

Training Need Assessment for Virtual Training on Urban Governance for Municipal Engineers

*Prof. K.K. Pandey
Dr. Sachin Chowdhry*



Conducted by



**Centre for Urban Studies
Indian Institute of Public Administration
February, 2022**

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PREFACE

This training Need Assessment (TNA) presents a draft structure for a three-day course on virtual training on urban governance for municipal engineers in Tamil Nadu (TN). The new normal of Covid 19 also prefers virtual mode to reach out to trainees in the current limitations on travel, protocol on social distancing and other measures. The TNA also matches the focus of government of India's Mission KarmaYogi with respect to distance learning based on competency assessment to improve performance of trainees. The TNA also includes engineers' perception as a proxy to benchmark efficiency of services and identify scope of improvement in the functional performance of municipal engineers.

The exposure on urban governance is particularly significant in the light of fairly diversified role of municipal engineers which includes (i) community contacting (ii) equitable distribution of services, (iii) preparation of financial estimates and investment plans, (iv) efficient delivery of services and infrastructure, (v) effective interaction with private sector and (vi) consolidation of powers, tenure and competency. The field survey of engineers and data collected from Commissionerate of Municipal Administration (CMA) duly cover these aspects for further analyses and conclusion. The emerging focus on urban governance and developments in the sector are also considered to prepare this document. Finally, the TNA presents a training agenda for CMA and structure for a three-day course for wider adaptation and development of course accordingly.

We are especially thankful to CMA, Government of Tamil Nadu for entrusting this task to IIPA and provide pointed information on state level datasheet and facilitate survey of a sample of engineers on Google form. Our special thanks are also due to a select group of engineers who provided requisite information for detailed analyses on the subject.

A small team of faculty members consisting of Professor K.K. Pandey, Coordinator, Centre for Urban Studies of IIPA and Dr. Sachin Chowdhry, Associate Professor has prepared this TNA report. I also take this opportunity to thank Shri Anand Singh, Research Assistant and Shri Vikas who have provided very useful support in the data collection, analysis and documentation.

I am sure that the TNA will help CMA to deliver a systematic online/virtual training on urban governance for municipal engineers in the state. At the same time, the document is equally important for adaptation at interstate level in India and as resource material for academicians and practitioners in the field.

February 10, 2022

S.N. Tripathi
Director General, IIPA,
New Delhi

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EXECUTIVE SUMMARY

1. This TNA (Training Needs Assessment) report on virtual training on Urban Governance for municipal engineers in Tamil Nadu (TN) has been prepared at the instance of Commissionerate of Municipal Administration (CMA), Government of TN. TNA has been conducted using inputs from CMA and a survey of municipal engineers (Assistant Engineers, Assistant Executive Engineers, Executive Engineers, City Engineer/Municipal Engineer, Regional Engineer and Chief Engineer). TNA also cover secondary information from relevant sources and current sectoral focus (the budget of Government of India, report of XV Finance Commission and UN Sustainable Development Goals).

2. The main outcome of the report is in the form of a training agenda for virtual training on municipal governance covering a policy level framework for capacity building and virtual training and draft structure of the programme for adaptation by respective training entities.

3. The report specifically brings out training and capacity building agenda for CMA and a draft structure for a three day course based on (i) Role of Municipal Engineers, (ii) Multiple agencies and stakeholders, (iii) Work Assignment and Performance, (iv) Efficiency Levels of Services, (v) Sectoral Focus, (vi) Incidence and Scope of Capacity building, (vii) Competency Framework and Gap, (viii) Training/Capacity Building Agenda for CMA, (ix) Draft Structure of Three-day Virtual Course.

Role of Municipal Engineers

4. The study reaffirms the fairly diversified nature of role to municipal engineers which covers a cross section of activities such as : (i) Project formulation, (ii) Execution of work, (iii) maintenance of municipal services, (iv) proper maintenance and accounting of municipal works and works from the public works department, (v) supervision of engineering works (vi) verification of specifications or standards of roads and bridges and (vii) powers to technical sanction, publicity of tenders, contract design containing rates, extension, measurement of work and inspection of works etc.

5. Main functions handled by the two types of ULBs (Municipal Corporations and Municipalities) are (i) municipal water supply, (ii) sewages, (iii) roads, (iv) flyover/overbridges (within city), (v) municipal buildings/ Assets, (vi) stadiums/playground, (vii) crematorium, (viii) lakes/tanks and (ix) parks and open spaces. In addition to the technical aspects in the planning, finance and delivery of municipal services across the households in the ULBs, the role of engineers also involve (i) financial planning and models to arrange investment and budgetary exercise (ii) Monitoring of contractors (iii) Community contacting i.e. grievance redressal and community support for services (iv) upkeep of municipal assets.

Multiple agencies and stakeholders

6. A proper coordination and communication among multiple agencies/stakeholders is an important task for engineers to effectively manage municipal services. The respective ULBs are the nodal agencies for O&M of capital works on all the nine items (except for tanks and lakes where PWD is involved for capital works). In addition, state level line agencies and other stakeholders are also involved to provide specific support. These include (i) Tamil Nadu Water Supply and Drainage Board (TWADB), (ii) TWFIDCO (Tamil Nadu Urban Finance and Infrastructure Corporation), (iii) Private Sector, (iv) Community etc.

Work Assignment and Performance

7. Job satisfaction on role as above and the work assigned among engineers reaffirms the existence of encouraging and congenial environment created by ULBs and CMA. It is important to note that 60 per cent respondents are satisfied with the current assignment in the top slab (80-100%). Yet, 39 per cent appear in the lower slabs which indicate the need for additional measures to improve job satisfaction. Involvement in the ward committees, interaction with juniors/seniors, elected leaders, citizen, mode of interaction (social media –WhatsApp group) are important component to show performance on work assignment. It is striking to note:

- (i) Around 71 per cent respondents are involved in ward committee activities. Considering the two third size of AE/AEE (who interact directly at grassroots level) in

the sample, this seems reasonable. Yet, seniors (city engineer/executive engineer/regional engineer) may also be regularly updated through necessary reporting channels and follow-up. It may be added in the work agenda of engineers.

- (ii) Monitoring by seniors show that 50 per cent engineers fall in the first four categories (20 to 80%) of satisfaction level and need additional measures to strengthen congenial environment. Similarly, the scope to improve cooperation from juniors is also significantly high. Accordingly, interpersonal communication needs further attention, although the share of top slab of satisfaction is fairly good.
- (iii) The reporting of grievances by community is modest/fairly low being 44 per engineer in December 2020. Second, the community at grass-root level needs handholding to come forward with their grievances
- (iv) The interaction with elected leaders is encouraging to 45 per cent of respondents whereas 55 per cent feel it to be OK. Accordingly, the synergy with elected leaders needs due correction.
- (v) It is also important that level of interaction with citizen is either encouraging (53%) or OK (47%) and the incidence of discouraging is not reported. This reaffirms the strong sense of local democracy and downward accountability in TN.
- (vi) In the current phase of time space collapse, social media is used intensively. The WhatsApp groups are used for both intra-departmental communication and interaction with community. The engineers are administrator of 123 WhatsApp groups. In addition, they are also member of 233 WhatsApp groups with community.

Efficiency Levels of Services

8. ULBs in TN have a frame-work (as a bench mark for assessment is taken as top slab as a proxy to benchmark in practical term) for wider improvement and potential adaptation. The top slab (80-100%) of efficiency varies from 21 per cent in Sewage and PPP

arrangements to 34 per cent for Community Halls and Street lighting. Therefore, efficiency improvement in services is essential and also involves decisive role of municipal engineers. It is particularly important to note that:

- (i) Only 29 per cent engineers feel that efficiency in water supply O&M is in the top slab (80-100%).
- (ii) Only 24 per cent respondents indicate the efficiency of roads in the top slab (80-100%). Yet, efforts are needed to improve roads and related services to achieve desired levels of standards
- (iii) Maintenance of water bodies also needs further attention. More than two third engineers feel that it is below the top level of efficiency. Tamil Nadu being water scarcity state needs special attention. Yet, the ULBs in the top slab also show the way forward which needs to be adopted in a wider context.
- (iv) Municipal assets and buildings also need intensive efforts towards efficiency improvement with only 24 per cent in the top slab (80-100%).
- (v) Municipal Parks, Playgrounds and Open Spaces also deserve special attention with only 24 per cent engineers falling in the range of 80-100 per cent.
- (vi) Value for money, efficiency and equity emphasise on Public Private Partnerships with nearly 80 per cent Engineers feel scope for further strengthening of PPP among various services. At the same time, 'equity' involving designing of contract and follow up involves intensive role of municipal engineers.
- (vii) Community participation in the delivery of services is also lagging behind the desirable standards with 32 per cent respondents feels it to be in the top slab. This also indicates scope to mobilise local elasticity in the form of cash, kind and management responsibility.

Sectoral Focus

9. The current budget, Report of XV Finance Commission and UN Sustainable Development Goals have created a positive environment for wider attention on municipal services. This focus will

at ULB level involve a larger role of municipal engineers as a focal point for necessary implementation.

10. The budget FY:22 of Government of India has placed special focus along with substantial increase in allocation on SBM-02 (Swachh Bharat Mission), Jal Jeevan Mission including integrated approach to water management, continuation of Smart Cities Mission and AMRUT (Atal Mission for Rejuvenation and Urban Transformation). A quantum jump in allocation and scope of work under this focus, which also involves state as intermediary link, will require a relook and strengthening on the role of engineers

11. Similarly, many United Nations Sustainable Development Goals (UNSDGs) also have focus on one or other aspects of municipal services particularly in the form of Goal 3 – Good Health and Well Being, Goal 6 – Water and Sanitation, Goal 7 – Affordable and Clean Energy, UNSDG 10 – Reduced Inequalities, UNSDG 11 – Sustainable Cities and communities, Goal 12 – Responsible Consumption and Production, and Goal 13 – Climate Action

Incidence and Scope of Capacity building

12. The incidence of training is fairly low and needs a larger coverage and updation of engineers as per changes in the different aspects of know-how and do-how. It is important to note that only 18 per cent municipal engineers among municipal corporations and around eight per cent among municipalities are covered per annum under the various training programmes. On the whole around 12 per cent engineers per annum (out of 610 engineers) get a chance to attend training programmes. Study visits conducted by engineers included only outside visits in 2019-20 in three batches. Accordingly, inter-state/domestic study visits need to be suitably added in the agenda for training of the municipal engineers.

13. The engineers need special exposure and ways and means to improve inter-agency coordination, more productive use of working hours (which are already long enough) and innovative ways on interpersonal relations, partnerships, budgeting etc under various training programmes and study visits within and outside states in India. Further, as indicated in the National Training Policy a dedicated allocation of 2.5 percent from salary budget should be made for capacity building activities.

Competency Framework and Gap

14. The competency framework for engineers should focus on (i) Ethos (people first), (ii) Ethics (taking accountability), (iii) Equity (consensus, consultation and delegation), and (iv) Efficiency (result-oriented communication and consensus building) as determined in the UNDP and DoPT study. This also coincides with the norms of good governance namely Decentralisation, Accountability, Transparency, Equity, Efficiency and partnership. The common features of the two set of norms give emphases on interpersonal and inter-personnel relationships, communication, team building, outreach, empowerment information development/dissemination and downward accountability.

15. In this regard, a typology of areas of competency gap as identified by the engineers in Urban Governance are fairly relevant for capacity building. These are: (1) Management and Finance, (2) Project Management, (3) Energy Savings, (4) Solid Waste Management and Management of Faecal Sludge, (5) Maintenance and Management Techniques, (6) Levelling and preparation of sketches and volume of UGSS, Water Supply, (7) Advanced Waste Water Treatment Technology including Hybrid Annuity Model (HAM), and (8) Advanced Construction Techniques - use of pre-fab technology, Green building etc.

16. In addition, specific areas of attention include Water conservation initiatives, Water harvesting proposals and follow up, Road safety measures – pollution, footpath, street infrastructure, plantation, storm water drains. , Street Lighting – use of non-conventional sources (community, civil society and industry/business), Budget Estimates – Realistic Calculation, Revision of Budget – Realistic Calculation, Participatory budgeting – local/ward level potential, Monitoring of Contractors – payment to Contractor, Project Management – Cost and time overrun.

Training/Capacity Building Agenda for CMA

17. On the basis of current role of engineers/ work assignment, efficiency levels of services, incidence of capacity building, sectoral focus and competency norms and framework, Study suggests a twelve-point training agenda for CMA which includes:

- (i) Training for municipal engineers on urban governance should be a regular feature.

- (ii) A competency frame-work should be developed giving due regard to interpersonal relationship, outreach (within communities), clarity of role (suitable elaboration), P2P learning and feedback.
- (iii) Tenure should be rationalised with adaptation of transfer policy
- (iv) Workload (which is also linked with incentives promotion and facilitation should include team building, performance benchmark awards and rewards. Further, the requirements of engineers should be worked out keeping in view the scope of work and current strength.
- (v) State should initiate 'engineer of the month' associated with documentation and dissemination of tasks performed and achievements gained.
- (vi) New normal protocol should be adopted to formalise virtual training and sharing of information on a regular basis.
- (vii) Study visit particularly within the states and inter-state level should also be integral part of training and P2P learning.
- (viii) CMA should also develop guidelines, checklists, SOPs (Standard Operating Procedures) to suitably supplement training process and adaptation at local level.
- (ix) On the job training should also be initiated with (a) short-term deployment of engineers from better off/innovative cases to other towns and (ii) short-term placement of select groups of engineers to better of towns.
- (x) Necessary budget as earmarked by DoPT document of National Training Strategy (2.5% of salary budget) should be allocated.
- (xi) Assignment of roles and responsibilities to develop a suitable training plan within CMA, states institute of municipal training at Coimbatore and other entities as may be made
- (xii) Develop a cadre of Engineering Service for Municipal Corporation or merge the two cadres into one.

