TNUDF

Addressing Challenges of Climate-Resilient Sustainable Urban Development in Tamil Nadu

By

Tamil Nadu Urban Infrastructure Financial Services Limited

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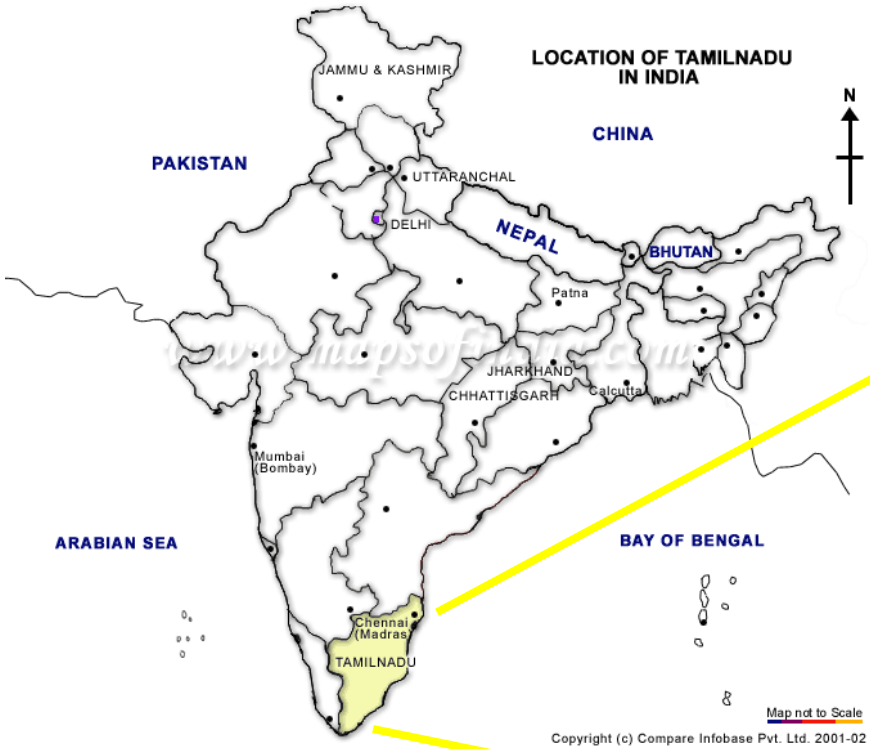
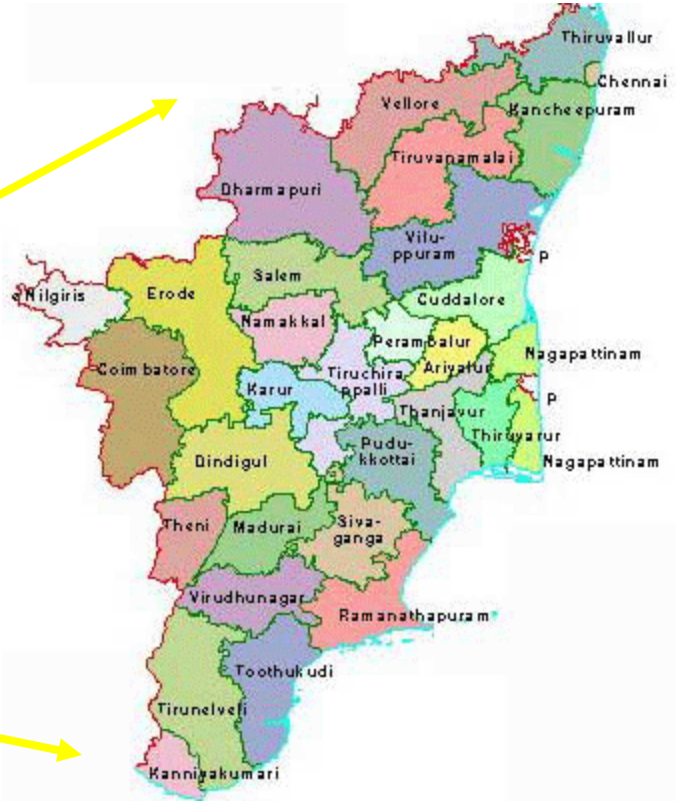
TNUIFSL

