greater trust among students.

6.10 Satisfaction and Achievement

6.10.1. Aspirational Outcome Readiness

a) Students' Perception on Preparedness for Higher Education and Jobs

Attingal Municipality shows a largely positive response, with 79.8 per cent of students agreeing (60.4%) or strongly agreeing (19.4%) that their school adequately prepares them for higher education and employment. However, it also has the highest proportion of students expressing disagreement (3.6%) and neutrality (11.9%) among the five ULBs. This suggests that while the majority are satisfied, a notable share of students feel unprepared or unsure, possibly pointing to inconsistent exposure to career guidance or skill-based learning opportunities within the municipality.

Nedumangad Municipality presents a more optimistic picture, with 87.6 per cent of students agreeing (63.7%) or strongly agreeing (23.9%) with the statement. The near absence of disagreement and the slightly higher percentage of students strongly agreeing compared to Attingal reflect a more confident and consistent perception among Nedumangad students. The 12.0 per cent neutral responses in Nedumangad indicate that a subset of students may still lack clarity about their future readiness, suggesting a need to bridge the gap between academic instruction and practical, future-oriented preparation.

Neyyattinkara Municipality stands out with 99.6 per cent of students expressing agreement, 83.9 per cent agreed and 15.7 per cent strongly agreed, with only one student selecting a neutral option and none expressing disagreement. This overwhelming consensus highlights a highly effective school environment.

Table 6. 50

Preparedness for Higher Education and Jobs

Urban Local Body	My school prepares me well for higher education and job opportunities.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	10	13	33	168	54	278
	(3.6)	(4.7)	(11.9)	(60.4)	(19.4)	(100.0)
Nedumangad Municipality	1	0	34	181	68	284
	(0.4)	(0.0)	(12.0)	(63.7)	(23.9)	(100.0)
Neyyattinkara Municipality	0	0	1	230	43	274
	(0.0)	(0.0)	(0.4)	(83.9)	(15.7)	(100.0)
Thiruvananthapuram Corporation	1	1	0	208	65	275
	(0.4)	(0.4)	(0.0)	(75.6)	(23.6)	(100.0)
Varkala Municipality	0	7	19	234	17	277
	(0.0)	(2.5)	(6.9)	(84.5)	(6.1)	(100.0)
Total	12	21	87	1021	247	1388
	(0.9)	(1.5)	(6.3)	(73.6)	(17.8)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	175.295[a]	16	.000
Likelihood Ratio	201.383	16	.000
N of Valid Cases	1388		

a. 10 cells (40.0%) have expected count less than 5. The minimum expected count is 2.37.

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Thiruvananthapuram Corporation, the largest and most resource-rich among the ULBs, also displays strong confidence in institutional preparation, with 99.2 per cent of students agreeing or strongly agreeing. A notable 23.6 per cent strongly agreed, aligning with the city's more developed infrastructure and access to educational resources. The almost negligible neutral and disagree responses further reinforce the effectiveness of the Corporation's education system in aligning school curricula with future academic and professional expectations.

Varkala Municipality, despite having 90.6 per cent of students expressing agreement (84.5% agree and 6.1% strongly agree), records the lowest proportion of strong agreement among all municipalities. Additionally, a small but higher-than-average neutral (6.9%) and disagree (2.5%) response pattern suggests that some students may not find the preparation robust enough or uniformly delivered. This could point to a less structured approach to future readiness programs in Varkala compared to the other municipalities.

Across all ULBs, the overall trend is highly positive, with 91.4 per cent of students indicating that their schools prepare them for future academic and job opportunities. However, the statistically significant variation across ULBs ($\chi^2 = 175.295$, $p < 0.001$) underscores that while the general direction is optimistic, localised differences in school-level practices, infrastructure, and support systems meaningfully shape student perceptions. Municipalities like Neyyattinkara and Thiruvananthapuram exhibit exemplary outcomes, while Attingal and Varkala may benefit from strengthening career counselling, practical exposure, and alignment with job market expectations.

b) Students' Perception on Encouragement in Critical Thinking and Problem Solving

In Attingal Municipality, a majority of students (76.7%) believed their school promotes critical thinking and problem-solving, with 57.6 per cent agreeing and 19.1 per cent strongly agreeing. However, 23.3 per cent of students expressed reservations, with 12.9 per cent remaining neutral, 8.3 per cent disagreeing, and 2.2 per cent strongly disagreeing. This indicates that while most students are positively inclined, a notable minority feels less supported in developing these essential

cognitive skills.

In Nedumangad Municipality, 90.8 per cent of students felt encouraged to think critically, with a high 35.2 per cent strongly agreeing and 55.6 per cent agreeing. Only 9.2 per cent of responses were neutral or negative, indicating a robust emphasis on analytical skill development in the classroom setting.

Neyyattinkara Municipality showed unanimous positive feedback, with 100 per cent of students agreeing (73.4%) or strongly agreeing (26.6%) that their school fosters critical thinking and problem-solving. The absence of any neutral or negative responses strongly suggests an educational environment fully aligned with modern pedagogical goals.

In Thiruvananthapuram Corporation, 99 per cent of students felt supported in this area, with 65.5 per cent agreeing and 33.5 per cent strongly agreeing. Only a negligible 1 per cent gave neutral or negative responses, affirming the Corporation's effective teaching methods and academic culture that promotes critical engagement.

Varkala Municipality recorded a high 88.8 per cent agreement (83% agree, 5.8% strongly agree), but the notably low "strongly agree" percentage and higher neutrality (9%) compared to other regions suggest a more surface-level engagement with critical thinking in the curriculum. Furthermore, the remaining 2.1 per cent either disagreed or strongly disagreed, indicating some gaps in how this skill is fostered.

Across all urban local bodies, 91 per cent of students reported that their schools encourage critical thinking and problem-solving (66.9% agree, 24.1% strongly agree). Only 3.1 per cent expressed disagreement, and 5.9 per cent were neutral. These figures suggest a strong institutional focus on analytical skill development in the urban educational landscape.

The Chi-Square test ($\chi^2 = 212.511$, df = 16, $p < .001$) confirms a statistically significant variation in perceptions among the municipalities. This implies that the differences in how well students feel supported in critical thinking are not random but reflect real disparities in educational practice or school culture.

Table 6. 51

Encourage Critical Thinking and Problem Solving

Urban Local Body	The school encourages students to think critically and solve problems.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	6	23	36	160	53	278
	(2.2)	(8.3)	(12.9)	(57.6)	(19.1)	(100.0)
Nedumangad Municipality	2	4	20	158	100	284
	(0.7)	(1.4)	(7.0)	(55.6)	(35.2)	(100.0)
Neyyattinkara Municipality	0	0	0	201	73	274
	(0.0)	(0.0)	(0.0)	(73.4)	(26.6)	(100.0)
Thiruvananthapuram Corporation	1	1	1	180	92	275
	(0.4)	(0.4)	(0.4)	(65.5)	(33.5)	(100.0)
Varkala Municipality	2	4	25	230	16	277
	(0.7)	(1.4)	(9.0)	(83.0)	(5.8)	(100.0)
Total	11	32	82	929	334	1388
	(0.8)	(2.3)	(5.9)	(66.9)	(24.1)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	212.511a	16	.000
Likelihood Ratio	238.716	16	.000
N of Valid Cases	1388	a. 5 cells (20.0%) have expected count less than 5. The minimum expected count is 2.17.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Neyyattinkara and Thiruvananthapuram emerge as models of educational excellence in promoting critical thinking, while Nedumangad follows closely behind. Attingal and Varkala, though still performing fairly well, may need to deepen their focus on active learning strategies to ensure more students feel strongly equipped with problem-solving and reasoning skills.

c) Students' Perception on Guidance for Career and Higher Education Choices

Students across the surveyed urban local bodies largely affirm the role of teachers in providing career and higher education guidance, though the strength of affirmation varies notably by region.

In Attingal Municipality, 88.2 per cent of students agree that teachers support them in career-related matters (60.1% agree, 28.1% strongly agree), while 6.1% remain neutral and a small 5.8 per cent express disagreement. This indicates that while support is evident, there may be inconsistency in delivery or access across schools in the municipality. Nedumangad Municipality follows a similar trend, with 90.1 per cent positive responses (57% agree, 33.1% strongly agree), and slightly higher neutrality at 9.5 per cent. The negligible disagreement (0.4%) suggests that most students do feel supported, though the guidance may vary in intensity or effectiveness.

In Neyyattinkara Municipality, responses show complete agreement—100 per cent of students confirm receiving guidance (75.9% agree, 24.1% strongly agree). This points to an institutional culture where career counselling is embedded systematically and uniformly across schools. Thiruvananthapuram Corporation also scores high, with 98.9 per cent agreement, and the highest rate of strong agreement (36.7%) among the municipalities. This suggests not only widespread guidance but also a more proactive or intensive mentoring approach. Varkala Municipality presents a unique pattern: while 91.4 per cent of students agree or strongly agree, a significant 84.5 per cent fall into the 'agree' category, with only 6.9 per cent expressing strong agreement. Neutral responses (7.6%) and a low disagreement rate (1.1%) suggest that while guidance exists, it may be somewhat general or less personalised compared to other regions.

Table 6. 52

Guidance for Career and Higher Education Choices

Urban Local Body	Teachers provide guidance for career and higher education choices.					**Total**
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Attingal Municipality	0	16	17	167	78	278
	(0.0)	(5.8)	(6.1)	(60.1)	(28.1)	(100.0)
Nedumangad Municipality	0	1	27	162	94	284
	(0.0)	(0.4)	(9.5)	(57.0)	(33.1)	(100.0)
Neyyattinkara Municipality	0	0	0	208	66	274
	(0.0)	(0.0)	(0.0)	(75.9)	(24.1)	(100.0)
Thiruvananthapuram Corporation	1	1	1	171	101	275
	(0.4)	(0.4)	(0.4)	(62.2)	(36.7)	(100.0)
Varkala Municipality	0	3	21	234	19	277
	(0.0)	(1.1)	(7.6)	(84.5)	(6.9)	(100.0)
Total	1	21	66	942	358	1388
	(0.1)	(1.5)	(4.8)	(67.9)	(25.8)	(100.0)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	**170.497[a]**	**16**	**.000**
Likelihood Ratio	**192.771**	**16**	**.000**
N of Valid Cases	**1388**	a. 10 cells (40.0%) have expected count less than 5. The minimum expected count is .20.	

Source: Primary Survey, 2025; Values within the parentheses indicate per cent of the row total.

Among all 1,388 students surveyed, a significant 93.7 per cent affirm that teachers provide career guidance (67.9% agree, 25.8% strongly agree), and only 1.6 per cent express disagreement. The low neutrality rate (4.8%) underscores the widespread integration of career and higher education guidance across the board.

The Chi-Square test result ($\chi^2 = 170.497$, $p < .001$, df = 16) confirms statistically significant variation in responses across municipalities, indicating real differences in how consistently or effectively guidance programs are implemented.

Thiruvananthapuram and Neyyattinkara lead in both consistency and perceived quality of career guidance, while Attingal and Nedumangad reflect solid but slightly varied support levels. Varkala, although showing high agreement, trails in strong endorsements, suggesting potential areas for enhancement in depth, frequency, or personalisation of career-related guidance.