Draft Structure of Three-day Virtual Course

18. Finally, the TNA provides a draft structure for three-day virtual course for municipal engineers giving specific objectives to build urban governance capacities in a participatory manner along with contents and session –wise details for suitable adaptation by respective training entity as decided by CMA. Sessions to be designed, developed and delivered are as follow:

1. Introduction, Course Objectives, Competency and Good Governance Norms and adaptation for Municipal Engineers
2. Interpersonal Relationship, Team Building and Communication
3. Global and National Urbanisation, Urban Scenario in Tamil Nadu and Role of Municipal Engineers
4. The Main Exercise, Competency Assessment and Gap, Indicators and Follow-up agenda for Municipal Engineers
5. Planning for Services, Procurement, Development and Monitoring of Contract
6. Community Interface – Modes and Modalities
7. Efficiency Improvement in the services – Benchmarking and Case Studies: Water & Sewerage/Drainage
8. Municipal Solid waste/Roads and Related Services- Benchmarking and case studies
9. Municipal Building and Assets-Upkeep and Revenue model
10. Budgeting and Follow-up Estimation, Tools and Techniques for participatory and realistic estimation
11. Downward Accountability, Modalities and Case Studies
12. Presentation of Main Exercise and Take-Home Points and Valediction

INTRODUCTION

The Background

This TNA report on Urban Governance for municipal engineers has been prepared at the instance of Commissionerate of Municipal Administration (CMA), Government of Tamil Nadu. Municipal Engineers in Tamil Nadu (TN) as elsewhere, play critical role to deliver municipal services and infrastructure to a cross section of urban population in the state. They not only maintain and monitor technical aspects of services but also perform investment assessment, procurement, make fiscal assumptions/estimates for upkeep of services and grievance redressal among various urban local bodies. The exposure on urban governance to municipal engineers is crucial for their strategic role in the delivery of municipal services particularly with regard to local democracy and downward accountability.

Tamil Nadu has already achieved status of urban majority society and has many firsts to its credit on urban sector initiatives¹. Creation of TNUDF (Tamil Nadu Urban Development Fund), TUFIDCO (Tamil Nadu Urban Finance and Infrastructure Development Corporation Limited), Karur Toll road, Madurai bypass, Alandur Sewage Treatment initiative and introduction of Double Entry Accounting System (DEAS) among ULBs are first of its kind in the country. Therefore, consistency in the urban service excellence becomes important for the state and for rest of the county to learn from TN experience as a model to follow. Accordingly, TNA for engineers is integral part of capacity building of urban sector in Tamil Nadu.

In addition, the virtual training has emerged as a new normal in the post COVID-19 era. It will continue in its current form due to its benefits in terms of time, space and emergence of public policies such as capacity building under Mission KarmaYogi (MKY).

¹Training Manual for Course on PPP under TNUDF, HSMI/Hudco, 2002 and information from CMA and State Government.

Objectives

In this context, it becomes imperative to have a systematic TNA to identify areas of capacity building on effective application of urban governance in the role of Municipal Engineers.

This TNA intends to bring together training need of municipal engineers on urban governance taking into account their job responsibilities and competency gap drawn from interaction at grass-root level. The objectives of the TNA, therefore, are:

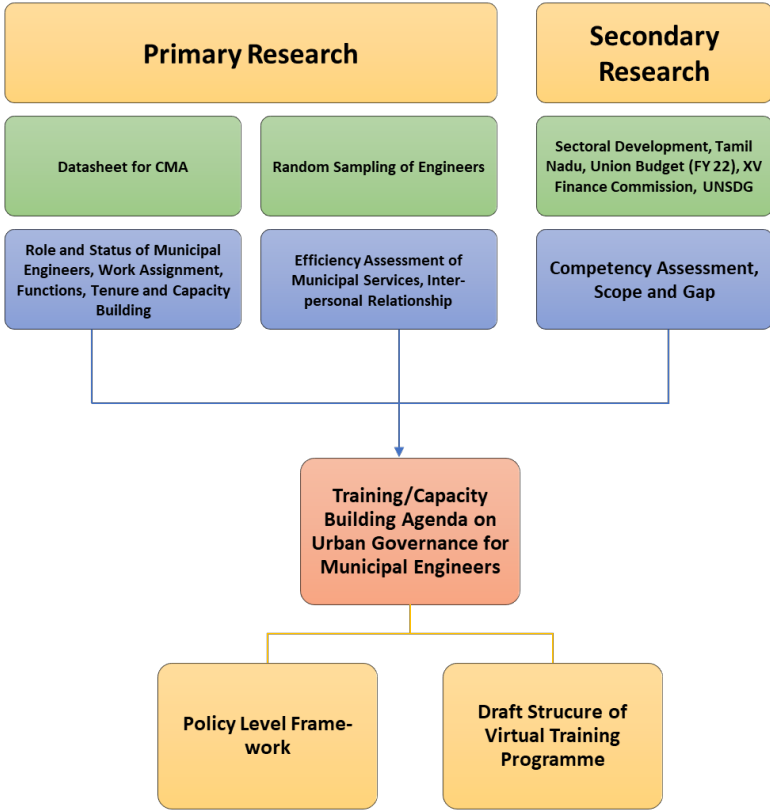
1. Identify Role of Municipal Engineers in Urban Governance in Tamil Nadu.
2. Assess Competency Gap among the Municipal Engineers in the state.
3. Identify measures to build competencies through virtual training and related activities.
4. Prepare a training agenda for municipal engineers in Tamil Nadu including a draft structure for a virtual course for wider adaptation.

Methodology

TNA has been done in a participatory manner using inputs from Commissionerate of Municipal Administration (CMA) and municipal engineers and secondary information from relevant sources with a particular reference to current sectoral focus from the budget of Govt. of India, report of XV Finance Commission and UN Sustainable Development Goals.

State level questionnaire was designed to collect information on appointment, deployment, inter-personal relationships, role and capacity building of municipal engineers and competency gap of engineers on urban services. (Annexure I).

Further in consultation with CMA a survey of 50 engineers on random basis was done online using Google Form to assess competency gap in the area of urban governance (Annexure II). Of these 50, IIPA received responses from 38 engineers. The information collected in the Google Form covered efficiency assessment, inter-personal relationship, competency gap and emerging focus on role of municipal engineers (Chart 1.1). The survey of select group of engineers also covered their current engagement pertaining to workload,

Chart 1.1: Methodology

communication methods, tasks assigned, role in budgeting, access to skill enhancement, areas lacking expertise etc. The TNA finally presents a training agenda for virtual training on municipal governance for a Virtual Training Programme covering a policy level framework and draft structure of the programme.

The sample included Assistant Engineers, Assistant Executive Engineers and Executive Engineers, Regional Executive Engineers from Municipal Corporations and Municipalities. The sample of respondent engineers accordingly is given in Table 1.1.

Frame-work of Report

This report contains interrelated sections namely (1) Introduction, (2) Role of Engineers, (3) Working Environment and Facilitation,

Table 1.1: Post-wise Engineers Responded to Survey

Position	Number of Employees	Municipal Corporation	Municipality
Assistant Engineer	11	4	7
Assistant Executive Engineer	14	8	6
City Engineer	1	1	0
Executive Engineer	2	2	0
Municipal Engineer	6	1	5
Regional Executive Engineer	4	1	3
All	38	17	21

Source: IIPA Survey of Engineers, 2021

(4) Work Efficiency and Job Satisfaction, (5) Service Efficiency, (6) Current Sectoral Focus, (7) Competency Assessment and Gap, and (8) Training Agenda on Urban Governance for Municipal Engineers in Tamil Nadu. It covers policy focus and structure of training module on virtual training on urban governance for municipal engineers in Tamil Nadu.

ROLE OF MUNICIPAL ENGINEERS IN TAMIL NADU

This section brings together the role of municipal engineers at ULB (Urban Local Body) level in Tamil Nadu with particular reference to their placement, main activities, tenure and work assigned. It is noted that the engineers assume a range of important tasks in ULBs, work under a dual system of transferrable (Municipalities) & non-transferrable (Municipal Corporation) postings and have fairly challenging environment to work.

Placement of Engineers

Each Urban Local Body (ULB) in Tamil Nadu is expected to have a municipal engineer or engineering subordinate in direct charge of works executed by the municipality. There are 610 Municipal Engineers which are deputed among 14 Municipal Corporations (except Chennai), and 121 Municipalities. These are under administrative control of CMA.

As may be seen from Table 2.1, out of 610 municipal engineers in Tamil Nadu, 363 (posted in the municipalities) are transferable whereas 247 from Municipal Corporations are non-transferable. They are deployed under three positions namely Grade I, II and III as per the qualifications. Depending upon size of the town, city engineer, executive engineer, assistant executive engineer and assistant engineer may head the engineering wing of respective ULB.

Main Activities

Works are divided into (a) originals works, and (b) repairs and maintenance. The specification for such works are appended in Annexure-III. The main activities assigned to municipal engineers include:

- (i) Project formulation,

Table 2.1: Distribution of Municipal Engineers in Tamil Nadu (TN)

Post	Status			
	Transferable		Non-transferable	
	Municipal Corporation	Municipalities	Municipal Corporation	Municipalities
Chief Engineer	-	1	-	-
Superintending/ Regional Engineer/	-	5	-	-
City /Municipal Engineer	-	-	5	-
Executive Engineer	-	26	18	-
Assistant Executive Engineer	-	87	43	-
Assistant Engineer	-	164	106	-
Junior Engineer	-	80	75	-
Total	-	363	247	-

Source: Commissionerate of Municipal Administration (CMA), Tamil Nadu

- (ii) Execution of work,
- (iii) Maintenance of water supply, underground sewerage, roads, storm water drains and street lighting,
- (iv) Proper maintenance and accounting of municipal works and from the public works department,
- (v) supervision of engineering works
- (vi) verification of specifications or standards of roads and bridges, and
- (vii) powers to technical sanction, publicity of tenders, contract design containing rates, extension, measurement of work and inspection of works etc.

Work Assignment/Work Load

The workload of engineers is broadly classified into three categories namely

- (i) Planning and execution,
- (ii) procurement related activities, and
- (iii) budgeting and fiscal responsibilities.

Planning and Execution related Workload

Specific workload for respective post of engineers under the categories pertaining to water supply, sewerage, roads, flyover/over bridges, street lighting, municipal buildings, parks & other open spaces etc. as reported by respondents is given in Table 2.2.

Table 2.2: Work Assignment on Planning and Execution of Municipal Works

Assistant Engineer	<ol style="list-style-type: none"> 1. Scrutinize the DPR (Detailed Project Report) and Monitoring all Scheme works carried out by Municipalities under various schemes 2. Supervise Civil works in Municipality as above
Assistant Executive Engineer	<ol style="list-style-type: none"> 1. Preparation of DPR and Estimates 2. Verification of the project and the estimate prepared for the same by the Junior Engineer / Assistant Engineer. 3. Calling of tenders, Evaluation of the Tenders; Monitoring and Verification of the quality of the engineering related works taken up in Zone and measurement entered by the Junior Engineer / Assistant Engineer. 4. Approval for the Water Supply and UGSS (Underground Sewage System) Connections. 5. Verification of the Building Plan approvals, Layout and Plan Approval 6. Maintaining Municipal Assets including school buildings 7. Mechanical & Solid Waste Management
Executive Engineer	<ol style="list-style-type: none"> 1. Issuing of the Planning and Building Permissions, carrying out removal of the encroachments, Monitoring of the Unauthorized Construction 2. Scrutinising the building plans for approval, removal of encroachments, supporting the smart city projects works 3. Monitoring the work done by AE and AEE.
Municipal Engineer/ City Engineers	<ol style="list-style-type: none"> 1. Overall monitoring & planning of Urban Infrastructure Development work 2. Administration & Execution of works under water supply, roads, buildings. 3. Maintenance of Roads, Water Supply, Drainage, Street Light and all Basic amenities

(contd.)

	<ol style="list-style-type: none"> 4. Finalisation of DPR and supervising the Construction and maintenance of infrastructures like (a) Roads, (b) drains, (c) water supply system, (d) street lights, (e) construction, (f) Maintenance of underground drainage system, (g) construction and maintenance of all buildings owned by urban local body, (h) Bus stand, (i) scrutinising the bills with the DPR and tender documents, (j) Technical support to all other sections in municipality (if required) etc. 5. Supervising the team of officers and staffs related and carrying out all the instructions given by the higher authorities with the help of Engineering section team.
Regional Executive Engineer	<ol style="list-style-type: none"> 1. Monitoring all Engineering works in the Region 2. Monitoring Engineering works 3. Supervising and Monitoring the Engineering works within the Region/ Municipalities 4. Technical sanction & Monitoring the works in all ULBS in the respective Region

Source: IIPA Survey of Engineers, 2021

Procurement related Workload

Table 2.3 indicates the prominent role of municipal engineers in the procurement related activities. As may be seen, the work is done under a natural and systematic flow of assignments covering AE, AEE, EE and ME/CE.

Budgeting and Fiscal Responsibilities

The work pertaining to budgeting and fiscal responsibilities is equally important and involves all the engineers at different levels of expertise. Specification of work is given in Table 2.4.

Assessment of Work Assignment/Load

It is evident from Table 2.2, 2.3 and 2.4 that municipal engineers play a key role in various aspects of urban services that goes beyond technical aspects only. The planning, execution, processes, estimates, handling audit etc. are significantly important. Therefore, participation, transparency, accountability, equity etc. are fairly relevant to effectively handle work/role assigned to engineers.

Table 2.3: Engineers Work Assignment in Procurement Related Activities

Assistant Engineer	<ol style="list-style-type: none"> 1. (a) Estimating the requirements, (b) Accessing the rates, (c) Quantitative and Quality checking, (d) Recording and arriving the cost for payments, and (e) Utilization 2. Getting Quotation for the required items, Comparing the quotations, preparing estimate & Call for tender 3. Finalizing Tender for least rate for giving work order, purchasing of material and payment on third party inspection report. 4. Purchase of Vehicles/Street light Materials/Water supply Materials 5. Daily Monitoring of Contracts
Assistant Executive Engineer	<ol style="list-style-type: none"> 1. Act as Tender inviting officer and technical sanction/leakage or burst 2. Participation in Tender Scrutiny Committee, Vehicle & solid waste management related purchase 3. Requirement/Necessity/Grievances from the public, direction to Junior Engineer / Assistant Engineer to prepare the estimate for Administrative Sanction and Technical Sanction. 4. (a) Technical sanction of Estimates, (b) Approval of the Technical Bid in Tenders, (c) Approval of the Comparative statement of the quoted rates, (d) supervision of all processing works, (e) Checking measurement of works through m-books, (f) Approval of the Completion report, (g) Passing of Bills
Executive Engineer	<ol style="list-style-type: none"> 1. Procurement is made through the tender based on the estimates received from the concern JE / AE 2. Sanctioning the amount and tender process 3. Monitoring and reporting of work done by AE/AEE
Municipal Engineer/ City Engineers	<ol style="list-style-type: none"> 1. Invitation of Bid, Technical Evaluation, Price Bid Evaluation and Awarding Contract after estimates for procurement/obtaining necessary approvals 2. Initiating to float tenders as per rules in force 3. Receiving procurement and Checking with specifications, Completion of work with the procurement and completion and utilisation of procurement 4. Overall monitoring and coordination of engineering work in ULB.