India and Tamil Nadu



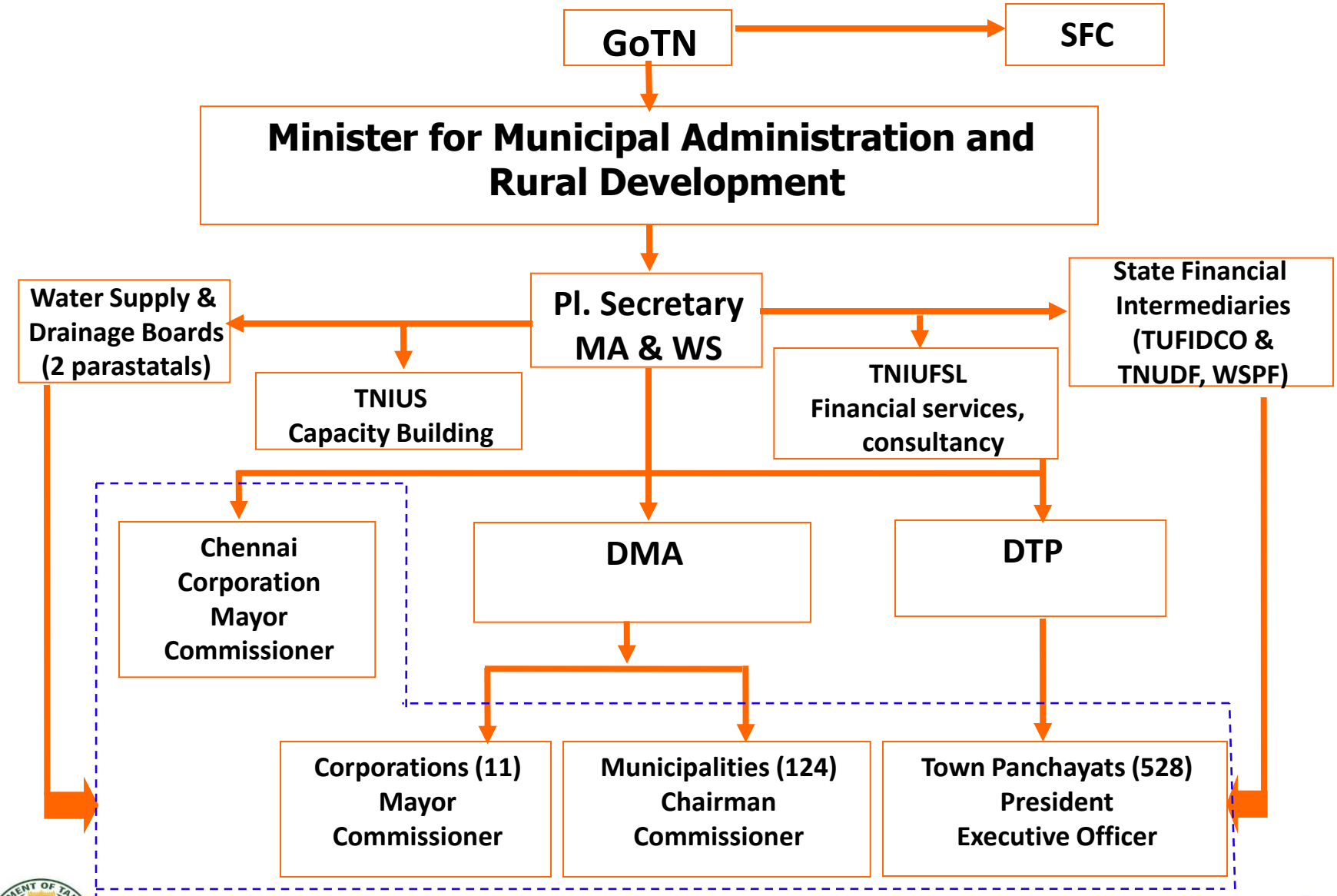


Total Population: 72.14 mn

Urban Population: 34.95 mn (48.45%)

No. of ULBs: 664

Municipal Administration



Urban Scenario

- India
  - Population (2011 census): 1210.20 million
  - Urban Population: 377.10 million (31.80%)
- Tamil Nadu
  - Population (2011 census): 72.14 million
  - Urban Population: 34.95 million (48.45%)
- 664 ULBs (12 Corporations, 124 Municipalities and 528 Town Panchayats)
- Urban areas contribute >70% of SGDP in TN

Climate-Resilient Sustainable Urban Development

Major Challenges:

- Identification, assessment and management of climate change
- Incorporation of climate standards in the planning, design, implementation and monitoring
- Transparency, predictability and accountability in the decision-making processes of climate change assessment
- Assessment of economic risks associated with projects by taking into account the climate aspects

Climate Change Impacts on Urban WSS

- Extreme flood and extreme drought conditions
- Severe damages to assets besides suspension of services
- Deterioration of surface / sub-surface water quality
- Non-compliance with regulatory requirements & standards
- Water bodies become dry within a span of 6 months after heavy floods
- Sea water intrusion in coastal cities
- Over exploitation of ground water

Urban Water Supply – Issues

- Availability of water throughout the year
- Poor quality of water due to pollution of surface water bodies and geogenic contaminants such as fluorides and arsenic in case of groundwater
- Losses during transmission & distribution
- Inadequate storage capacity
- Poorly Maintained Distribution System & intermittent supply
- Deteriorating assets resulting in declining productivity
- Increasing operating costs & low tariff
- Unwillingness to pay & angry customers
- Inability to access financing due to declining credit rating and investment

