ENVIRONMENT, CLIMATE CHANGE AND FORESTS DEPARTMENT

ENVIRONMENT AND CLIMATE CHANGE

POLICY NOTE
2022-2023

DEMAND No.15

SIVA. V. MEYYANATHAN
Minister for Environment - Climate Change and Youth Welfare and Sports Development

DEPARTMENT OF ENVIRONMENT AND CLIMATE CHANGE

INDEX

TAMIL NADU POLLUTION CONTROL BOARD

INDEX

******

DEPARTMENT OF ENVIRONMENT AND CLIMATE CHANGE

இருபுனலும் வாய்ந்த மலையும் வருபுனலும்
வல்லரணும் நாட்டிற் குறுப்பு

(குறள் 737)

Waters from rains and springs, a mountain near and waters thence. These make a land with fortress

1. Introduction

A clean environment is the key to ensure that people are able to lead healthy and productive lives. Healthy ecosystems and the services they provide are essential for the long-term growth of economic sectors such as agriculture, forestry and fisheries.

Ecosystems focus on regulating the air, water and soil on which we all depend, and form a unique and cost-effective buffer against extreme weather events and climate change.

The integrity and functionality of these vital natural assets, however, are increasingly compromised, with the ecosystems degrading faster than they can recover. Realising this, the State has taken pro-active steps to enhance environmental protection.

Climate change is one of the biggest challenges being faced today affecting people and nature across the globe, with developing countries being the most impacted. Most countries are becoming vulnerable to climate change, directly impacting their development path and in turn their economic growth.

As the second largest economy in India with 38 districts spread over a total land area of 1.3 lakh sq.km, Tamil Nadu is an important coastal State, with a coastline of 1,076 km, which is often affected by the vagaries of nature. With high dependency on natural resources,

Tamil Nadu is under constant threat of climate change and its negative impact.

The COVID-19 pandemic brought to light the vulnerabilities and underscores the links between human health and nature. Several studies have shown links between natural habitat destruction and a potential greater risk of zoonotic diseases. Pathogens thrive where there are changes in the environment, like deforestation. Natural ecosystems are under stress from human activity and climate change. It is often noticed that nature can act as a balanced environment between humans and pathogens and can also help in economic and social recovery efforts from the COVID-19 pandemic.

Transforming our world:

There is a strong political determination "to protect the planet from degradation through sustainable consumption and production,

sustainably manage its natural resources and take urgent action on climate change, so that it can support the needs of the present and future generations".

Environment and climate change continues to be important cross-cutting issues that requires commitment and attention of stakeholders viz., Government of Tamil Nadu, industries, academicians, civil society and the public at large.

1.1. Environmental Safeguard

The other guiding principle in the sustainable development economy is creating a development pathway that meets the needs of the present without compromising the ability of future generations to meet their needs. Sustainable environment recognizes the interdependence of environmental, social and economic systems and promotes equality and

justice through people empowerment and a sense of global citizenship.

A. Constitutional Provision

The Indian Constitution is one of the first in the World to recognize the importance of environmental conservation.

The 42nd constitutional amendment introduced Article 48A, part of the Directive Principles of State Policy directs, "The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country."

Article 51A (g), part of the Fundamental Duties reads, "It shall be the duty of every citizen of India to protect and improve the natural environment". As the Constitution provides the framework for creating a welfare State, it is necessary that the finite natural resources of the country be optimally utilized without adversely affecting either the health of the people or the environment. This is the essence of the term sustainable development. We must make conservation-oriented development choices to avert pressure on

Natural resources and life-support systems.

B. **Environmental Protection Act (EPA)** was enforced in the year 1986 with the aim to protect and improve the environment and matters associated with it.

C. **Environment Impact Assessment(EIA) Notification was enacted in 2006** by the Government of India for imposing certain restrictions and prohibitions on new projects or activities, or on the expansion or modernization of existing projects or activities based on their potential environmental impacts, being undertaken in any part of India.

D. **Coastal Regulation Zone (CRZ) Notification** ensures livelihood security to the fishermen and other local communities. The Ministry of Environment Forests and Climate Change, Government of India issued CRZ Notification, 2011 under the Environmental (Protection) Act, 1986.

1.2. Department of Environment and Climate Change

Recognizing the importance of the Agenda 21 of Earth Summit of United Nations Conference on Environment & Development, held on June 1992 at Rio de Janeiro, Brazil, the Department of Environment was formed vide G.O.Ms.No.335, Environment and Forests Department, dated 13.10.1995. This Department's name was changed as Department of Environment and Climate Change vide G.O. (Ms) No.65, Environment, Climate Change (EC.1) Department, Dated 06.04.2022.

Functions of the Department

- Formulating policies related to Environmental issues for the Government of Tamil Nadu.
- Creating a framework to bring Synergy among the line Departments of the State and thus evolving policy initiatives for the State.

- Integration of knowledge and experiences of National and International agencies through collaboration and partnership.
- Developing framework for capacity building of various stakeholders (Line Departments, Institutions/Universities, Researchers, Experts, Non-Governmental Organizations (NGOs)) on Climate Change Adaptation and Mitigation.
- Implementing the Statutory provisions of Coastal Regulation Zone (CRZ) Notification and Environment Impact Assessment (EIA) Notification.

The Department is dealing with all the environment protection and management efforts except those dealt by the Tamil Nadu Pollution Control Board. The Department is the Nodal Agency for formulating the climate change related schemes, plans, programmes and their implementation in the State.

VISION

Make Tamil Nadu a Society that protects its environment, manages its Natural resources in a sustainable, equitable, climate resilient manner to enable its citizens a better quality of life.

MISSION

The Department is mandated to protect the Environment of the State by undertaking all mitigation and adaptation measures against Natural vagaries by preparing plans to protect Natural resources and conserve Natural habitats.

STRATEGIES

1. Conserve and preserve Natural resources and promote their sustainable use by maintaining the balanced ecosystems as well as the functions of the environment.

2. Prepare a holistic Climate Change Policy for Tamil Nadu that supports climate change mitigation, adaptation and resilience cutting across all sectors of governance.

3. In consonance with the Coastal Regulation Zones, preparation of Coastal Zone Management Plan as per CRZ notification and to protect 1076 Km of coastline, preparing Shoreline Protection Management Plan.

4. Create sustainable tourism and healthy coastal management through Beach Management and Aesthetics Management Systems (BEAMS).

5. Educate and empower local communities in the management of climate change at ground zero while promoting best practices of adaptation and mitigation.

6. Creating awareness for sustainable use of natural resources with the support of National Green Corps.

7. Build standards for energy efficient infrastructure to save energy and reduce consumption by creating practical models for green mobility to reduce carbon emissions and bring in regulatory mechanisms.

8. Promote a multi stakeholder approach to fast-track climate action in a synergized fashion by creating a robust and dynamic monitoring mechanism that ensures better compliance of Environmental Standards through transparent and credible systems.

9. Develop collaborations and strengthen community engagement to build long

term commitment for a Net Zero Carbon future for Tamil Nadu

10. Develop climate resilient technologies in collaboration with various research institutions to create green models and develop evidence based for scaling up and replication.

2.0. Tamil Nadu State Action Plan on Climate Change (TNSAPCC)

The Government of Tamil Nadu (GoTN) recognizes that Climate Change is a serious issue and have introduced a slew of measures to combat climate change. This reflects the commitment of the Government to addressing the critical issue of climate change. The Government understands the importance of implementing the State Action Plan on Climate Change (SAPCC) and has prepared TNSAPCC 2.0 (2022-2030) for both the opportunities and risks presented by a changing climate. The SAPCC

incorporates the goals, ambitions, policies, and action plans that Government has conceived and plans to implement.

The State has addressed the climate strategies aligned with the National Missions under the National Action Plan for Climate Change.

TNSAPCC has identified the following seven vulnerable sectors viz.,

1. Sustainable Agriculture
2. Water Resources
3. Forests & Biodiversity
4. Coastal Area Management
5. Enhanced Energy Efficiency & Solar Mission
6. Sustainable Habitat
7. Knowledge Management

The draft TNSAPCC 2.0 document emphasizes on Disaster Management and mitigation, Sustainable Development Goals and Composite Vulnerability Index (CVI) for the State.

Some of the excerpts from climate actions targeting different sectors are detailed below:

2.1. Green Tamil Nadu Mission

To increase the total area under the forest and tree cover in Tamil Nadu to 33 percent of the land area of the State, the Government has announced the Green Tamil Nadu Mission. Under the Mission, a Massive Tree Plantation Programme of indigenous and diverse species, in coordination with multiple departments, public and private institutions will be rolled out as a people's movement over next 10 years.

2.2. Tamil Nadu Climate Change Mission

Government has announced an exclusive Mission on Climate Change, this would focus on both climate change mitigation and adaptation activities with an outlay of Rs.500 crores to start with.

Tamil Nadu is one of the leading States in renewable energy production; the State contributes 16 percent to India's total installed grid capacity connected to renewables.

The State's solar and electric vehicle policies have created an enabling environment, which will be further strengthened. Tamil Nadu has also made strides in setting its adaptation priorities and fine-tuning various sectoral policies and actions on ground to reduce the impacts of climate change.

This is dealt in detail under Chapter 4.2. Tamil Nadu Climate Change Mission

2.3. Tamil Nadu Wetlands Mission

With the objective of ecological restoration of wetlands in Tamil Nadu, the Mission will identify and map wetlands in 5 years and restore the ecological balance with a focus on livelihood options. Under this Mission, a wetland inventory process will be initiated using digital technologies, and an Integrated Management Plan for Ecological restoration of wetlands would be undertaken through a participatory process involving local communities and all other relevant stakeholders.

2.4. Coastal Management

Department of Environment and Climate Change in collaboration with Fisheries and the National Centre for Sustainable Coastal Management seeks to study the prevalence of microplastics in lakes, coastal habitats and estuaries as a means of reducing urban flooding.

It also seeks to enhance the mangrove cover as a flood and storm surge mitigation measure.

Under the Phase II of the Integrated Coastal Zone Management Programme with a proposed outlay of Rs. 306.08 crores, the Government also aims to protect shore ranges using soft, hybrid, hard structures or climate resistant trees depending on the site condition that could reduce the impact of storm surges.

2.5. Blue Flag Certification for beaches

Blue Flag certification, falls within the Beach Environment and Aesthetic Management Systems (BEAMS) Programme. Blue Flag Certification is awarded based on 33 indicators of sustainability, infrastructure, equity, etc., This seeks to ensure sustainable development and management of coastal resources, in addition to higher quality safety services, environmental education, and information.

2.6. Gathering Evidence and mobilizing information

The Government has initiated several efforts to identify and forge institutional partnerships to gather and analyse the best available evidence on our future climate and use tailored and accessible information to support decision-making based on the same. Towards this end, the Department of Environment and Climate Change (DoECC) is collaborating with several key institutes including the Centre for Climate Change and Disaster Management (CCDM), Anna University, Tamil Nadu Agricultural University, Indian Meteorological Department, and the World Resources Institute (WRI) to get State-of-the-art data, especially in terms of future climate risk projections, impact assessments, weather advisory early warning for extreme climate events and training and capacity building.

2.7. Investing in Local Actions

Complementary to State Government's efforts, the district administration should have a clear understanding of the needs of their communities from a climate action standpoint, as well as the convening power to translate goals into actions.

The Department of Environment and Climate Change would seek the help of competent agencies/experts both within and outside the Government to help with this process of anchoring and building resilience at the local level.

2.8. Creating a climate-ready economy

Climate Change has created an economic crisis, in addition to environmental, food, health, infrastructure problems it has unleashed. The costs of physical destruction of infrastructure, energy costs, water shortages, and loss of

livelihoods triggered by climate change are very high. Several sectoral strategies have been devised and policy measures introduced to manage climate impacts.

2.9. Some of the Initiatives carried out by following Departments for indirectly help to reduce the Climate Change efforts

2.9.1. Agriculture

For the first time in the history of the Tamil Nadu Legislative Assembly, an exclusive budget for agriculture was presented. The budget has provisions for integrated farm improvement at the village level, conversion of fallow lands into farmlands, promotion of micro-irrigation clusters, and cultivation of drought-tolerant crop varieties, especially millets and pulses. As part of the budget, the government has also floated a 'Rural Youth Agricultural Skill Development Mission' to engage youth in agriculture.

2.9.2. Water Resources and Municipal Administration

Government of India and this Government together are working with the Asian Development Bank on a climate adaptation project in the Vennar sub-basin in the Cauvery Delta region. The project aims to protect coastal districts from cyclones and flooding that is being made worse by climate change. Given the recent floods in Chennai, the Government has taken a call to construct underground sewerage systems in all the added areas of Chennai.