Source: IIPA Survey of Engineers, 2021

Table 2.4: Work Assignment on Budgeting and Fiscal Responsibilities

Assistant Engineer	<ol style="list-style-type: none"> 1. Listing of works, rough cost estimates and prioritisation given scope over previous year expenditure. 2. Preparation of Budget in Co-ordination with Account Section for (i) Civil Works, (ii) O&M of Street Lights, (iii) O&M of UGSS
Assistant Executive Engineer	<ol style="list-style-type: none"> 1. Necessity based for the next year proposal and budget allocation 2. Activity-based budgeting, Allocation of Funds for Major and Minor Works, Head wise requirement for Building, Water Supply, Street Light, UGSS, Storm Water Drain and Road Works 3. Plan of Public needs as per Municipal Income
Municipal Engineer/ City Engineer	<ol style="list-style-type: none"> 1. Listing of the works to be carried with the budget 2. Monitoring of work as above done by AE/AEE, Analysing & Approving of Estimates 3. Finalizing yearly budget for O&M municipal services 4. Anticipating and prioritising the works in view of natural calamities, like flood, draught, etc. 5. Monitoring of fiscal work done by AE/AEE
Regional Executive Engineer	<ol style="list-style-type: none"> 1. Recommending and forwarding for Administrative Sanction and Govt. Assistance 2. Supervising the Municipalities in the Region 3. Overall coordination of fiscal and budgeting related work and compliance of rules / regulation/codes etc.

Source: IIPA Survey of Engineers, 2021

WORKING ENVIRONMENT AND FACILITATION

Working environment and facilitation of Municipal Engineers cover institutional frame-work, tenure, working hours and assignment of fiscal powers. As elsewhere Tamil Nadu also has multiple stakeholders for the work pertaining to municipal engineers and accordingly deserves attention on working environment and facilitation covering institutional frame work, facilitation and feedback.

Municipal Functions and Inter-agency Responsibilities

Municipalities/Urban Local bodies (ULBs) are nodal agencies for municipal functions as per schedule XII of Constitution of India whereas several para-statal are also operating to help ULBs for project planning, financing and executions at town level. Key functions of municipal corporations and municipalities under CMA include nine items namely:

- (i) Municipal Water Supply,
- (ii) Sewages,
- (iii) Roads,
- (iv) Flyover/Overbridges (within City),
- (v) Municipal Buildings/Assets,
- (vi) Stadiums/Playground,
- (vii) Crematorium,
- (viii) Lakes/Tanks and
- (ix) Parks and Open Spaces.

Institutional Framework

As may be seen from Table 3.1, O&M of capital works on all the nine items fall within ULB jurisdiction except for tanks and lakes

where PWD is involved for capital works whereas maintenance lies with respective ULBs.

At the same time, state level line agencies such as Tamil Nadu Water Supply and Drainage Board (TWADB), TWFIDCO (Tamil Nadu Urban Finance and Infrastructure Corporation), Private Sector, Community etc. are also engaged on a case-to-case basis. Therefore, a proper coordination and communication is important task for engineers to effectively manage municipal services.

Table 3.1: Inter-agency responsibilities for Municipal Functions in Tamil Nadu

Services	Municipal Corporation		Other agencies*	
	O&M	Capital Work	O&M	Capital Work
Water Supply	ULB's	ULB's	TWAD Board & CMWSS Board	TWAD Board, CMWSSB & Private Sector
Sewage	ULB's	ULB's	TWAD Board & CMWSS Board	TWAD Board, CMWSSB & Private Sector
Roads	ULB's	ULB's	-	-
Flyover/ Overbridge within the City	ULB's	ULB's	-	-
Municipal Building	ULB	ULB's	-	-
Stadium/Play Ground	ULB's	ULB's	-	-
Crematorium	ULB's	ULB's	Private Sector	
Lakes/Tanks	ULB's	-	PWD	PWD
Parks	ULB's	ULB's	Private Sector Community	

(i) State level line agency, (ii) TUFIDCO, (iii) Private Sector, (iv) Community, (v) CSR, (vi) other specify

Source: CMA, Tamil Nadu

Fiscal Powers of Municipal Engineers

Municipal Engineers have specific financial powers to sanction expenditure. It includes costing for O&M of different services and cost

estimates for capital works. In addition, engineers are also involved in the preparation of replies in the audit objections.

Municipal Administration and Water Supply Department also specifies the fiscal powers with monetary limit² (Table 3.2).

Table 3.2: Fiscal Powers of Municipal Engineers

Sl. No.	Post with Power to sanction expenditure	Monetary Limit
1.	City Engineer	Rs. 75. 00
2.	Executive Engineer	Rs. 40. 00
3.	Assistant Executive Engineer	Rs. 25. 00
4.	Assistant Engineer	Rs. 10. 00

Source: CMA, Tamil Nadu

Tenure of Engineers

On an average an engineer is posted for 61 months for one post which is by and large OK. As indicated earlier, the tenure is two-fold (i) Municipal Corporations have non-transferable tenure whereas (ii) municipalities have a system of transfers on the basis of a transfer policy implemented by CMA. The tenure of present posting in both the categories (MCs and Municipalities) is as follows:

As may be seen from Table 3.3, the average tenure of Assistant Engineers is 89 months, Assistant Executive Engineers is 50 months, City Engineers 26 months and Executive Engineers is 20 months among responding municipal corporations. On the other hand, tenure of engineers at last posting among municipalities is relatively high being 70 months as average and 96 for AE and 57 months each for Assistant Executive Engineer and Executive Engineer.

It may be noted that as against a transfer policy of three years, the average tenure of municipal engineer is 70 months. Therefore, in many cases, the engineers continue for a longer time than transfer policy. It may develop vested interests and may harm the efficiency of municipal work.

Working Hours

As public service involves a regular attention and municipal

²The G. O. (D) No. 38 Municipal Administration and Water Supply Department (MA3) Department, dated 30. 01. 2015.

Table 3.3: Tenure of Municipal Engineers

Position	Municipal Corporations (MCs)			Municipalities		
	Number of Employees	Total Months	Average Tenure (in months)	Number of Employees	Total Months	Average Tenure (in months)
Assistant Engineer	4	356	89	7	672	96
Assistant Executive Engineer	8	398	50	6	341	57
City Engineer	1	26	26	0	0	0
Executive Engineer	4	80	20	8	459	57
All	17	860	51	21	1472	70

Source: IIPA Survey of Engineers, 2021

services have breakdown/emergency requirements round the clock, the average time spent by engineers is significantly high than normal office hours. As reported, the working time of engineers is 12 hours per day which also involves frequent field visits (Table 3.4).

Table 3.4: Working Hours

Position	Number of Employees	Total Number of Hours	Average
Assistant Engineer	11	129	12
Assistant Executive Engineer	14	163	12
City Engineer	1	15	15
Executive Engineer	2	18	9
Municipal Engineer	6	78	13
Regional Executive Engineer	4	48	12
All	38	451	12

Source: IIPA Survey of Engineers, 2021

Incidence of Training

The National Training Policy 2012 had indicated areas of capacity building: Decentralization and Urban Governance, Urban land issues, urban environment, urban transport, Urban planning and Infrastructure development, Urban Poverty and Social Development, Municipal Accounts and Finance, e—Governance for urban development³. It is important to note that only 134 or 54 per cent (or 18% engineers per annum) of municipal engineers among municipal corporations out of 247 have undergone training during 2017-20. On the other hand, 90 or 25 per cent (around 8% per annum) municipal engineers out of 247 deployed among municipalities got trained during last three years (2017-2020). On the whole 224 or 37 per cent (around 12% per annum) out of 610 engineers got a chance to attend training programmes. National Training Policy stipulates development of Cadre Training Plans (CTPs), based on the competencies required and training needs, for ensuring that all cadres have a clearly articulated scheme for the development of their competencies. Therefore, incidence of training needs attention to have a larger coverage and updation of engineers

³National Training Policy, Deptt of Personnel and Training, Government of India, 2012.

as per changes in the different aspects of know-how and do-how. The national level flagship programmes for urban development have highlighted the need for capacity development in the urban level institutions for effectively implementing the programmes.

Study Visits

Study visits conducted by engineers included only outside visits in 2019-20 in three batches with following break up of Engineers. Accordingly, inter-state/domestic study visits need to be included in the agenda for training of the municipal engineers.

Table 3.5: Training Attended

Level	No. of Trainees Sent		
	Within the State	Outside State	International
Chief Engineer	-	-	-
Superintendent Engineer	-	-	1
City Engineer	-	-	-
Executive Engineer	-	-	12
Assistant Executive Engineer	-	-	44
Assistant Engineer	-	-	42
Total	-	-	99

Source: CMA, Tamil Nadu

Finally, it appears that engineers need special exposure and ways and means to improve inter-agency coordination, more effective use of working hours (which are already long enough), revisiting the training strategy covering a larger coverage under training programmes and expansion of study visits within and outside states in India. The National Training policy suggests that 2.5 per cent of the salary budget should be spent on training of personnel.

WORK EFFICIENCY AND JOB SATISFACTION

This section includes different modalities for work efficiency and level of Job Satisfaction. This includes overall satisfaction level with the job and involvement of engineers in the Ward Committees, Monitoring of Contractors, Interaction with seniors and juniors, citizens, WhatsApp Groups and Grievance Redressal.

Work Efficiency

Job satisfaction and interpersonal cooperation among engineers reaffirm the existence of positive environment. It is important to note that 60 per cent respondents are satisfied with the current assignment in the top slab (80-100%). Yet, 39 per cent appear in the lower slabs which indicate the need for measures to improve job satisfaction.

Similarly, it is equally important that only 50 per cent engineers' figure in the highest slab (80-100%) of satisfaction on monitoring by seniors and cooperation with juniors. This again confirms need for interpersonal reforms in the municipal governance. (Chart 4.1)

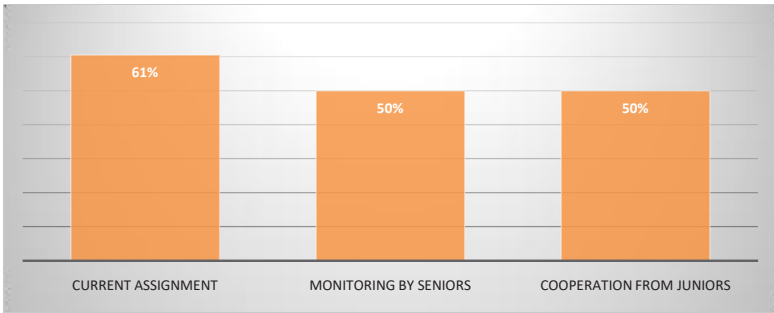
Similarly, 50 per cent engineers are reporting highest level of efficiency in the interpersonal cooperation with seniors and juniors. (Table 4.1)

Table 4.1: Job Satisfaction

Satisfaction	Higher Level Satisfaction (%)
Current Assignment	61%
Monitoring by Seniors	50%
Cooperation from Juniors	50%

Source: IIPA Survey of Engineers, 2021

Chart 4.1: Highest Slab - Work Satisfaction and Inter-personnel Relationship



Degree of Satisfaction with Current Assignment

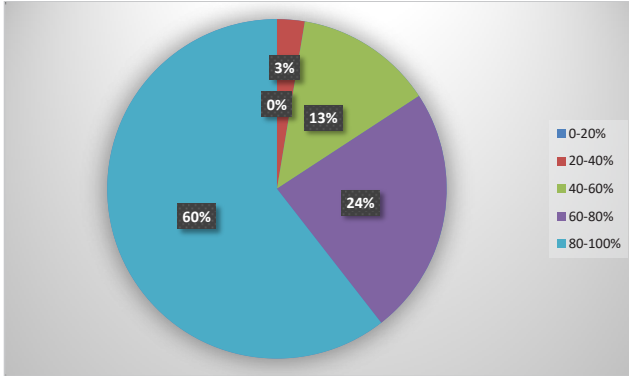
As nearly 39 per cent are not satisfied with current assignment, there is a need to review the workload and provide further exposure on job assignment. (Table 4.2 & Chart 4.2)

Table 4.2: Current Assignment Satisfactory

Position	0-20%	20-40%	40-60%	60-80%	80-100%
Assistant Engineer	0	0	2	5	4
Assistant Executive Engineer	0	0	2	2	10
City Engineer	0	0	0	1	0
Executive Engineer	0	0	0	0	2
Municipal Engineer	0	0	1	0	5
Regional Executive Engineer	0	1	0	1	2
All	0	1	5	9	23

Source: IIPA Survey of Engineers, 2021

Chart 4.2: Current Assignment and Level of Satisfaction



Ward Committee Level Involvement

Ward Committees too play decisive role in the local democracy. Seventy one per cent respondents are involved in ward committee activities. Considering the size of AE/AEE in the sample, this seems reasonable. Yet, seniors (city engineer/executive engineer/regional engineer) may also be regularly updated through necessary reporting channels and follow-up. It may be added in their work agenda of engineers (Table 4.3).

Table 4.3: Interface with Ward Committees

Involvement	Yes	No	Ward Committee does not exist	Total
No. of Employees	27	6	5	38
% of Employees	71%	16%	13%	100%

Source: IIPA Survey of Engineers, 2021

Monitoring of Contractors

Another important task of engineers covers Monitoring of Contractors which is one of the key responsibilities at ULB level. It is noted that 63 per cent respondents do daily and periodic monitoring of contractors, 37 per cent respondents monitor in terms of observations and verification as and when requested and eight per cent carry out clearance of work. As engineers belong to different positions with around two third (25 at of 38) belonging to AE, AEE, the division is fairly reasonable.

