

CHAPTER 6: CLIMATE CHANGE STRATEGY – MITIGATION

Climate change mitigation encompasses “human interventions to reduce emissions or enhance the sinks of greenhouse gases”⁵⁵ and is urgently required to meet the climate goals such as those under the Paris Agreement. While the previous chapter centered on adaptation strategies, several of the proposed strategies and activities imply substantial mitigation co-benefits. This chapter, in turn, focuses on mitigation strategies, which due to their intertwined nature may also yield important adaptation co-benefits.

Mitigation strategy as planned in the State involves pushing for higher share of renewable energy in the State especially hydro, solar and biomass-based including energy from waste. The State is also strengthening the State Designated Agency (SDA) to implement the comprehensive energy efficiency plan for the State. It also has integrated several energy and waste management solutions in Smart City Plan and AMRUT to mitigate the emissions. Sectoral plans under agriculture, forestry and water sector have investments that are likely to have several mitigation co-benefits.

Mitigation strategies in Tamil Nadu are focused on two areas, in line with the following national missions:

- Enhanced Energy Efficiency and solar mission (6.1)
- The waste sector, the transport sector, and the buildings/ residential sector, grouped under the “Sustainable Habitat” mission (6.2)

6.1. ENHANCED ENERGY EFFICIENCY AND SOLAR MISSION

6.1.1 Stocktaking

6.1.1.1 Progress Mapping (In Last 5 Years)

Activities of Enhanced Energy Efficiency and Solar Mission are carried out by various government bodies like TANGEDCO, Electrical Inspectorate and TEDA. A total of three broad strategies were proposed for Energy sector in the TNSAPCC, under which 27 sub-activities (mitigation related) were proposed. The total amount proposed for this sector for 2012-17 was INR 155,438 Crore. Compared to this proposed budget, an amount of INR 32,719.22 Crore was actually allocated for mitigation activities. The detailed physical achievements and financial allocations under this sector for 2012-17 (under TNSAPCC) as part of stock taking exercise has been given in **Annexure 6** and **Annexure 7** respectively.

6.1.1.2 Key Issues and Challenges

This section (Table 6.1) deals with the major issues and challenges faced by the sector in the State concerning Climate Change and its impacts. The issues and challenges have been broadly categorised into technical, institutional and regulatory, financial, socio-political and sensitisation.

⁵⁵https://www.ipcc.ch/site/assets/uploads/2018/11/sr15_glossary.pdf

Table 6.1 Key Issues and Challenges of Energy Sector

Area	Issue/Challenge
Technical (including infrastructural)	<p>There is lack of technical knowledge and information on the benefits of modern energy management systems and sector specific new technologies launched globally. Cost associated with adoption of first of its kind technologies in the industrial sector is relatively more and the challenge to prove the operational suitability of a technology with the prevailing operating conditions in the industry.</p> <p>The industries fail to capture the value of cost-effective energy savings that can be achieved by these systems.</p> <p>There can be unrecognized energy benefits and environmental and societal benefits associated with improving energy efficiency. If these benefits are omitted from consideration, there can be under procurement of industrial energy efficiency resources.</p>
Institutional and Regulatory	<p>There is a shortage of adequately trained personnel in the field of energy efficiency (energy audits and end-user maintenance) at all levels of management and administration in the Government and Private sector.</p>
Financial	<p>Financing of projects continues to be a challenge. Banks and Financial institutions should be suitably appraised about energy efficiency projects and their risks and benefits. Special category of loan appraisers for such projects may be trained who will fast track based on the projected energy savings that especially those that are cost effective.</p>
Socio-Political	<p>There is need for continuous monitoring and audit of energy conservation awareness programmes and pass legislations that incentivize good practices of energy efficiency. The Government should improve among general public on energy conservation in particular about the New technologies and schemes of Bureau of Energy efficiency like Standards & Labeling (S& L) of appliances that would need fast adoption.</p>
Sensitisation	<p>There is need for awareness among General Public on the importance of energy conservation as there is limited knowledge on new technologies and schemes on Energy Efficiency. There is a need for creation of Awareness among students through various activities and inclusion of chapters on Energy Efficiency and Conservation.</p>