2.9.3. Health

The dual-threat of COVID-19 and climate change has not only exposed numerous vulnerabilities within our systems, especially in emergency response, governance, early warning, disease forecast, and public health care, but has illustrated the need for collective

action and a paradigm shift in our approach to managing the crisis.

This has a direct bearing on the livelihoods of the poor and vulnerable sections of society besides the business community. India witnessed a decline in GDP during 2020 with the growth rate of Tamil Nadu also slowing. But Tamil Nadu has revived its growth at a rate of 1.1% and 5.49% respectively, in real and nominal per capital in the pandemic year 2021. The Government of Tamil Nadu has introduced several measures in terms of controlling the spread of infections, minimizing the death toll and enhancing the social safety nets of the people. Investments have been made in increasing the health infrastructure, weather, and disease forecast systems, improving vector control practices, and training and capacity-building measures at different scales.

2.10. Increasing Urban Green Cover

Tamil Nadu is endowed with rich biodiversity having several species of animals and plants and hosting bio-diversity hotspots containing several endemic species. However, increasing population, deforestation, urbanization and industrialization have put our natural resources under tremendous pressure causing loss of biodiversity. Biodiversity conservation has traditionally been considered confined to remote forest areas but with increasing urbanization in Tamil Nadu, a need has risen to safeguard biodiversity in urban areas as well. The urban forest is the best way to bridge this gap. The Department of Environment and Climate Change has, therefore, taken appropriate steps to promote and conserve biodiversity in urban landscapes. This will be one of the priority areas under the Green Mission.

2.11. Enhancing livelihoods of the urban informal sector

As a first in the country, the Government plans to implement on a pilot basis, an urban wage employment scheme for the poor and informal labour by engaging them in the creation and maintenance of public assets like parks, playfields, storm water drains, roads, buildings and rejuvenation of water bodies.

2.12. Integrating climate resilience with rural livelihoods

As in a few other States, Tamil Nadu too has utilised the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) to integrate works of climate resilience with its social security measures. This model has been used to facilitate integrated water resources management through the wages, infrastructure, institutions and skill building interventions of the programme. Adopting this bottom-up

approach to water infrastructure planning will lead to effective harvesting flood and drought management works at Gram Panchayats. While this is being piloted in Tiruvannamalai and Cuddalore, the State plans to scale up similar projects works across other districts. The State has also been scaling up planning at the Gram Panchayat level based on GIS tools under MGNREGS.

2.13. Environment Protection through a ban on plastics

Given the difficulties that plastic consumption and haphazard disposal poses to waterways in the State and flood mitigation, the Government has also allocated Rs.10 crores for this financial year to create awareness on the ban of plastic use and its adverse impacts. The Government had earlier banned 14 types of plastic items in January 2019 but has now decided to strictly enforce the same through

local bodies and communities. Groups have been formed to reach out to various community representatives and end users to sensitize the importance of plastic ban and the need to adhere to this mandate.

2.14. Climate Mitigation – Energy & Transport Sectors

Tamil Nadu with its vast potential for Renewable Energy, both solar and wind power, carries the mantle for India's ambitious Renewable energy goals. The State has been a leader in the area of clean energy and is undertaking comprehensive policy measures to continue as a forerunner in the sector. With a range of projects under development, Tamil Nadu is tapping its attractive solar and wind power potential, along with hydel and biomass-based energy. Tamil Nadu's transition to a low-carbon, clean energy driven pathway is pinned on an over-arching set of policies – the Solar

Policy, with its vision to embed solar energy as part of a larger state strategy for development; the Industrial Policy, which seeks to promote resilient and environmentally sustainable industrial development; and the Electric Vehicles (EV) Policy which aims to create a supportive ecosystem for EV's in the State, including investment in EV manufacturing and green jobs in the sector.

The State has also included net metering guidelines for solar rooftop consumers, in a move to enhance solar power generation capacity and for facilitating consumers to be able to sell the energy generated by their systems to the State DISCOM (Distribution Company). Tamil Nadu is leveraging these policies to incorporate a higher share of renewable energy in its overall energy mix for internal consumption as well as for external supply to other states. To further strengthen its power

infrastructure, the government has committed to a range of projects to strengthen the transmission network, such as establishing new substations, building digital substations and upgradation of existing substations, and is taking measures to build internal technical capacity and expertise to properly integrate Renewable Energy.

2.15. Innovative Financing Mechanisms

Apart from the established sources of climate finance such as the Adaptation Fund (AF), Green Climate Fund (GCF) and India's National Adaptation Fund for Climate Change (NAFCC), the State has also embarked on innovative ways of green financing.

3. Tamil Nadu Green Climate Company

Recognizing the need for additional finance, and that most of the funding for the climate actions in the State has to be sourced from budgetary allocations, the Government has set up the Tamil Nadu Green Climate Company (TNGCC). This would play the role of an SPV which is a non-profit company under section 8 of the Companies Act, 2013, to implement the three ambitious Missions mentioned earlier. This is the first of a kind for any State to set up a non-profit company to catalyse finance from the public and private sector to implement climate actions. The objective of this company is to not only provide incremental funding for exclusive climate adaptation and mitigation actions but also to forge partnerships and capacities to implement such actions effectively. The company will also promote investments and collaborations to achieve the targets set by the

three Missions viz., Green Tamil Nadu Mission, Tamil Nadu Wetlands Mission and Tamil Nadu Climate Change Mission. The Government have set up a Project Management Unit (PMU). The initial authorized capital of this company is Rs.5 crores and will be raised through equity holdings of the Government and other statutory organizations such as the Tamil Nadu Pollution Control Board.

The TNGCC will set up Tamil Nadu Green Climate Fund to finance pilot projects/ programmes across various sectors that target mitigation and adaptation actions. Specifically,

1. The Tamil Nadu Green Climate Fund being set up by the Government will be used as a viability gap funding for integrating or overlaying climate resilience and mitigation actions with development schemes already being implemented. This will help provide climate co-benefits at scale.

2. The Government also seeks to potentially institutionalize such actions at the district level, which will be in-charge of accelerating, monitoring and accounting for climate actions within its jurisdiction. The TNGCC funding will act as a viability gap funding along with discretionary funds (such as the District Mineral Fund), budgetary funding (State, CSS), and technical support / technology transfer from bilateral / technical research institutions / private sector investment.

Looking ahead, with all the basic strategies and actions plans put in place, Tamil Nadu is well poised to build a resilient society and a sustainable future. Sustainable Development Goal 13, Climate action emphasizes on strengthening resilience and adaptive capacity to climate-related hazards and natural disasters in its Target 13.1. At cadastral level, Tamil Nadu

State Action Plan on Climate Change (TNSAPCC) will serve as a baseline document for developing adaptation strategies, hence supporting the State to achieve both Target 13.1, 13.2 and 13.3., Promotion of Electric Vehicles for the public and private transport has been another approach to move towards renewable energy sources to improve climate resilience and Promote green spaces (11.7.1 SIF – State Indicator Framework), protecting wetlands (6.6 NIF – National Indicator Framework) are some of the other interventions initiated by the State that are closely linked to climate resilience.

4. Thrust Areas and Ongoing Schemes

Balanced environment is mandatory for overall development of the State. The State Government has identified the following thrust areas which ensure the ecological, environmental and socio-economic security of the State:

4.1. Sustainable Development Goals

4.2. Climate Change Adaptation and Mitigation

4.3. Coastal Zone Management

4.4. Eco-restoration of Water bodies

4.5. Technology Intervention

4.6. Creation of Environment awareness and capacity building

4.7. Safeguarding the Environment

4.1. Sustainable Development Goals (SDGs): SDG 13: Climate action

The Department of Environment and Climate Change is the Nodal Department for the Climate Change adaptation and mitigation activities and deals with the Sustainable Development Goal (SDG 13): Climate Action.

SDG 13: Climate action emphasizes on strengthening resilience and adaptive capacity to

climate-related hazards and natural disasters in its target.

13.2. Integrate Climate Change measures into National policies, strategies and planning.

13.3. Improve education, awareness-raising and human and institutional capacity on climate change, adaptation, mitigation, impact reduction and early warning

The Tamil Nadu State Action Plan for Climate Change 2.0 is a framework for the State for adaptation and mitigation strategies that is intricately interwoven with the Sustainable Development Goals. The 5 Ps of the SDGs – Planet, People, Prosperity, Peace and Partnerships are closely linked.

The TNSAPCC is supporting the State to achieve the Targets 13.2 and 13.3.

The Department of Environment and Climate Change works in close association with

the Revenue and Disaster Management for helping them in formulating the district level Disaster Preparedness Plans. It helps to formulate Early Warning Systems to reduce the impact of extreme weather events. The State will move closer to the Target of "0" as determined by the National Indicator Framework to strengthen the resilience and adaptive capacity to climate- related hazards and natural disasters.

The State is extremely vulnerable to Climate Change extreme events and the Department of Environment and Climate Change as part of the implementation of the TNSAPCC 2.0 focuses on the development of Early Warning Systems and risk management to climate shocks.

SDG 14: Life below Water

14.1. Prevent and significantly reduce marine pollution of all kinds

14.2. Sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts

14.3. Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels

Programmatic Approach to SDGs

The Government has taken up efforts to ban single use plastics to reduce its impact on the environment and has launched in the presence of the Hon'ble Chief Minister, the "***Meendum Manjappai***" campaign. This campaign includes promotion of various plastic alternative products. The department works closely with the local bodies and NGC schools to

ensure that people do not use single use plastics.

4.2. Climate Change Adaptation and Mitigation

Climate change can increase disaster risk in a variety of ways by altering the frequency and intensity of extreme events, affecting vulnerability to hazards, and changing exposure patterns. These detrimental impacts caused in the various natural systems can be reduced by planning suitable adaptation and mitigations actions at the sub-national level.

Mitigation measures are those action points that are taken to reduce and curb greenhouse gas emissions, while adaptation measures are based on reducing vulnerability to the impact of climate change. Mitigation therefore attends to the causes of climate change**,** while adaptation addresses its impact**.**

The adaptation & mitigation measures include setting up of effective institutions and governance, innovation and investments in environmentally sound technologies, climate resilient infrastructure, sustainable livelihoods, behavioral and lifestyle choices which are dealt in detail in TNSAPCC 2.0.

4.2.1. National Adaptation fund for Climate Change (NAFCC)

4.2.1.a. Climate Proofing of Rainfed Watersheds in Salem and Virudhunagar Districts

The MoEF&CC, GoI has approved the project, "Climate Proofing of Rainfed Watersheds in Salem and Virudhunagar Districts" implemented by the Tamil Nadu Watershed Development Agency (TAWDEVA) at a cost of Rs.23.80 crores to treat an area of 15,990 ha. Water resources, Soil health management activities, Crop management activities,

Livelihood support and Micro enterprises activities are in progress under the project.

4.2.1.b. Management and rehabilitation of coastal habitats and biodiversity for climate change adaptation and sustainable livelihood in Gulf of Mannar, Tamil Nadu, India

This is the first NAFCC project in India on Coastal Area Management and in line with TNSAPCC funded by the MoEF&CC, GoI, at a cost of Rs.24.74 crores. This project consists of a baseline study to assess vulnerability to climate change of coastal ecosystems (biodiversity and fishery) and coastal communities in the Gulf of Mannar, restoration of habitats (coral reef and sea grass rehabilitation) in Kariyachalli and Vilanguchalli islands, protection of Vaan island and eco-development activities.

4.2.3. Green Climate Fund (GCF)

The Green Climate Fund (GCF) was adopted as a financial mechanism of the UN Framework Convention on Climate Change (UNFCCC) to assist developing countries in adaptation and mitigation practices to counter adverse effects of climate change.

The project "Improved resilience of Urban Ecosystems through targeted restoration of Wetlands" proposed by the Tamil Nadu Forest Department at a cost of Rs.165.69 crores was approved by the State Level Steering Committee in Tamil Nadu and by MoEF&CC, GoI and the Detailed Project Report is under active consideration of MoEF&CC, GoI.

The Department coordinates with the Revenue department for calculating the Disaster Resilience Index as it is the nodal agency for climate change under SDG 13. The newly introduced initiative of Green climate fund for

climate financing would help in supporting risk insurance, risk pooling and other insurance solutions.

4.2.4. Climate Studio:

The Government of Tamil Nadu has taken the initiative to set up an exclusive Climate Change Research Center viz., "Centre for Climate Change and Adaptation Research (renamed as **Centre for Climate Change and Disaster Management** (CCCDM)) at Anna University to strengthen the understanding of climate change and our capacity to manage and adapt to it.