Table 4.4: Monitoring of Contractor

Monitoring	Percentage
Daly/Periodic Monitoring	63%
Observation and Verification	29%
Clearance of Work	8%
All	100%

Monitoring by Senior

Monitoring by seniors too need special attention. Fifty per cent engineers fall in the first four categories of satisfaction and need measures to provide congenial environment to increase concentration in the highest slab of 80-100 per cent of satisfaction on interaction with seniors. (Table 4.5 and Chart 4.3)

Table 4.5: Satisfaction with Monitoring by Seniors

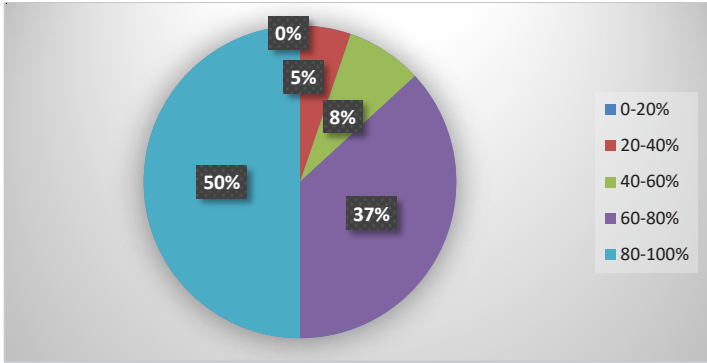
Position	0-20%	20-40%	40-60%	60-80%	80-100%
Assistant Engineer	0	1	0	6	4
Assistant Executive Engineer	0	0	2	4	8
City Engineer	0	0	0	1	0
Executive Engineer	0	0	0	1	1
Municipal Engineer	0	0	1	1	4
Regional Executive Engineer	0	1	0	1	2
All	0	2	3	14	19

Source: IIPA Survey of Engineers, 2021

Cooperation Received from Juniors

It appears that the scope to improve cooperation from juniors is also significantly high. Half of the respondents report their placement outside the top slab of satisfaction level whereas half the engineers feel

Chart 4.3: Satisfaction with Monitoring by Seniors



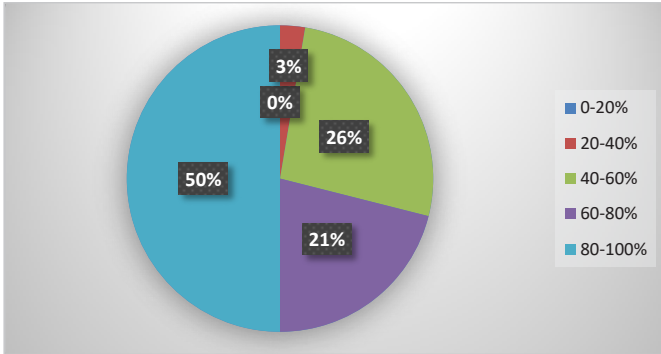
that cooperation received from juniors is highly satisfactory followed by 21 per cent in a range of 60-80 per cent, 26 per cent in a range of 40-60 per cent and three per cent in a range of 20-40 per cent (Table 4.6 and Chart 4.4). Hence, interpersonal relationship is an important area of attention and improvement.

Table 4.6: Cooperation received from Juniors

Position	0-20%	20-40%	40-60%	60-80%	80-100%
Assistant Engineer	0	0	3	3	5
Assistant Executive Engineer	0	0	4	3	7
City Engineer	0	0	1	0	0
Executive Engineer	0	0	0	1	1
Municipal Engineer	0	0	1	1	4
Regional Executive Engineer	0	1	1	0	2
All	0	1	10	8	19

Source: IIPA Survey of Engineers, 2021

Chart 4.4: Cooperation received from Juniors



Grievance Redressal

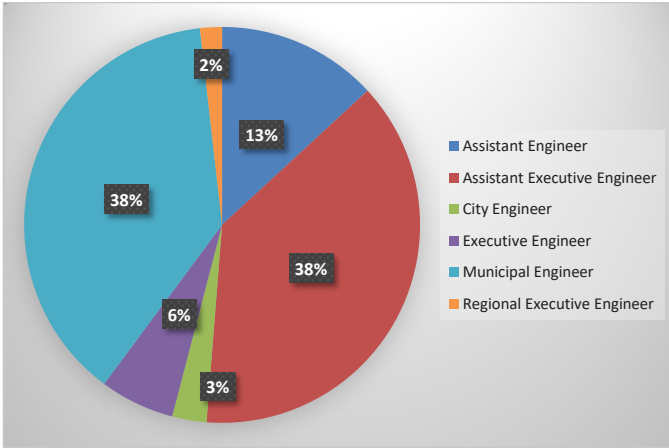
Grievance redressal also indicates incidence of interface with community. Total Number of grievances attended by municipal engineers in the month of December, 2020 are 1674 which works out to 44 grievances per respondent. This indicates two important points – the reporting of grievances is modest/fairly low. Second, community at grass-root level needs handholding to come forward with their grievances. It is also noted that Grievances received by seniors (Municipal Engineers and Executive Engineers) are resolved through AE and AEEs (Table 4.7 & Chart 4.5).

Table 4.7: Grievance Redressal Attended in December, 2020

Position	Number of Grievance Redressal attended	Average Grievance attended per Person
Assistant Engineer	220	20
Assistant Executive Engineer	638	46
City Engineer	47	47
Executive Engineer	102	51
Municipal Engineer	637	106
Regional Executive Engineer	30	8
All	1674	44

Source: IIPA Survey of Engineers, 2021

Chart 4.5: Grievance Redressal Attended in December, 2020



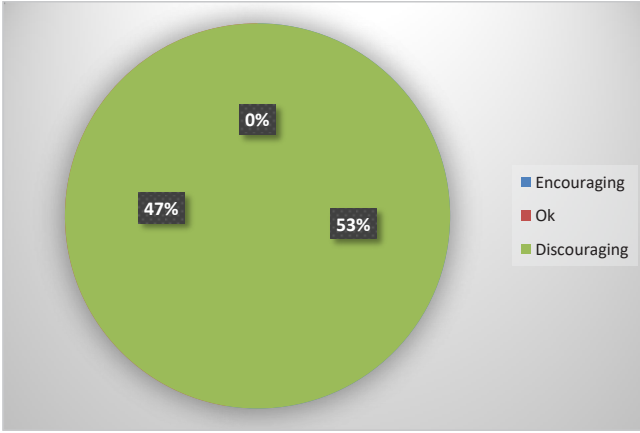
Level of Interaction with Citizens

It is important to point out that level of interaction with citizens is either encouraging (53%) or OK (47%) and the incidence of discouraging is not reported. However, the cooperation with the citizens needs to be given a little more attention to enlarge size of ‘Encouraging’ category in relation to service delivery aspects (Table 4.8 and Chart 4.6).

Table 4.8: Level of Interaction with Citizens

Position	Encouraging	Ok	Discouraging
Assistant Engineer	7	4	0
Assistant Executive Engineer	7	7	0
City Engineer	1	0	0
Executive Engineer	2	0	0
Municipal Engineer	2	4	0
Regional Executive Engineer	1	3	0
Total	20	18	0

Source: IIPA Survey of Engineers, 2021

Chart 4.6: Level of Interaction with Citizens

WhatsApp Groups

In the current phase of time space collapse, social media is used intensively. The ULBs have their websites/dashboards, local level interactions and WhatsApp groups. It is noted that WhatsApp groups are used for both intra-departmental communication and interaction with community. It may be noted from Table 4.9 that:

- (i) There are 123 WhatsApp groups administrators which include AE, AEE (33% each), City Engineers (11%), EE (2%), Municipal Engineers (11%) and Regional Executive Engineers (10%).
- (ii) Further, there are 233 WhatsApp group with public/local community wherein all the categories of engineers are members with respective share as 18 per cent for AEE, 33 per cent for AEE, 1 per cent CE, 6 per cent EE, 37 per cent ME, and 5 per cent REE.
- (iii) Similarly, 152 senior level WhatsApp groups are distributed on 26 per cent for AE, 25 per cent AEE, 80 per cent CE, five per cent EE, 16 per cent each for ME and REE. These groups involve Mayors/Commissioners also as members.

Interaction with Elected Leaders

Local democracy appears to be given cognizance as the interaction with elected leaders is encouraging to 45 per cent of respondents

Table 4.9: WhatsApp Group

Position	Municipal Employees	Municipal Employees WG as Admin		Mixed WG with Employees and Public		Senior Level WG as Member	
		Total	Share in %	Total	Share in %	Total	Share in %
Assistant Engineer	11	40	33%	43	18%	40	26%
Assistant Executive Engineer	14	41	33%	76	33%	43	28%
City Engineer	1	14	11%	2	1%	12	8%
Executive Engineer	2	3	2%	13	6%	8	5%
Municipal Engineer	6	13	11%	87	37%	25	16%
Regional Executive Engineer	4	12	10%	12	5%	24	16%
Total	38	123	100%	233	100%	152	100%

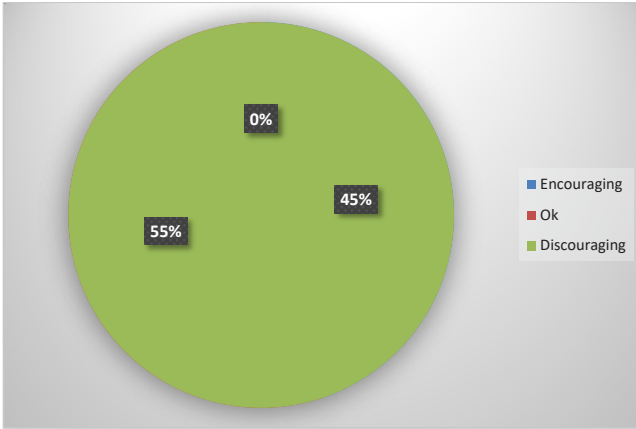
Source: IIPA Survey of Engineers, 2021

whereas 55 per cent feel it to be ok. Accordingly, the synergy with elected leaders needs some attention. (Table 4.10 and Chart 4.7). Accordingly, relationship with elected leaders needs to be included in the agenda for capacity building of engineers.

Table 4.10: Interaction with Elected Leaders

Position	Encouraging	Ok	Discouraging
Assistant Engineer	5	6	0
Assistant Executive Engineer	6	8	0
City Engineer	1	0	0
Executive Engineer	1	1	0
Municipal Engineer	3	3	0
Regional Executive Engineer	1	3	0
Total	17	21	0

Source: IIPA Survey of Engineers, 2021

Chart 4.7: Interaction with Elected Leaders

Finally, it emerges from preceding analysis that current incidence of interaction with community, elected leaders, interpersonal relationship provides a basis to achieve standards of work efficiency and job satisfaction. CMA has to build on this level of interaction with citizen.

SERVICE EFFICIENCY

Service efficiency is examined in the IIPA Survey for nine specific services (i) Water Supply, (ii) Sewage System, (iii) Road network, (iv) Street lighting, (v) Community Halls/Services, (vi) Water Bodies, (vii) Municipal Assets, (viii) PPP arrangements and (ix) Community Participation.

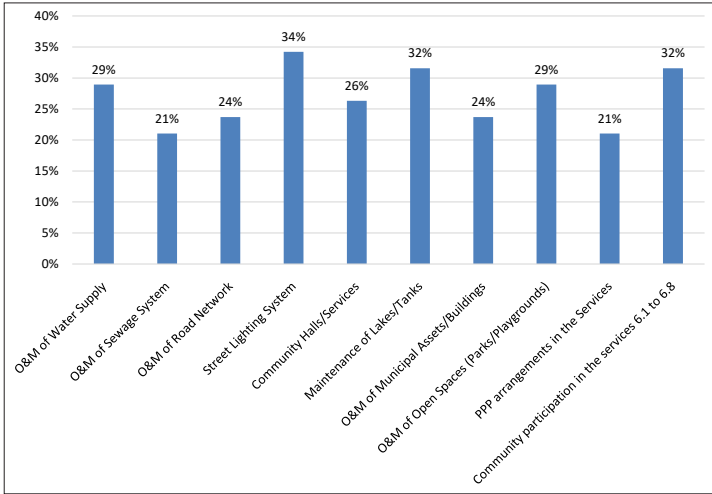
Efficiency Benchmarking

We have considered the top slab of efficiency as reported by respondent engineers as a proxy -bench mark (as perception of respondents assuming scope of improvement to the optimum level) for assessment. It is striking to note that efficiency level of municipal services needs significant improvement to reach to widely accepted standards across the services. It may be noted from Table 5. 1 that the top slab (80-100%) of efficiency varies from 21 per cent in Sewage and PPP arrangements to 34 per cent for Community Halls. This also means that the top slab also provides a frame-work for wider improvement and potential adaptation (Table 5.1 and Chart 5.1).

Table 5.1: Efficiency Benchmarking

Services	Efficiency (80-100% slab)
O&M of Water Supply	29%
O&M of Sewage System	21%
O&M of Road Network	24%
Street Lighting System	34%
Community Halls/Services	26%
Maintenance of Lakes/Tanks	32%
O&M of Municipal Assets/Buildings	24%
O&M of Open Spaces (Parks/Playgrounds)	29%
PPP arrangements in the Services	21%
Community participation in the services 6.1 to 6.8	32%

Source: IIPA Survey of Engineers, 2021

Chart 5.1: Excellent - Service Efficiency (80-100)

Water Supply

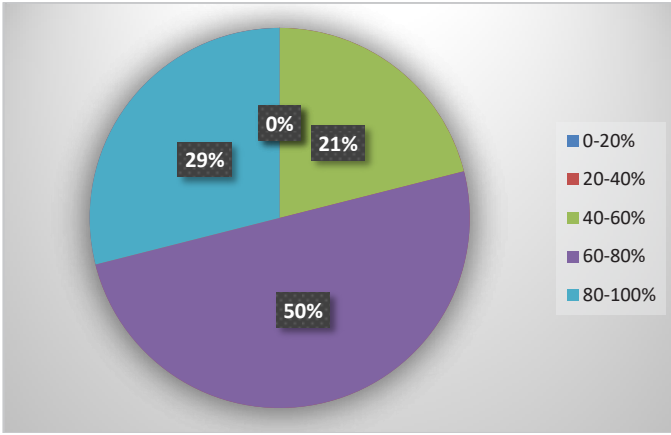
Only 29 per cent engineers feel that efficiency in water supply O&M is in the top slab (80-100%) whereas 50 per cent feel it to be 60-80 per cent, 21 per cent feel it at 40-60 per cent. We can also say that 70 per cent+ engineers feel the scope of special efforts towards highest levels of efficiency in the Supply of Water. (Table 5.2 and Chart 5.2). Yet, there are cases wherein performance is at accepted standards of excellence. These also provide scope for adaptation from the experience within Tamil Nadu.