6.11 Efficiency in School Education

This session discussed the ranking of both the input and output variables. The input variables were measured from the teachers and the outcome were measured from the students,

6.11.1 Teacher-Side Components: System Efficiency and Support

a. Governance and Leadership

Effective school systems are underpinned by robust administrative support, participatory planning, and leadership accountability. In Thiruvananthapuram and Neyyattinkara, leadership is institutionalised through transparent monitoring, collaboration with ULBs, and decentralized decision-making. This allows schools to respond rapidly to challenges and support teachers effectively. In contrast, Attingal and Varkala face governance gaps—such as weak feedback loops, top-down management, and limited community voice—which restrict school innovation and responsiveness. The domain is critical because governance acts as an enabler, setting the tone and capability for all other school functions.

Table 6. 53

ULB Rank- Governance and Leadership

ULBs	Enrolment	Student-Teacher Ratio	Increased Workload	Manageable Teaching Load	Administrative Support for Classroom Management	Responsiveness to Teacher Concerns	Effectiveness of Government Policies
Thiruvananthapuram	5	1	1	5	2	3	3
Neyyattinkara	4	1	1	3	1	2	2
Nedumangad	1	4	5	2	4	4	4
Attingal	2	5	4	4	5	5	5
Varkala	3	3	3	1	3	1	1

Source: Primary Survey, 2025; Computed by the researcher. Magnitude shows the ranks

b. Faculty Quality

Teacher motivation, adequate staffing, and access to professional development opportunities form the backbone of instructional quality. Neyyattinkara and Thiruvananthapuram invest consistently in in-service training, ensure optimal teacher-pupil ratios, and promote job satisfaction. These actions translate into greater teacher accountability and improved classroom dynamics. On the other hand, Varkala and Attingal suffer from low morale and minimal professional growth support. This undermines teaching effectiveness, even when resources are available. Faculty quality directly determines how well students are taught, engaged, and mentored, making it a vital driver of student success.

Table 6. 54

ULB Rank- Faculty Quality

ULBs	Professional Development	Job Satisfaction	Fair Appraisal System
Thiruvananthapuram	3	2	3
Neyyattinkara	2	1	2
Nedumangad	1	3	5
Attingal	5	5	4
Varkala	4	4	1

Source: Primary Survey, 2025; Computed by the researcher. Magnitude shows the ranks

c. Infrastructure and Resources

Quality infrastructure, including labs, ICT access, drinking water, and safe sanitation, contributes significantly to student well-being and learning outcomes.

Table 6. 55

ULB Rank- Infrastructure and Resources

ULBs	Access to Teaching Materials	Library Resources	Financial Constraints*	Classroom Infrastructure	Digital Infrastructure	Internet & Tech Support	Drinking Water & Sanitation
Thiruvananthapuram	2	1	1	2	2	2	1
Neyyattinkara	1	2	2	3	1	1	1
Nedumangad	3	3	3	1	5	5	1
Attingal	4	4	4	4	4	4	5
Varkala	5	5	5	5	3	3	1

Source: Primary Survey, 2025; Computed by the researcher. Magnitude shows the ranks

**For Financial Constraints, ranking is inverse: higher rank = fewer constraints perceived*

In Thiruvananthapuram and Neyyattinkara, these components integrated into daily school functioning, leading to a conducive learning environment. In Varkala and Attingal, while some physical resources exist, they are often poorly maintained or unevenly distributed. Infrastructure's role goes beyond physical comfort—it signals institutional care, promotes attendance, and enables effective pedagogical delivery (e.g., smart classrooms or functional libraries).

d. Pedagogical Practices

This domain reflects whether schools actively align curriculum delivery with real-world relevance, student needs, and continuous assessment. Nedumangad and Thiruvananthapuram demonstrate clarity in curriculum relevance and structured assessment practices, supported by teacher training. Varkala, despite its intent, lacks execution consistency, and Attingal is caught in a transitional phase with fragmented practices. Pedagogy is pivotal because it transforms inputs into learning. A curriculum that lacks contextual relevance or ongoing evaluation fails to engage students meaningfully, regardless of teacher effort or infrastructure.

e. Financial and Administrative Efficiency

The degree to which financial resources are utilised transparently and aligned with student outcomes significantly affects institutional quality. Neyyattinkara stands out for its optimal per-student spending and efficient fund utilisation, coupled with strong community involvement. Attingal and Varkala struggle with underutilization, misalignment, or inadequate oversight. Importantly, this domain reflects not just money, but how intelligently and inclusively it is spent, amplifying or diluting the effectiveness of all other components.

Table 6. 56

ULB Rank- Pedagogical Practices

ULBs	Extra-Curricular Activities	Support for Learning Difficulties	Tracking Academic Progress	Standardised Exam Performance	Feedback on Learning Outcomes	Assessment System Effectiveness	Curriculum Relevance
Thiruvananthapuram	1	4	2	1	3	3	3
Neyyattinkara	2	2	1	1	1	1	1
Nedumangad	4	2	3	1	1	4	1
Attingal	5	5	5	5	5	5	5
Varkala	2	1	2	4	4	1	4

Source: Primary Survey, 2025; Computed by the researcher. Magnitude shows the ranks

Table 6. 57

ULB Rank- Financial and Administrative Efficiency

ULBs	Fund Utilisation	Fair Distribution	Per Student Cost	Parental Involvement	Safety & Security
Thiruvananthapuram	2	1	1	2	1
Neyyattinkara	1	2	1	1	2
Nedumangad	5	5	5	5	5
Attingal	4	4	4	4	4
Varkala	3	3	3	3	3

Source: Primary Survey, 2025; Computed by the researcher. Magnitude shows the ranks

6.11.2 Student-Side Outcomes: Learning, Engagement, and Readiness

a. Learning Environment

A school's physical and emotional atmosphere, marked by safety, equality, and access to digital/physical infrastructure, deeply shapes student confidence and learning. In Neyyattinkara and Thiruvananthapuram, students report high satisfaction levels due to clean facilities, well-maintained classrooms, inclusive practices, and active ICT use. Varkala, in contrast, reveals superficial access but limited depth, particularly in digital and library resources. A stimulating learning environment is essential not just for academics but for nurturing curiosity, comfort, and a sense of belonging.

b. Academic Engagement

This domain captures students' interactions with teaching practices, access to learning materials, and opportunities beyond academics. Neyyattinkara and Thiruvananthapuram again lead due to a culture of interactive teaching, extracurricular vibrancy, and responsive faculty. Varkala and Attingal show weaker student-teacher relationships and reduced participation in enrichment activities. Engagement is a crucial predictor of attendance, motivation, and long-term learning outcomes, and its absence risks dropout or academic stagnation even in resource-rich settings.

c. Satisfaction and Aspirational Readiness

This domain focuses on how well schools prepare students for life beyond school through fair assessments, career guidance, and promotion of critical thinking. Neyyattinkara scores exceptionally due to structured career counselling and widespread confidence in academic evaluation. Thiruvananthapuram follows closely, reflecting mature systems. Varkala, however, struggles with weak preparation pathways and limited critical thinking emphasis. Readiness is not only an output but also a validation of the entire schooling process, reflecting how well systems prepare students to transition into society and the workforce.

Table 6. 58

ULB Rank- Learning Environment

ULBs	Classroom & Furniture	Water & Sanitation	Library Resources	Computer & Internet Facilities	Smart-Class Facilities	School Safety	Non-Discrimination
Thiruvananthapuram	2	2	2	2	2	2	2
Neyyattinkara	1	1	1	1	1	1	1
Nedumangad	3	3	3	3	3	3	3
Attingal	4	4	4	4	4	5	5
Varkala	5	5	5	5	5	4	4

Source: Primary Survey, 2025; Computed by the researcher. Magnitude shows the ranks

Table 6. 59

ULB Rank- Academic Engagement

ULBs	Teaching Clarity	Encouragement of Participation	Teachers Care for Progress	Teacher Approachability	Enjoyable Teaching Methods	Access to Learning Resources	Extracurricular Activities	Exam Fairness	Grading Fairness
Thiruvananthapuram	2	2	2	2	2	2	2	2	2
Neyyattinkara	1	1	1	1	1	1	1	1	1
Nedumangad	3	3	3	3	3	5	3	4	3
Attingal	4	4	4	4	4	4	5	5	5
Varkala	5	5	5	5	5	3	4	3	5

Source: Primary Survey, 2025; Computed by the researcher. Magnitude shows the ranks

Table 6. 60

ULB Rank- Satisfaction and Aspirational Readiness

ULBs	Higher Edu & Jobs Prep	Critical Thinking	Career Guidance
Thiruvananthapuram	2	2	2
Neyyattinkara	1	1	1
Nedumangad	4	3	3
Attingal	5	5	5
Varkala	3	4	4

Source: Primary Survey, 2025; Computed by the researcher. Magnitude shows the ranks

By synthesizing the performance across 18 input and 8 output variables, a clear pattern emerges:

- Neyyattinkara is the most balanced and efficient system, with top ranks across all three pillars—governance, faculty, and student outcomes. It serves as a benchmark for decentralised innovation and equity in schooling.
- Thiruvananthapuram, while close in performance, faces limitations due to scale and intra-system disparity but benefits from advanced infrastructure and leadership.
- Nedumangad remains moderately strong but needs sharper focus on student-facing components like guidance and engagement to match its teacher-system strengths.
- Attingal sits at a critical midpoint: basic systems are functional, but administrative inefficiency and inconsistent pedagogy reduce overall

effectiveness.

- Varkala, despite reporting some infrastructure, emerges as the weakest across nearly all domains due to disjointed governance, weak pedagogy, and low student satisfaction.

The rank-based convergence of weak inputs and unsatisfactory outputs in Varkala and Attingal points to a classic case of systemic underperformance, requiring targeted intervention rather than isolated fixes.

Conclusion

The analysis of teachers' perceptions across Urban Local Bodies (ULBs) reveals significant variations in how school performance is experienced at the ground level. Enrolment perceptions are overwhelmingly positive across all municipalities, with Nedumangad standing out due to its 100 per cent agreement rate and the highest share of "strongly agree" responses. Attingal also demonstrates strong confidence in enrolment performance, followed by Varkala and Neyyattinkara, although the latter shows minor dissent, suggesting localised concerns. In contrast, Thiruvananthapuram, despite having a high agreement percentage, records a notable share of disagreement and no strong agreement, possibly reflecting competition from private institutions or urban saturation.

In terms of student-teacher ratio, the results are even more telling. Both Neyyattinkara and Thiruvananthapuram exhibit unanimous agreement on the adequacy of the ratio, reflecting efficient teacher deployment and strong resource backing. Varkala also fares well with near-total approval, though a single strongly negative response flags possible isolated issues. Nedumangad, while generally positive, has a significant neutral segment, pointing to inconsistency or lack of clarity among staff. Attingal, however, emerges as a concern area, with nearly half the respondents dissatisfied with the student-teacher ratio, raising red flags about staffing adequacy and classroom size.

The analysis of teachers' perceptions regarding teaching load, both in terms of long-term workload trends and daily teaching hour manageability, presents a nuanced picture of how responsibilities are evolving across Urban Local Bodies (ULBs). A

clear consensus emerges across all municipalities that teaching workload has increased over recent years, with Neyyattinkara and Thiruvananthapuram Corporation demonstrating the strongest and most uniform agreement. This likely reflects the growing range of academic, administrative, and co-curricular duties being placed on teachers in these urban centres. Attingal and Varkala also indicate a broad recognition of increased workload, though with small pockets of neutrality or dissent, suggesting minor inconsistencies in how duties are distributed or experienced. Nedumangad, however, stands out with a divided perception, highlighting internal disparities and potential imbalances in workload assignment within its schools.