6.1.1.3 Gap/Barrier Analysis

Barriers hindering the implementation of actions proposed under TNSAPCC were analysed in extensive consultations with key stakeholders. In sum, there is a need for creation of infrastructural, institutional, policy and financial enabling conditions for institutionalizing the action further proposed after revision of TNSAPCC. (Table 6.2)

Table 6.2 Gap/ Barrier analysis of Energy Sector

Area	Gap/Barrier
Institutional and Policy	<ul style="list-style-type: none"> • Future projections of Demand in the State are high and upgrading of transmission infrastructure would be a major challenge without causing a breakdown of the existing facilities. • State Power utilities during the Purchase of power from Renewable energy assets in Tamil Nadu must take into account the financial feasibility and their viability. • The State Energy regulators must consider during policy formulation, introduction of taxes or any such other regulatory mechanisms like “wind banking” to ensure that their growth is not affected.
Finance	<p>The power generating units must receive guaranteed payments for the loans taken by them from the State utilities. It is only then the financial viability is taken care.</p>

6.1.2 Sector Planning: Energy Efficiency and Solar Energy

6.1.2.1 National and State-Level Targets and their Linkages

Table 6.3 lists Tamil Nadu's overarching targets (and achievements) of relevance to **Enhanced Energy Efficiency & Conservation** and the **Solar Mission** and illustrates their linkages with agreed targets at the national and international level.

Table 6.3 NDC and SDG Commitments and Key State Level Initiatives to comply with national pledges. SDG-related targets stem from the Planning, Development and Special Initiatives Department's SDG Monitoring Platform.

	SDG-related		NDC-related	
International targets	SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all	SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation		
National targets/ indicators			Reduce the emission intensity of its GDP by 33 to 35 percent by 2030 from 2005 level.	Achieve about 40% of cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030
State-level targets 2030	41 % Renewable Purchase Obligation (RPO) achieved 10% Reduction of aggregate Technical and Commercial loss	Share of Manufacturing in GSDP (%): 30.32 Renewable share in the total installed capacity: 44.61% Number of Internet subscribers: 100%		
Key state-level Achievements	A High-Power Committee has been constituted under the Chairmanship of Chief Secretary with 8 working groups under the Chairmanship of Secretaries to Government in order to plan, implement, monitor and review the SDG in Tamil Nadu. The working group on "Innovation, Industrialization and Sustainable Development" under the Chairmanship of the Principal Secretary to Government, Industries department is tasked with Goals pertaining to Energy.		The State has harnessed around 13,000 MU of wind energy and 2,905 MU of solar energy during 2017-18. By way of harnessing the Green Energy, the State has reduced use of hard coal and thus reduced about 5,406 Million tonnes of Carbon emission.	A massive addition of power to the tune of 13,287 MW has been added to the grid since 2011 upto 31.03.2018 by commissioning of new power stations in State and Central sectors, through medium- and long-term power purchase agreements and through renewable energy. On the Green Energy initiative, Tamil Nadu is a leader in Renewable Energy sector among all States and has a total installed capacity of 11,113 MW as on 31.03.18 against 10,480 MW on 31.05.2017.

a) **Situational Analysis- VISION 2023 PERSPECTIVE**

The sub sectors that were covered as part of Vision 2023 are Power Generation, Transmission and Distribution Systems (through Renewable and Non-Renewable sources). The total investment in the energy sector is estimated at Rs 4,50,000 Crore.⁵⁶

The investment target for the six broad groups of infrastructure sectors are listed in Table 6.4.

Table 6.4 Investment target for energy sector till 2023

	Capacity (MW)	Amount (Rs in Crore)
Total Investment		450,000
New thermal generation capacity	20,000	110,000
Incremental renewable capacity	10,000	80,000
- Including solar power	5,000	
Transmission and Distribution		200,000
LNG terminal, gas grid and smart grid	5 MTPA, 10 cities	60,000

Some facets of the strategies for energy sector along with summary of investments is given in Table 6.5.