Table 5.2: Level of O&M of Water Supply

Position	0-20%	20-40%	40-60%	60-80%	80-100%
Assistant Engineer	0	0	1	7	3
Assistant Executive Engineer	0	0	3	6	5
City Engineer	0	0	0	1	0
Executive Engineer	0	0	0	2	0
Municipal Engineer	0	0	2	1	3
Regional Executive Engineer	0	0	2	2	0
All	0	0	8	19	11

Source: IIPA Survey of Engineers, 2021

Chart 5.2: Level of O&M of Water Supply



Sewage System

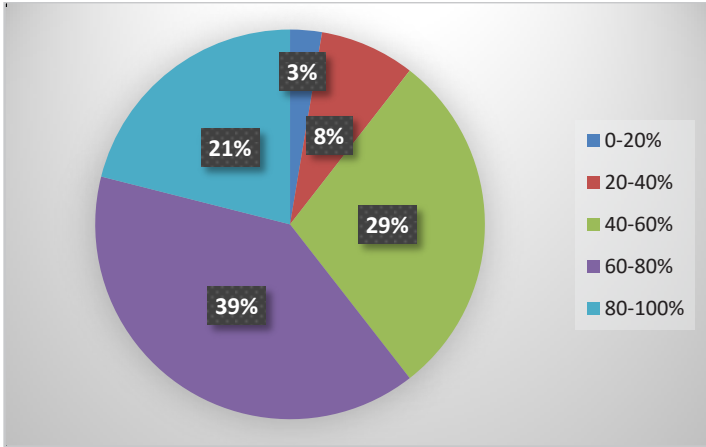
Only 21 per cent engineers feel that level of efficiency in sewage system is in a range of top slab (80-100%). Therefore, it is felt by overwhelming majority that O&M of Sewage and drainage need to be improved to reach to the top slab of efficiency (Table 5.3 and Chart 5.3).

Table 5.3: Level of O&M of Sewage System

Position	0-20%	20-40%	40-60%	60-80%	80-100%
Assistant Engineer	1	1	1	6	2
Assistant Executive Engineer	0	0	7	4	3
City Engineer	0	0	1	0	0
Executive Engineer	0	0	0	2	0
Municipal Engineer	0	1	1	2	2
Regional Executive Engineer	0	1	1	1	1
All	1	3	11	15	8

Source: IIPA Survey of Engineers, 2021

Chart 5.3: Level of O&M of Sewage System



Road and Related Services

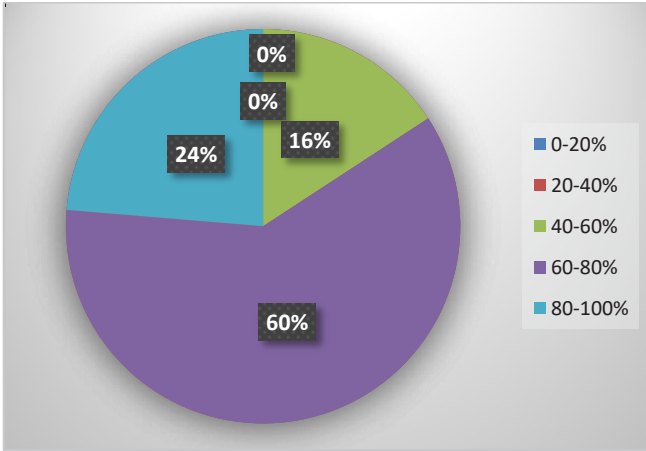
As in case of water and sewage, only 24 per cent respondents indicate the efficiency of roads in the top slab (80-100%). However, 60 per cent feel it to be in the next to top slab (60-80%) of efficiency. Therefore, overwhelming majority feel that roads are maintained at top-two levels of efficiency. (Table 5.4 and Chart 5.4) Yet, efforts are needed to improve roads and related services to achieve desired levels of standards.

Table 5.4: Level of O&M of Road Network

Position	0-20%	20-40%	40-60%	60-80%	80-100%
Assistant Engineer	0	0	2	7	2
Assistant Executive Engineer	0	0	1	9	4
City Engineer	0	0	1	0	0
Executive Engineer	0	0	0	2	0
Municipal Engineer	0	0	2	2	2
Regional Executive Engineer	0	0	0	3	1
All	0	0	6	23	9

Source: IIPA Survey of Engineers, 2021

Chart 5.4: Level of O&M of Road Network



Street Lighting System

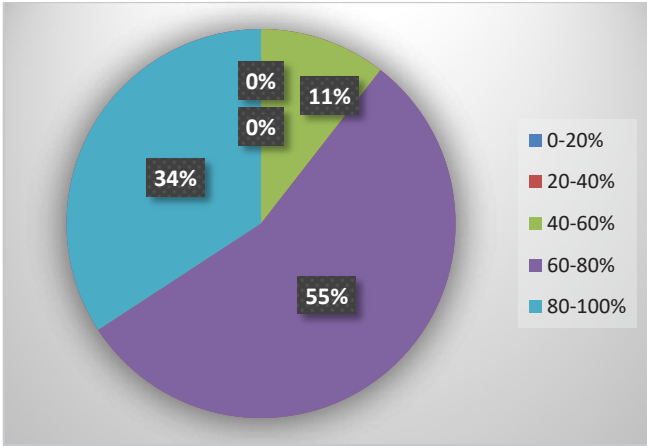
Street light efficiency is recorded in the top slab by 34 per cent respondents whereas, 55 per cent feel it to be is the second highest slab (60-80%) followed by 11 per cent in the third slab (40-60%). Therefore, street lighting too has scope for more efficient delivery (Table 5.5 and Chart 5.5).

Table 5.5: Level of Street Lighting System

Position	0-20%	20-40%	40-60%	60-80%	80-100%
Assistant Engineer	0	0	1	8	2
Assistant Executive Engineer	0	0	1	8	5
City Engineer	0	0	0	1	0
Executive Engineer	0	0	0	1	1
Municipal Engineer	0	0	2	1	3
Regional Executive Engineer	0	0	0	2	2
All	0	0	4	21	13

Source: IIPA Survey of Engineers, 2021

Chart 5.5: Level of Street Lighting System



Community Halls

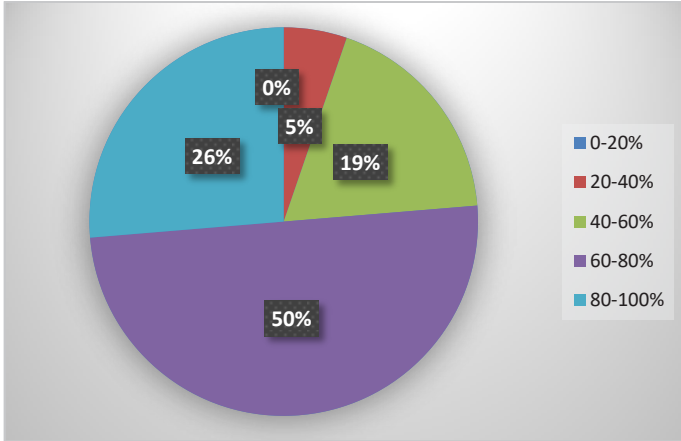
Community Halls appear to be maintained at a relatively better level efficiency. 50 per cent feel at the level of 60-80 per cent efficiency whereas 26 per cent at top slab (80-100%) followed by 19 per cent (40-60%) and 50 per cent (20-40%) (Table 5.6 and Chart XIII). Community halls are remunerative in nature and face a competition in the market. Therefore, Community Halls need to be maintained properly by ULBs in Tamil Nadu.

Table 5.6: Level of Community Halls

Position	0-20%	20-40%	40-60%	60-80%	80-100%
Assistant Engineer	0	1	3	6	1
Assistant Executive Engineer	0	1	0	9	4
City Engineer	0	0	0	1	0
Executive Engineer	0	0	1	0	1
Municipal Engineer	0	0	2	1	3
Regional Executive Engineer	0	0	1	2	1
All	0	2	7	19	10

Source: IIPA Survey of Engineers, 2021

Chart 5.6: Level of Community Halls/Services



Water Bodies

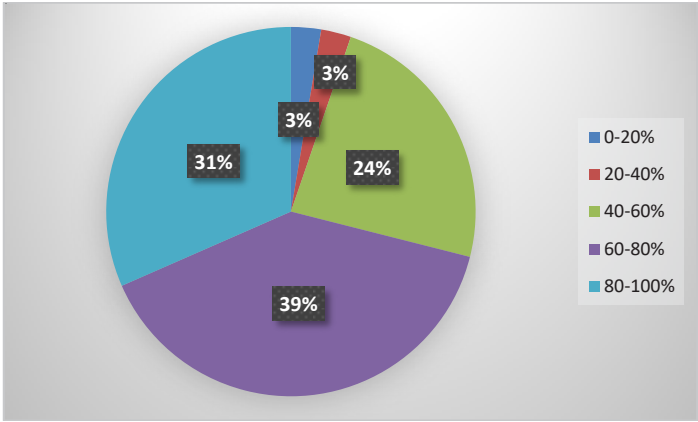
Maintenance of water bodies appears to be an area of special concern. Overwhelming majority feels that it is below the highest level of efficiency. Only 31 per cent feel satisfaction level at 80-100 per cent, 39 per cent feel at 60-80 per cent, 24 per cent at 40-60 per cent and six per cent below 40 per cent. Tamil Nadu being water scarcity state needs special attention. Yet, the ULBs in the top slab also show the way forward which needs to be adopted in a wider context (Table 5.7 and Chart 5.7).

Table 5.7: Level of Maintenance of Lakes/Tanks

Position	0-20%	20-40%	40-60%	60-80%	80-100%
Assistant Engineer	1	1	3	4	2
Assistant Executive Engineer	0	0	3	7	4
City Engineer	0	0	0	1	0
Executive Engineer	0	0	0	0	2
Municipal Engineer	0	0	1	2	3
Regional Executive Engineer	0	0	2	1	1
All	1	1	9	15	12

Source: IIPA Survey of Engineers, 2021

Chart 5.7: level of Maintenance of Lakes/Tanks



Municipal Assets

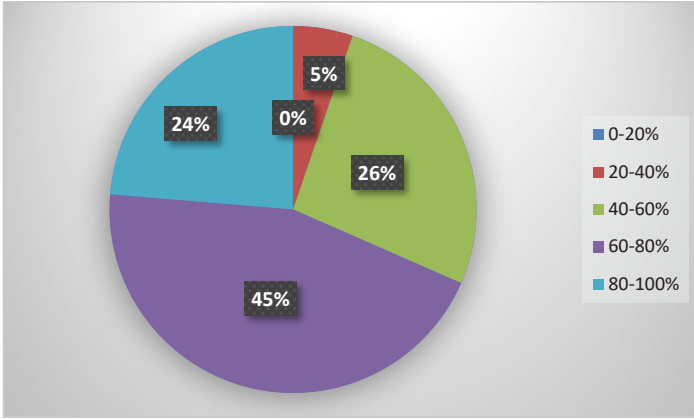
Municipal assets and buildings also need intensive efforts towards efficiency improvement. It is noted that 5 per cent feel it in a range of 20-40 per cent efficiency whereas 26 per cent feel it in a range of 40-60 per cent, 51 per cent at 60-80 per cent and only 24 per cent in the top slab (80-100%). Hence, maintenance of municipal assets/buildings is one of the areas which needs further innovations and adoption (Table 5.8 and Chart 5.8).

Table 5.8: Level of O&M of Municipal Assets/Buildings

Position	0-20%	20-40%	40-60%	60-80%	80-100%
Assistant Engineer	0	1	3	7	0
Assistant Executive Engineer	0	0	4	6	4
City Engineer	0	0	0	1	0
Executive Engineer	0	1	0	0	1
Municipal Engineer	0	0	2	1	3
Regional Executive Engineer	0	0	1	2	1
All	0	2	10	17	9

Source: IIPA Survey of Engineers, 2021

Chart 5.8: Level of O&M of Municipal Assets/Buildings



Open Spaces

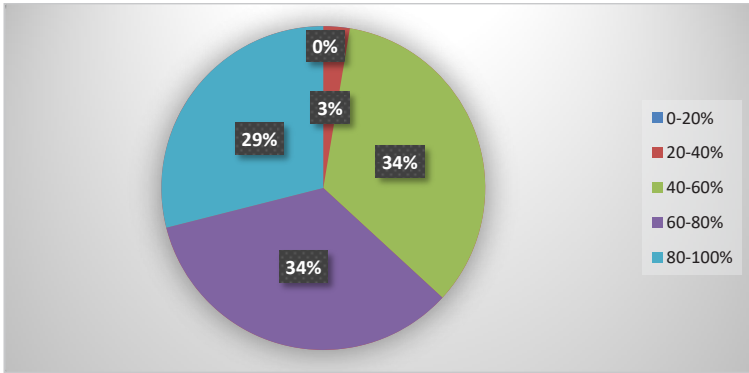
It is felt that Parks, Playgrounds and open spaces are also operating at efficiency levels which need further improvement. Only 29 per cent feel the levels of efficiency in a range of 80-100 per cent and 71 per cent feel at different levels of efficiency from 0-20 per cent (3%), 40-60 per cent and 60-80 per cent (34% each). As noted earlier, the innovative and forward-looking cases among efficiency standards need wider study and adaptation (Table 5.9 and Chart 5.9).

Table 5.9: Level of O&M of Open Spaces (Parks/Playgrounds)

Position	0-20%	20-40%	40-60%	60-80%	80-100%
Assistant Engineer	1	0	3	6	1
Assistant Executive Engineer	0	0	5	4	5
City Engineer	0	0	0	1	0
Executive Engineer	0	0	0	1	1
Municipal Engineer	0	0	2	1	3
Regional Executive Engineer	0	0	3	0	1
All	1	0	13	13	11

Source: IIPA Survey of Engineers, 2021

Chart 5.9: Level of O&M of Open Spaces (Parks/Playgrounds)



PPP Arrangements

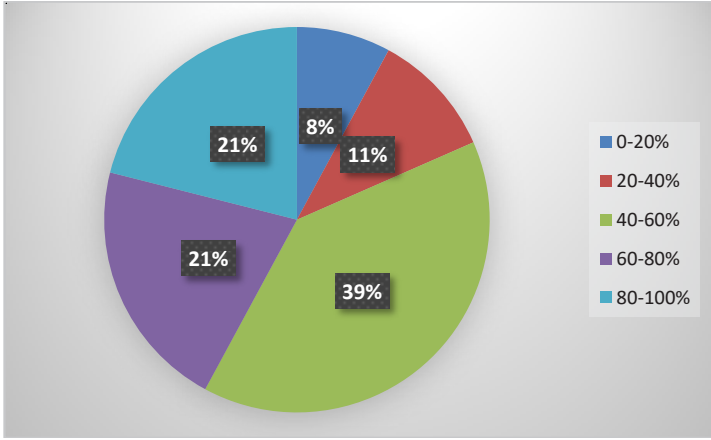
Value for money and efficiency standards have placed increasing focus on Public Private Partnerships in municipal services. Nearly 80 per cent Engineers feel scope for further strengthening of PPP (Public Private Partnerships) whereas only 21 per cent feel that it is being applied at highest slab of efficiency. Thus, the need to replicate better PPP cases among various services is reiterated by municipal engineers. At the same time, ‘equity’ is equally important which involves designing of contract suitably. This is an important area for enhancement of role of engineers (Table 5.10 and Chart 5.10).