Tamil Nadu State Action Plan on Climate Change (TNSAPCC) has identified Centre for Climate change and Disaster Management (CCCDM), Anna University as the sectoral nodal agency for knowledge management in climate change.

The Climate Studio was set up with the financial support from Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) India at Rs. 246.87 lakhs under their Climate Change Adaptation in rural areas of India Project.

The "Climate Studio" was set up in 2019 with adequate accessories, it was operationalized during 2021-22 with the funding of Rs.3.85 crores from Environment Management Agency of Tamil Nadu (EMAT).

The Climate studio is one of its kind established with high performance computation facility cluster with storage and accessories for climate modeling.

Facilities at the Climate Studio

- Models and tools to assess the climate risk and vulnerability on water, forestry, coastal, health and biodiversity.
- Regional Climate Model - PRECIS

- Coastal Area Management - SimCLIM-Sea Level Rise Predictions
- Water Sector - MIKE SHE and SWAT
- Agriculture Model - DSSAT, InfoCrop
- Forestry Sector - Dynamic Global Vegetation Model (DGVM).
- Statistical and mapping model - R, Python & ArcGIS

Objectives of the Climate Studio

- To provide updated high resolution and robust cadastral level Regional Climate Scenarios for micro level policy planning covering entire Tamil Nadu.
- To do periodical assessment of Climate change Impact & Vulnerability on Natural Resources viz., Agriculture, Water resources, Forest & Bio-diversity and Coastal area management based on continuous assessment reports of IPCC.
- To develop multi sectoral cadastral level spatial information using renowned softwares such as SWAT, MIKE (Water sector), Infocrop, DSSAT (Agriculture), SimCLIM (coastal), Maxent (Forest) etc., to give a clear idea of climate impact and

damages already caused on ecosystems and its future vulnerability on natural resources.

- To disseminate knowledge to stakeholders - planners, scientific world, NGO's and community in vernacular languages.

Activities of the Climate Studio

- Provide access to climate and vulnerability information for evidence-based adaptation planning at National, State and local level.
- Training Programmes for assessing the climate change impact on sectors such as Water, Agriculture, Forestry, Coastal, Urban habitation, Health and Biodiversity etc.
- Build scientific capacity to develop climate projections and determine vulnerability to support adaptation activities.
- Develop a network of institutions involved in climate studies and related research to exchange data, techniques and also to pursue collaborative research activities.

Expected outcomes of the Climate Studio

- District /Block level climate Snapshots
- Easy access to climate information through a web portal.
- Periodical updation of international climate data to provide latest climate change information.
- Bring together all institutes and research centers working on climate related research to exchange data, techniques and to pursue collaborative research activities.
- Yellow page information linking all International and National scientific community involved in climate studies.
- Building Climate expertise especially among young people.

4.3. Coastal Zone Management

Tamil Nadu has a vast coastline of 1076 kms which constitutes about 15 percent of the total coastal length of India. The State is endowed with varied coastal habitats like

mangroves, corals, seaweeds, sea grass beds, salt marshes, mudflats, sand dunes etc.

To promote integrated and sustainable management of the coastal and marine areas, it is essential to follow multi-disciplinary approaches. Main approaches will improve capabilities related to coastal processes, shoreline management, coastal hazards/ vulnerability.

Coastal ecosystem is included under the SDG Goal 14: Life below water which emphasizes on protection and management of marine and coastal ecosystems on sustainable basis

4.3.1. Coastal Zone Management Plan (CZMP)

The Coastal Regulation Zone (CRZ) Notification, 2011 has been issued vide S.O 19 (E) dated 06.01.2011 under the Environment

(Protection) Act, 1986 by MoEF&CC, GoI to conserve and protect the coastal stretches and to promote sustainable development in the coastal areas.

The coastal areas have been categorized as five zones as follows in the CRZ Notification 2011:

- CRZ-I (Ecologically sensitive),
- CRZ-II (Developed area),
- CRZ-III (Rural area)
- CRZ-IV (Water area which includes the water areas up to 12 Nautical miles (Nm) of the territorial waters and the tide influenced water bodies).
- CRZ- V (Areas requiring special consideration for the purpose of protecting the critical coastal environment).

The preparation of CZMP as per the provisions of the CRZ Notification is mandatory for the State.

As per the provisions of the Coastal Regulation Zone (CRZ) Notification, 2011, the Department of Environment and Climate Change has entrusted the CZMPs draft preparation for all the coastal districts of Tamil Nadu to the National Centre for Sustainable Coastal Management (NCSCM), Chennai, which is an authorized agency approved by MoEF&CC, GoI, for the above said purpose.

The MoEF&CC, GoI have conveyed the approval of the CZMP for Tamil Nadu, based on the recommendations of the National Coastal Zone Management Authority (NCZMA) on 24.10.2018. The approved CZMP in 117 maps have been uploaded in the website of Department of Environment and Climate Change (http: //www.environment.tn.gov.in) and ENVIS

(http://tnenvis.nic.in). The soft copy of the approved CZMP has been sent to all the District Coastal Zone Management Authorities and the Stakeholder Departments for necessary action.

The MoEF&CC, GoI has directed all the States to prepare the CZMP as per the guidelines of CRZ notification 2019. For the State of Tamil Nadu, the National Centre for Sustainable Coastal Management (NCSCM), MoEF&CC, GoI is preparing the maps at the scale of 1:25000 as per the Guidelines of CRZ Notification, 2019 at a cost of Rs. 1.82 crores and the Stakeholders meeting was conducted on 16.3.2022.

The GoI has directed all States to follow the approved CZMP as per the CRZ Notification, 2011, until the approval of CZMP as per the CRZ Notification, 2019.

The Department of Environment and Climate Change is a State body gives clearance

for projects which are proposed in the Coastal Regulation Zone. To monitor the violations in CRZ area, the GIS Cell is accompanying the Green Squad and identifying and mapping the location with the help of GPS instruments and furnishes reports based on which action is initiated.

4.3.2. Preparation of Local Level Coastal Zone Management Plan

The Government of Tamil Nadu has accorded sanction for the mapping of Local Level Integrated Coastal Zone Management Plan mapping at the scale of 1:5000 scale through Institute of Remote Sensing (IRS), Anna University at a cost of Rs.2.99 crores under Coastal Disaster Risk Reduction Project (CDRRP) fund. The local level CZM Maps are useful to the local bodies and other agencies to facilitate implementation of the Coastal Zone Management Plans.

4.3.3. Enforcement of Coastal Regulation Zone (CRZ) Notification

CRZ regulations are implemented under the CRZ Notification, 2011 of the MoEF&CC,GoI. These regulations are implemented with the intention to conserve and protect coastal stretches, its unique environment and its marine area to promote development through sustainable manner based on scientific principles. These regulations also aim to provide livelihood security to fishermen communities and other local communities living in coastal areas. Tamil Nadu being a coastal State is implementing these regulations through its coastal zone management bodies at the State and District levels.

4.3.4. Coastal Zone Management Authorities

To regulate CRZ activities and to check violations in CRZ areas, the MoEF&CC, GoI has constituted a State Coastal Zone Management

Authority (SCZMA) at the State level with the Principal Secretary / Additional Chief Secretary, Environment, Climate Change and Forests Department, Government of Tamil Nadu as the Chairperson and the Director of Environment as its Member Secretary.

The District Coastal Zone Management Authorities under the Chairmanship of the respective Coastal District Collectors were formed by the State Government in 1998. These Authorities convene periodical meetings to take decisions pertaining to Coastal Regulation Zone.

4.3.5. Integrated Coastal Zone Management Plan (ICZMP)Phase-II

The Ministry of Environment, Forests & Climate Change has initiated Integrated Coastal Zone Management (ICZM) Project/ "Enhancing Coastal and Ocean Resource Efficiency" (ENCORE) programme, which aims to strengthen integrated coastal zone management in all

coastal States and Union Territories of India by reinforcing coastal resources efficiency and resilience with funding from the World Bank. The project will be implemented under the following broad components:-

1. Conservation and protection of coastal and marine resources.
2. Pollution abatement, management, and eco-tourism Infrastructure development.
3. Livelihood enhancement/security of coastal community
4. Environment education, research, and capacity building.

To execute the projects under the ICZMP, Phase II/ENCORE programme, a State Project Monitoring Unit (SPMU) has been created at the

Department of Environment headed by the Project Director.

4.3.6. Blue Flag Beach Programme for Tamil Nadu

To plan sustainable tourism and healthy coastal management, MoEF&CC has conceived an integrated coastal management scheme viz. BEAMS (also referred to as Beach Management Services) to reduce existing pollutants on beaches and to aspire & achieve high International Standards in India.

The Blue Flag Certification for beaches and marines is run by the international, non-governmental, non-profit Foundation for Environmental Education (FEE). FEE's Blue Flag criteria includes standards for quality, safety, environmental education and information, the provision of services and general environmental management criteria. Blue Flag is a highly respected and recognized eco-label working to

bring together the tourism and environmental sectors at local, regional and national levels.

The Blue Flag Beach must comply with 33 Blue Flag Criteria in order to be awarded with the Blue Flag accreditation including constitution of Beach Management Committee, display of Information about beach and bathing water quality, conducting environmental education activities, cleaning of beach, managing of sensitive areas, public safety control measures, emergency plans to cope with pollution risks, provision of toilets/rest rooms, monitoring of marine and freshwater sensitive habitats, supply of drinking water etc.

The Kovalam Beach in Chengalpattu District, was selected as the pilot beach as it meets the water quality and safety criteria as per the Blue Flag Standards, which is implemented by the Society of Integrated Coastal Management (SICOM), MoEF&CC, GoI.

The Beach Management Committee (BMC) has been constituted under the Chairmanship of the District Collector, Chengalpattu District to monitor and supervise the Blue Flag Beach Programme at Kovalam Beach. The Kovalam Beach, Chengalpattu has been certified with Blue Flag Certification on 21.09.2021.

During the Budget Speech for the year 2021- 2022, this Government has announced the intent for obtaining the prestigious Blue Flag Certification for 10 Beaches in next 5 years. The Blue Flag Certification programme will be implemented at the following 10 beaches in various districts of Tamil Nadu.

1. Marina Beach, Chennai District
2. Manamelkudi Beach, Pudukottai District
3. Kushi Beach, Ramanathapuram District
4. Silver Beach, Cuddalore District

5. Kottaipattinam Beach, Pudukottai District
6. Neelankarai Beach, Chengalpattu District
7. Kameshwaram Beach, Nagapattinam District
8. Naravakkam, Marakkanam Beach, Villupuram District
9. Kayalpattinam Beach, Thoothukudi District
10. Neithal Nagar Beach, Nagapattinam District

The project implementation works are in progress

4.3.7. Assessment of micro-plastics in coastal areas, estuaries and lakes in Tamil Nadu

A project on "Assessment of micro-plastics in coastal areas, estuaries and lakes in Tamil Nadu, to consider remedial and management actions for the improvement of environmental

quality and the benefit of socio-economic systems" is being implemented by Department of Environment through Suganthi Devadasan Marine Research Institute (SDMRI) for three years with the financial outlay of Rs.81.20 lakhs.

Expected outcome of the Project:

1. To describe the micro-plastics sources
2. To identify the locations with high abundance
3. To recommend the possible remedial measures for the reduction of impact and improvement of environmental quality.

4.3.8. Shoreline Protection Management Action Plan

The coast of Tamil Nadu is classified into four types based on its natural characteristics, namely alluvial plain coast found along the coast of Thiruvallur, Chennai, Chengalpattu, Villupuram, Cuddalore, Mayiladuthurai, Nagapattinam, deltaic coast of Thanjavur, Pudukottai, Ramanathapuram, sand dune coast

along south Ramanathapuram, Tuticorin, Tirunelveli and barrier beaches coast found only in Kanniyakumari district.

Based on NGT direction Shoreline Protection Management Action Plan was prepared by NCSCM and submitted to the Hon'ble NGT.

Key recommendations are as follows:

- Different types and design criteria based various wave energy levels. If we take up gray- hard structures then by 2100, 30% of shorelines in India will be hardened, thereby decreasing fisheries habitat and biodiversity. Hard shoreline structures like seawall prevent natural marsh migration and may create seaward erosion. Hence, on considering the benefits of having living shorelines it has been proposed to include them in the Action Plan. Green

infrastructures or the living shorelines improve water quality, provide fisheries habitat, increase biodiversity and promote recreation apart from being more resilient against storms. Marshes and oyster reefs act as natural barriers to waves and 0.45m of marsh can absorb 50% of incoming wave energy. One square Kilometer of salt marsh stores the carbon equivalent of 1.11 lakh litres of gas annually.