Table 6.5 Summary of Investments in energy sector till 2023

Projects	Rs in Crore
Ultra-Mega Power Projects	50,000
Case 2 bidding	60,000
Wind power	25,000
Solar power	55,000
LNG terminal	20,000
Gas Grid	20,000
Transmission and Distribution	200,000
Investment in Smart Grid	20,000
Total	450,000

⁵⁶TN Vision 2023 Document, Government of Tamil Nadu

Table 6.6 indicates the projected demand for the State by 2050 on the basis of different Clean Energy Compound Annual Growth Rates (CAGR) figures in a Business As Usual (BAU) scenario. In this projection it is assumed that both peak power demand and annual energy demand will grow at the same CAGR every year. It may be noted that the demand growth at such high CAGR figures will have to be supported by a huge increase in generating capacity.⁵⁹

Table 6.6 Projected Demand Forecast on constant CAGR basis

(Calculated from the base year figures of 13,489 MW and 93,465 MU for 2013-14)

Annual Growth rate (%CAGR)	Year 2030		Year 2040		Year 2050	
	Peak Demand (MW)	Annual Energy (MU)	Peak Demand (MW)	Annual Energy (MU)	Peak Demand (MW)	Annual Energy (MU)
4%	25,224	174,780	37,400	259,130	55,360	383,574
6%	34,270	237,434	61,370	425,208	109,900	761,480
8%	46,212	320,200	99,820	691,641	215,420	1,492,465
10%	61,980	429,470	160,764	1,113,932	2215,420	2,889,254

There are some challenges arising due to the huge increase in demand particularly for a resource constrained and densely populated state. The State has added 23,000 MW in the 66 years since independence while the actual requirement is around 400,000 MW assuming a CAGR of 10%. It is still a matter of challenge that even a CAGR of 6% allows for an addition of 88,000 MW which needs to be met from the additional power capacity that continues to be challenge considering that the State does not have coal reserve or it has fully utilized its power allocation.

The Tamil Nadu Electricity Regulatory Commission (TNERC) has issued new net metering guidelines for solar rooftop consumers as part of its Solar Policy 2019. This net-metering mechanism was one of the key proposals included in the solar policy that is expected to help the State to achieve its installation goals. This new order applies to all new applicants from the eligible consumer category. Existing consumers under the net metering program will not be covered under this order.

Tamil Nadu, the fifth largest solar market in India as of 2018, announced the State's Solar Policy earlier in 2019 with the goal of 9 GW in solar installations by 2023 between utility-scale and distributed generation projects. The State has targeted 40 percent (3.6 GW) of installations to come from the consumer category (residential rooftop and small-scale solar installations).

Under the new program, an eligible consumer can install the maximum capacity of solar rooftop up to 100 percent of his contracted demand with the distribution licensee. Eligible consumers will also have to install two meters under the solar net feed-in program. First is for measuring solar power generation and the second is to measure import and export of energy. Both the meters will have to be installed at the same location where the existing meter for recording the consumption of energy is installed.

A Roadmap to Tamil Nadu's Electricity, Demand-Supply by 2050, Shankar Sharma, Power Policy Analyst Installation of solar generation meter is to help DISCOMs with demand forecasting, along with the calculation of total solar generation in the State. The cost of new meters provided for the net feed-in program, installation and testing charges will have to be borne by the eligible consumers. However, DISCOMs will procure, test and install the meters. The consumer will also have an option of procuring and supplying the meters. The electricity generated by the solar rooftop power project will need to be used for self-consumption. The surplus energy that flows to the grid and is recorded in the export register of the meter will be calculated at a tariff fixed by the commission and credited to the consumer's account.