Table 5.10: PPP arrangements in the Services

Position	0-20%	20-40%	40-60%	60-80%	80-100%
Assistant Engineer	0	1	6	4	0
Assistant Executive Engineer	2	1	4	3	4
City Engineer	0	1	0	0	0
Executive Engineer	0	0	1	0	1
Municipal Engineer	0	1	2	1	2
Regional Executive Engineer	1	0	2	0	1
All	3	4	15	8	8

Source: IIPA Survey of Engineers, 2021

Chart 5.10: PPP Arrangements in the Services



Community Participation

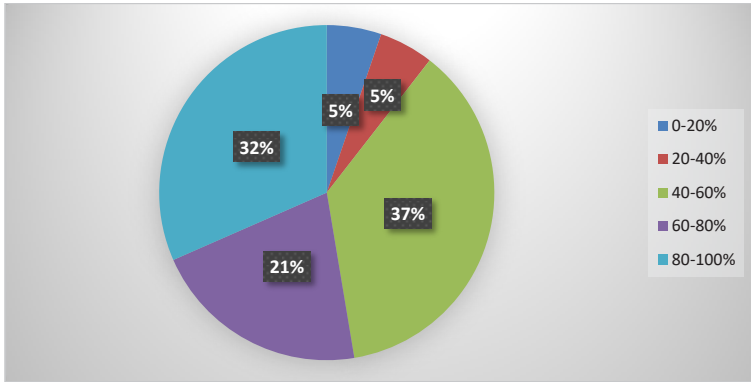
Community participation in the delivery of services is also lagging behind the desirable standards. Around 32 per cent respondents feel it to be in the top slab whereas 37 per cent feel it to be at 40-60 per cent followed by next slab 21 per cent at 60-80 per cent and 5 per cent each for the first two slabs. Therefore, Community Participation has vast potential to improve services particularly with regard to local elasticity (Table 5.11 and Chart 5.11). This also indicates scope to mobilise local elasticity further which can be done in the form of cash, kind and management responsibility from community.

Table 5.11: Community Participation in the Services 6.1 to 6.8

Position	0-20%	20-40%	40-60%	60-80%	80-100%
Assistant Engineer	1	1	4	3	2
Assistant Executive Engineer	0	0	5	4	5
City Engineer	0	1	0	0	0
Executive Engineer	0	0	1	0	1
Municipal Engineer	0	0	2	1	3
Regional Executive Engineer	1	0	2	0	1
All	2	2	14	8	12

Source: IIPA Survey of Engineers, 2021

Chart 5.11: Community Participation in the Services 6.1 To 6.8



Finally, it appears that services are provided at different level of efficiency. It is noted that significant scope exists within the city for peer-to-peer learning and city to city competition to improve levels of services. Special attention is needed for asset management, sewage system, water bodies, and community participation.

CURRENT SECTORAL FOCUS

This section briefly analyses the current focus on urban services from the perspective of UNSDGs (UN Sustainable Development Goals), Government of India's follow up and recently submitted report of XV National Finance Commission (NFC).

Although all the goals are interrelated, Goal 10 on sustainable cities and communities addresses urban issues specifically. Some other goals also have a direct bearing on urban services. These are: UNSDG 3 – Good Health and Well Being, UNSDG 6 – Water and Sanitation, UNSDG 7 – Affordable and Clean Energy, UNSDG 10 – Reduced Inequalities, UNSDG 12 – Responsible Consumption and Production, and UNSDG 13 – Climate Action⁴.

This focus is guiding the urban sector policies of Government of India, States and ULBs (Urban Local Bodies). Some specific points that need special mention in this regard are:

National Budget 2021-22

The Budget FY:22 of Government of India has placed special focus on SBM-02 (Swachh Bharat Mission), Jal Jeevan Mission including integrated approach to water management, continuation of Smart Cities Mission and AMRUT (Atal Mission for Rejuvenation and Urban Transformation) and fiscal reforms to enhance supply of investible funds through Development Finance Institutions (DFI) etc⁵. Ministry of Housing and Urban Affairs (MoHUA) Government of India has been allocated Rs 54581 Crores covering Rs 27500 Crores for Pradhan Mantri Avas Yojana (PMAY) followed by Rs 13750 Crores for Smart Cities Mission/AMRUT and other urban missions. In addition, the Ministry of Jal Shakti got Rs 256000 Crores for water and sanitation among statutory towns, SBM (Swachh Bharat Mission) got 28200 Crores and Urban Bus Transport got Rs 18000 Crores.

⁴UNSDGs, United Nations Sustainable Development Programme, UN, 2015.

⁵The Urban Picture, KK Pandey, Financial Express, 3 February, 2021.

The allocation above will have a multiplier effect on several sectors. Piped water connectivity and safe disposal and treatment of waste water among ULBs will address climate change and safe environment. Similarly access to safe water and sanitation across the households along with affordable housing will provide inclusive development. Water and sanitation will also improve human health and associated effect on productivity. Allocation for PMAY will trigger investment in a ratio of 1:6 and also create employment other than the project site in a ratio of 1:8. Further housing also has income multiplier of 1:5. In addition, housing also increases collection of indirect taxes which are reported to be in a range of 12 per cent of indirect taxes. Therefore, the focus on environment and investment both are critical for municipal services.

XV Finance Commission Allocation -2021-26

XV Finance Commission (FC) has given specific focus on water and sanitation through dedicated allocation for urban agglomerations and other towns⁶. This also indicates departure from ULB specific approach to city region specific approach. XV FC has also for the first time given focus on ‘pre-disaster measures’ covering a proper drainage plan, disaster resilient infrastructure including water and sanitation. It has also duly recognised the role of urbanisation in national economic development with specific focus on air quality, water and sanitation, health emergencies (diagnostic infrastructure), incubation of new towns on pilot basis and shared data centres. The all-time high allocations (1.16% of divisible pool and 79% more than XIV FC) include Rs 121055 Crores (as against 87144 Crores by XIV FC) for ULBs (Urban Local Bodies) for 2021-2026 along with additional allocation for urban sector on account of health emergencies (Rs. 26123 crores), incubation of towns (Rs 8000 Crores) and shared service Centres (450 crores). The ULB allocations are twofold: Metro challenge Fund (MCF) of Rs. 38196 Crores for 44 Urban agglomerations (UAs) with 67 one lakh+ towns and 1048 < 1 lakh population towns and Rs. 82859 Crores for other towns with < 1 lakh population including 1048 towns already covered under MCF giving special focus on city region to stimulate economy.

⁶Urban Allocation and the Follow up of FFC, KK Pandey, Financial Express, 12 April, 2021.

GoI Programmes and Schemes

GoI Missions such as Smart Cities Mission, Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Swachh Bharat Mission (SBM), Pradhan Mantri Awas Yojna (PMAY) and National Urban Livelihood Mission (NULM) have wider focus which seek special and intensive involvement of municipal engineers. Jal Shakti Mission and National Clean Air Programme also give due cognizance to the role of water and sanitation to determine air quality with revival of water bodies, treatment of solid and liquid waste, proper maintenance of roads including social forestry.

Accounting reforms as per Article 243Z of constitution give focus on environmental and energy audit leading to safe environment and cost effective and environment friendly use of energy.

Focus of Government of Tamil Nadu

As part of forward-looking initiatives since 1980s with the support from World Bank, Government of India and other stakeholders including local community, the Government of Tamil Nadu has been giving special focus on Rain Water Harvesting (Chennai & other towns), revival of water bodies, Innovative methods of sewage treatment (Alandur etc.), Pool Finance (Bonds for Water & Sanitation), Karur Toll Bridge, Madurai Bypass etc. These Innovations have wider adaptation among ULBs of Tamil Nadu but still have wide potential for adaptation.

The focus areas from TN specific, national level and UNSDGs need to be duly incorporated in the training curriculum of engineers to enable them to become a change agent for environment friendly, sustainable, pro-poor and productive delivery of water, sanitation and environmental friendly services at ULB level.

COMPETENCY ASSESSMENT AND GAP

This section brings together the incidence and scope of competency gap among municipal engineers and analyses the scope of improvement as reported by respondent engineers.

Scope of Competency Gap

- The competency framework covering (i) Ethos (people first), (ii) Ethics (taking accountability), (iii) Equity (consensus, consultation and delegation), and (iv) Efficiency (result-oriented communication and consensus building) as determined in the UNDP and DoPT study, coincides with the norms of good governance⁷. Therefore, these are supplementary to each other. These models need adaptation within the overall competency framework namely: How engineers can be placed in the decentralisation of functions/powers at municipal level? What could be the points for enhanced accountability? How transparency can be incorporated for better performance of engineers? In what manner efficiency should be improved? How equity in the services could be the focus of engineers and in what manner participation of other stakeholders in services can be introduced by municipal engineers? The analyses in the preceding sections provide basis for action points in the role of municipal engineers to make use of their potential role in urban governance. It is important to note that the role of municipal engineers is not confined to technical aspects only (in the planning, finance and delivery of municipal services) across the households in the ULB. Accordingly, financial planning and models to arrange investment and budgetary

⁷Civil Services Competency Dictionary, UNDP/DoPT, 2014.

support are an integral part of work assignment for municipal engineers.

- Further, Engineers are also involved in the follow up on audit objections.
- Monitoring of contractors and operations and maintenance of services also involve key role of engineers.
- Community contacting i.e., grievance redressal and community support for services is also important part of engineers at grass root level.
- Engagement of municipal engineers for municipal assets and participation is also carried out by municipal engineers at different levels of efficiency with significant scopes of improvement and expansion.

Emerging Focus from IIPA Survey of Engineers

The emerging focus, in the preceding analysis gives a pointed frame-work for curriculum development which includes:

- (i) Efficiency level of each of municipal services need improvement to achieve efficiency benchmark laid down among Tamil Nadu ULBs which lead to top slab of efficiency (80-10%) in respective towns.
- (ii) Inter-personal relationship holds the key to improve interaction with and within the engineers' community. It includes community, seniors and juniors for better communication. Communication and leadership are two important milestones that need due attention in this regard.
- (iii) Social media already exists with a reasonably good application of WhatsApp groups. This needs to be fully harnessed.
- (iv) Monitoring of contractors is a critical factor which needs further improvement.
- (v) Fiscal information and budgeting exercise are integral part of works of engineers which should be taken up intensively.
- (vi) Tenure of engineers should be reasonably fair so that they are able to take up work to a logical conclusion and also not develop vested interests on exceptionally long posting.

- (vii) Intra-state and interstate visits should be organised to enhance P2P learning and adaptation.
- (viii) Inter-personal relationship, budgeting, auditing, accounting should be included in the training curriculum for engineers on urban governance.
- (ix) A training plan should be put to use to cover all the incumbents in a particular time frame.
- (x) Accountability should be incorporated through transparent work assignment along with a charter for equity through suitable adaptation of citizen charter. Further decentralisation needs to be added through redesigning the roles and responsibilities of engineers.
- (xi) The respondents have also identified a typology of gap on Urban Governance which include (1) Management and Finance, (2) Project Management, (3) Energy Savings, (4) Solid Waste Management and Management of Faecal Sludge, (5) Maintenance and Management Techniques, (6) Levelling & preparation of stretches and volume of UGSS and Water Supply, (7) Advanced Waste Water Treatment Technology including Hybrid Annuity Model (HAM), and (8) Advanced Construction Techniques - use of pre-fab technology, Green building etc.

Competency Framework

Training and capacity building is lacking on inter-personal relations, municipal finance for investment and O&M, project development, financial planning and budgeting, inter-state and intra-state study visits. Municipal Engineers have suggested a range of actions to be suitably added in their work profile to improve the service efficiency. These include (i) Interaction with Seniors, (ii) Interaction with Juniors, (iii) Interaction with Citizens (iv) P2P Cooperation/ Single Window system

Interaction with Seniors

Interaction with seniors needs to be improved with Human Approach – Justifiable allocation of task, organisation of Seminar/workshops, periodic and review meetings, obey orders, use of Social Media, WhatsApp (Mobile Governance), Regular updation of technical

knowledge, Two-way communication – patient hearing, Guidance to improve work efficiency, Experience sharing are suggested as an integral part of interpersonal relationship.

Interaction with Juniors

Interaction with Juniors needs to be improved with Group/personal Discussion/Guidance/Social Media, Regular updation/Training including on the job training and handholding, Periodic/Regular Meetings, knowing barriers in the work and share resolution, Patient hearing and inter-personnel relationship, Action Plan and Programme Chart, Award and Recognition (best employee of months). These measures will build interpersonal competencies.

Interaction with Citizens

Third, interaction with citizens also needs to be promoted. It should include (a) Camps – Ward/RWA Level, (b) Regular Meetings, (c) Social Media, WhatsApp etc. /e-Governance, (d) online grievance redressal, (e) Patient conversation, (f) Participatory services, (g) frequent discussions, (h) Human touch, (i) Good speed of internet, etc.

Areas of Attention

Specific areas of attention include Water conservation initiatives, Water harvesting proposals and follow up, Road safety measures – pollution, footpath, street infrastructure, plantation, storm water drains, Street Lighting – use of non-conventional sources, Budget Estimates – Realistic Calculation, Revision of Budget – Realistic Calculation, Participatory budgeting – local/ward level potential, Monitoring of Contractors – payment to Contractor, Project Management – Cost and time overrun

There is therefore a need to develop a training curriculum for capacity building programme for municipal engineers in Tamil Nadu. Focus should be on achieving benchmarks with suitable application of good governance norms by municipal engineers in the delivery of services.

TRAINING AGENDA ON URBAN GOVERNANCE FOR MUNICIPAL ENGINEERS IN TAMIL NADU

This section on the basis of preceding sections brings a twofold approach for Training of municipal engineers in Tamil Nadu i.e. (i) Policy Level Framework and (ii) Draft Content for Virtual Training Programme.

Policy Agenda for Training/Capacity Building

- (i) Training for municipal engineers on urban governance should be a regular feature.
- (ii) A competency frame-work should be developed giving due regard to interpersonal relationship, outreach (within communities), clarity of role (suitable elaboration), P2P learning and feedback.
- (iii) Tenure should be rationalised with adaptation of transfer policy
- (iv) Workload (which is also linked with incentives like promotion and facilitation) should include team building, performance benchmark awards and rewards. Further, the requirements of engineers should be worked out keeping in view the scope of work and current strength.
- (v) State should initiate ‘engineer of the month’ recognition associated with documentation and dissemination of tasks performed and achievements gained.
- (vi) New normal protocol should be adopted to formalise virtual training and sharing of information on a regular basis.
- (vii) Study visits particularly within the states and inter-state level should also be integral part of training.