When it comes to the daily teaching load, perceptions are overwhelmingly positive and consistent across ULBs. A large majority of teachers in all five municipalities find their daily teaching hours to be manageable. This uniformity is confirmed statistically, as no significant association was found between ULB location and the perception of teaching hour manageability. Particularly high satisfaction levels were observed in Varkala and Nedumangad, while Attingal and Thiruvananthapuram Corporation recorded slightly elevated dissatisfaction rates. These localised concerns may stem from specific staffing or scheduling issues that warrant further investigation.

The perceptions of teachers across the five Urban Local Bodies (ULBs) in Thiruvananthapuram district reflect an overall strong and positive sentiment regarding administrative support for classroom management, responsiveness to teacher concerns, and the effectiveness of government policies in improving school efficiency. Across all three dimensions, there is a consistently high level of agreement among respondents, indicating that most teachers feel adequately supported by their school administration and recognise the positive influence of policy interventions. Neyyattinkara, Thiruvananthapuram Corporation, and Nedumangad show particularly strong consensus, often reporting 100 per cent agreement in several categories, which suggests robust administrative practices and effective policy communication. However, the lack of “strong agreement” responses, especially in Neyyattinkara, Thiruvananthapuram, and Varkala regarding classroom management support, hints that while support is consistent, it may not

always be seen as deeply engaged or exemplary, pointing to opportunities for more personalised, proactive leadership.

The dimension of administrative responsiveness also reveals significant satisfaction, with over 97 per cent of teachers expressing positive perceptions district-wide. Yet, Attingal and Varkala register small pockets of disagreement or neutrality, implying room for improvement in responsiveness mechanisms or communication. These differences are statistically significant, confirming that such variation is not due to chance but likely stems from real differences in administrative culture or efficiency across municipalities.

When evaluating the role of government policies, there is a similarly widespread agreement, with over 96 per cent of teachers acknowledging their contribution to school efficiency. Nedumangad and Neyyattinkara again stand out with near-unanimous or emphatically strong agreement, indicating successful policy implementation and high teacher confidence in these areas. Attingal, however, shows comparatively more neutral or dissenting responses, which may reflect uneven policy impact or challenges in execution. Thiruvananthapuram Corporation, despite generally strong approval, also reveals a slightly lower agreement rate, possibly due to the complexity and diversity of its school ecosystem.

The analysis of teachers' perceptions across Urban Local Bodies (ULBs) in Thiruvananthapuram district highlights a generally favourable view of both collaboration with local bodies and the overall education system under ULB governance. Teachers widely acknowledge that collaboration with ULBs has contributed positively to school efficiency, with particularly strong endorsements from Thiruvananthapuram Corporation and Neyyattinkara, where responses were overwhelmingly affirmative and devoid of disagreement. Varkala and Nedumangad also reflect strong support, though with minor dissent. In contrast, Attingal Municipality exhibits the most varied responses, including the highest proportion of disagreement and even strong disagreement, indicating that collaborative practices may be perceived as inconsistent or less effective there.

When evaluating the overall improvement of the education system, the sentiment remains overwhelmingly positive across all municipalities. Neyyattinkara and

Nedumangad show unanimous agreement, suggesting deep confidence in system reforms. Thiruvananthapuram and Varkala maintain high levels of agreement, albeit with slight variations that may hint at localized challenges. Attingal again stands out for a relatively more mixed perception, though still largely positive.

While perceptions differ modestly across municipalities, especially regarding collaboration efforts, the overall consensus supports the effectiveness of ULB-driven educational initiatives. The statistically significant variation in perceptions about collaboration underscores the need for tailored, context-sensitive strategies. However, the largely non-significant variation in system-level evaluation suggests that broader reforms are being received consistently well. To sustain and enhance this positive trajectory, local governments should focus on deepening collaborative frameworks and addressing specific concerns in areas like Attingal and Varkala, thereby ensuring more uniform progress across all urban jurisdictions.

The analysis of faculty quality across Urban Local Bodies (ULBs) in Thiruvananthapuram district reveals broadly positive teacher perceptions regarding professional development, job satisfaction, and appraisal systems, though with notable differences across municipalities. A majority of teachers in all ULBs agree that their schools offer adequate training and professional development opportunities, with Nedumangad and Neyyattinkara leading in both agreement and strong agreement. In contrast, Attingal shows a relatively weaker perception, with a quarter of teachers either neutral or dissatisfied, indicating possible gaps in training quality or access. Varkala, while largely positive, lacks strong agreement, which may reflect room for improvement in the depth or relevance of training content.

In terms of job satisfaction, Neyyattinkara and Thiruvananthapuram Corporation again stand out, with near-universal agreement and no dissatisfaction. Nedumangad also shows high satisfaction, especially with a significant portion of teachers strongly agreeing. Attingal records moderate satisfaction, but the absence of strong agreement suggests a more tepid endorsement. Varkala shows the most dissatisfaction, with small but present levels of disagreement and strong disagreement.

Regarding the fairness and transparency of the performance appraisal system,

Varkala records the highest approval, followed by Neyyattinkara and Thiruvananthapuram Corporation. However, both Thiruvananthapuram and Nedumangad display higher levels of neutrality and disagreement, suggesting that the appraisal processes in these municipalities may lack clarity or consistency. Attingal falls in between, with some neutrality and mild disagreement but no strong opinions either way. Municipalities like Neyyattinkara and Nedumangad demonstrate strong systems that may serve as models, while Attingal and Varkala would benefit from more targeted improvements in training quality and staff engagement. The insights call for a more localised and responsive approach to enhancing faculty quality across the board.

The analysis of infrastructure and resource-related indicators reveals distinct patterns and disparities in teachers' perceptions across Urban Local Bodies (ULBs) in Thiruvananthapuram district. First, regarding access to teaching-learning materials, there is near-universal agreement (99.4%) among respondents across all ULBs that adequate materials are available. This reflects a consistent baseline of resource provision, though the almost complete absence of strong agreement suggests that while sufficiency is achieved, excellence or innovation in resource quality remains limited. The lack of statistically significant differences between ULBs confirms uniform perceptions on this indicator.

The perceptions about the availability and adequacy of library resources vary significantly by municipality, as indicated by a highly significant Chi-Square result. While Neyyattinkara, Thiruvananthapuram, and Varkala municipalities show strong satisfaction—with unanimous or near-unanimous agreement—Nedumangad and Attingal present a much more concerning picture. In Nedumangad, half the respondents expressed dissatisfaction, and in Attingal, a notable 23.8 per cent disagreed with the adequacy of library facilities. This disparity points to clear infrastructure gaps in specific municipalities that require targeted policy interventions.

Regarding financial constraints limiting the quality of teaching materials, substantial differences are again observed. Teachers in Thiruvananthapuram Corporation and Neyyattinkara express near-total agreement that financial issues significantly hinder material quality, indicating acute funding pressures. On the

other hand, responses from Attingal, Varkala, and especially Nedumangad are more divided, suggesting variability in school-level financial management, allocation efficiency, or differing awareness levels of financial limitations. The statistically significant variation across ULBs underscores the uneven fiscal landscape that shapes school resourcing.

While teaching materials are perceived as adequately available across the district, library resources and financial constraints present a more nuanced and uneven picture. The findings suggest that while baseline provisioning is consistent, qualitative improvements, equitable library development, and targeted financial support are essential to address the disparities and strengthen infrastructure across all ULBs.

Classroom infrastructure is perceived very positively in Nedumangad and Thiruvananthapuram, where a substantial portion of teachers strongly agreed that facilities are well-equipped. Nedumangad stands out with unanimous strong support, indicating especially successful infrastructure provisioning. Neyyattinkara and Attingal also show strong overall satisfaction, albeit with slightly less intensity or some isolated concerns. Varkala, despite reporting unanimous agreement, showed no strong agreement, pointing to functional adequacy without perceived excellence.

Digital infrastructure perceptions further highlight municipal variations. Neyyattinkara and Thiruvananthapuram lead with near or total consensus on the adequacy of digital tools, reflecting successful integration of technology in classrooms. Varkala and Attingal follow with high but slightly mixed satisfaction. Nedumangad, however, shows the most concern, with half the teachers disagreeing about the adequacy of digital resources, underscoring a significant digital gap despite strong classroom facilities.

The analysis of teachers' perceptions regarding the availability of internet and technology support across Urban Local Bodies (ULBs) reveals substantial variation, highlighting both strong performers and areas requiring urgent attention. Neyyattinkara Municipality and the Thiruvananthapuram Corporation emerge as clear leaders, with unanimous or near-unanimous agreement among respondents

that internet and technology support is adequate—reflecting robust digital infrastructure and effective integration into school environments. Varkala Municipality also shows a high level of agreement (95.3%), though the absence of "strongly agree" responses suggests potential scope for upgrades in speed, reliability, or modernity. Attingal Municipality presents a moderately positive perception, with over three-quarters of teachers reporting satisfaction, yet 14.3% expressing dissatisfaction—possibly pointing to inconsistencies in access or outdated systems in some schools. In sharp contrast, Nedumangad Municipality stands out for its poor rating, with two-thirds of teachers disagreeing that support is adequate. This indicates a critical gap in digital infrastructure and underscores the need for immediate policy attention and investment to enable equitable access to digital learning. The highly significant Chi-Square test result ($p = .000$) confirms that these differences are not due to chance, but reflect real disparities in digital preparedness across ULBs.

The overall perception of drinking water and sanitation infrastructure across Urban Local Bodies (ULBs) in Thiruvananthapuram district reflects a predominantly positive outlook. Municipalities such as Thiruvananthapuram Corporation, Varkala, Neyyattinkara, and Nedumangad report near-universal satisfaction, with all or most respondents affirming the adequacy of these essential facilities. Notably, Nedumangad and Neyyattinkara recorded the highest intensity of satisfaction, with a portion of teachers strongly agreeing, suggesting a perception of not just sufficiency but excellence in hygiene-related infrastructure. Conversely, Attingal Municipality reveals a more mixed perception, where although the majority express satisfaction, a significant proportion of teachers reported disagreement or strong disagreement. This deviation contributes notably to the statistically significant Chi-Square result ($p = 0.000$), confirming that perceptions vary meaningfully across ULBs. The findings highlight that while basic water and sanitation facilities are widely available, their quality and uniformity remain inconsistent, especially in Attingal. This underscores the need for targeted policy attention and infrastructure upgrades in specific localities to ensure equitable health and hygiene standards across all municipal schools.

Teachers across the five Urban Local Bodies (ULBs) generally perceive

pedagogical practices—particularly extra-curricular activities and support for students with learning difficulties—positively. A strong majority believe that their schools provide extra-curricular activities supporting holistic student development, with Thiruvananthapuram Corporation standing out for the highest levels of strong agreement. Meanwhile, municipalities like Varkala, Neyyattinkara, and Nedumangad also show high levels of satisfaction, although Attingal exhibits relatively lower support, with some disagreement and neutrality—highlighting a potential area for programmatic enhancement.

In terms of special support programs for students with learning difficulties, perceptions are similarly positive across the board. Varkala leads with the highest levels of agreement, while other ULBs like Neyyattinkara and Nedumangad also show strong approval. Attingal and Thiruvananthapuram, although mostly positive, exhibit higher disagreement levels, suggesting potential gaps in program visibility, accessibility, or effectiveness. Unlike perceptions of extra-curricular activities, variations in this component are not statistically significant.