Under the commercial agreement, the order says-

"The price of purchase of energy exported to the grid by the solar power generators commissioned under the solar net feed-in during a financial year will be at 75 percent of the pooled cost of power purchase

notified by the Commission for the respective financial year in the orders issued on pooled cost of power purchase under Renewable Energy Power Purchase Obligations, 2010”

Or“

75 percent of last feed in tariff determined by the Commission or 75 percent of tariff discovered in latest bidding whichever is less.”

Connectivity to rooftop solar systems will be restricted to 90 percent of the distribution transformer capacity at the local level. The DISCOMs will provide the connectivity on a first come first serve basis and update the status of cumulative rooftop solar capacity connected to each distribution transformer in their website.

The Commission specifies that the responsibility of operation and maintenance (O&M) of the solar rooftop project including all accessories and apparatus lies with the solar power generators. For example, a consumer should use sine wave inverter suitable for synchronizing with the distribution licensee's grid. However, grid-connected solar PV systems with battery backup are not covered under this order. Any battery backup will be restricted to the consumer's network, and the consumer will be responsible for taking adequate safety measures to prevent battery power extending to grid causing a failure to DISCOM's grid supply.

DISCOMs will install the energy meters and commission the solar metering facility within three weeks from the date of application by the consumer. The energy generated from the solar rooftop project can be accounted towards the fulfillment of renewable purchase obligation of DISCOMs. However, the net injection of power is not eligible for renewable energy certificates.

The order has been in effect from March 25, 2019. Other States are also mulling similar policies to incentivize rooftop solar generation as rooftop makes only 11 percent of India's total solar installation.

6.1.2.2 Proposed Activities from 2021-30 under Energy Sector

A total number of 27 activities are proposed for a long-term implementation (2021-30) in the State out of which 16 activities are to be continued from TNSAPCC and rest of the 11 activities are newly proposed by nodal departments of the sector in the State. The total amount proposed for the Energy sector was approximately INR 98,056.68 Crore. Comparing this to the proposed budget, INR 1,365.76 Crore has actually been allocated for adaptation (7 activities) and INR 83.34 Crore has been allocated for mitigation (20 activities). Out of these, 27 proposed activities, 6 are related to capacity building, 17 are investment projects, 3 are pilot projects and 1 is a policy-oriented activity. The detailed description of proposed activities for 2021-2030 and budget allocation along with implementing departments has been given in **Annexure 8** and **Annexure 9** respectively.

6.1.2.3 Priority Mitigation Actions

Given limited resources and competing priorities, all the proposed activities for 2021-30 were ranked based on a method which is described in detail in section 7.3.

Based on this method of prioritisation, the first five high priority activities under **State Enhanced Energy Efficiency and Solar Mission** for 2021-30 are listed in Table 6.7.

Table 6.7 Priority activities in Energy Sector

PRIORITY ACTIVITY	IMPLEMENTING AUTHORITY	PROPOSED BUDGET for 2021-30 in INR Crore
Energy Efficient Street lighting (Rest of Urban Tamil Nadu)	CMA	10
Solar power generation program	TANGEDCO	8600
Offshore wind generation program (50 MW + 150 MW)	TANGEDCO	4800
On-shore wind generation program (5000 MW + 5000 MW)	TANGEDCO	
Grid connected Renewable Energy Generation – Hydro Electric Projects	Rural Electrification Corporation Limited Tamil Nadu Infrastructure Development Board	14217.67
School Energy Efficiency Programme on replacement of inefficient appliances with Energy Efficient Appliances in schools	Electrical inspectorate of Tamil Nadu	12
Effective utilisation of fly ash in view of climate change	TANGEDCO	1324.4
Kundah Pumped Storage Hydro Electric Project (4*125 MW) in Nilgiris District	TANGEDCO	3700