- (viii) CMA should also develop guidelines, checklists, SOPs (Standard Operating Procedures) to suitably supplement training process and adaptation at local level.
- (ix) On the job training should also be initiated with (a) short-term deployment of engineers from better off/innovative cases to other towns and (ii) short-term placement of select groups of engineers to better of towns.
- (x) Necessary budget as earmarked by DoPT document of National Training Strategy (2.5% of salary budget) should be allocated.
- (xi) Assignment of roles and responsibilities to develop a suitable training plan within CMA, state's institute of municipal training at Coimbatore and other entities may be made
- (xii) Develop a cadre of Engineering Service for Municipal Corporation or merge the two cadres into one.

Draft structure for virtual Training on Urban Governance for Municipal Engineers for Tamil Nadu

Duration – 3 day – 4 Session on each day

Day 1	Introduction, Course Objectives, Competency and Good Governance Norms and adaptation for Municipal Engineers	Interpersonal Relationship, Team Building Communication	Global and National Urbanisation, Urban Scenario in Tamil Nadu and Role of Municipal Engineers	The Main Exercise, Competency Assessment and Gap, Indicators and Follow-up agenda for Municipal Engineers
Day 2	Planning for Services, Procurement, Development and Monitoring of Contract	Community Interface – Modes and Modalities	Efficiency Improvement in the services – Benchmarking and Case Studies Water & Sewerage/ Drainage	Municipal Solid Waste/Roads and Related Services- Benchmarking and Case Studies
Day 3	Municipal Building and Assets-Upkeep and Revenue Model	Budgeting and Follow-up Estimation, Tools and Techniques for participatory and realistic application	Downward Accountability, Modalities and Case Studies	Presentation of Main Exercise and Take-Home Points and Vaediction

Objectives

- (i) Identify good governance norms and application for Municipal Engineers
- (ii) Analyse features of Competency assessment and gap in the application of urban governance by Municipal Engineers
- (iii) Determine principles of interpersonal relationship in public life and their application
- (iv) Assess planning, execution and maintenance procedure of services in a participatory environment.
- (v) Examine incidence of realistic budget and follow-up
- (vi) Prepare a follow-up agenda on urban governance for Engineers

Contents

- (a) Planning & Implementation – Project Development, DPR, Institutional Arrangement and Coordination
- (b) Waste Management – Decentralised and Innovative methods
- (c) Finance – Investment, Budget, Audit
- (d) Asset Management
- (e) Community Contacting
- (f) Efficient, PPP Arrangements
- (g) P2P learning and study visits
- (h) Climate Smart Delivery of Services – Energy Savings, Environmental Protection
- (i) Budget Allocation – Government of India and Government of Tamil Nadu
- (j) Guidelines of Urban Sector Missions
- (k) Case Studies on efficiency improvement, project planning
- (l) Case studies on Participatory budgeting – Sao Palo, Brazil
- (m) National Municipal Accounting Code
- (n) Model Municipal Law
- (o) Website of Centre for Urban Studies

- (p) Website of National Institute of Urban Affairs
- (q) Website of Ministry of Housing and Urban Affairs

Methodology

The three-day virtual programme shall be conducted in a highly participatory manner using exercises, case study, structured discussion etc.

Methodology and Content to be further detailed out by implementing agency.

STATE LEVEL DATASHEET



**Indian Institute of Public Administration
Centre for Urban Studies**



Training Need Assessment for Virtual Training Programme on Urban Governance for Municipal Engineers in Tamil Nadu

State Level Data Sheet

1) Total No. of Municipal Engineers in the State

Engineers	No. of Corporations	Municipalities	All

2) Role of Municipal Engineers (Please attach scanned/soft copy of relevant documents)

- a. As per Relevant Municipal Act/Municipal Corporation Act
- b. As per Bye-laws concerned (if any)

3) Performance Benchmark (if any) please attach the sheet.

4) Performance Appraisal Mechanism (Enclosed format use for Appraisal)

5) CMA or Govt. of Tamil Nadu circulars issued on role of Engineers (Scanned or Soft Copy)

6) Is the post of Municipal Engineers at different levels is transferable?

Post	Status			
	Transferable		Non-transferable	
	Municipal Corporation	Municipalities	Municipal Corporation	Municipalities
Chief Engineer				
Superintendent Engineer				
City Engineer				
Executive Engineer				
Assistant Engineer				

7) How the appointment is made for the post of municipal engineers at entry level?

- a. By ULB
- b. By CMA
- c. By State Staff Selection Commission
- d. Others (specify)

8) Is the appointment on deputation at senior position than entry level is allowed and practiced? (Yes/No)

9) If yes, How the appointment on deputation is completed? (from which deptts.)

10) Training of Municipal Engineers during last 3years

Training	No. of Engineers Deputed					
	Municipal Corporation			Municipalities		
	2017-18	2018-19	2019-20	2017-18	2018-19	2019-20
within CMA						
Outside						

11) Areas covered under Training

- (i)
- (ii)
- (iii)
- (iv)
- (v)

12) Study visits organised for Municipal Engineers

Level	No. of Trainees Sent		
	Within the State	Outside State	International
Chief Engineer			
Superintendent Engineer			
City Engineer			
Executive Engineer			
Assistant Engineer			

13) Cities and Areas of skills covered under study visits

14) Service – responsibility for key services

Service	Municipal Municipality	Corporation/	Other agencies*	
	O&M	Capital Work	O&M	Capital Work
Water Supply				
Sewage				
Roads				
Flyover/Overbridge within the City				
Municipal Building				
Stadium/Play Ground				
Crematorium				
Lakes/Tanks				
Parks				

* (i) State level line agency, (ii) TUFIDCO, (iii) Private Sector, (iv) Community, (v) CSR, (vi) other (specify)

15) Role of Engineers in the 'Procurement'

16) Expenditure limits of Engineers

Level	Amount (Rs. in lakhs)
Chief Engineer	
Superintendent Engineer	
City Engineer	
Executive Engineer	
Assistant Engineer	

17) Role of Engineers/Engineering wing in the Municipal Budgeting (Please write bullet points)

18) Role of Engineers/Engineering wing in Auditing

19) Any guidelines for involvement of engineers in Grievance Redressal (Please provide scanned/soft copy)

20) Any other relevance information (specify)

Signature
 Name of Officer _____
 Seal _____
 Date _____

QUESTIONNAIRE



Centre for Urban Studies
Indian Institute of Public Administration



Training Need Assessment for Virtual Training Programme on Urban Governance for Municipal Engineers in Tamil Nadu

Questionnaire for Engineers

*Required

Email address *

Cannot pre-fill email address. _____

Name *

Your answer _____

Designation *

Your answer _____

Name of ULB *

Your answer _____

Present Position since *

Date

dd-mm-yyyy

Tenure of last posting (in months) *

Your answer _____



2. Role of Engineer

2.1. Please describe the main work assigned *

Your answer _____

2.2. Reporting Officer *

Your answer _____

2.3. No. of Hours involvement in a day *

Your answer _____

2.4. Role in the Procurement (write in points) *

Your answer _____

2.5. Role in the Budgeting (write in points) *

Your answer _____

2.6. Role in the monitoring of Contractor *

- Daily/Periodic Monitoring
- Observation and Verification
- Clearance of Work

3. Competency

3.1. Qualification *

- Degree
- Post-graduation
- Diploma



3.2. Training attended in last 3 years *

Your answer _____

3.3. Type of Training *

- Management
- Technical
- Financial

3.4. What are the two main areas of Competency gap wherein you require training? *

Your answer _____

4. Governance Interface**4.1. Involvement in Ward/Zonal Committees ***

- Yes
- No
- Ward Committee does not exist

4.2. No. of WhatsApp Group as Administrator to interact with Municipal Employees *

Your answer _____

4.3. No. of mixed WhatsApp Group with employee & general public *

Your answer _____

4.4. No. of senior level WhatsApp group as members *

Your answer _____

4.5. Number of Grievance Redressal attended in December, 2020 *

Your answer _____

5. Job Satisfaction

5.1. Degree of satisfaction with the current assignment *

	1	2	3	4	5	
Minimum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Maximum

5.2. Degree of satisfaction with monitoring by seniors *

	1	2	3	4	5	
Minimum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Maximum

5.3. Cooperation received from juniors *

	1	2	3	4	5	
Minimum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Maximum

5.4. Interaction with Elected Leaders *

- Encouraging
- Ok
- Discouraging

5.5. Interaction with Citizens *

- Encouraging
- Ok
- Discouraging



5.6. How do you think interaction with seniors can be improved? *

Your answer _____

5.7. How do you think interaction with juniors can be improved? *

Your answer _____

5.8. How do you think interaction with citizens can be improved? *

Your answer _____

6. Efficiency

6.1. What is the level of O&M of water supply. *

	1	2	3	4	5	
Poor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Excellent

6.2. What is the level of O&M of sewage system *

	1	2	3	4	5	
Poor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Excellent

6.3. What is the level of O&M of road network *

	1	2	3	4	5	
Poor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Excellent

6.4. What is the level of Street Lighting System? *

	1	2	3	4	5
--	---	---	---	---	---



Poor Excellent

6.5. What is the level of Community Halls/Services? *

1 2 3 4 5
 Poor Excellent

6.6. What is the level of maintenance of lakes/tanks? *

1 2 3 4 5
 Poor Excellent

6.7. What is the level of O&M of municipal assets/buildings? *

1 2 3 4 5
 Poor Excellent

6.8. What is the level of O&M of Open Spaces (Parks/Playgrounds) *

1 2 3 4 5
 Poor Excellent

6.9. Are you satisfied with the PPP arrangements in the services 6.1 to 6.8 *

1 2 3 4 5
 Poor Excellent

6.10. Are you satisfied with the community participation in the services 6.1 to 6.8 *

1 2 3 4 5
 Poor Excellent



6.11. Please list services where PPP can be promoted in your town *

Your answer _____

6.12. Please list services where community engagement can be promoted in the services *

Your answer _____

SPECIFICATIONS OF WORKS ASSIGNED TO MUNICIPAL ENGINEERS

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Chapter VI – PUBLIC WORKS

Technical Education

6.1 *Powers of Municipal Engineers* :- There will be one Municipal Engineer or Engineering Subordinate for each Municipality and he in direct charge of the works executed by the Municipality. Municipal Engineers cadre consists of three grades. Municipal Engineers, Grade I and II may execute all works even if in some cases the estimated most of work exceeds their power of technical sanction unless for special reasons a superior authority which accords technical sanction to the estimate decides otherwise. Municipal Engineers of Grade III and Engineering Subordinates possessing the qualifications prescribed for Municipal Engineers in Paragraph 1 of Schedule B is the regulations governing the Madras Municipal engineering may execute works which are within their powers of technical sanction. In the case of Municipalities in which there is no Municipal Engineer or subordinate possessing the qualifications, prescribed for Municipal Engineers in paragraph (1) of Schedule 'B' to the regulations governing the Madras Municipal Engineering Service, the engineering subordinate may execute works which are beyond his powers of technical sanction. He may also execute works which are beyond his powers of technical sanction under the supervision of the Assistant Engineer, [Highways and Rural Works] in the case of road works and the Assistant Engineer, Public Works Department in the case of other works. He shall be in direct charge of the work unless otherwise ordered by a superior which accords sanction to the estimate.

6.2 *Responsibilities of Municipal Engineer* :- The Municipal Engineer will be responsible for the proper maintenance and accounting of Municipal works and take technical advice from the Highways and Rural Works department as regards road works, and from the Public Works Department as regards other works. He is also responsible for the proper supervision of engineering works and see that specification as per M.D.S.S or Standard Specification of Roads and Bridges are adhered to.

6.3 *Classifications of Works* :- Works are divided into two classes

- (i) Original works; and
- (ii) Repairs or Maintenance works.

The following instructions govern the classification of works as 'original works' and 'Repairs'.

6.4 *Buildings* :- (1) The term 'Original Works' indicates new construction whether of entirely new works or of additions and alterations to existing works, except as hereafter provided, also all repairs to newly purchased or previously abandoned buildings required for bringing them into use.

(2) The term 'Repairs' indicates primarily operations undertaken to maintain in proper condition (or to replace the wear and tear) of buildings in ordinary use. It also includes new constructions in circumstances indicated in Instruction (2).

(3) When a portion of an existing structure is to be replaced or remodeled (whether or not the change involves any dismantlement) and the cost of the change represents a genuine increase in the value of the property, the work of replacement or remodeling as the case may be, should be classed as "original works", the cost (which) should be estimated if not known of the portions replaced or remodeled being credited to the estimate for 'Original Work' and debited to 'Repairs'. In all other cases, the whole cost of the new work should be charged to 'Repairs'.

**CIVIL SERVICES COMPETENCY
DICTIONARY, UNDP, DOPT,
GOVT. OF INDIA**



Empowered lives.
Resilient nations.

Civil Services

**Competency
Dictionary**



GoI-UNDP Project:

**Strengthening Human Resource
Management of Civil Service**

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Introduction

In Summary

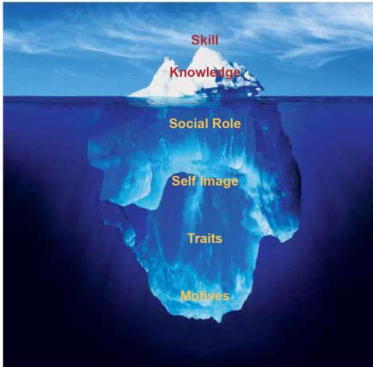
This document will help to understand the process and methodology for adapting the Civil Services Competency Dictionary at your organisation.

By the end of this section, you would know what is a competency dictionary and what are the different elements of a competency.

What are Competencies and why are they Important?

Competencies have been defined in many ways. However, a practical definition of competencies that is easy to understand, has been defined by Boyatzis (of Hay Group, 1982). It states that competencies are those underlying characteristics of an employee – motive, trait, skill, aspects of one's social image, social role or a body of knowledge, which can result in effective and/or superior performance in a job or role'.

This definition can be explained further in the context of the iceberg model, as illustrated and further explained below.



Above The Waterline – Knowledge and Skill

Knowledge is the operational or technical understanding a person has about something and skills are the things a person can do; for example, keyboarding on a computer or writing a report. Some skills, like thinking about new ideas or how to solve a problem, are actually below the waterline because it's harder to see someone actually doing it.

While knowledge and skills are the most common means of matching people to jobs, it is important to note that rarely do they differentiate performance. Most often, they represent the baseline requirements for a job. They are necessary but not sufficient conditions or pre-requisites for outstanding performance in the role. Excellence usually depends on the more deep-seated characteristics of the person.