Urban Water Supply – Challenges

- Encroachments in water bodies
- Limited storage area
- Pollution of water bodies
- Sustainability of sources
- Reliability of sources
- Inter-state disputes
- Conflicts among users (drinking, irrigation, industries etc.)
- Technologies
  - Efficiency
  - Reliability
  - Scalability
  - Cost-effectiveness
- Pumping Vs Gravity
- Availability of land for storing water
- Demand supply management through buffer storage

Urban Water Supply – Constraints

- Cost for revival of water bodies and maintenance
- Inadequate storage system
- Social issues related to R&R
- Inadequate regulatory mechanism to prevent pollution of water bodies
- Lack of enforcement and political interferences
- Land availability
- Statutory requirements
- Underutilization due to source constraints, sudden fall in demand etc.
- Selection of material of pipes based on different factors
- High electricity charges
- Inadequate and unskilled staff for maintenance
- Topography of the town
- Adhoc method of repairing leaks

Urban Sanitation – Issues

- Absence of sanitation facilities at the individual household level / community level / city level
- Disposal of sewage and sullage in the open storm water drains leading to breeding of mosquitoes and odor nuisance
- Disposal of septage collected from the households in open streams / lands leading to pollution of surface / sub-surface water
- Inadequate sewage collection, transmission and treatment facilities
- Non-compliance with effluent discharge standards
- Impact of climate change particularly during heavy floods
- Inadequate internal plumbing system at the household levels
- Unwillingness to pay & angry customers
- Inability to access financing due to declining credit rating and investment

Urban Sanitation – Challenges

- Availability of land
- Technologies
  - Efficiency
  - Reliability
  - Scalability
  - Cost-effectiveness
- Material of pipes
- Manufacturing of pipes in conformity with relevant IS specifications
- Right-of-way for laying of pipes
- Cross country pipelines
- Design standards
- Permissions from other departments
- Pumping Vs Gravity

Urban Sanitation – Constraints

- High Cost for providing sanitation facilities
- Public mindset and awareness
- NIMBY syndrome leading to delay in planning and implementation
- Topography of the town and soil characteristics
- Inadequate regulatory mechanism to prevent pollution of water bodies
- Lack of enforcement
- Political interferences
- Land availability
- Statutory requirements

Sustainable Urban WSS – Climate proofing

- Review of the local settings and developing appropriate project appraisal & evaluation criteria
- Review and selection of technology to suit the local conditions
- Developing suitable site selection criteria keeping in view the Regulatory Framework
- Assessment of potential climate change impacts associated with the project and incorporation of suitable adaptation / mitigation measures
- Policy decision to provide internal plumbing as part of the project design
- Energy efficiency in pumping, transmission, treatment etc.

ADB assistance under TNUFIP – TA

ADB's CDTA of $ 1.50 mn support the GoTN in two key areas:

- Carrying out advanced basin-wide study of water-related disaster risks considering climate change in three vulnerable coastal cities viz. Chennai, Thoothukudi and Cuddalore
- Providing technical capacity building support for Sustainable Water Security Mission launched by GoTN

TNUFIP - TA

Scope of CDTA covers the following:

- Phase I involving baseline formulation and assessment of water governance systems
- Phase II covers water & climate change modelling including impact assessment, disaster risk assessment, water security assessment, exposure & vulnerability profiles and risk visualization & communication for stakeholders
- Phase III covers preparation of smart water solutions and resilience strategy with actionable recommendations, providing technical capacity building & training and conduct awareness building programmes

TNUFIP – Investment Grant

Asian Clean Energy Fund (ACEF) provides $ 2 mn for the following:

- India's first solar powered Sewage Treatment Plant of capacity 30 MLD
- The solar installation with PV cells will generate 2 MW of power
- This will meet 90% of STP's power requirement
- Cost savings of about $ 0.32 mn per annum
- Reduction in GHG emissions to the tune of 3,400 tons of CO_2 eq.

This pilot will present significant demonstration value for India and Asia-Pacific region.

TNUFIP – Capacity Development Grant TA

Grant TA of $ 1.0 mn for strengthening Institutional Capacity for Project Development and Urban Governance has the following two outputs:

- Strengthening the capacity of CMA to support ULBs prepare and scale up urban infrastructure projects in TN
  - Strengthen the capacity of the new Project Design & Management Centre in CMA to support ULBs in feasibility studies, DPRs etc. and managing sustainable O&M of urban infrastructure & services delivery
- Strengthening the capacity of CMA to implement urban governance improvement programmes
  - Strengthen the capacity of the new urban data and governance improvement cell in CMA to monitor and manage performance based governance improvement programmes

Thank You