6.2. SUSTAINABLE HABITAT

6.2.1 Stocktaking

6.2.1.1 Progress Mapping (In Last 5years)

There are totally 9 strategies with 82 activities proposed under Sustainable Habitat sector in TNSAPCC. For strategy 1, there are 8 activities and physical progress has been made in these 8 activities for the last 5 years, except for the activity of “Promote generation of disaggregated electricity (micro-grid) in villages” in which there is no significant progress. Under Strategy 1, major activities undertaken were ECBC amendment, formulation of Solid Waste Management Rules etc. For Strategy 2, there are 17 activities and for all the activities, physical achievements have been made in areas like water supply schemes, underground sewerage schemes, rainwater harvesting, protection of water bodies etc. For Strategy 3, there are 2 activities and for all the activities, physical achievements have been made in last 5 years which include climate change adaptation plans, satellite cities etc. For Strategy 4, there are 7 activities and for all the activities, physical achievements have been made in last 5 years. Under Strategy 4, some major activities were undertaken in IDSP, open defecation programme, slum free cities programme. For Strategy 5, there are 7 activities and for all the activities, physical achievements have been made in last 5 years for sustainable solid waste management. For Strategy 6, there are 6 activities and for all the activities, physical achievements have been made in last 5 years. For Strategy 7, there are 23 activities and minor physical progress has been made in these 23 activities. For Strategy 8, there are 8 activities focusing on water, air and noise pollution. For Strategy 9, there are 8 activities and for all the activities, physical achievements have been made in last 5 years. Under Strategy 9, activities undertaken were focused on greening of urban spaces.

Activities in Sustainable Habitat sector are carried out by various government bodies in the State like DTP, TWAD Board, CMWSSB, TNSCB, Department of Transport, GCC, RD&PR, DTCP, CMA, Surface and Ground Water Board and TNHB. Thirty two of these activities were adaptation, 48 were mitigation and remaining 2 activities were both adaptation and mitigation. Total amount proposed for Sustainable Habitat sector for 2012-17 was INR 207,104 Crore. Out of this budget, an amount of INR 39,104.88 Crore was allocated for adaptation activities, INR 32,483.86 Crore was allocated for mitigation activities and INR 28,499.20 Crore was allocated for activities with both adaptation and mitigation components. The detailed physical achievements and financial allocations under this sector for 2012-17 (under TNSAPCC) as part of stock taking exercise has been given in **Annexure 6** and **Annexure 7** respectively.

6.2.1.2 Key Issues and Challenges

This section (Table 6.8) deals with the major issues and challenges faced by the sector in the State concerning Climate Change and its impacts. The areas have been broadly divided into technical, institutional and regulatory, financial and socio-political.

Table 6.8 Key Issues and Challenges of Sustainable Habitat Sector

Sector	Issues/Challenges
Technical	<ol style="list-style-type: none"> 1. Unavailability of flexible housing finance schemes 2. Lack of awareness about new sustainable building technologies 3. Changes in the scope and design of the scheme like pro-rata supply, design of conduits and other infrastructures that results in variation in the sanction of the schemes 4. Departments lack enough technical expertise 5. Low public awareness about the overall scarcity and economic value of water resulting in its wastage 6. Identification and location of sustainable sources of drinking water supply 7. Unsystematic extension of buildings and encroachment of government land contributes to traffic congestion 8. Increase in vehicular population contributes to traffic congestion 9. Lack of sustainable modern planning framework 10. Lack of effective management to manage the potential economic and social development arising from urbanization 11. Inadequate proper sanitation facilities 12. Lack of appropriate arrangements for scientific disposal of waste 13. Lack of awareness regarding waste management 14. Recovery of recyclables in an unorganized manner
Institutional and Regulatory	<ol style="list-style-type: none"> 1. Inter departmental issues leads to delay and cost overrun of the project 2. Lack of proper training or capacity building activities 3. Dearth of skilled personnel and inadequate human resource 4. Lack of strict laws for controlling pollutions and vehicular emissions
Financial	<ol style="list-style-type: none"> 1. Implementation is dependent on fund flow from Central Financial Assistance (CFA) and grants from different funding agencies 2. Paucity of funds results in delay of implementation leading to cost overrun of the schemes 3. The financial schemes of the local bodies for implementation of the scheme is not fulfilled in total
Social-Political	<ol style="list-style-type: none"> 1. Increasing rate of urban population sets humongous stress on housing demand and space making living condition sun sustainable 2. Unplanned settlement and migration of rural people to urban areas creates more demand of land 3. Lack of purchasing power 4. Distribution of water is uneven 5. Full coverage of drinking water remains an elusive factor 6. Unplanned construction in the urban areas 7. Lack of effective policies for proper monitoring and balanced development in the urban region 8. Dearth of responsive approach towards the changing needs of people at policy level