- Eleven structures along the alluvial plain coast (Tiruvallur- Pulicat Lake Bar Mouth, Chengalpattu – Thiruvidanthai, Nemmeli, Kanathur, Mugaiyur, Kokilamedu and Rahath Nagar, Cuddalore – Sangolikuppam and Periyakuppam, Nagapattinam – Samanthapettai, Velankanni Church), 2 structures along the sand dune coast (Tuticorin – Rajkahnna Nagar and Kulasekarapattinam) and 1 structure along

the Barrier beaches (Kanniyakumari – Chothuvalai) had been proposed in the present action plan for the shoreline protection along the coast of Tamil Nadu. The methodology for the protection, conservation and preservation of ecosystems has been developed by implementing a suitable green coastal infrastructure at the eroding locations along the Tamil Nadu coast. Every possible effort would be taken to protect the shoreline of Tamil Nadu by taking up the green coastal infrastructures with the proposed budget of Rs.233.85 crores after due deliberations with the concerned departments.

4.4. Environment Management Agency of Tamil Nadu (EMAT):

In order to execute and monitor the river cleaning programmes and lake conservation

programmes funded by the Ministry of Environment, Forests and Climate Change, (MoEF&CC), Govt. of India, the Environment Management Agency of Tamil Nadu (EMAT) was created in the year 2002.

Environmental awareness programmes in schools, coastal zone conservation programmes, eco-restoration activities are being conducted in coordination with TWAD Board, Municipalities, Corporations, NGOs and NGC Co-ordinators.

Eco-restoration of water bodies under EMAT has been funded by EPRED Fund, SEIAA Fund, TNPCB Fund, Government Grant etc., and implemented through the line Departments. As EMAT is an Autonomous agency, it facilitates more effective networking of the Government and Non-governmental agencies.

4.5. Technology Intervention-Geographic Information System (GIS)

The Department of Environment and Climate Change established a GIS Cell as a part of Emergency Tsunami Reconstruction Project (ETRP) funded by the World Bank. GIS Cell monitors the project components under ETRP/CDRRP like demarcation of High Tide Line (HTL), preparation of Integrated Coastal Zone Management Plan (ICZMP), Coastal Vulnerability maps, erection of stone pillars on High Tide Lines along the coast of Tamil Nadu etc.,

The Department of Environment and Climate Change is a State body which gives clearance for projects which are proposed in the Coastal Regulation Zone. To monitor the violations in CRZ area, the GIS Cell is assisting the Green Squad in the field for checking violations, mapping and furnishing reports.

4.6. Creation of Environment awareness and capacity building

Since environment is a broad-ranging, multi-disciplinary subject, a comprehensive information system on environment is necessary to involve effective participation of concerned institutions/ organizations in the State that are actively engaged in work relating to different subject areas of environment.

4.6.1. Environmental Information System (ENVIS)

The Ministry of Environment, Forest and Climate Change, Government of India (MoEF&CC, GoI) had established a Central Scheme known as Environment Information System (ENVIS) in 1982. In Tamil Nadu the ENVIS Centre sponsored by the MoEF&CC, GoI has been functioning under the Department of Environment and Climate Change from October 2002.

ENVIS Centre provides information on various aspects about the State of Environment and related issues of Tamil Nadu. The ENVIS centre is also engaged in collection, collation, storage, retrieval and dissemination of environmental information through a website *www.tnenvis.nic.in.* Preparation of State of Environment Report (SoER), creation of web based database, publication of newsletters, preparation of awareness brochures and conducting the Environmental awareness programmes.

The State of Environment Report (SoER) is intended to provide a benchmark for future environmental reporting and also serve as the database for the policy making for the preparation of Environmental Management Plans. State of Environment Report 2021 in Tamil Nadu will be prepared during the current year.

The mandate of ENVIS scheme is to conduct the Green Skill Development Programme (GSDP) certificate course and Grid Based Decision Support System (GRIDSS) maps. ENVIS HUB is conducting a Certificate course on "Wildlife Management using Geospatial techniques and "Advanced Course in Parataxonomy" under the Green Skill Development programme in the current year. On a pilot scale, ENVIS HUB carried out GRIDSS in Karur and Salem districts and prepared Ten sectoral GRID based maps.

4.6.2. National Green Corps (NGC)

During the year 1998, Tamil Nadu Government started the Eco clubs - first of its kind in India. Following the success of the Eco clubs in Tamil Nadu, the MoEF&CC, GoI launched NGC Eco clubs in India in 2002.

Around 4 lakhs students from the 8000 NGC schools participate in creating environment

awareness implemented by the Department of Environment and Climate Change all over the State. Each Educational District has a Teacher Coordinator to oversee the NGC activities in the concerned Educational District. This programme imparts environment awareness to school students through on-campus and community activities like awareness programmes, tree planting, celebrating Green days, eco competitions, eco camps etc., The NGC Eco clubs will also help and support the creation and maintenance of nutri-gardens in the schools with native species of trees and local vegetables wherever possible.

4.6.3. State Environment Impact Assessment Authority (SEIAA) – Tamil Nadu

Under the EIA Notification, it is mandatory to obtain prior Environmental Clearance for certain new projects, expansion or

modernization of existing projects based on their potential environmental impact. Projects falling under Category 'A' in the Schedule of the Notification requires Environmental Clearance from the Ministry of Environment, Forest & Climate Change (MoEF&CC), GoI and for matters falling under Category 'B', depending upon the thresh holds of the activities, requires clearance at the State Environment Impact Assessment Authority (SEIAA).

The Notification provides for constitution of a SEIAA empowered to grant Environmental Clearance to mitigate pollution and protect environment. To assist SEIAA, a State Expert Appraisal Committee (SEAC) has been constituted. The Expert Appraisal Committee appraises projects and forwards its recommendations to the SEIAA for taking a decision on granting Environmental Clearance, by following the statutory provisions stipulated

under EIA Notification 2006. The present SEIAA was constituted vide MoEF&CC, GoI notification S.O. No.146 (E) dated 11.01.2022 comprising of a three members SEIAA and 12 Members SEAC for Tamil Nadu for a term of three years.

5. New Initiatives

5.1. Construction of Green Building

The Department of Environment was setup in the year 1995 and has been operating since then from a rental premise. The activities of the department have increased manifold in the last few years. The Department has been made the nodal agency to implement the Climate Change Mission of the Government of Tamil Nadu. The Department also plays an important role in assessing and granting Environmental clearance for various developmental projects. The Department also houses many wings like Environment Management Agency of Tamil Nadu (EMAT), State Environment Impact Assessment

Authority (SEIAA), Tamil Nadu State Coastal Zone Management Authority (TNSCZMA), Environment Management Information System Centre (ENVIS), Geographical Information System Cell and Tamil Nadu State Climate Change Cell. In view of the increased/enhanced responsibilities of the department there is a need for an exclusive building catering to the requirements.

The Government have issued an order for construction of a Green Building for the Department of Environment and Climate Change at a cost of Rs.20 crores with State of the Art Technology.

5.2. Hon'ble Chief Minister's Green Fellowship Programme (CMGFP)

The Government recognizes the need to actively involve youth in various initiatives proposed, for Climate Change Adaptation and Mitigation activities in Tamil Nadu. Given that

the future of India belongs to the youth of today, the Tamil Nadu Government, through the CMGFP, seeks to identify, nurture and mentor passionate young leaders on a wide range of issues concerning the environment. The programme aims to disseminate climate change awareness by means and ways to attract younger generations and students and to create a pool of green ideas and technological interventions that will reduce the Environment, Climate change impacts and to conserve Nature. Hon'ble Chief Minister's Green Fellowship Programme will be implemented in 38 districts of Tamil Nadu. The CMGFP will be housed under the Director of Environment for planning, coordination, supervision and monitoring of all aspects of CMGFP.

Vision:

CMGFP envisions creating and nurturing a cadre of environmentally thoughtful, passionate,

well trained and process-driven future leaders of the world.

Objective:

(a) Take leadership as India's foremost environmentally progressive State espousing the trinity of jobs, growth and environmental sustainability.

(b) Engage passionate young people meaningfully in governance and administration of environmental policy design and implementation.

(c) Support District Administration across Tamil Nadu in better delivery of environmental services

(d) Create robust institutional systems and processes for environmental policy management and set a benchmark worthy of emulation in other regions.

(e) Create an institutional repository of knowledge on environmental issues through rigorous research and analysis.

Role of Green Fellows:

The Green Fellows will assist the District Administration on all subjects that fall within the scope of the Department of Environment, Climate Change and Forests which include:

- Support in the implementation of the three mission mode projects of the Government of Tamil Nadu viz., Green Tamil Nadu Mission, Tamil Nadu Climate Change Mission and Tamil Nadu Wetlands Mission.
- Support the District Administration in the effective delivery of environmental services.
- Understand issues in depth on environmental policy implementation

within the context of the Green Fellows allocated district.

- Support in effective implementation of plastic ban. Encourage "Meendum Manjappai" initiative and promote eco-alternatives.
- Conduct quantitative and qualitative research to generate evidence to inform environmental policy making.
- Proactively identify gaps in implementing environmental policies within the district.
- Research best practices adopted by other districts, States and Countries on matters pertaining to environment and climate change and assess the feasibility of implementing them within the district's context.

- Engage with a diverse range of stakeholders such as other Government departments, civil society organizations, local administration and academic institutions.

- Establish institutional feedback mechanisms to receive constant updates on the performance of policy initiatives.

- Create robust citizen engagement strategies in various Government initiatives to assess the impact of policy proposals.

- Design innovative new policy solutions and lead the initiative to get these solutions implemented.

5.3. Tamil Nadu Climate Change Mission

Combating and mitigating the impact of climate change is a major concern for a coastal State like Tamil Nadu. During the Budget Speech

for the year 2021-2022, this Government announced the launch of Hon'ble Chief Minister's Tamil Nadu Climate Change Mission under the to focus on climate change adaptation and mitigation activities with a total outlay of Rs.500 crores. Tamil Nadu Climate Change Mission is a first of its kind at the sub-national level. The Government of Tamil Nadu is committed in building a sustainable and climate resilient future for the people of the State, at the highest level of administration. The Mission will be headed by the Additional Chief Secretary E,CC& F Dept., GoTN to oversee and co-ordinate the Climate Change issues in the State.

During the Financial year 2022-2023, the activities will be conducted in consultation with Expert Institutions like IIT, Chennai, CCCDM, Anna University & World Resources Institute (WRI) and NCSCM.

The details of proposed activities for Rs.75.5 crores are given below:

1. **Stakeholders Workshop** – Capacity building workshop for local communities and Government Line departments. Prioritizing adaptation and mitigation planning of sectors in districts which require immediate attention to Climate change vulnerability. Highlighting scientific evidence on Climate Change at Regional & Global scenario and focusing successful, indigenous/ technological interventions for community, nature based adaptation for building resilience in the society.

2. **Rehabilitation of coastal habitats for climate change adaptation through Nature based solutions** – Formation of Bio-shields through planting of Casuarina, Palmyrah, Cashew and other specialised species. Raising Mangrove plantation in

coastal districts wherever it grows in local ecosystems. Protecting and enhancing the growth of sea grass and coral reefs. Developing an action plan and preparing an Atlas for sustainable coastal management of Tamil Nadu.

3. **Carbon enrichment programme** – Soil carbon storage is a vital ecosystem service which plays an extremely important role in promoting tree growth through increased supply of nutrients, enhanced retention of water and by storing significant amount of carbon. Greater Chennai Corporation has set up a bio-mining plant at Perungudi, Chennai. The soil obtained after bio-mining of the legacy Municipal solid waste is extremely rich in nutrients and carbon. A demo site is proposed to be set up at Nanmangalam Forest by adding the bio-mined enriched soil from Perungudi to

the degraded forests of Nanmangalam in collaboration with Forest Department, Greater Chennai Corporation and Anna University with the objective of enhancing the growth of trees and forest under growth through this project as a pilot.

4. **Sustainable Habitat** – Time has come for the realisation that the habitat where we live can no longer be ignored and the benefits of green building practices have to be realised for reducing the impact on our environment.

   Energy saving measures in Government and Private Building, residents – independent and apartments to reduce greenhouse emissions from energy production and consumption in order to reduce the impacts of Climate Change. The major tasks to be undertaken are creating awareness among residents about the need

for energy saving lighting and electricity in particular, training to builders and developers in cost saving climate friendly building infrastructure through workshops, developing SOP for construction of energy efficient housing programmes and developing green building rating mechanism as a pilot project.