Overall, the findings point to a robust endorsement of pedagogical support mechanisms in the surveyed schools, with notable variation in extra-curricular program delivery across ULBs. Focused efforts in Attingal and Thiruvananthapuram to enhance outreach and implementation of both activity-based and remedial programs could ensure more equitable educational experiences across the region.

Teachers across the surveyed Urban Local Bodies (ULBs) in Thiruvananthapuram district express a highly positive perception of assessment practices in their schools. The vast majority agree that there are effective mechanisms to track students' academic progress, with ULBs like Neyyattinkara, Thiruvananthapuram Corporation, and Varkala showing the highest levels of agreement. While Attingal shows slightly lower agreement and a few dissenting or neutral responses, overall confidence in tracking practices remains strong. Statistically significant differences across ULBs suggest some variation in perceived effectiveness that may relate to local implementation or resource differences.

Perceptions regarding students' performance in standardised examinations are

uniformly positive across all ULBs, with negligible disagreement or neutrality. While Nedumangad, Neyyattinkara, and the Corporation lead in teacher confidence, even Attingal and Varkala show mostly favourable responses. The lack of significant statistical variation suggests consistent academic performance perceptions throughout the district.

Similarly, feedback from school authorities on student learning outcomes is rated very positively, with most ULBs nearing or reaching 100 per cent agreement. Neyyattinkara and Nedumangad stand out with full endorsement, while Attingal, although still mostly positive, records the highest share of neutral or negative responses, indicating an area for improvement in communication effectiveness. The significant chi-square result reinforces perceptual differences among ULBs.

The evaluation and assessment systems are widely perceived as effective across all municipalities. Neyyattinkara, Varkala, and Thiruvananthapuram Corporation exhibit the highest confidence, while Attingal shows more neutrality and minor disagreement. This variation is statistically significant, underscoring the need for more consistent system implementation and training in certain ULBs. The overall sentiment towards assessment practices is highly favourable, the statistically significant inter-ULB differences—especially seen in tracking, feedback, and evaluation mechanisms—point to the need for targeted capacity-building and resource alignment, particularly in Attingal.

Teachers across the Urban Local Bodies (ULBs) in Thiruvananthapuram district report a strong and consistent belief that the existing curriculum is aligned with students' learning needs. The overall consensus is highly positive, with full agreement observed in Nedumangad and Neyyattinkara Municipalities, and near-complete agreement in Thiruvananthapuram Corporation and Varkala. Attingal stands out with a comparatively lower level of agreement and the highest proportion of disagreement (19%), indicating localised concerns about curriculum adequacy in meeting diverse or evolving student needs. Notably, the presence of only minimal "strongly agree" responses across all ULBs suggests that while the curriculum is broadly perceived as functional and sufficient, it may not be viewed as exceptional or fully dynamic in addressing individualised or contextualised learning challenges.

The findings point to the need for curriculum enrichment and greater localisation of content delivery. Education authorities should consider integrating teacher feedback loops and curriculum review mechanisms to make the system more responsive. Municipalities like Attingal and Varkala, which report a small but notable share of neutral or dissenting responses, would particularly benefit from targeted interventions—such as curriculum contextualisation, capacity-building, and inclusion of experiential or locally relevant learning components.

Teachers across most Urban Local Bodies (ULBs) in Thiruvananthapuram district generally perceive school administrations to be managing financial resources effectively, with strong agreement observed in Neyyattinkara, Thiruvananthapuram Corporation, and Varkala. These ULBs exhibit high levels of trust in both the utilisation of available funds and the fairness of government grant distribution. However, the data also reveals key disparities: Nedumangad and Attingal Municipalities display significantly weaker perceptions of financial adequacy and equity. In Nedumangad, a substantial portion of teachers disagree about both the fair distribution of government grants and the sufficiency of per-student expenditure, with some also expressing dissatisfaction with overall fund utilisation. This points to systemic issues in financial governance or actual resource constraints that could impact education delivery. Attingal reflects moderate confidence in fund use but also displays scepticism regarding the adequacy of per-student funding and equity in grant distribution.

The statistically significant Chi-Square test results across all three dimensions (utilisation, distribution, and expenditure adequacy) confirm that these perceptual differences are meaningful and not due to chance. Neyyattinkara and Thiruvananthapuram Corporation consistently emerge as leaders in perceived financial and administrative efficiency, suggesting robust systems for resource planning, transparency, and communication with staff. Conversely, Nedumangad's repeated low scores across financial indicators mark it as an outlier requiring targeted interventions.

The significant majority of educators perceive parental involvement in student learning as adequate, with Neyyattinkara, Thiruvananthapuram Corporation, and Varkala reporting particularly high levels of satisfaction. However, Nedumangad

and Attingal stand out for their higher levels of neutrality and disagreement, highlighting areas where home-school collaboration could be improved.

Similarly, perceptions of safety and security in schools are overwhelmingly positive across most ULBs. Thiruvananthapuram Corporation, Neyyattinkara, and Varkala demonstrate near-universal satisfaction, reflecting effective safety protocols and institutional preparedness. In contrast, Nedumangad reveals significant ambiguity, with half of the respondents remaining neutral—suggesting potential gaps in implementation, awareness, or communication that warrant targeted review and intervention.

With regard to student performance and learning engagement, the district presents a generally promising picture, with nearly all municipalities reporting high levels of student interest and involvement. Once again, Neyyattinkara and Thiruvananthapuram Corporation lead with the strongest positive feedback, while Attingal and Nedumangad exhibit comparatively higher disagreement, suggesting localised challenges that could stem from infrastructural limitations, pedagogical practices, or curricular misalignment.

The analysis of students' perceptions regarding the learning environment across Urban Local Bodies (ULBs) in Thiruvananthapuram district reveals an overall favourable outlook, though with clear inter-municipality disparities. Across three critical indicators—classroom and furniture quality, sanitation and drinking water, and library resources—students report high levels of satisfaction, but the intensity of this satisfaction varies significantly among the ULBs, reflecting differences in infrastructure quality, maintenance, and investment.

Neyyattinkara Municipality consistently leads in all aspects, with 100 per cent positive responses for classroom conditions and library adequacy, and a remarkably high share of "strongly agree" responses. This suggests superior infrastructural quality and an equitable distribution of learning resources, likely stemming from robust governance and sustained funding support. Thiruvananthapuram Corporation follows closely, also displaying overwhelmingly positive perceptions, especially in classroom and library conditions, which can be attributed to its urban advantages such as better resource availability, maintenance systems, and administrative

efficiency.

Nedumangad Municipality also demonstrates high satisfaction levels, particularly in classroom and furniture conditions. However, compared to Neyyattinkara and Thiruvananthapuram, it shows slightly lower “strongly agree” proportions, indicating a more modest yet stable infrastructure standard. Attingal Municipality, while receiving a majority of positive responses, records higher neutrality and dissatisfaction, especially concerning library resources. This points to uneven infrastructure quality and potentially limited access to updated or diverse educational materials.

Varkala Municipality shows the most subdued satisfaction levels. Despite a general majority agreement across indicators, the consistently low “strongly agree” responses and relatively higher neutrality and disagreement percentages reflect inconsistencies in infrastructure maintenance and resource availability. Particularly in the case of library adequacy, Varkala’s figures suggest a need for qualitative improvement and stronger educational support systems.

The analysis of students’ perceptions across the five Urban Local Bodies (ULBs) reveals a broadly positive view regarding the availability and quality of digital infrastructure and smart-class facilities in schools. A vast majority of students reported access to computer and internet resources (92.9%) and digital or smart-class learning (91.6%), highlighting significant strides in technology integration within the school environment. Among the ULBs, Neyyattinkara Municipality consistently emerges as the top performer, registering near-universal agreement with no negative or neutral responses, suggesting both widespread availability and consistent use of digital tools. Thiruvananthapuram Corporation also ranks high, particularly for its large share of students who “strongly agree,” pointing to not just presence but excellence in digital facility implementation.

Nedumangad and Attingal Municipalities show generally favorable responses, yet notable proportions of neutral or disagreeing students suggest inconsistent deployment or limited access in certain schools, warranting targeted improvements. Varkala Municipality, while reporting high overall agreement, has the lowest levels of “strongly agree” responses and higher neutrality, indicating potential issues with

quality, engagement, or reliability of digital tools. The Chi-Square test confirms statistically significant variation among ULBs ($\chi^2 = 158.967$, $p < .001$), reinforcing that these differences are meaningful and likely tied to disparities in infrastructure investments, administrative implementation, or teacher training.

Overall, while digital learning infrastructure is widely established, the intensity and consistency of its application vary across municipalities. Focused interventions to enhance digital resource quality, equitable access, and effective utilisation—particularly in Varkala, Attingal, and Nedumangad—will be essential to ensure all students benefit equally from modern educational technologies.

The analysis of student perceptions regarding school safety and inclusivity (lack of discrimination) across the five Urban Local Bodies (ULBs) reveals a predominantly positive landscape, with substantial variation in the strength of sentiments. Overall, 95% of students across all municipalities perceive their schools as safe, and 91.7% feel they are not subjected to discrimination, indicating a strong baseline of trust and inclusiveness within the school environments. Neyyattinkara Municipality consistently emerges as the top performer in both dimensions, recording 100% positive responses for both safety and non-discrimination. This exceptional consensus reflects a deeply embedded culture of protection, equity, and strong governance. Thiruvananthapuram Corporation also ranks highly, particularly in inclusivity, with 98.5% agreement and a notable share of students (30.9%) strongly affirming the absence of discrimination. Nedumangad Municipality shows very high safety perceptions (97.9%) and solid inclusivity scores, but the relatively higher neutrality in discrimination responses signals a need for continuous community engagement and monitoring.

On the other hand, Attingal Municipality, while generally positive, exhibits the highest levels of disagreement and neutrality regarding both safety and discrimination, suggesting uneven implementation or perception gaps that warrant targeted policy attention. Varkala Municipality, though showing high agreement overall, records the lowest “strongly agree” rate for school safety (just 5.8%) and a non-negligible neutrality in perceptions of discrimination (7.9%), indicating latent concerns about the depth and consistency of safety and inclusion practices.

The statistically significant association (Chi-Square p-value < 0.001) confirms that students' perceptions are influenced by the specific ULB context, highlighting the importance of local governance and institutional practices. Municipalities with weaker student perceptions may benefit from enhanced safety protocols, inclusivity training, grievance redress mechanisms, and student awareness programs. Addressing these disparities is crucial to ensuring that every child, regardless of location, experiences a safe, respectful, and inclusive educational environment.

The data on academic engagement across Urban Local Bodies (ULBs) reveals a broadly positive perception among students regarding teaching quality, classroom interaction, and teacher support, with Neyyattinkara Municipality consistently leading in nearly every metric. Neyyattinkara stands out as the benchmark, with 100% student agreement on teacher clarity, encouragement of participation, care for academic progress, approachable behavior, and the use of enjoyable teaching methods. Thiruvananthapuram Corporation also performs exceptionally well, showing consistently high levels of agreement and some of the highest "strongly agree" percentages, indicating not just acceptance but enthusiastic student approval of teaching practices. These patterns suggest well-trained faculty, learner-centric methods, and institutional environments that promote student-teacher rapport.