6.2.1.3 Gap/Barrier Analysis

After an overall understanding of the operational and financial progress of the activities under various strategies in TNSAPCC the following analysis was put forth for the gaps and barriers of the sector in the State. Gaps/ barriers were mainly identified in the areas of institution, finance and regulation/ policy (Table 6.9).

Table 6.9 Gap/ Barrier analysis of Sustainable Habitat Sector

<u>Area</u>	<u>Gaps</u>
Institutional	<ul style="list-style-type: none"> ✓ TNCDDBR, 2019 has come into force since 04.02.2019. This is a comprehensive rule in simplified format for easy understanding, administration and enforcement. The rules reflect realistically the requirement. The involvement of various professionals, fixing responsibilities, inspection of construction at different stages, outsourcing of inspection for speedy disposal will improve the compliance. The Government have constituted special task force to prevent unauthorised construction by enhancing the co-ordination among the stake-holding departments and the use of technology. TNCDDBR insists on the installation of rainwater harvesting measures within its premises for conservation of rainwater. The method suggested is based on a detailed evaluation study conducted to assess the effectiveness of RWH structures. All centrally air conditioner building shall have own wastewater reclamation plant and use reclaimed wastewater for cooling purpose. A separation method of bath & wash basin water and its reuse has been suggested. ✓ An inter-departmental synchronization in the State due to which certain activities are being done in a repetitive mode while other activities remain untouched must be explored. ✓ Proper integration and convergence in the departmental planning and budgeting is required ✓ Need for appropriate financial management and guidance to build governance capacity
Financial	<ul style="list-style-type: none"> ✓ Requirement of more funds ✓ Delay of funds which result in cost overrun ✓ Paucity of funds from different schemes is a major gap for delay of implementation of activities ✓ Lack of notable investment and accounting procedure ✓ Reduced scale of climate finance
Regulatory/ Policy	<ul style="list-style-type: none"> ✓ Need for inter-departmental co-ordination for better convergence and clarity of goals ✓ Need for convergence with the schemes attaining similar goal ✓ State level policy planning and modeling for climate finance needs to be linked to the analysis of benchmarked climate linked activities which continues to be a challenge

6.2.2 Sector Planning: Sustainable Habitat

6.2.2.1 National and State-Level Targets and Their Linkages

The basic objective of NDC in this sector aims to attain through various commitments is a sustainable lifestyle and climate justice to protect the poor and vulnerable from adverse impacts of climate change. Various commitments have been developed by the government to achieve the targeted goal. Some of the key commitments under the SDGs and the NDC pertaining to sustainable habitat are outlined in Table 6.10.

Table 6.10 NDC and SDG Commitments and Key State Level Initiatives to comply with national pledges. SDG-related targets stem from the Planning, Development and Special Initiatives Department's SDG Monitoring Platform. ⁶⁰

	SDG-related				NDC-related	
Inter-national targets	SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable	SDG3: Ensure healthy lives and promote well-being for all at all ages	SDG6: Ensure availability and sustainable management of water and sanitation for all	SDG9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation		
National targets/ indicators	-	-	-	-	To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation.	To adopt a climate friendly and a cleaner path than the one followed hitherto by others at corresponding level of economic development
State-level targets 2023 (Vision Tamil Nadu 2023)	By 2023, the State has set a target to achieve: - Ensure access for all to adequate, safe and affordable housing and basic services - Upgrade slums, emphasis on slum-free cities and low-income housing - Achieve	By 2023, the State has set a target • - To build a healthy society that will be able to take part in and share the fruits of economic development • - To provide universal access to quality health care facilities • - To ensure availability of items on the Essential Drug List (EDL) to all citizens	By 2023, the State has set a target to • - Reduce the vulnerability of Urban Local bodies in sustained water supply caused by climate change • - Achieve universal and equitable access to safe and affordable drinking water for all • - 24x7 sustainable	By 2023, the State has set a target to: - Improve communication and digital connectivity - Provide best in class infrastructure facilities focused on providing universal, equitable and affordable services to all residents - Establish knowledge capital and Innovation facility Centre/		