5. **Climate literacy and International Climate Summit** – The awareness programme includes, creating awareness on climate change impacts, ways and means to mitigate educating students on climate science, adaptation and mitigation activities, best practices and practical solutions to mitigate climate change through media and digital communication platforms like small videos and apps and also creating a platform for engaging students in climate change awareness campaigns on green days

to actively involve them in group discussions, digital poster making, street plays, skits, podcasts and public campaigns. Stakeholder engagements with Civil Society Organisations and Resident Welfare Associations will be improved by call for celebration of key events for climate change like Environment Day, World Water Day, Earth day etc.

6. **Climate Smart Villages** – The Climate Smart Villages would serve as demo sites to test an approach through participatory methods with various technological and institutional options for dealing with climate change at the community level.

   Localisation of Sustainable Development Goals at the panchayat level envisions creating a village for the future of our children which is lush and green with nature's bounty using renewable energy,

clean, protecting environment and climate resilient. The critical nature of protecting the environment and prevent further degradation requires that people in the local areas realise the importance of natural resources available, preserve and reclaim the environment from further degradation.

Pilot projects will be done through a multi stakeholder collaborative platform at selected villages with the following objectives:

a) Protect natural ecosystems in the villages.

b) Understand the challenges and the vulnerability of the local community to climate risks.

c) Develop future solutions to build climate resilience and increase adaptation and mitigation measures.

d) Identify and implement village/ community level agro ecological and socio economical solution such as setting up village level climate information centre for weather smart activities like agro advisories.

e) Carbon/nutrient smart practices for better management of agro forestry, land use, livestock management and bio-fuels.

f) Institutional/market smart activities like farmer to farmer learning and market information.

g) Learning from the smart villages would help the State to understand ground level climate related interventions which could be up scaled at the State level helping the Government in climate proofing of various Government schemes.

7. **Climate resilient Green Temples** – Two temples, one each at Madurai and at Chennai will

be taken up for Climate proofing as pilots to demonstrate measures towards climate adaptation and mitigation. The pilot would include efficient solar lighting, water management, heat management, greening, eco restoration of temple tanks, interventions to remove plastic and micro plastic. This would also include enrichment of temple gardens to enhance biodiversity. This pilot project would throw light on significant measures to be adopted for buildings of cultural and heritage value to make them climate resilient.

5.4. Transparency Initiatives

Transparency measures are being followed in order to enhance efficiency, ease and accountability in the process of Environmental Clearances. The Government of Tamil Nadu is using the single window portal "PARIVESH" enabled by MoEF&CC, GoI, to view and track the

status of applications for the ease of doing business.

The Department also holds "Open House Meeting" on a monthly basis to address the grievances of the public, new initiatives taken up by the NGC schools and other issues relevant to the Department.

Conclusion:

The complexity, uncertainity and urgency of many contemporary environmental problems have raised many questions about the relation between society, economy and the environment. Climate change is one of the serious environmental issues faced by the humanity. Recognising the need to evolve new governance and to integrate the environment policy with other sectors and policy areas, for its success, Government of Tamil Nadu have undertaken "New Initiatives" to govern the relationship between humans and natural environment in a

mutually beneficial manner, which are reflected in their Climate Change mitigation and policy adaptation.

****

TAMIL NADU POLLUTION CONTROL BOARD

புறந்தூய்மை நீரா னமையும் அகந்தூய்மை
வாய்மையால் காணப் படும்

(குறள் 298)

Outward purity the water will bestow:
inward purity from truth alone

1.0. Introduction:

Government of Tamil Nadu established Tamil Nadu Prevention and Control of Water Pollution Board vide G.O.No.340, Health and Family Welfare Department, dated 19.02.1982 under section 4 (1) of the Water (Prevention and Control of Pollution) Act, 1974 (Central Act 6). The notification was issued in the Tamil Nadu Government Gazette on February 27th, 1982 and on the same day, the Board came into existence. Subsequently, after framing the Tamil Nadu Water (Prevention and Control of Pollution) Rules, 1983, the Board was

renamed as Tamil Nadu Pollution Control Board (TNPCB).

TNPCB functions under the Environment, Climate Change and Forest Department. It is the statutory organisation responsible for abatement and control of environmental pollution in the State by enforcing the Central Acts. As per the Section 4 of the Water (P&CP) Act, 1974, the Board comprises the Chairman, the Member Secretary, five officials to represent the State Government, five persons to represent the local authorities, three non-officials to represent the interests of agriculture, fishery or industry or trade and two persons to represent the companies or corporations owned by the State Government.

TNPCB enforces the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981 and the Environment (Protection) Act,

1986, besides the following Rules and Notifications made there under:

- The Tamil Nadu Water (Prevention and Control of Pollution) Rules, 1983
- The Tamil Nadu Air (Prevention and Control of Pollution) Rules, 1983
- The Environment (Protection) Rules, 1986
- Manufacture, Storage and Import of Hazardous Chemical Rules, 1989.
- The Fly Ash Utilization Notification,1999
- The Noise Pollution (Regulation and Control) Rules, 2000
- The Batteries (Management and Handling) Rules, 2001
- The Environment Impact Assessment Notification, 2006

- The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016
- The Bio-Medical Waste Management Rules, 2016
- The Solid Waste Management Rules, 2016
- The Plastic Waste Management Rules, 2016
- The E-Waste Management Rules, 2016
- The Construction and Demolition Waste Management Rules, 2016

Mission:

To enforce the provisions of the Water (P&CP) Act,1974, Air (P&CP) Act,1981 and the Environment (Protection) Act,1986.

Objectives of the Organization:

- Plan comprehensive programmes for prevention, control and abatement of water and air pollution in the State.
- Advise the State Government on any matter concerning the prevention, control or abatement of water and air pollution.
- Inspect sewage and trade effluent plants for the treatment of sewage and trade effluents and to review plans, specifications or other data relating to plants set up for the treatment and the system for the disposal of sewage and trade effluents.
- Collaborate with the Central Pollution Control Board (CPCB) in organising the training of personnel engaged or to be engaged in programmes relating to prevention, control or abatement of water

and air pollution and to organise mass education programmes relating thereto.

- Encourage, conduct and participate in investigations and research relating to problems of water and air pollution and the prevention, control or abatement of water and air pollution.

- Establish or recognise laboratories to enable the Board to perform its functions efficiently, including the analysis of air or samples of water from any stream or well or samples of any sewage or trade effluents.

- Perform such other functions as may be prescribed or as may, from time to time entrusted to it by the CPCB or the State Government.

Organisational Set-up

For effective and efficient functioning of the organisation, the Board has a three-tier system consisting of (i) Head Office in Chennai, (ii) Eight Zonal Offices, (iii) Thirty-Eight District Environmental Engineer Offices. In addition, the Board has also established five Flying Squad offices and three Assistant Environmental Engineer offices.

The TNPCB has established eight Advanced Environmental Laboratories (AEL) and eight District Environmental Laboratories (DEL) for sampling and analysis of effluent and air quality in the industries and the environmental quality survey in the State.

The Head Office is located at Chennai headed by the Chairman. Eight Zonal offices are headed by Joint Chief Environmental Engineer (Monitoring), and thirty-eight District offices are headed by District Environmental Engineers.

Apart from this, there are five flying squads at Erode, Tiruppur, Chennai, Salem and Vellore headed by Environmental Engineers.

The offices of Joint Chief Environmental Engineer (M) Cuddalore and Flying Squads at Chennai, Salem and Vellore were formed during the year 2021-22. Further, three Assistant Environmental Engineer (AEE) offices were formed in industrial hot spot areas viz Manali, Mettur and Ranipet during the year 2021-2022.

Activities of the TNPCB

- Consent Mechanism
- Environmental Quality Monitoring of Water, Air and Noise.
- Waste Monitoring Mechanism
- Legal Enforcement Mechanism
- Miscellaneous
- New Initiatives taken up during 2021-22
- Sustainable Development Goals

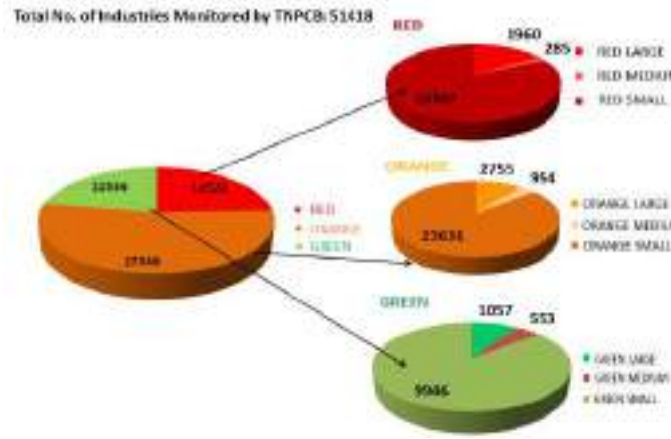
2.0. Consent Mechanism.

2.1. Categorisation of Industries in Tamil Nadu

Based on the CPCB direction, industries are classified as Red, Orange, Green and White primarily based on the Pollution Index Score. Following the above categorisation and based on the Gross fixed Assets (GFA) industries are categorised as follows:

Category based on GFA	GFA (Rs in crores)	Category based on polluting potential			
		Red	Orange	Green	White
Large	> 10	Highly Polluting	Medium Polluting	Less Polluting	Non-Polluting
Medium	5 - 10				
Small	< 5				

The number of industries under the consent mechanism of the Board as on 28.02.2022 is given below:-



2.2. Criteria for issue of Consent to Industries

Consent to Establish and Consent to Operate are being issued by TNPCB in order to monitor industries in respect of air and water pollution. Consents are issued to industries in two stages. In the first stage, the 'Consent to Establish' (CTE) is issued after duly assessing amongst others the siting criteria. For e.g. There

is a siting criteria of one km distance from river margin for highly polluting industries as per the G.O. (Ms.) No.213, Environment and Forests Department, dated 30.03.1989 and 5 km distance as per the G.O.(Ms.) No.127, Environment and Forests Department, dated 08.05.1998 with the prime objective of protecting precious water bodies. During the second stage, the 'Consent to Operate' (CTO) is issued to operate industrial units after ensuring the unit's compliance of the conditions stipulated in the Consent to Establish.

For efficient and effective implementation of the Acts and Rules and for quality monitoring, the TNPCB has constituted various committees at Head Office, Zonal and District office levels. These committees conduct meetings at regular intervals and decide on the issue of consent.

As per G.O. (Ms.) No.21, Environment and Forests (EC.3) Department, dated 24.02.2020

concerning Tamil Nadu Protected Agricultural Zone (TANPAZ), TNPCB is strictly prohibiting zinc smelter, iron copper smelter, aluminum smelter, bone meal, processing of animal horn and other body parts, tannery, exploration, drilling and extraction of oil and natural gas including coal bed methane, shale gas and similar hydrocarbons, ship breaking industries in the Cauvery Delta region.

2.3. Consent through the online portal

As part of the E-governance initiative of the Government of Tamil Nadu and to provide a healthy and proactive interface between the regulatory authority and industries, TNPCB has introduced the facility of "Online Consent Management and Monitoring System (OCMMS)" from 19.01.2015. This system brings transparency and promptness to consent management, facilitating industries for online submission of applications for Consent to

Establish / Consent to Operate / Renewal of Consent, submission of documents, online remittance of consent fees, online submission of clarifications, besides knowing the status of applications. TNPCB operates the 'Care Centre' in the Head Office and all District offices to assist industries in submitting the application through OCMMS.

Apart from Consent to Establish and Consent to Operate, the Authorization for management of Hazardous & Other Wastes, Bio-medical Waste, Solid Waste, E-Waste, Construction and Demolition (C&D) Waste and Registration for Plastic Waste & Battery Waste Handling to the industries are also issued Online, and the data is uploaded on TNPCB Web site.

- TNPCB issues Consent to Establish (CTE) to industries with seven years validity in case of Environmental Impact Assessment (EIA) attracting projects and five years

validity in case of non-EIA attracting projects.

- The Consent to Operate (CTO) is issued for eligible industries with validity upto 5 years, 10 years and 14 years for Red, Orange and Green category industries, respectively.

- As per B.P No. 1 dated 13.01.2020, TNPCB issues CTO-Direct without the requirement of Consent to Establish (CTE) to the Green Category Industries proposed to be located in Industrial Use Zone / Industrial Estate as labeled through the Directorate of Town and Country Planning (DTCP) / Chennai Metropolitan Development Authority (CMDA) / Local Planning Authority (LPA).