Nedumangad Municipality shows a mostly positive perception but reveals notable neutrality levels—especially in areas like teacher encouragement, clarity, and care—implying a potential lack of consistency in pedagogy and interpersonal engagement across schools. Though not facing widespread dissatisfaction, this neutrality could be symptomatic of passive teaching methods or limited student-teacher interaction.

Attingal Municipality follows a similar pattern, with moderate satisfaction but also elevated levels of neutrality and disagreement, especially regarding approachability and the enjoyability of teaching methods. These results indicate a need to improve classroom inclusivity, diversify pedagogical approaches, and promote more supportive academic relationships.

Varkala Municipality, while showing high basic agreement, consistently scores the lowest on "strongly agree" responses, suggesting that student satisfaction may be

surface-level. This trend is visible across all components, from teaching clarity to teacher approachability, indicating that while the systems are in place, the depth of engagement and emotional connection may be lacking. Such environments might rely on traditional methods with less personalisation or innovation.

Overall, the data confirms significant variation in academic engagement across ULBs, underpinned by disparities in teaching quality, student participation, and institutional culture. Policy interventions should be tailored to each ULB, with a focus on pedagogical training, student engagement strategies, and the institutionalisation of teacher mentorship programs, especially in Attingal, Nedumangad, and Varkala. The exceptionally high ratings in Neyyattinkara and Thiruvananthapuram Corporation may serve as models of best practices for other regions aiming to create more inclusive, engaging, and responsive academic environments.

The analysis of student perceptions across Urban Local Bodies (ULBs) in Thiruvananthapuram district reveals a predominantly positive outlook regarding the availability of books and learning materials in schools. Neyyattinkara Municipality leads with a perfect 100% satisfaction rate, of which a remarkable 70.8% strongly agree. This reflects outstanding consistency in educational resource distribution, suggesting efficient administrative processes and possibly proactive community or government support. Thiruvananthapuram Corporation follows closely with 99.6% agreement, also showcasing strong institutional systems that ensure dependable access to learning materials.

Varkala Municipality, despite showing high agreement levels at 91 per cent, reports the lowest percentage of strong agreement (7.6%), implying that while materials are generally available, their quality, timeliness, or comprehensiveness may fall short of student expectations. This subtle dissatisfaction calls for a closer evaluation of supply mechanisms and feedback integration from end-users.

In Attingal Municipality, 84.2% of students expressed satisfaction, but it also had a comparatively high neutral response (12.9%) and some disagreement (2.9%). These figures may indicate inconsistencies across schools, possibly linked to uneven implementation or delays in material distribution. Nedumangad Municipality

exhibits similar concerns, with 73.6% agreement and a substantial 24.3% neutrality, suggesting perceived or actual deficiencies in learning material availability. The neutrality likely reflects disparities in the experience across schools, particularly in more remote or under-resourced areas.

Overall, while the data reflects a generally favorable scenario, statistically significant disparities across ULBs point to the need for targeted policy action. Special attention is required in Nedumangad and Attingal, where perceived inadequacies and uncertainty are more prominent. Strategies such as strengthening logistics, ensuring equitable supply chains, increasing transparency in material provision, and integrating student feedback mechanisms can help bridge these gaps and ensure uniform access to essential learning resources across all municipalities.

he findings reveal an encouraging landscape in terms of student experiences with extracurricular activities and academic assessments across the five Urban Local Bodies (ULBs). Overall, students perceive high availability and fairness in both co-curricular programming and academic evaluation, though notable variations exist between ULBs.

In terms of extracurricular activities, Neyyattinkara Municipality demonstrates exceptional performance, with 100 per cent student approval, closely followed by Thiruvananthapuram Corporation and Nedumangad, all showcasing strong program integration and student satisfaction. However, Varkala and Attingal show relatively lower satisfaction, especially in the proportion of students who “strongly agree” with activity availability, suggesting either limited access, underutilisation, or perceived quality issues in programming. The statistically significant variation ($\chi^2 = 228.125$, $p < .001$) reinforces that the differences across ULBs are meaningful and demand ULB-specific action. Enhanced visibility, student involvement, and diversified program offerings could help address gaps in Varkala and Attingal.

Regarding academic assessment, the majority of students across ULBs affirm that exams are fair and relevant, and that grading practices are transparent. Neyyattinkara again leads with 100% approval on both counts, reflecting an exceptionally well-perceived academic culture. Thiruvananthapuram Corporation also scores near-perfect ratings, particularly with a high proportion of students

“strongly agreeing” with the fairness of grading. On the other hand, Attingal and Varkala Municipalities exhibit higher neutrality and mild disagreement, especially in perceptions about grading transparency, indicating either inconsistencies in evaluation practices or inadequate communication about assessment criteria. Nedumangad performs better than Attingal and Varkala, but some student uncertainty still persists. To ensure equity, ULBs should focus on strengthening program visibility, standardising assessment procedures, and improving transparency in both academic and non-academic domains.

The analysis of students’ perceptions across the five Urban Local Bodies (ULBs) in Thiruvananthapuram district reveals a predominantly positive outlook on how well schools are preparing them for future academic and career paths. Neyyattinkara Municipality consistently emerges as the top performer, with nearly unanimous student affirmation across all three dimensions—preparation for higher education and jobs, encouragement in critical thinking, and career guidance—indicating a highly structured, supportive, and future-oriented educational environment. Thiruvananthapuram Corporation also exhibits strong performance, with particularly high levels of strong agreement in both career guidance and critical thinking promotion, reflecting the impact of superior institutional infrastructure and teacher engagement.

Nedumangad Municipality fares well overall, especially in promoting critical thinking and career guidance, though slightly elevated neutral responses suggest potential areas for deepening student support and personalisation. Varkala Municipality, while achieving generally favorable perceptions, demonstrates a consistent pattern of lower strong agreement across all indicators, hinting at a need to enhance the depth, intensity, or accessibility of future-readiness programs. Attingal Municipality, though not lagging in overall agreement levels, consistently records the highest neutrality and disagreement rates, pointing to variability in exposure and student experience across its schools.

The statistically significant differences observed in student responses across ULBs underscore that these are not incidental but stem from meaningful institutional and contextual disparities. Targeted interventions—such as scaling career mentoring, enhancing inquiry-based learning, and integrating real-world skills into the

curriculum—can help underperforming ULBs match the standards set by their higher-performing counterparts. Overall, the findings signal a positive trend towards aspirational readiness among urban students, while also highlighting key areas for policy focus and pedagogical reform.

The analysis of students' perceptions of how well schools are preparing them for future academic and career paths reveals that Neyyattinkara Municipality consistently emerges as the top performer, with nearly unanimous student affirmation across all three dimensions—preparation for higher education and jobs, encouragement in critical thinking, and career guidance—indicating a highly structured, supportive, and future-oriented educational environment. Thiruvananthapuram Corporation also exhibits strong performance, with particularly high levels of strong agreement in both career guidance and critical thinking promotion, reflecting the impact of superior institutional infrastructure and teacher engagement.

Nedumangad Municipality fares well overall, especially in promoting critical thinking and career guidance, though slightly elevated neutral responses suggest potential areas for deepening student support and personalisation. Varkala Municipality, while achieving generally favourable perceptions, demonstrates a consistent pattern of lower strong agreement across all indicators, hinting at a need to enhance the depth, intensity, or accessibility of future-readiness programs. Attingal Municipality, though not lagging in overall agreement levels, consistently records the highest neutrality and disagreement rates, pointing to variability in exposure and student experience across its schools.

The statistically significant differences observed in student responses across ULBs underscore that these are not incidental but stem from meaningful institutional and contextual disparities. Targeted interventions—such as scaling career mentoring, enhancing inquiry-based learning, and integrating real-world skills into the curriculum—can help underperforming ULBs match the standards set by their higher-performing counterparts. Overall, the findings signal a positive trend towards aspirational readiness among urban students, while also highlighting key areas for policy focus and pedagogical reform.

CHAPTER VII

CONCLUSION

This chapter deals with the overall conclusion, recommendations, area of future research and limitations of this study. The chapter covers specific inferences on the financial performance of selected ULBs, inferences on technical efficiency in the health care system in the selected ULBs, and inferences on efficiency in the education system in the selected ULBs.

7.1 Inference on Financial Performance of Selected ULBs

The financial and programmatic analysis across the five selected Urban Local Bodies (ULBs) of Kerala—Thiruvananthapuram Corporation, Varkala, Attingal, Nedumangad, and Neyyattinkara—presents a clear narrative of divergence in urban fiscal management, service delivery evolution, and infrastructural ambition.

Thiruvananthapuram Corporation consistently outperforms all other municipalities across every revenue and expenditure dimension. Its dominance is driven by its larger scale, superior administrative infrastructure, and established governance systems. The Corporation leads not only in volume but also in structured growth across decentralised plans, sectoral programs, and infrastructure investments, making it the benchmark for urban service delivery in the state.

Among the other municipalities, Attingal and Neyyattinkara show the most promising trends, particularly in tax and non-tax revenue growth. Their rising fiscal capacity indicates better revenue mobilisation and expanding service scope. Nedumangad follows with steady, if modest, progress, maintaining a stable growth trajectory. Varkala, however, exhibits persistent inconsistency, especially in non-tax revenue, which adversely affects its overall financial health.

7.1.1 Key Inferences on Revenue and Expenditure Trends

- Thiruvananthapuram leads in both scale and growth, reflecting a strong administrative base and decentralisation maturity.
- Attingal and Neyyattinkara show sharp improvements in capital spending and revenue growth, suggesting emerging urban investments.

- Nedumangad maintains consistency, but at a slower pace, indicating the need for acceleration in fiscal mobilisation.
- Varkala lags across most indicators, necessitating targeted support and capacity-building interventions.

The dominance of establishment expenses across all ULBs—especially in Thiruvananthapuram—indicates personnel-intensive operations. Operations and maintenance expenses are rising sharply in Neyyattinkara and Attingal, suggesting enhanced focus on frontline service delivery. Administrative expenses remain relatively contained, though slightly rising in certain municipalities. Meanwhile, rising interest finance charges in Neyyattinkara and Attingal suggest recent borrowing for capital expenditure. These trends reveal how ULBs are evolving to meet increasing service demands while navigating resource limitations.

- Decentralised Plan Programs show widespread expansion across ULBs, with Thiruvananthapuram taking the lead and others showing gradual uptake.
- Service sector allocations dominate overall trends, especially in Neyyattinkara and Nedumangad, suggesting prioritisation of health, education, and water services.
- Infrastructure sector investment is increasing steadily but remains modest in smaller municipalities.

7.1.2 Sectoral Insights- Health and Education

In education, Thiruvananthapuram and Nedumangad emerge as top performers in educational spending, reflecting both scale and intent. Attingal shows variability, pointing to possible planning or funding inconsistencies. Varkala maintains steady progress, while Neyyattinkara's fluctuating and low funding demands strategic intervention for long-term equity in education.

Nedumangad and Attingal show consistent health investments, suggesting strategic improvement efforts. Thiruvananthapuram maintains high volumes but with fluctuations, possibly reflecting programmatic shifts or project cycles. Neyyattinkara's erratic investments, including a sharp drop and delayed recovery, call for more structured health budgeting.

7.1.3 Drinking Water and Sanitation

Thiruvananthapuram shows exponential growth, especially in drinking water and sanitation, with investments rising from crores to over ₹200 crores in both sectors by 2024–25, indicating large infrastructure projects. Attingal and Varkala have improved substantially, indicating growing attention to water access and sanitation. Neyyattinkara's stagnation in water spending and drastic decline in sanitation spending suggest either completed projects or diverted priorities.