⁶⁰ SDG India Index Baseline Report, 2018 by NITI Aayog

	SDG-related				NDC-related
2030	<p>100 percent door to door waste collection in Towns and Cities.</p> <ul style="list-style-type: none"> - 100% municipal solid waste treatment <p>•Tree cover achieved outside forest area (State Specific): 23692 square km</p>	<p>- To strengthen primary and secondary care centres and upgrading tertiary care hospitals</p> <p>•95: Percentage of women aged 15 - 49 years who received antenatal care, four times or more (Period 5 years/1 year)</p> <p>•Reducing the infant mortality rate to 10 deaths per 1000 live</p> <p>• 1.0 HIV Prevalence (Number of HIV positive among tested per 10000 Population)</p> <p>• 8000 number of deaths due to road accidents</p>	<p>piped and pressurized water supply</p> <p>Water security in the urban local bodies</p> <ul style="list-style-type: none"> • -100 percent Sanitised and Open Defecation free city -100 percent Sanitised Cities - Clean and Green Garbage free city •Capacity of sewage water treated (MLD): 100% 	<p>Innovation Hub</p> <ul style="list-style-type: none"> - Seamless and affordable connectivity and transportation • Share of Manufacturing in GSDP (%): 30.32 • Renewable share in the total installed capacity: 44.61% • Number of Internet subscribers: 100% 	
Key state achievements and initiatives	SDG index score: 33	SDG index score: 77	SDG index score: 66	SDG index score: 46	

6.2.2.2 Proposed Activities from 2021-30 under Sustainable Habitat Sector

A total number of 24 activities are proposed for a long-term implementation (2021-30) in the State. Out of these 24 activities, 23 are carried forward from TNSAPCC and 1 activity is newly proposed in the State. The total amount proposed for this sector is approximately INR 127,489.33 Crore. Compared to this proposed budget, INR 107,736.93Crore has been allocated for adaptation (2 activities), INR 19,752.35 Crore has been allocated for mitigation (20 activities) and INR 0.05 Crore for both adaptation and mitigation (2 activities).Activities which are more focused in terms of high budget allocation for future include 24x7 water supply schemes, underground sewerage and septage management, waste water reclamation, upgradation of road networks, sustainable soil waste management for both urban and rural etc. Out of the 24 proposed activities, 5 are related to capacity

building, 3 are investment projects, 1 is a pilot project, 1 is policy-oriented and 2 are research-based activities. The detailed description of proposed activities for 2021-2030 and budget allocation along with implementing departments has been given in **Annexure 8** and **Annexure 9** respectively.

6.2.2.3 Priority Mitigation Actions

All the proposed activities for 2021-30 were ranked based on the method which is described section 7.3.

Based on this method of prioritisation, the first five high priority activities under **Sustainable Habitat** for 2021-30 are listed in Table 6.11.

Table 6.11 Priority activities in Sustainable Habitat Sector

PRIORITY ACTIVITY AUTHORITY	IMPLEMENTING	PROPOSED BUDGET for 2021-30 in INR Crore
Providing CC resilient water supply systems, Providing water supply scheme and 24 X 7 ready water supply in extended areas	TWADB/ CMWSSB/ CMA	7114.72
Sewerage and Septage Management	CMWSSB	9232.04
Rainwater Harvesting Structures	DTP/RDPR	1717.25
Sustainable solid waste management (urban)	DTP/ GCC	5232.5
Improvement to all existing roads and maintenance at regular intervals	DTP/RDPR	13146.25