- As per the Announcement on the floor of the House by the Hon'ble Minister for Environment - Climate Change and Youth

Welfare and Sports Development, the Consent to Operate (CTO)/Renewal of Consent Order (RCO) to the industries are issued as a block instead of issuing consent every year under the Ease of Doing Business as per G.O. (Ms.) No.144, Environment, Climate Change and Forest (EC.1) Department, dated 08.10.2021.

2.4. Auto Renewal

The Board introduced a concept of 'Auto Renewal' of Consent for Red-Small and all Orange and Green category industries. Accordingly, consent is renewed for the industries without prior inspection, for which the industry has to furnish self-certification. This ensures grant of renewal consent within seven days on receipt of application through Online Consent Management and Monitoring System (OCMMS). TNPCB is issuing CTE extension also through auto-renewal.

Industries issued with CTE/CTO/RCO from 1.4.2021 to 31.3.2022

CATEGORY	RED	ORANGE	GREEN	TOTAL
CTE	249	519	235	1003
CTO	3365	5856	2062	11283

3.0. Environmental Quality Monitoring for Water, Air and Noise:

Environmental Quality monitoring and data generation are vital for abatement of pollution and policy changes. As per the mandate given in the Water and Air Acts, TNPCB monitors the quality of water, Air and Noise through various initiatives and programmes.

3.1. Care Air Centre and Water Quality Watch

Care Air Centre is functioning at the Head Office in Chennai. The purpose of this Centre is to monitor industrial stack emissions

and the Ambient Air Quality of surrounding areas on real time basis (24x7). Major air polluting industries such as Cement, Oil Refinery, Petrochemicals, Thermal Power Plants, Fertilisers, Iron & Steel industries etc. are connected to the Care Air Centre. In case standards are exceeded, auto-generated SMS and e-mail messages are sent immediately to the industry and the concerned Joint Chief Environmental Engineers (M) and District Environmental Engineers to rectify defects. Besides, this system ensures self-monitoring and rectification by industries. So far, 405 industrial units are connected for stack monitoring and 154 industrial units for Ambient Air quality monitoring to this Centre.

Following the success of this Scheme, the Board has expanded its network incorporating the Water Quality Watch Centre. Major water-polluting industries such as Tanneries,

Distilleries, Sugar factories, Pharmaceuticals, Pesticides, Textile Processing and Common Effluent Treatment plants (CETPs) etc. are connected to this Centre. The quality of treated effluents is monitored on a real-time basis. 360 industrial units are connected to this Centre and real-time monitoring data are displayed on the Board's website.

3.2. Water Pollution Monitoring Mechanism

TNPCB is monitoring the activities of the industries, Common Effluent Treatment Plants (CETPs), Sewage Treatment Plants (STPs) and disposal of sewage/trade effluent in achieving the prescribed standards before discharge into the land, water bodies and sea.

3.2.1. Common Effluent Treatment Plants (CETPs)

Taking into consideration the key functions performed by Micro, Small, and Medium

Enterprises (MSME) and the constraints in complying with wastewater discharge standards by the individual units, the TNPCB initiated an innovative scheme to ensure their growth in an environmentally sustainable manner. This Scheme promotes common facilities for the treatment of effluents. The TNPCB plays a supportive role in establishing Common Effluent Treatment Plants (CETPs) for clusters of small-scale industries in various parts of the State. The Board assists in the technical scrutiny of proposals for CETPs. In Tamil Nadu, CETPs schemes have been formulated in the following sectors:

S. No.	Industrial Sector	No. of CETP Schemes
1.	Tanneries	13
2.	Textile Bleaching & Dyeing Units	19
3.	Electroplating Units	2

4.	Hotels & Lodges	1
5.	Pharmaceutical Industries	1
	Total	**36**

Apart from the 19 CETPs for textile bleaching and dyeing units, there are 10 CETPs to be constructed with funding from the Government of India in Erode and Namakkal Districts for which CTE has been issued by TNPCB.

The Hon'ble Minister for Environment, Climate Change and Youth Welfare and Sports Development has met the Hon'ble Minister for State, Ministry of Jal Sakthi, Government of India on 31.03.2022 and sought funding for Common Effluent Treatment Plants under "Nadanthaai Vaazhi Cauvery" Project from Union of India.

3.2.2. Status of Sewage Treatment Plants

All Sewage Treatment Plants (STP) provided by the Urban Local Bodies (ULBs) have been classified as Red category. As per data received from Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB), Directorate of Town Panchayat (DTP) and Commissionerate of Municipal Administration (CMA), TNPCB has submitted the report to National Mission for Clean Ganga. There are 76 STPs under operation, 39 STPs under construction and 37 STPs at the proposal stage. Of which 59 STPs are issued with Consent to Operate (CTO), 41 STPs are issued with Consent to Establish (CTE).

Directions have been issued to CMWSSB, DTP, CMA to complete the Underground sewage system for unsewered areas and ensure that no untreated sewage is discharged. Further Directions have been issued to install Online

Continuous Effluent Monitoring systems and Mobile app as per instructions of CPCB.

3.3. Monitoring of Water Bodies

3.3.1. National Water Quality Monitoring Programme

The Board is monitoring the water quality of inland water bodies in Tamil Nadu under the National Water Quality Monitoring Programme (NWQMP) with partial funding from the Central Pollution Control Board (CPCB) in four major rivers viz. Cauvery, Tamirabarani, Palar and Vaigai and eight lakes located in Udhagamandalam, Kodaikanal, Yercaud, Veeranam, Porur, Poondi, Pulicat and Redhills. Water quality monitoring stations have been increased from 58 Stations to 72 stations during the year 2021-22. Monthly samples are collected and analyzed. The results are displayed on the TNPCB website.

The TNPCB has initiated monitoring of the groundwater quality from 2020 onwards in 18 stations covering Erode, Namakkal, Salem, Karur, Tirunelveli, Thoothukudi, Trichy, and Tiruvallur districts in the vulnerable areas of groundwater contamination. The samples are collected monthly / half-yearly basis and data generated is analysed and results are uploaded on the TNPCB website.

3.3.2. National Rivers Conservation Plan (NRCP)

The CPCB has identified 51 stations for monitoring River water quality in the State under the National Rivers Conservation Plan (NRCP) to assess the pollution caused to the rivers. The data generated is analysed, and results are uploaded on TNPCB website.

3.3.3. Chennai City Waterways Monitoring Programme

Chennai city comprises four major waterways (viz.,) Adyar River, Cooum River, Buckingham Canal, and Otteri Nallah. The TNPCB monitors the water quality of these water bodies at 19 locations every month. The Government have formed a special monitoring committee viz. Chennai River Restoration Trust (CRRT), through which these rivers are being rejuvenated.

3.3.4. Polluted River Stretches

Based on the National Water Quality Monitoring Programme (NWQMP) data, the CPCB has declared 351 river stretches in the country as polluted river stretches. Six river stretches fall in Tamil Nadu, namely Cauvery, Bhavani, Sarabanga, Thirumanimutharu, Vasishta, and Tamirabarani.

In all these river courses, pollution is mainly caused due to the discharge of sewage and the dumping of solid waste. As per the Guidelines issued by the CPCB, an action plan for restoration of the above river stretches was prepared and approved by the CPCB. The action plan includes the construction of the Underground Drainage Sewerage System (UGDSS), Sewage Treatment Plants (STPs), Solid waste management facilities, and Eviction of encroachments. The Action plan is being implemented through the departments of Commissionerate of Municipal Administration, Directorate of Town Panchayats, Public Works Department, Municipal Administration & Water Supply Department and Rural Development & Panchayat Raj Department.

TNPCB proposes to restore the existing 14 Real-time Water Quality Monitoring Stations (RTWQMS) 3 each at Cauvery, Tamirabarani,

Noyyal, Kalingarayan canal and 2 at Bhavani river. Since the rivers in Tamil Nadu are not perennial except river Tamirabarani, TNPCB decided to continue the RTWQMS in 3 locations in Tamirabarani and monitor other places manually.

3.4. Air Pollution Monitoring Mechanism

3.4.1. National Air Quality Monitoring Programme

Under the CPCB funded National Air Quality Monitoring Programme (NAMP), the TNPCB monitors ambient air quality in major cities and industrial clusters at 28 stations in the State. These stations are located at Chennai (8), Coimbatore (3), Madurai (3), Salem (1), Tiruchirapalli (5), Thoothukudi (3), Mettur (2) and Cuddalore (3) for parameters like Particulate matter PM_{10} and $PM_{2.5}$, Sulphur dioxide (SO_2) and Nitrogen dioxide (NO_2) are monitored twice a week to have 104 observations in a year as

per the CPCB protocol. Based on the observations Air Quality Index (AQI) is arrived and uploaded on the TNPCB website regularly for public view.

To monitor other towns in districts under the NAMP, the Board has established additional 24 stations from October 2021, covering 8 districts with three stations in each district. The Districts are Dharmapuri, Kanyakumari, Permabalur, Sivagangai, Thiruvarur, Theni, Villupuram and Thiruvannamalai. Hence under the NAMP project, in total, TNPCB has established 52 stations in the State.

3.4.2. Continuous Ambient Air Quality Monitoring (CAAQM) Stations

Urbanisation and industrialisation have a direct and significant impact on air quality. Therefore, to strengthen the AAQ monitoring network in the State and arrive at the Air Quality Index (AQI) on a real-time basis, TNPCB has

installed 34 Continuous Ambient Air Quality Monitoring Stations (CAAQMS). The parameters including PM_{10}, $PM_{2.5}$, Sulphur dioxide, Nitrogen dioxide, Ammonia, Ozone, Carbon monoxide, Benzene, Toluene and Xylene are monitored.

The concentration levels and the AQI are displayed at the respective stations, besides the data being uploaded on the Board's website. The Board is also operating one mobile CAAQMS to monitor the air quality at different places during the festival season like Deepavali and Bhogi to carry out the survey based on public complaints, Court directions, etc.

The TNPCB has also proposed to establish 25 new CAAQMS in the year 2022-23 in the remaining District headquarters and Million-plus cities.

3.4.3. Non-Attainment Cities

Based on the NAMP data, the CPCB has identified 132 cities in the country as non-attainment cities, where the PM_{10} level exceeded the annual average standard of 60 $\mu g/m^3$. High levels of particulate matter are due to movement of vehicles, re-suspension of road dust, burning of solid waste, use of fuels in domestic and commercial establishments, industrial emissions etc. In Tamil Nadu, Thoothukudi, Trichy, Madurai and Chennai have been identified as non-attainment cities. The action plans to improve the air quality in these cities have been approved by CPCB and are under implementation by the line departments like Greater Chennai Corporation (GCC), Municipal Administration and Water Supply Department, Transport Department and Public Works Department. Under National Clean Air Programme (NCAP), the Government of India

provides funding to ULBs to improve air quality in the country's non-attainment cities and in the million-plus cities.

3.5. Noise Monitoring Mechanism

Under the National Ambient Noise Monitoring Network Programme, CPCB has established Real-Time Ambient Noise Monitoring Stations at ten locations in Chennai City and the stations are located in Egmore, T.Nagar, Perambur, Guindy, Triplicane, Pallikaranai, Velachery, Washermanpet, Anna Nagar and Sowcarpet. The data is uploaded on the CPCB website.

4.0. Waste Monitoring Mechanism

4.1. Bio-Medical Waste Management

Bio-Medical waste is the waste generated during the diagnosis, treatment or immunisation of human beings or animals or in research activities pertaining thereto or in the production or testing in biological labs. The Bio-Medical

Waste Management Rules prescribe the responsibility of the waste generators and the operators of the Common Bio-Medical Waste Treatment and Disposal facilities (CBMWTFs) for the safe handling and disposal of the bio-medical waste. The TNPCB issues Authorisation to Health Care Facilities (HCFs) and CBMWTFs online and monitors the compliance of various provisions of Rules. The Government has constituted a State Level Advisory Committee to oversee the implementation of the Rules.

In the State of Tamil Nadu, as on date, 26827 Private and Government hospitals, including bedded and non-bedded clinics, veterinary institutions, pathological labs, blood banks and research institutions, have been issued with Authorisation under BMWM Rules, 2016. The validity of the Authorisation is synchronised with Consent validity.

4.1.1. Common Bio-medical Waste Treatment Facilities

CBMWTFs are functioning for the collection, transport, treatment and scientific disposal of bio-medical waste. The daily average generation of BMW in the State during 2020 was 36 Tons. In Tamil Nadu, 10 CBMWTFs are in operation. The total installed capacity of the 10 CBMWTFs in operation is 90.35 TPD (Incinerator: 56.5 TPD & Autoclave: 33.85 TPD).