7.1.4 Service Delivery Improvement – Governance Focus

Thiruvananthapuram's focus on both Local Government and Transferred Institution Service Delivery highlights its maturity in handling decentralised functions. It not only increases allocations year-on-year for core governance improvements but also sustains funding to manage transferred functions like health and education effectively.

Other ULBs show mixed trends. More specifically, Varkala demonstrates structured, incremental growth, reflecting resource-conscious governance. Attingal and Nedumangad show fluctuations, indicating possible challenges in planning and implementation. Neyyattinkara appears to lag, with delayed and inconsistent allocations, signaling the need for foundational capacity-building.

Thiruvananthapuram Corporation serves as the model ULB, balancing fiscal performance, infrastructure investments, and governance innovation. Attingal, Nedumangad, and Neyyattinkara are in a phase of active transformation, with varying levels of consistency and growth. Varkala's weak fiscal and service performance highlights systemic gaps needing immediate policy attention.

7.2 Inference on Technical Efficiency in the Health Care System in the Selected ULBs

7.2.1 Staffing Trends and Service Stability

Thiruvananthapuram Corporation leads in overall staffing levels, particularly permanent staff, indicating administrative stability and capacity. Neyyattinkara shows expansion via temporary staffing, suggesting rapid but less sustainable growth. Varkala and Attingal rely more on temporary paramedics and nurses while maintaining static doctor numbers, pointing to constrained capacity expansion. Nedumangad remains stagnant, indicating minimal staffing or

strategic planning interventions.

7.2.2 Patient Flow and Utilisation

Thiruvananthapuram Corporation consistently records the highest patient numbers (both inpatients and outpatients), reflecting robust infrastructure and referral mechanisms. COVID-19 impact led to a drop in patient volume across all ULBs; recovery was strong in Thiruvananthapuram and Neyyattinkara, but weak in Varkala and Attingal, revealing inequities in resilience and recovery capacity. Attingal's consistently low patient figures suggest poor demand or limited accessibility.

7.2.3 DEA Efficiency Analysis

Technical Efficiency (CRS), all municipalities except Neyyattinkara show full efficiency, denoting effective input-output utilisation. Managerial Efficiency (VRS), again, Neyyattinkara is the exception. Scale Efficiency, most ULB hospitals operated at an optimal size; Neyyattinkara had occasional inefficiencies, suggesting under-capacity issues. More specifically, inputs are more in Neyyattinkara.

7.2.4 Waiting Time and Service Delivery

74.5 per cent of patients were served within one hour, indicating relatively high service responsiveness across the district. Thiruvananthapuram and Neyyattinkara performed better on waiting time metrics, while others lagged. Statistically significant inter-ULB variation points to systemic and administrative differences in service management.

7.2.5 Governance and Perception

Perception analysis places Thiruvananthapuram and Neyyattinkara at the top in governance and management. However, DEA indicates over-supply of inputs in Neyyattinkara, particularly staff and infrastructure, without proportional improvement in efficiency, signalling inefficiency due to excess resources not optimally used.

This analysis highlights the strengths of Thiruvananthapuram's urban healthcare delivery system and the emerging gaps in Neyyattinkara, Varkala, Attingal, and Nedumangad. It provides actionable pathways for local bodies to build on their strengths, correct inefficiencies, and strive toward equitable, efficient, and high-

quality urban healthcare services.

7.3 Inference on Efficiency in the Education System in the Selected ULBs

The analysis reveals differences in institutional performance in terms of both input-side efficiency (teachers and school systems) and output-side outcomes (student perceptions and educational experience). The dual analysis provides a comprehensive understanding of how school resources, faculty quality, and administrative systems align with student engagement, learning environments, and aspirational readiness.

7.3.1 Teacher-Side Components: System Efficiency and Support

a. Governance and Leadership

The findings show that effective administrative support and collaborative planning are crucial to institutional strength. Thiruvananthapuram and Neyyattinkara lead in leadership effectiveness, system-level evaluation, and ULB collaboration. Meanwhile, Varkala and Attingal lag due to administrative inconsistencies and lower stakeholder involvement. These differences significantly impact the overall school climate and responsiveness to student needs.

b. Faculty Quality

Neyyattinkara and Thiruvananthapuram excel in ensuring adequate staffing, continuous professional development, and high levels of teacher motivation and job satisfaction. Attingal and Varkala show lower faculty morale and limited investment in teacher capacity-building efforts. These gaps point to an uneven distribution of pedagogical quality and instructional commitment.

c. Infrastructure and Resources

Consistent with the governance findings, schools in Neyyattinkara and Thiruvananthapuram report better availability of teaching-learning materials, functional ICT infrastructure, and sanitation facilities. Varkala and Attingal, however, face deficits in institutional support and access to basic amenities. Infrastructure inequality appears to mirror broader patterns of administrative attention and fiscal allocation.

d. Pedagogical Practices

Curriculum alignment, assessment practices, and relevance of instructional content are significantly stronger in Thiruvananthapuram and Nedumangad. Varkala, despite showing signs of intent, falls behind in translating curriculum frameworks into effective classroom practices. Attingal displays moderate performance but lacks coherence in assessment strategy and teacher capacity building.

e. Financial and Administrative Efficiency

Per-student cost, utilisation of funds, and community involvement reveal systemic contrasts. Neyyattinkara again stands out, with clear evidence of effective fund usage and safety measures. Varkala and Attingal suffer from inefficient fund management and underwhelming community participation, weakening school-level accountability and sustainability.

7.3.2 Student-Side Outcomes: Learning, Engagement, and Readiness

a. Learning Environment

Students in Neyyattinkara and Thiruvananthapuram reported high satisfaction with school physical and digital infrastructure, safety, and inclusivity. Varkala, while not entirely lacking in provisions, had the lowest proportion of "strongly agree" responses, implying dissatisfaction with the quality or consistency of infrastructure use. Attingal's feedback reflected pockets of good practice but also considerable variability in student experience.

b. Academic Engagement

Teaching quality, student-teacher relationships, availability of learning materials, and extracurricular opportunities were best perceived in Neyyattinkara and Thiruvananthapuram. Varkala again recorded the weakest performance, particularly in teaching engagement and extracurricular activities. The disparity suggests that resource availability alone is not enough—pedagogical implementation and student-centric culture matter significantly.

c. Satisfaction and Aspirational Readiness

Indicators related to fairness of assessments, support for higher education preparation, critical thinking, and career guidance consistently favoured

Neyyattinkara and Thiruvananthapuram. The universal agreement in Neyyattinkara on these variables illustrates a model for holistic student development. Varkala and Attingal show both lower satisfaction and weaker perceived readiness, suggesting a gap in connecting academic processes with future goals.

By combining both teacher (input) and student (output) metrics, Neyyattinkara emerges as the highest-performing ULB, demonstrating a well-functioning, learner-centric school system with equitable resource use and strong pedagogical delivery. Thiruvananthapuram, though slightly behind, benefits from scale and advanced infrastructure. Nedumangad ranks in the middle with relatively balanced input-output performance but with room for improvement in student engagement.

Attingal and Varkala consistently fall behind. Attingal shows average performance but suffers from inconsistent execution and administrative gaps. Varkala ranks the lowest, revealing critical weaknesses in both teaching quality and student perception. The convergence of low teacher motivation, weak infrastructure, and lacklustre student engagement in Varkala signals an urgent need for systemic reform.

The study underscores the significance of aligning administrative efficiency, faculty capacity, infrastructure, and pedagogical quality to achieve meaningful student outcomes. While best practices in Neyyattinkara and Thiruvananthapuram offer a replicable model, the disparities seen in Attingal and Varkala are a clarion call for localised interventions. Systemic reforms anchored in equity, accountability, and innovation are essential to realise the full potential of urban public schooling in Kerala.

7.4 Recommendations

a) On Financial Performance

- Targeted capacity-building and technical support should be extended to underperforming municipalities.
- Performance-based grants and fiscal incentives can encourage innovation and efficiency in smaller ULBs.
- Improved financial planning is crucial in sectors like health and

education, especially in municipalities with erratic trends.

- A state-level monitoring framework may help in tracking progress and identifying early signs of stress in urban financial governance.

b) On the Health Care System

- Strategic Staffing Optimisation:
    - Thiruvananthapuram should continue its emphasis on permanent staffing and act as a model for other ULBs.
    - Neyyattinkara needs better input-output alignment; conduct a workload analysis to optimise temporary staff deployment.
    - Varkala, Attingal, and Nedumangad must reassess staffing models and increase recruitment of essential personnel, especially doctors.
- Address Neyyattinkara's Efficiency Dip:
    - Initiate performance audits and capacity-building programs for healthcare staff.
    - Introduce management training and performance-linked incentives to restore efficiency.
- Reduce Inequity in Access and Utilisation
    - Attingal and Varkala require targeted investment in physical infrastructure and outreach programs to improve healthcare access and utilisation.
    - Explore mobile health units, telemedicine, and public awareness campaigns to improve service uptake.
- Monitor and Balance Inputs and Outputs
    - Implement real-time monitoring systems for tracking staff utilisation, infrastructure usage, and patient outcomes.
    - Use DEA results annually to adjust resource allocations and avoid under- or over-supply.
- Institutionalise DEA as a Planning Tool
    - Institutionalise annual DEA assessments across all municipalities to identify inefficiencies early and apply corrective actions.

- Use DEA scores to inform budget planning, human resource allocation, and infrastructure investment.

- Improve Managerial Efficiency
  - Expand adoption of Health Management Information Systems (HMIS) across all ULBs for data-driven governance.
  - Establish urban health mission units within each municipality to coordinate planning, training, and monitoring.

c) On the Education System

- Invest in Teacher Development and Motivation: Municipalities like Varkala and Attingal should prioritise regular in-service training, mentoring systems, and career growth paths to elevate faculty quality. Aligning incentives with performance and fostering a professional culture is essential to transform school ecosystems.
- b. Enhance Digital and Physical Infrastructure: Given the centrality of digital tools and sanitation in modern schooling, targeted investments are needed in underperforming regions. A state-level infrastructure audit and capex allocation model may be developed to bridge digital and physical gaps equitably.
- Institutionalise Career Guidance and Student Support: The success of Neyyattinkara shows the importance of structured career guidance, critical thinking integration, and student-centric feedback mechanisms. Other ULBs should replicate such models, backed by dedicated guidance counsellors and future-skills modules.
- Strengthen Local Governance and Community Engagement: Collaboration between ULBs, school leadership, and parent bodies must be made more accountable through decentralised planning, monitoring committees, and school development plans with real-time data usage.
- Introduce Performance-Based Budgeting: To address fiscal inefficiencies, municipalities should adopt output-linked budgeting, where fund allocation is tied to learning outcomes, infrastructure utilisation, and

feedback loops from both teachers and students.