Below The Waterline – Personal Characteristics

The other factors related to performance are more personal and harder to see in someone, like the rest of the iceberg below the waterline. Also, like an iceberg, with most of the ice below the waterline, the factors below the waterline are significant drivers of higher performance.

Social Role

Social role relates to how we project ourselves in our roles. Some doctors, for example, may project the image of EXPERT by focussing on how much they know about some specialty or how much skill they have at some specific function. Others may project the image of a HELPER by focussing on what they can do for others. How we choose to project ourselves to others influences where we put emphasis while performing our roles.

Self-Image

Self-image relates to the attitudes and values we hold, what is important to us as individuals, and how we feel about ourselves. For example, if a person has an attitude or value that serving customers is important, that person may be more driven to provide better customer service than someone else who doesn't feel that way.

Traits

Traits are the characteristics or consistent responses of someone. For example, someone may demonstrate the trait of self-control consistently when confronted. Someone else may show a consistent concern for detail. A person's traits may be very helpful in a job, especially when the job calls for the kind of traits a person has.

Motives

Motives are the things a person consistently thinks about or wants, which cause them to take action. For example, a person may be highly achievement-oriented and this may drive their performance on the job. Or a person may be motivated by affiliation or friendship and this may drive their performance because the job involves dealing with many people.

Thus, a competency is any knowledge, skill, trait, motive, attitude, value or other personal characteristic that:

- Is essential to perform a job (Threshold Competency)
- Differentiates typical from superior performers (Differentiating Competency)

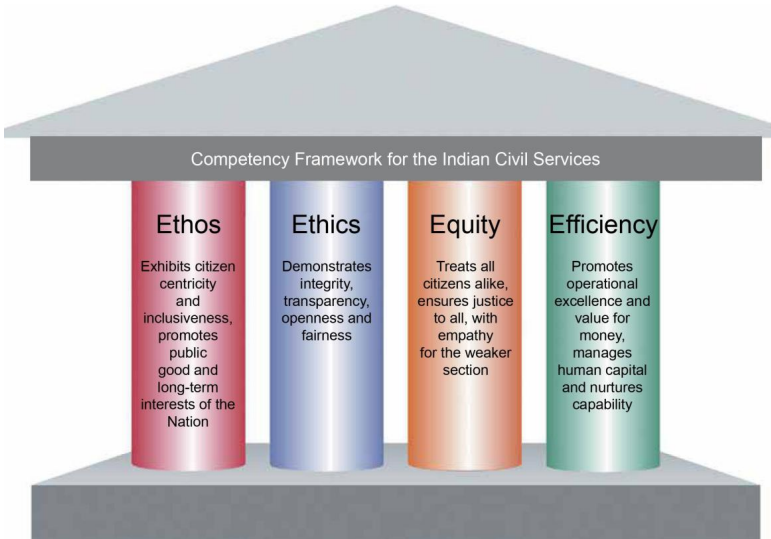
What is a Competency Dictionary?

A competency dictionary is a collection of competencies for an organisation or set of organisations from where competencies for specific jobs or roles can be identified.

Figure 2:
Competency Definition, Levels and Indicators

Name of the Competency	Emotional Maturity	
Definition of the Competency	Emotional Maturity is the ability to maintain a sense of professionalism and emotional restraint when provoked, when faced with hostility from others, or when working under conditions of increased stress. It also includes the ability to work effectively under stressful situations, remain resilient and maintain stamina over the long term.	
Behavioural indicators of the Proficiency Level	Level 1: Restrains Emotional Impulses	<ul style="list-style-type: none"> • Resists temptation to act immediately when it is inappropriate • Feels strong emotions (such as anger, extreme frustration, or high stress) but does not react.
Proficiency Level within the Competency	Level 2: Responds Calmly	<ul style="list-style-type: none"> • Feels strong emotions in the course of a conversation or other task, such as anger, extreme frustration, or high stress; holds the emotions back, and continues to act calmly and respectfully towards others. • Acknowledges angering actions or stressful situations and is able to think through and then respond in a calm and composed manner.
	Level 3: Manages Stress Effectively	<ul style="list-style-type: none"> • When feeling strong emotions (such as anger or frustration), holds back and/or removes self from situation to reduce negative impact on others. • Responds constructively and professionally to challenges, provocation and/or disappointments. • Uses deliberate strategies or self-control to ensure ability to function and provide effective leadership in situations of stress or adversity.
	Level 4: Calms Others During Periods of High Stress or Adversity	<ul style="list-style-type: none"> • In stressful situations, controls own emotions and calms others as well • Demonstrates maturity and self control to engage effectively when challenged or while driving an outcome through. • Remains non-defensive, composed and optimistic to seek a positive resolution to a highly challenging situation by managing self and others.
	Level 5: Maintains Effectiveness Despite Prolonged Stressors	<ul style="list-style-type: none"> • Able to maintain focus and keep up the stamina for self and others in face of extremely contentious situations, or during repeated exposure to difficult demands. • Applies specific techniques such as planning ahead to manage and minimise stress in self and others; coaches and mentors others to do the same.

Basic Features of Civil Services



Competency Framework for the Civil Services



Ethos

- 1.1 People First
- 1.2 Strategic Thinking
- 1.3 Organisational Awareness
- 1.4 Commitment to the Organisation
- 1.5 Leading Others



Ethics

- 2.1 Integrity
- 2.2 Self Confidence
- 2.3 Attention to Detail
- 2.4 Taking Accountability



Equity

- 3.1 Consultation and Consensus Building
- 3.2 Decision Making
- 3.3 Empathy
- 3.4 Delegation



Efficiency

- 4.1 Results Orientation
- 4.2 Conceptual Thinking
- 4.3 Initiative and Drive
- 4.4 Seeking Information
- 4.5 Planning and Coordination
- 4.6 Desire for Knowledge
- 4.7 Innovative Thinking
- 4.8 Problem Solving
- 4.9 Developing Others
- 4.10 Self-Awareness and Self-Control
- 4.11 Communication Skills
- 4.12 Team-Working

Characteristics of Good Governance

Accountability, Transparency, Equity and Inclusiveness, Participatory, Consensus Orientation, Following Rule of Law, Effectiveness and Efficiency

Competency Definitions

1. Ethos

Competency	Definition
1.1) People First	Passion for serving people with special care for the marginalised and disadvantaged. Being approachable, welcoming, caring and rising above bias while interacting with people. Understands the needs of the people and constantly strives to improve the services.
1.2) Strategic Thinking	Ability to understand dynamic internal and external environment and its impact. Responds to the opportunities and challenges for the betterment of society.
1.3) Organisational Awareness	Understanding of the organisation's mandate, structure, policies, processes, norms and its interface with other organisations. It also includes an understanding of the organisation's informal structures, power dynamics and constraints.
1.4) Commitment to the organisation	Aligns behaviours and interests with the needs and goals of the organisations.
1.5) Leading Others	Ability to engage, energise, and enable the team to excel.

2. Ethics

Competency	Definition
2.1) Integrity	Consistently behaves in an open, fair and transparent manner, honours one's commitments and works to uphold the Public service values.
2.2) Self-Confidence	Belief in own capability to accomplish a task and being able to express confidence in dealing with challenging circumstances without being arrogant or boastful.
2.3) Attention to Detail	Having an underlying drive to being thorough and meticulous and to comply with procedures, rules, guidelines, and standards. Digs deeper and strives to reduce uncertainties and errors.
2.4) Takes Accountability	Takes ownership for outcomes (successes or failures) while addressing performance issues fairly and promptly.

3. Equity

Competency	Definition
3.1) Consultation and Consensus Building	Ability to identify the stakeholders and influencers, seek their views and concerns through formal and informal channels. Build consensus through dialogue, persuasion, reconciliation of diverse views/interests and trusting relationships.
3.2) Decision Making	Makes timely decisions that takes into account relevant facts, tasks, goals, constraints, risk and conflicting points of view.
3.3) Empathy	Empathy is about being able to accurately hear out and understand the thoughts, feelings and concerns of others, even when these are not made explicit.
3.4) Delegation	Delegates responsibility with the appropriate level of autonomy so that others are free to innovate and take the lead.

4. Efficiency

Competency	Definition
4.1) Result Orientation	High drive for achieving targets and competing against a standard of excellence.
4.2) Conceptual Thinking	Understanding a situation or environment by putting the pieces together and identifying patterns that may not be obviously related. Connecting the dots while resisting stereotyping.
4.3) Initiative and Drive	Contributing more than what is expected in the job. Refusing to give up when faced with challenges and finding or creating new opportunities.
4.4) Seeking Information	An underlying curiosity to know more about things, people, or issue. This includes "digging" for exact information and keeping up-to-date with relevant knowledge.
4.5) Planning and Coordination	Ability to plan, organise and monitor work with effective utilisation of resources such as time, money, and people.
4.6) Desire for Knowledge	Keeps up-to-date with relevant knowledge and technology, share latest developments with others, and advocates the application of acquired knowledge.
4.7) Innovative Thinking	Open to change, approaches issues differently, offers alternate/out of box solutions and strives for efficiency by working smartly.
4.8) Problem Solving	Understanding a situation by breaking it into small parts, organising information systematically and setting priorities.
4.9) Developing Others	Genuinely believes in others' capabilities to develop and take personal responsibility for their development. Creates a positive environment for learning and provides developmental opportunities for individual and team.
4.10) Self-Awareness and Self-Control	Identifies one's own emotional triggers and controls one's emotional responses. Maintains sense of professionalism and emotional restraint when provoked, faced with hostility or working under increased stress. It includes resilience and stamina despite prolonged adversities.
4.11) Communication Skills	Articulates information to others in language that is clear, concise, and easy to understand. It also includes the ability to listen and understand unspoken feelings and concerns of others.
4.12) Team-Working	Working together as a unit for common goal, building teams through mutual trust, respect and cooperation.

1. Ethos



1.1 People First

Passion for serving people with special care for the marginalised and disadvantaged. Being approachable, welcoming, caring and rising above all bias while interacting with people. Understands the needs of the people and constantly strives to improve the services.

<p>Level 1: Responds Sensitive to the Needs of the Citizens</p>	<ul style="list-style-type: none"> • Understands the needs of the marginalised and disadvantaged, along with the needs of the wider public • Strives to respond quickly to meet their needs in a respectful, helpful and responsive manner • Reports issues that affect service delivery, where necessary • Addresses all the issues of the citizens in an unbiased manner • Ensures that levels of service are maintained – highlights risks or concerns in order to meet community requirements • Understanding the value of an affirmative action towards the marginalised and disadvantaged
<p>Level 2: Anticipates the Needs of the Citizens</p>	<ul style="list-style-type: none"> • Actively seeks information from all sections of community to understand their needs and expectations • Is accessible to all citizens and seeks their feedback to develop a clear understanding of their needs and outcomes • Establishes mechanisms to address feedback from the community about the service provided • Involves a diverse range of staff members, stakeholders, and delivery partners while developing implementation approaches in order to provide clarity on the benefits to the disadvantaged and to improve the quality of service provided to the citizens • Understands issues from others' perspective, particularly the disadvantaged • Keeps others up-to-date with information and decisions that might affect their area of work
<p>Level 3: Promote the Service to the Citizens</p>	<ul style="list-style-type: none"> • Is a role model of positive community service behaviours • Promotes a culture focussed on serving and meeting the needs of the citizens • Thoroughly explores all the sections of the community, including the marginalised and the disadvantaged; and identifies methods to meet their needs – including using new technology where relevant • Tracks trends that will affect their own Department's ability to meet current and future community needs and continuously strives to provide effective services to the public • Focusses their decision making around the most excluded sections of the society; and designs and monitors the execution of these initiatives
<p>Level 4: Actively Improves the Service to the Citizens</p>	<ul style="list-style-type: none"> • Uses multiple mechanisms to obtain insights from the community, in order to drive proposals, outcomes and quality in the area • Constantly improves service by managing risks and ensuring service delivery within defined outcomes • Works collaboratively with staff, stakeholders, community, and service delivery partners to deliver against service level agreements
<p>Level 5: Drives a Culture of Serving the Citizens</p>	<ul style="list-style-type: none"> • Creates in-depth understanding of broad range of community requirements in the Department • Leads community service outcomes at a strategic level • Works across the Government to deliver best quality service, with a strong focus on the marginalised and disadvantaged • Creates a culture of working with and through delivery partners to establish service levels and outcomes • Incorporates elements of affirmative action into planning and strategy formulation



1.2 Strategic Thinking

Ability to understand dynamic internal and external environment and its impact. Responds to the opportunities and challenges for the betterment of the society.

Level 1: Understands Own Work	<ul style="list-style-type: none"> Understands what is required in their role and how this contributes to Departmental priorities Considers how their job impacts colleagues in own and other Departments Takes an active interest in expanding knowledge of areas related to their role
Level 2: Aligns Work to Department	<ul style="list-style-type: none"> Keeps up-to-date with a broad set of issues relating to the work of the Department Develops an understanding of how their area's strategy contributes to Departmental priorities Ensures their area/team activities are aligned to Departmental priorities Gathers additional information from relevant sources inside and outside their Department Focusses on the overall intent of what one is trying to achieve, not just the task Identifies bottleneck in existing systems and suggests steps to overcome them
Level 3: Contributes to Strategy	<ul style="list-style-type: none"> Is alert to emerging trends, opportunities and risks in the environment which might impact or benefit the Department Ensures that relevant issues relating to their policy area are effectively fed into big picture considerations Actively seeks out knowledge and shares experiences to develop understanding of one's area of responsibility Seeks to understand how the services, and strategies in the area work together to create value for the public
Level 4: Identifies Strategic Imperatives	<ul style="list-style-type: none"> Anticipates the long-term impact of national and international developments in one's area, including economic, political, environmental, social, and technological Identifies implications of Departmental and political priorities in one's area to ensure alignment Creates joint strategies that have positive impact and add value for stakeholders, citizens, and communities Uses appropriate forms of technology during evaluations and/or implementation to achieve strategic goals
Level 5: Develops Long Term Strategies	<ul style="list-style-type: none"> Shapes the Department's purpose in delivering Civil Service priorities for the public and economic good Leverages technology in programme design Shapes plans which help put into practice and support the Department's long-term direction, including those shared with other departments



Prof. K.K. Pandey

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Dr. Pandey has done extensive research on urban issues in the area of urban management and finance in IIPA and elsewhere during his previous engagement in HUDCO and NIUA. He is also member of Executive Council, IIPA and also associated with several expert committees set up by Govt. of India, NCR Planning Board. He has been member of eight UN expert committees on urban finance, governance, infrastructure, leadership, pro-poor PPP, sustainable development and urban management. He also has several publications to his credit.



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