4.1.2. COVID–19 Bio-Medical Waste Management

COVID–19 Bio-Medical Waste generated from Health Care Facilities, Testing Centres, Labs and Urban Local Bodies are collected, treated scientifically, and disposed of through 10 CBMWTFs located in Tamil Nadu as per the Guidelines issued by the CPCB for COVID-19 waste management. Based on the CPCB revised Guidelines for COVID waste management, the TNPCB issued instructions to all CBMWTFs to

operate their facilities for extra hours to treat the increased quantity of COVID-19 BMW completely.

TNPCB has issued permission to the Treatment Storage Disposal facility (TSDF), Gummidipoondi to utilise the existing Hazardous Waste incinerator to incinerate COVID-19 bio medical waste as per the CPCB Guidelines.

The daily collection and disposal of COVID-19 Bio-Medical Waste are uploaded on the TNPCB website. Average daily generation of COVID-19 waste during the period January 2021 to January 2022 is 9.5 Tons.

4.2. Solid Waste Management (SWM)

Solid waste consists of biodegradable and non-biodegradable waste generated from domestic, commercial and industrial activities. The Solid Waste Management Rules prescribe responsibilities of local bodies for proper

collection, treatment and disposal of municipal solid waste. In Tamil Nadu, 219 Authorizations as per the SWM Rules have been issued covering Corporations, Municipalities and Town Panchayats which generate more than 5 tons of solid wastes per day.

To prevent the dumping of solid waste near the water bodies, the Hon'ble NGT in its order dated 31.3.2022 in O.A. No. 95 of 2021 & 30 of 2020 has directed the Chief Secretary to Government, State of Tamil Nadu, Additional Chief Secretary for Environment, Climate Change and Forest Department, Additional Chief Secretary for Municipal Administration and Water Supply Department and Principal Secretary for Rural Development & Panchayat Raj Department to personally review and to submit the action plan for the implementation of the Solid Waste Management Rules, 2016 in the State of Tamil Nadu in an effective manner.

To prevent dumping of solid waste into water bodies and to enhance vigil and monitoring, flying squads have been formed in Chennai, Vellore and Salem Districts.

4.2.1. Bio-mining of legacy waste

Solid Waste Management Rules mandate Local Bodies to carry out Bio-mining of old dumpsites and reclamation of land. Accordingly, the Bio-mining of legacy waste has been initiated by Local Bodies in 144 dumpsites in the State, of which 49 sites have been completed. In the remaining 95 sites, work is in progress.

4.3. Plastic Waste Management

Rapid increase in population, urbanisation, economic levels and industrial growth has led to massive increase in the plastic waste generation. Average estimated plastic waste generation from 21 Corporations, 138 Municipalities and 505 Town Panchayats of Tamil Nadu during 2020-21

is 1178 tons/day. The plastic waste collected is segregated by the respective urban Local Bodies; the recyclable plastic waste is sold to recyclers and non-recyclable plastic waste is sent for co-incineration in cement plants.

The Board has issued registration to 29 compostable plastic manufacturing units and 230 plastic waste recycling units under Plastic Waste Management Rules.

4.3.1. Ban on Single Use Plastics (SUP)

The Government vide G.O.(Ms) No.84, Environment and Forests (EC.2) Department, dated 25.06.2018 have issued orders to ban certain types of one-time use and throwaway plastic items including plastic carry bags irrespective of thickness and size. The ban is in effect from January 2019.

4.3.2. Implementation of Ban on SUP

In coordination with line departments, the Board has taken action for effective implementation of the ban on plastic, which includes awareness programmes through regional conferences, district environmental committee meetings, rallies at district headquarters, messages through social media and display board in National Highway toll gates etc.

4.3.3. Enforcement of Ban on SUP

Closure direction and disconnection of power supply were issued to 170 industries (January 2019 to March 2022) involved in the manufacture of banned plastic manufacturing items, including non-woven carry bags, plastic carry bags, water pouches, etc.

TNPCB has issued a press release on 23.11.2021 to seek the cooperation of the public

by way of appreciation and rewards for their information about the illegal banned plastic manufacturing units to the respective jurisdictional District Environmental Engineers, TNPCB through e-mail / letter / phone calls / Whatsapp, as their contribution to protect the environment. Based on the information received from the public, 53 numbers of plastic units manufacturing banned plastic items were identified and closed by TNPCB.

From January 2019 to March 2022, regular raids were conducted throughout the State by the urban local bodies and 1682 tons of banned SUPs were seized, also a fine of Rs. 1041 Lakhs was imposed.

4.3.4. Awareness Activities on SUP Ban Iconic Week celebrations

In view of the Iconic Week (04th to 10th October 2021) celebrations to mark 2022 as the 75th year of independence and to phase out

single use plastic by 2022, the following activities were taken up by the TNPCB:

- TNPCB has uploaded the publicity and awareness creation materials on phasing out of the SUP on the TNPCB website, https://tnpcb.gov.in.
- A public notice (Appeal to the public) to stop using single use plastics and to use eco-friendly materials has been displayed on the home page of TNPCB https://tnpcb.gov.in
- Posters of more than 1000 numbers have been displayed in the District Collectorates, District offices of TNPCB, Government offices, schools, colleges, commercial establishments, etc., throughout the State.
- Circulars / notices / pamphlets on the banned plastic items, their ill effects

and alternatives to banned plastics have been issued to the public by the TNPCB officials at all the districts in coordination with the District Administration.

- TNPCB has issued Press Release in both English and Tamil on the ill effects of single use plastics. The Government's effort to enforce the ban on SUP was elaborated, and the people's cooperation and support to eliminate the same were sought.

- All the District officials of TNPCB have conducted awareness campaigns during the second week of December 2021 in coordination with the District Collectors vested with the responsibility of ensuring the prevention of storage, supply, transport, sale, and use of banned plastic items. The awareness

campaign carried out in various districts includes viz., vehicle campaign, distribution of pamphlets to the public, display of posters in public gathering areas such as hospitals, hotels, industrial estates, Malls, Bus stands, Railway stations, theatres etc. A compendium on the awareness campaign carried out in each district of Tamil Nadu by the TNPCB was also prepared.

4.3.5. Implementation of People's Campaign ("Meendum Manjappai" Campaign)

The Government of Tamil Nadu has issued a G.O. (Ms) No. 116 of Environment, Climate Change & Forest (EC.2) Department dated 27.11.2021 notifying the following four-pronged strategy to be adopted to fight plastic pollution and eliminate single use plastics:-

- Support people's movement against plastic through communication that is impactful and innovative.

- Design a framework for effective monitoring and reporting on implementation of the plastic ban across the State.

- Coordinate and interface with stakeholders to design and popularise sustainable eco-friendly alternatives.

- Work with Industry, Micro, Small and Medium Enterprises and other stakeholders to create a road map for large scale production of eco-friendly alternatives to plastic packaging through workshops, seminars and knowledge sharing.

4.3.6. Meendum Manjappai Campaign at State level

Meendum Manjappai campaign aims to raise awareness among public to eliminate the usage of banned single used plastics and revive the use of traditional eco-friendly alternatives viz., Manjappai (Yellow cloth bag)

The Hon'ble Chief Minister of Tamil Nadu inaugurated a mega event titled "Meendum Manjappai campaign" on 23.12.2021 at the Kalaivanar Arangam, Chepauk, Chennai and launched the "Manjappai" logo for the campaign. The Hon'ble Chief Minister also inaugurated an exhibition of stalls displaying various eco-friendly alternatives along with the machinery for the production of eco-friendly alternatives such as banana leaf products, fibre/rice bran/rice husk / agricultural products, areca leaves products, edible cutlery products, coconut shell products, coir products, pottery products,

palm products, cloth/jute products, compostable carry bags/cutlery products, cloth banners, including a stall demonstrating activities undertaken under Extended Producer Responsibility initiatives in the State (EPR). An awareness short film on the ill effects of single use plastic was screened and an appeal was also made to the public to use traditional cloth bags (Manjappai) and avoid single use plastics.

4.3.7. Meendum Manjappai Campaign at District level

The "Meendum Manjappai" campaign is being conducted at the District level in all districts of Tamil Nadu to create a People's movement against throwaway plastic involving all stakeholders from various sectors like Traders Association, Merchants Association, Social clubs, Local Bodies, Schools, Colleges and Industries.

4.3.8. "Meendum Manjappai" - Awareness activities

- A teaser and short film Part I & II were produced with a celebrity actor to create massive awareness among the public.

- Massive awareness was made in the leading Tamil and English Newspapers throughout the State with advertisements about the launch of the "Meendum Manjappai" campaign.

- The advertisement teaser was released in the leading TV channels a week before the launch of the campaign.

- The short film Part-I was released on the leading TV channels from 23.12.2021.

- Short Film II was released after Pongal festival to review the progress in

awareness created on the usage of Manjappai.

- Around 3000 Manjappai's were distributed to the Press people and participants during the State level campaign.

- Awareness audio messages to use cloth bags/alternatives to single use plastics were broadcast on leading FM radios from 23.12.2021.

- Social media campaign was also launched through Facebook, Instagram, Twitter and LinkedIn well ahead of the campaign for creating massive awareness among the youth on the use of cloth bags/alternatives to single use plastics.

- An exclusive "Meendum Manjappai" page was created on Facebook, Instagram, Twitter and LinkedIn.

4.3.9. State Level Special Task Force (STF)

The Government vide G.O(Ms)No.25, E,CC&F Department, dated 07.02.2022 have constituted a State level Special Task Force (STF) under the Chairmanship of Chief Secretary, District level task force under the Chairmanship of District Collector and under the Chairmanship of the Commissioner for Greater Chennai Corporation area for monitoring the implementation of Single use plastic (SUP) ban. The first meeting of the STF was held on 05.03.2022. All the nodal departments have been addressed to implement the action points and make the initiatives for massive success in the State of Tamil Nadu.

4.3.10. State Action Plan for the elimination of banned Single Use Plastics

The State Action Plan has been prepared by the Government for the elimination of banned Single-use plastic, and implementation of activities under Plastic Waste Management Rules, 2016 as amended and submitted to the MoEF&CC, GoI.

4.4. Construction and Demolition Waste Management

Construction and Demolition (C&D) waste consists mainly of inert and non-biodegradable material such as concrete, plaster, metal, wood, plastics etc., which have the recycling value. The Construction and Demolition Waste Management Rules prescribe that the local bodies shall ensure proper management of construction and demolition waste. Large Corporations such as Chennai, Madurai, Coimbatore, Tiruchirapalli and Tiruppur have proposed to set up such processing facilities. In

Greater Chennai Corporation, two facilities of 400 TPD capacity each are in operation, one at Kodungaiyur and another at Perungudi dumpsite. The Greater Chennai Corporation has established collection centres in 15 zones for receiving Construction and Demolition Waste.

4.5. E-Waste Management

The producers of the electrical and electronic equipment shall be responsible for the collection and channelisation of e-waste generated from the 'end-of-life' of their products under Extended Producers Responsibility (EPR) as per the E-Waste Management Rules, 2016. The CPCB issues EPR authorisation to the producer, and the TNPCB monitors the compliance of the provisions of the E-Waste Management Rules, 2016. The TNPCB grants Authorisation to manufacturers, dismantlers, recyclers and refurbishers and details are uploaded on the TNPCB website.

The National Productivity Council (NPC), Chennai had carried out the E-Waste inventorisation in the State of Tamil Nadu and submitted a list of inventory of manufacturers, dismantlers, recyclers and refurbishers in the State.

In the study carried out by the NPC, Chennai, the total generation of E-Waste on weight basis is estimated to be 4,00,482 MT for the year 2020 and for the year 2030 it is projected to 5,78,356 MT for the entire state of Tamil Nadu.

About 8831 stakeholders (manufacturers, sellers, producers, bulk consumers, refurbishers, collection centers and recyclers) have been identified and directory of stake holders have been prepared. Action is being taken to inventorize all the stakeholders (as per the list) and to bring them under the purview of TNPCB for the scientific disposal of E-Waste.

4.6. Hazardous Waste Management

Hazardous waste is managed as per the provisions of the Hazardous and Other Wastes (Management and Transboundary Movement) (HOWM) Rules, 2016. In 2020-21, 7.95 lakhs tons of hazardous waste was generated, of which 0.85 lakhs tons (10.69%) were found to be fit for landfill, 1.24 lakhs tons (15.59%) recyclable, 5.76 lakhs tons (72.52%) utilisable and 0.095 lakhs tons (1.19%) incinerable. The Board is taking effective steps in handling, management, treatment and disposal of hazardous waste in an environmentally safe manner.