7.5 Areas of Further Research

- The present study is a micro-level study that can be extended to the state level
- The Study focused on social infrastructure; physical infrastructure can be included
- The study selected ULBs; Rural Local Bodies, such as panchayaths, can be incorporated to do broader research.
- Service data on the education sector (if accessible) can be incorporated, and conduct DEA in the education sector

7.6 Limitations of this Research

- The present study is a micro-level study, only focusing on the Thiruvananthapuram district and urban local bodies.
- DEA is done only for the Health Sector
- The last 10 years were considered for the study
- Some sets of samples are too small (eg Doctors, Paramedical Staff)

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Questionnaire 1

PERFORMANCE OF SELECTED URBAN LOCAL BODIES IN THIRUVANANTHAPURAM DISTRICT IN KERALA: A STUDY ON SOCIAL INFRASTRUCTURE

Data from the Teachers

(This questionnaire is used to collect data on the above-mentioned research carried out by Mr. Sayooj Kumar.K.P. This questionnaire is framed to assess school efficiency, teaching quality, and infrastructure challenges. The data collected through this questionnaire will be highly confidential and only be used for academic and research purposes.)

Name of the Urban Local Body

- ☐ Thiruvananthapuram Corporation
- ☐ Neyyattinkara Municipality
- ☐ Nedumangad Municipality
- ☐ Attingal Municipality
- ☐ Varkala Municipality

Section 1: General Information

1. The student-teacher ratio in my school is appropriate for effective learning.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neither Agree nor Disagree
   ☐ Agree
   ☐ Strongly Agree
2. I have access to adequate teaching materials and resources.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neither Agree nor Disagree
   ☐ Agree
   ☐ Strongly Agree
3. The school provides enough training and professional development opportunities.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neither Agree nor Disagree
   ☐ Agree
   ☐ Strongly Agree

4. I receive sufficient administrative support for classroom management.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neither Agree nor Disagree
   ☐ Agree
   ☐ Strongly Agree

5. The current curriculum aligns well with student learning needs.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neither Agree nor Disagree
   ☐ Agree
   ☐ Strongly Agree

6. Students' enrolment in this school is better than that of other schools.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neither Agree nor Disagree
   ☐ Agree
   ☐ Strongly Agree

Section 2: Classroom Infrastructure & Facilities

7. Classrooms are well-equipped with necessary infrastructure (blackboards, projectors, furniture, etc.).
   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neither Agree nor Disagree
   ☐ Agree
   ☐ Strongly Agree

8. The school provides adequate internet and technology support for teaching.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neither Agree nor Disagree
   ☐ Agree
   ☐ Strongly Agree

9. The availability of clean drinking water and sanitation facilities is satisfactory.

   ☐ Strongly Disagree

☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

10. The library resources (books, digital materials) are sufficient for students.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

11. The school has proper safety and security measures for students and staff.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

Section 3: Teaching Effectiveness & Workload

12. The number of teaching hours per day is manageable.
☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

13. I can provide individual attention to students who need extra help.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

14. The school provides sufficient non-teaching staff for administrative tasks.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree

☐ Strongly Agree

15. Student discipline issues interfere with teaching effectiveness.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

16. Parental involvement in student learning is adequate.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

Section 4: Student Performance & Learning Outcomes

17. The majority of students are engaged and interested in learning.
☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

18. The dropout rate in my school is low.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

19. Students perform well in standardised examinations.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

20. The school has effective measures to track student academic progress.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

21. I receive timely feedback from school authorities about student learning outcomes.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

Section 5: Financial & Administrative Efficiency

22. The per-student expenditure is sufficient for quality education.
☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

23. The school administration efficiently utilises available funds.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

24. Government grants and financial aid are distributed fairly among schools.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

25. Financial constraints limit the quality of teaching and learning materials.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

26. The school efficiently implements government educational policies.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

Section 6: Teaching Challenges & Recommendations

27. Excessive administrative work affects my teaching time.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

28. The current evaluation and assessment system is effective.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

29. The school has special support programs for students with learning difficulties.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

30. There are adequate digital learning tools available for students.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

31. The school offers extra-curricular activities to support holistic development.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

32. Government policy interventions have improved school efficiency.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

33. The workload on teachers has increased in recent years.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

34. The school administration is responsive to teacher concerns.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

35. My job satisfaction as a teacher is high.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

36. Collaboration with local bodies has improved school efficiency.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

37. The performance appraisal system for teachers is fair and transparent.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

38. The overall education system in urban local body schools is improving.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

39. What policy recommendations would you suggest for improving school efficiency? *(Open-ended)*

Questionnaire 2

PERFORMANCE OF SELECTED URBAN LOCAL BODIES IN THIRUVANANTHAPURAM DISTRICT IN KERALA: A STUDY ON SOCIAL INFRASTRUCTURE

Data from the Students

(This questionnaire is used to collect data on the above-mentioned research carried out by Mr. Sayooj Kumar.K.P. This questionnaire is framed to assess learning experience, school infrastructure, and quality of teaching. The data collected through this questionnaire will be highly confidential and only be used for academic and research purposes.)

Name of the Urban Local Body

- ☐ Thiruvananthapuram Corporation
- ☐ Neyyattinkara Municipality
- ☐ Nedumangad Municipality
- ☐ Attingal Municipality
- ☐ Varkala Municipality

Section 1: General Information about the School

1. The school environment is safe and secure.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neither Agree nor Disagree
   ☐ Agree
   ☐ Strongly Agree

2. The school has well-maintained classrooms and furniture.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neither Agree nor Disagree
   ☐ Agree
   ☐ Strongly Agree

3. The school has adequate drinking water and clean sanitation facilities.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neither Agree nor Disagree
   ☐ Agree
   ☐ Strongly Agree

4. The school provides enough books and learning materials.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neither Agree nor Disagree
   ☐ Agree
   ☐ Strongly Agree

5. The library has sufficient resources for my studies.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neither Agree nor Disagree
   ☐ Agree
   ☐ Strongly Agree

Section 2: Teaching Quality & Classroom Engagement

6. Teachers explain topics clearly and effectively.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neither Agree nor Disagree
   ☐ Agree
   ☐ Strongly Agree

7. Teachers encourage students to ask questions and participate in class.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neither Agree nor Disagree
   ☐ Agree
   ☐ Strongly Agree

8. Teachers provide timely feedback on assignments and tests.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neither Agree nor Disagree
   ☐ Agree
   ☐ Strongly Agree

9. The teaching methods used in the school make learning enjoyable.

   ☐ Strongly Disagree
   ☐ Disagree
   ☐ Neither Agree nor Disagree
   ☐ Agree
   ☐ Strongly Agree

10. I feel comfortable approaching teachers for academic help.

    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree

Section 3: Learning Experience & Academic Performance

11. The school provides a good learning environment.

    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree

12. The subjects taught are interesting and useful.

    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree

13. I have enough time to complete assignments and homework.

    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree

14. The school encourages students to think critically and solve problems.

    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree

Section 4: Student Support & Extra-Curricular Activities

16. The school offers extra-curricular activities such as sports, arts, and music.

    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree

17. There are programs in school to support students who are struggling academically.

    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree

18. The school has good computer and internet facilities for students.

    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree

19. Teachers provide guidance for career and higher education choices.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

20. The school organises field trips and practical learning experiences.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

Section 5: School Administration & Management

21. The school provides fair and transparent grading in exams.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

22. The school rules and policies are clear and fair.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

23. The school efficiently manages student complaints and issues.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

24. The school takes student feedback seriously.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

Section 6: School Infrastructure & Digital Learning

25. There are enough computers and technology tools available for learning.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

26. The school provides adequate support for students with disabilities.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

27. The school offers digital or smart-class learning.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

Section 7: Student Challenges & Recommendations

31. The distance from home to school is convenient.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

32. I feel motivated to attend school regularly.

    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree
33. I do not feel any discrimination in my school.

    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree
34. My teachers care about my academic progress.

    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree
35. The exams and tests are fair and relevant.

    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree
36. My school prepares me well for higher education and job opportunities.

    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree
37. I am satisfied with my overall school experience.

    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree

38. What suggestions do you have to improve your school experience? *(Open-ended)*

Questionnaire 3

PERFORMANCE OF SELECTED URBAN LOCAL BODIES IN THIRUVANANTHAPURAM DISTRICT IN KERALA: A STUDY ON SOCIAL INFRASTRUCTURE

Data from the Doctors/Nurses/ Paramedical Staff

(This questionnaire is used to collect data on the above-mentioned research carried out by Mr. Sayooj Kumar.K.P. The data collected through this questionnaire will be highly confidential and only be used for academic and research purposes.)

Section 1: General Information

1. Name of the Urban Local Body

   ☐ Thiruvananthapuram Corporation
   ☐ Neyyattinkara Municipality
   ☐ Nedumangad Municipality
   ☐ Attingal Municipality
   ☐ Varkala Municipality

2. Type of Hospital

   ☐ Medical College
   ☐ District Hospital
   ☐ Taluk Hospital

3. Respondent

   ☐ Doctor
   ☐ Nurse
   ☐ Paramedical Staff

Section 2: Governance & Management Efficiency

1. The hospital has a well-functioning management committee.

   ☐ Strongly Disagree

   ☐ Disagree

   ☐ Neither Agree nor Disagree

   ☐ Agree

☐ Strongly Agree

2. Hospital performance reviews are conducted regularly.

   ☐ Strongly Disagree

   ☐ Disagree

   ☐ Neither Agree nor Disagree

   ☐ Agree

   ☐ Strongly Agree

3. The hospital uses effective performance monitoring tools.

   ☐ Strongly Disagree

   ☐ Disagree

   ☐ Neither Agree nor Disagree

   ☐ Agree

   ☐ Strongly Agree

4. Staff receive adequate training for skill development.

   ☐ Strongly Disagree

   ☐ Disagree

   ☐ Neither Agree nor Disagree

   ☐ Agree

   ☐ Strongly Agree

5. The hospital has a standardised system for recording and tracking patient data.

   ☐ Strongly Disagree

   ☐ Disagree

   ☐ Neither Agree nor Disagree

   ☐ Agree

   ☐ Strongly Agree

6. The hospital collaborates with NGOs for healthcare service improvements.

   ☐ Strongly Disagree

   ☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

7. Patient records are effectively digitalized.

   ☐ Strongly Disagree

   ☐ Disagree

   ☐ Neither Agree nor Disagree

   ☐ Agree

   ☐ Strongly Agree

8. The hospital conducts surveys to assess patient satisfaction.

   ☐ Strongly Disagree

   ☐ Disagree

   ☐ Neither Agree nor Disagree

   ☐ Agree

   ☐ Strongly Agree

Section 3: Input Variables - Resources & Infrastructure

9. The hospital has an adequate number of doctors to meet patient needs.

   ☐ Strongly Disagree

   ☐ Disagree

   ☐ Neither Agree nor Disagree

   ☐ Agree

   ☐ Strongly Agree

10. The availability of nurses in the hospital is sufficient to ensure quality patient care.

    ☐ Strongly Disagree

    ☐ Disagree

    ☐ Neither Agree nor Disagree

    ☐ Agree

☐ Strongly Agree

11. The number of paramedical staff is sufficient to support hospital operations.
    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree
12. The doctor-to-patient ratio in the hospital is within acceptable limits.
    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree
13. The hospital has an adequate number of Intensive Care Unit (ICU) beds.
    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree
14. The availability of essential medical equipment (MRI, CT scan, ventilators, etc.) meets the hospital's requirements.
    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree
15. The hospital maintains a reliable and sufficient supply of essential drugs.
    ☐ Strongly Disagree
    ☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

16. There is adequate supply of Medicine and medical pieces of equipment

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

17. The hospital's operational expenditure is sufficient to ensure smooth functioning.

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

Section 4: Output Variables - Service Delivery & Performance

18. The hospital effectively treats a high number of patients annually.

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

19. The hospital's mortality rate is within an acceptable range for its category.

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

20. Patients experience minimal waiting times in the Outpatient Department (OPD).

    ☐ Strongly Disagree

    ☐ Disagree

    ☐ Neither Agree nor Disagree

    ☐ Agree

    ☐ Strongly Agree

21. The hospital maintains an optimal bed occupancy rate.

    ☐ Strongly Disagree

    ☐ Disagree

    ☐ Neither Agree nor Disagree

    ☐ Agree

    ☐ Strongly Agree

22. Patient satisfaction is regularly monitored and acted upon for service improvements.

    ☐ Strongly Disagree

    ☐ Disagree

    ☐ Neither Agree nor Disagree

    ☐ Agree

    ☐ Strongly Agree

23. A significant percentage of admitted patients are discharged within the expected recovery period.

    ☐ Strongly Disagree

    ☐ Disagree

    ☐ Neither Agree nor Disagree

    ☐ Agree

    ☐ Strongly Agree

24. The hospital has well-defined protocols to ensure high-quality medical care.

    ☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

Section 5: Financial & Efficiency Indicators

25. The hospital receives sufficient and timely financial grants from the government.
    ☐ Strongly Disagree

    ☐ Disagree

    ☐ Neither Agree nor Disagree

    ☐ Agree

    ☐ Strongly Agree

26. The major sources of funding for the hospital are stable and sustainable.

    ☐ Strongly Disagree

    ☐ Disagree

    ☐ Neither Agree nor Disagree

    ☐ Agree

    ☐ Strongly Agree

27. A reasonable percentage of the hospital's annual budget is allocated to infrastructure development.

    ☐ Strongly Disagree

    ☐ Disagree

    ☐ Neither Agree nor Disagree

    ☐ Agree

    ☐ Strongly Agree

28. The hospital effectively manages costs per treatment to ensure financial efficiency.

    ☐ Strongly Disagree

    ☐ Disagree

    ☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

29. The hospital has not faced major budget cuts in the last five years.

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

30. Financial constraints do not significantly impact the hospital's service delivery.

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

31. Overall, the hospital operates efficiently.

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

32. Current policies are effective in ensuring healthcare service efficiency.

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

Questionnaire 4

PERFORMANCE OF SELECTED URBAN LOCAL BODIES IN THIRUVANANTHAPURAM DISTRICT IN KERALA: A STUDY ON SOCIAL INFRASTRUCTURE

Data from Patients/Bystanders

(This questionnaire is used to collect data on the above-mentioned research carried out by Mr. Sayooj Kumar.K.P. It is designed to assess patient experience, service delivery efficiency, and satisfaction levels. The data collected through this questionnaire will be highly confidential and only be used for academic and research purposes.)

Section 1: General Information

1. Name of the Urban Local Body

   ☐ Thiruvananthapuram Corporation
   ☐ Neyyattinkara Municipality
   ☐ Nedumangad Municipality
   ☐ Attingal Municipality
   ☐ Varkala Municipality

2. Type of Hospital

   ☐ Medical College
   ☐ District Hospital
   ☐ Taluk Hospital

3. Respondent

   ☐ Patient
   ☐ Bystander

4. Age of the patient:

5. Gender:

   ☐ Male
   ☐ Female
   ☐ Other

6. Occupation of the patient:

- ☐ Government Employee
- ☐ Private Sector Employee
- ☐ Self-Employed
- ☐ Daily Wage Worker
- ☐ Student
- ☐ Homemaker
- ☐ Retired
- ☐ Unemployed
- ☐ Others

6.a If others, specify

7. Reason for a hospital visit:
   - ☐ OPD
   - ☐ Inpatient
   - ☐ Emergency
8. Have you visited this hospital before?

   Yes ☐ No ☐

9. How far is the hospital from your residence?

   - ☐ Less than 5km
   - ☐ 5km- 10 km
   - ☐ 10-20km
   - ☐ 20km-40 km
   - ☐ 40km-70 km
   - ☐ More than 70 km

Section 2: Healthcare Service Accessibility

7. How long did you have to wait to see a doctor?

☐ Less than 30 Minutes

☐ 30 Minutes – 1 Hour

☐ 1 Hour -1.30 Hours

☐ 1.30 Hours – 2 Hours

☐ Above 2 Hours

8. The waiting time to see a doctor was reasonable.
    - ☐ Strongly Disagree
    - ☐ Disagree
    - ☐ Neither Agree nor Disagree
    - ☐ Agree
    - ☐ Strongly Agree
9. I was properly informed about my diagnosis and treatment plan.
    - ☐ Strongly Disagree
    - ☐ Disagree
    - ☐ Neither Agree nor Disagree
    - ☐ Agree
    - ☐ Strongly Agree
10. The hospital admission process was smooth and hassle-free.
    - ☐ Strongly Disagree
    - ☐ Disagree
    - ☐ Neither Agree nor Disagree
    - ☐ Agree
    - ☐ Strongly Agree
11. I received all prescribed medicines from the hospital.
    - ☐ Strongly Disagree
    - ☐ Disagree
    - ☐ Neither Agree nor Disagree
    - ☐ Agree
    - ☐ Strongly Agree
12. I did not experience a shortage of essential medicines during treatment.
    - ☐ Strongly Disagree
    - ☐ Disagree
    - ☐ Neither Agree nor Disagree
    - ☐ Agree

☐ Strongly Agree

13. I was not charged any additional fees apart from the prescribed charges.
    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree

Section 3: Quality of Treatment & Hospital Facilities

14. The hospital maintains good cleanliness and hygiene.
    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree
15. I felt safe and comfortable during my hospital stay.
    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree
16. The doctors and nurses were polite and professional.
    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree
17. The hospital staff were responsive to my needs.
    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree
18. I did not experience any unnecessary delays in receiving treatment.
    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree

19. There were enough doctors and nurses available for patient care.
    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree
20. The food and nutrition services provided were satisfactory.
    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree
21. The hospital had sufficient seating and waiting areas for bystanders.
    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree

Section 4: Patient Satisfaction and Outcomes

22. I was satisfied with the overall treatment I received.
    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree
23. I recovered within the expected time frame.
    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree
24. The hospital's emergency services were efficient.
    ☐ Strongly Disagree
    ☐ Disagree
    ☐ Neither Agree nor Disagree
    ☐ Agree
    ☐ Strongly Agree
25. I was given clear and proper discharge instructions.
    ☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

26. I would recommend this hospital to others.

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

27. I did not experience any discrimination or unfair treatment.

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

28. Follow-up appointments and post discharge care were well managed

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

Section 5: Hospital Efficiency & Suggestions

29. The hospital has sufficient medical equipment for patient care.

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

30. I did not face difficulty in getting an appointment with a doctor.

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

31. The hospital's ambulance services were efficient.

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

32. Medicines were always available in the hospital pharmacy.

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

33. The hospital should improve its service delivery.

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

34. I did not face any difficulties in understanding medical instructions.

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

35. Medicines were always available in the hospital pharmacy

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

36. The hospital has a complaint redressal system that is easy to access.

☐ Strongly Disagree

☐ Disagree

☐ Neither Agree nor Disagree

☐ Agree

☐ Strongly Agree

Questionnaire 5

PERFORMANCE OF SELECTED URBAN LOCAL BODIES IN THIRUVANANTHAPURAM DISTRICT IN KERALA: A STUDY ON SOCIAL INFRASTRUCTURE

Data from the Superintendent/Administrator

(This questionnaire is used to collect data on the above-mentioned research carried out by Mr. Sayooj Kumar.K.P. The data collected through this questionnaire will be highly confidential and only be used for academic and research purposes.)

Section 1: General Information

1. Name of the Urban Local Body

   ☐ Thiruvananthapuram Corporation
   ☐ Neyyattinkara Municipality
   ☐ Nedumangad Municipality
   ☐ Attingal Municipality
   ☐ Varkala Municipality

2. Type of Hospital

   ☐ Medical College
   ☐ District Hospital
   ☐ Taluk Hospital

3. Year of Establishment:

4. Data on Staffs

Year	Total No. of Doctors		Total No. of Nurses		Other Staffs	
	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary
2014						
2015						
2016						
2017						
2018						
2019						
2020						
2021						
2022						
2023						
2024						

5. Does your hospital provide specialised healthcare services?

Yes ☐ No ☐

	No. of Patients										
Specialised Health care serves	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024

5.b) If No, why?

6. What is the average patient footfall per day?

7. Data on Basic Infrastructure

Year	No. of Rooms		No. of Beds	No. of Toilet	No. of Labs	No. of Counters		
	For Patient	Doctors				Ticket	Medicine	Others
2014								
2015								
2016								
2017								
2018								
2019								
2020								
2021								
2022								
2023								
2024								

8. Data on Equipment and Necessities (Mention the numbers available)

Year	No. of ICU Beds	MRI Scanner	CT scan	Ventilators	X-ray Machine	Dialysis Machines	Others (Specify)		
2014									
2015									
2016									
2017									
2018									
2019									
2020									
2021									
2022									
2023									
2024									

9. Data on Equipment and Necessities in working condition(Mention the numbers)

Year	No. of ICU Beds	MRI Scanner	CT scan	Ventilators	X-ray Machine	Dialysis Machines	Others (Specify)		
2014									
2015									
2016									
2017									
2018									
2019									

2020									
2021									
2022									
2023									
2024									

10. Does the hospital have an adequate supply of essential drugs?

☐ Yes

☐ No

11. How often do you face shortages of medicines or medical supplies?

☐ Daily ☐ Quarterly

☐ Weekly ☐ Half Yearly

☐ Fortnightly ☐ Yearly

☐ Monthly ☐ Not at all

12. What is the hospital's annual operational expenditure?

Year	annual operational expenditure
2014	
2015	
2016	
2017	
2018	
2019	
2020	
2021	
2022	
2023	
2024	

13. Total number of patients treated in the past 10 years (2014-2024):

Year	No. of Inpatients	No. of Outpatients
2014		
2015		
2016		
2017		
2018		
2019		
2020		
2021		

2022		
2023		
2024		

14. What is the hospital's mortality rate?

Year	Mortality Rate
2014	
2015	
2016	
2017	
2018	
2019	
2020	
2021	
2022	
2023	
2024	

15. Average waiting time for patients in the Out Patient Department (OPD):

Year	waiting time for patients in the Out Patient Department (OPD)					
	Less than 30 Minutes	30 Minutes – 1 Hour	1 Hour -1.30 Hours	1.30 Hours – 2 Hours	2 hours – 3 Hours	More than 3 hours
2014						
2015						
2016						
2017						
2018						
2019						
2020						
2021						
2022						
2023						
2024						

16. Average hospital bed occupancy rate:

17. Does your hospital track patient satisfaction levels?

☐ Yes

☐ No

21.a) If yes, what is the most common feedback patients provide?

18. What percentage of admitted patients are discharged within the expected recovery period?

Year	Percent
2014	
2015	
2016	
2017	
2018	
2019	
2020	
2021	
2022	
2023	
2024	

19. How do you ensure the quality of medical care provided?

20. What are the major sources of funding for your hospital?

21. Does the hospital receive regular financial grants from the government?

22. What percentage of the hospital's annual budget is allocated to infrastructure development?

23. How does the hospital manage the cost per treatment?

24. Have there been budget cuts in the last five years?

    ☐ Yes

    ☐ No

25. How frequently does the hospital face financial constraints in service delivery?