4.6.1. Co-processing of Hazardous Waste in Cement Industries

Utilisation of hazardous waste by co-processing in cement plant is considered as an environmentally sustainable option. Based on the CPCB guidelines, the Board has permitted the use of hazardous and other waste in cement

kilns either as alternate raw material for co-processing or as alternate fuel. Subject to the compliance criteria specified, Authorisation under HOWM Rules, 2016 has been granted to 12 cement industries to process 18.52 lakhs Tons of utilisable wastes in cement kilns for co-processing annually. During 2020-21, about 1.7 lakhs Tons of Effluent Treatment Plant (ETP) sludge has been utilised in various cement industries of Tamil Nadu for co-processing.

4.6.2. Hazardous Waste pre-processing facilities

In order to encourage co-processing of hazardous waste in cement kilns for beneficial purposes, 4 hazardous waste pre-processing facilities have been authorised for pre-processing of hazardous and other waste to make a homogenised mixture of materials suitable for co-processing in the cement kilns for direct use either as raw material substitution or

fuel supplementary. These facilities have pre-processed 0.32 lakh Tons of hazardous and other waste during 2020-2021 and sent for co-processing in cement industries.

4.6.3. Remediation of Hazardous Waste Contaminated Site

- M/s. Tamil Nadu Chromates and Chemicals Limited, SIPCOT Ranipet, Ranipet district closed its operations in 1995. The chromium sludge about 2.2 lakhs tones which was generated during the operation of unit was dumped within the unit's premises in an area of 2 hectares. In order to avoid ground water pollution due to this dumpsite, a detailed project report was prepared through the CPCB for secured capping of the dumpsite at a project cost of Rs. 12 crores. The Board is taking action to implement the project.

- M/s. Hindustan Unilever Limited, Kodikannal is carrying out the soil remediation of mercury contaminated area in the unit's premises since March 2021. The activity is being carried out under the supervision of National Environmental Engineering Research Institute (NEERI). Until March 2022, 1755 sq.metre area of the site was remediated. The Board has instructed the unit to complete the balance area of 16097 sq.metre before March 2024.

- In 2013, there was an oil leakage in petroleum product conveying underground pipeline owned by M/s. Bharath Petroleum Corporation Limited in Tondiarpet area, Chennai. As a result, the ground water got contaminated. In order to remediate the contamination in the groundwater, the BPCL has started the remediation works

the work is on for the past six years. Now the remediation is nearing completion. In the meantime, as per the directions of the Hon'ble National Green Tribunal, the Indian Council for Medical Research have commenced health study in the above area so as to assess the health impact on the general public living in that area.

4.6.4. Steps taken to recover and reuse the Mixed Salt generated from the Zero Liquid Discharge (ZLD) system of Textile and Tannery units

In Tamil Nadu, about 82,000 tonnes and 1,09,374.5 tonnes of mixed salt generated from the Zero Liquid Discharge (ZLD) system of Tannery units located in Vellore, Ranipet, Tiruppathur, Trichy, Erode, Kanchipuram, Tiruvallur, Dindigul Districts and Textile processing units located in Tiruppur and Erode Districts respectively is stored in their premises.

In this regard, steps are being taken to separate sodium chloride from the mixed salt generated in CETPs of tannery units and trial run is being carried out to utilize the same in the fertilizer units.

The CPCB in its letter dated 03.08.2017 accepted the proposal to conduct trial run for the recovery of mixed salt from Textile Processing industries for industrial use through Salt Pans at Vedharanyam, Nagapattinam District. Based on this, the CPCB has issued Standard Operating Procedure (SOP) during June 2021 for utilization of mixed salt generated from textile units so as to recover salts for industrial use. TNPCB is taking effective steps.

4.6.5. Integrated Environmental Monitoring Studio

TNPCB is in the process of establishing an Integrated Environmental Monitoring Studio, including a Waste Management Cell for tracking

Hazardous Waste and Bio-Medical Waste, and monitoring Online Consent Management, Care Air Centre, Water quality Watch, Online Legal case Monitoring and Management System (OLMMS), Online Grievances Petition redressal (OLGPRS) system under one roof.

5.0. Legal Enforcement Mechanism

The Board is empowered to file complaints in the court of law, issue closure directions and stoppage of Power supply against defaulting/erring units under the various Environmental Acts.

5.1. Appellate Authority

Appellate Authority at Chennai has been functioning since 2000 and deals with appeals preferred by industries against the orders of the TNPCB.

5.2. National Green Tribunal

The Southern Bench of the National Green Tribunal has been functioning in Chennai since 2012. Any person aggrieved by the orders of the Appellate Authority and by the order passed by TNPCB / State Government can prefer an appeal before the NGT within 30 days of the order passed by the Board / State Government / Appellate Authority. The Board has developed a software module to track the legal cases.

5.3. Online Legal Case Management and Monitoring System (OLMMS)

TNPCB has developed an Online Legal Case Management and Monitoring System (OLMMS) for monitoring/tracking legal cases filed in various Courts viz. Hon'ble Supreme Court of India, Hon'ble High Court of Madras, Madurai bench of Hon'ble High Court of Madras, Hon'ble NGT and Appellate Authority.

6.0. Miscellaneous Activities

6.1. ECOmmute Day

TNPCB has set an example to reduce carbon footprint by observing "Weekly Pollution-free Office Commute Day" called "ECOmmute" every Wednesday that other Government organisations and private institutions can follow. All employees of TNPCB use either non-polluting transport mode or public transport mode to commute between their home and office every Wednesday. Several District Collectors and Private industries inspired by this concept have started to observe ECOmmute day in their Districts/organisations. Its economic, health and environmental benefits will be visible when it becomes a mass movement.

6.2. Environmental Training Institute

The Environmental Training Institute (ETI) of TNPCB functions in the Head office of TNPCB and provides training to the Board staff, industrial representatives, executives of Municipalities, Corporations, line departments and NGOs on pollution control and environmental protection.

6.3. Environmental Awareness Programme

To create awareness among the public and to take positive action to protect the environment, the Board conducts various environmental awareness programmes every year through rallies, environmental quiz competitions, planting tree saplings, campaigns through auto-rickshaws, distribution of pamphlets, display boards, broadcasting in FM Radio and screening of short films through visual media etc. In addition, during Deepavali and Bhogi festival season, the Board conducts a

special air quality survey. The Board also monitors the water quality of the water bodies before and after the immersion of Vinayagar idols, and reports are sent to CPCB.

6.4. Online Grievance Petition Redressal System (OLGPRS)

To redress the environmental pollution-related public complaints, the Board has established an online Grievance Petition Redressal Mechanism for filing complaints. An "OPEN HOUSE SESSION" (OHS) is conducted on 5th of every month at TNPCB offices to make Board's functions more transparent and generate confidence and trust among the stakeholders.

7.0. New initiatives taken up during 2021-22

- Consent to Operate (CTO) / RCO to Red, Orange and Green Category Industries are issued as a block instead of issuing every

year as per Ease of doing business policy of the Government.

- TNPCB is in the process of issuing Green Champion Awards of Rs.1 Lakh each for 100 individuals / Organizations / Industries every year for those who have participated proactively and made exemplary contributions to environment protection involving the District Collectors at a cost of Rs.1 Crore. Tamil Nadu Pollution Control Board has taken steps to award Green Champion Award, on June 5th of every year.

- Considering the need for Monitoring Industries at Hotspots & vulnerable areas and enhanced supervision and handling of investigation/ Complaints within the stipulated time, three new Assistant Environmental Engineer (AEE) Offices at Manali, Ranipet and Mettur have been set up

at a cost of Rs.2.55 crores and they started functioning.

- TNPCB has decided to form Flying Squads at Chennai, Vellore and Salem, to have improved vigil and monitoring of water bodies from the disposal of industrial waste, sewage and municipal solid waste at a cost of Rs.1.72 crore and they are also started functioning.

- To improve the efficiency in the monitoring mechanism and to closely monitor the Chemical industries located in the SIPCOT industrial complex Cuddalore and Thermal power plants in Neyveli, a Joint Chief Environmental Engineer, JCEE (M), Cuddalore office has been set up at a cost of Rs.5 crores and a new office it is functioning.

- Establishment of permanent water quality monitoring stations along major rivers in a

phased manner over the next three years and online monitoring of sewage treatment plants on a real-time basis at a cost of Rs.2.0 crores has been undertaken. The works relating to Real-time Water Quality Monitoring Station (RTWQMS) at 3 locations in Tamirabarani and the manual monitoring stations are in progress.

- Information Technology (IT) Wing has been decided to be formed as per the e-governance policy of Tamil Nadu for maintaining various IT Applications viz Online Consent Management and Monitoring System (OCMMS), Online Grievance Petition Redressal System (OLGPRS), Continuous Ambient Air Quality Monitoring Stations (CAAQMS), Water Quality Watch, Continuous Water Quality Monitoring Stations, Online Bio-Medical Waste Tracking Module, Online Legal Case Management and Monitoring

System and Online Hazardous Waste Manifest Monitoring System at a cost of Rs.7.5 crores. At present the said wing has been formed and is functioning.

- Setting up of Integrated Environment Monitoring studio is being initiated by TNPCB for monitoring of all online modules of Consent, Authorization, Care Air Centre, Water Quality Watch, Hazardous waste and Bio-Medical waste Tracking system, Geo-spatial information system (GSS), Online Legal module and forecasting air quality on a real-time basis with an early warning system under one roof at a cost of Rs.64 crores.

- A Green park in Thousand light area at cost of Rs.2.0 crores is proposed to be established through Greater Chennai Corporation.

- Purchase of 50 vehicles at a cost of Rs.7.5 crores for the use of Board and Lab and the purchase is under progress.

- In order to facilitate setting up of industries to produce ethanol for automobile use, Government have relaxed the ban for setting up such industries in their existing locations near water bodies.

8.0. Sustainable Development Goals

The Sustainable Development Goals (SDGs) are an inter-governmental agreed set of targets relating to international development to end poverty, protect the planet and ensure that all the people enjoy peace and prosperity. The SDGs cover 17 goals and 169 targets resolved in UN Summit held in September 2015. India is a signatory of the 2030 Agenda, committed to achieve SDGs. The Goals, Targets and Indicators pertaining to TNPCB are as follows:

Goal - 6, 'Clean Water and Sanitation' set a target - 6.3, by 2030, to improve water quality by reducing pollution, eliminating dumping and minimising release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

This Goal comes under Working Group-2 'Health Care and Sanitation'. Though this Goal is not directly linked to TNPCB but linked indirectly through the Indicator 6.3.2. "Percentage of industries complying with waste water treatment"

Further, this indicator is monitored at the National level, under the National Indicator Framework. The SDG India Index 2.0 (2019) value for this indicator is 99.1, and score for the indicator is 98. The SDG India Index 3.0 (2020) value for this indicator is 98.23 and score for the indicator is 96. The TNPCB emphasises all the

highly polluting industries to achieve Zero Liquid Discharge (ZLD) of trade effluent thereby recycling the treated waste water and reducing the consumption of 87 MLD of raw water for industrial purpose.

Goal - 9, 'Industries innovation and infrastructure' set a target - 9.2, to promote inclusive and sustainable industrialisation and by 2030, significantly raise industries share of employment and gross domestic product in line with national circumstances and double its share in least developed countries.

This Goal comes under Working Group-5 'Innovation, Industrialisation and Sustainable Development'. Though this Goal is not directly linked to TNPCB but linked indirectly through the Indicator 9.2.3. “Number of locations, where $PM_{2.5}$ exceeds normal level.”

The TNPCB monitors ambient air quality at 87 stations covering the district headquarters and major industrial clusters. The TNPCB has proposed to establish furthermore 25 CAAQMS in the State during the year 2022-23 to monitor the air quality in the cities / urban / rural areas of Tamil Nadu. Four cities were identified as non-attainment cities with reference to particulate matter level. Action is being taken to improve the air quality in these cities. Further, this indicator is monitored at the State level under the State Indicator Framework.

Goal - 12, 'Responsible Consumption and Production' set a target 12.4, by 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to

minimise their adverse impacts on human health and the environment.

This Goal comes under Working Group-6 'Sustainable Consumption and Production'. Though this Goal is not directly linked to TNPCB but linked indirectly through the Indicator 12.4.2. Environmental quality monitoring by introduction of monitoring stations across the State. The TNPCB monitors water quality of inland surface water bodies in 143 stations, ground water quality in 22 stations, coastal water quality in 34 stations and ambient air quality at 87 stations in the State. In Chennai city ambient noise level is monitored at 10 locations. The datas are uploaded on TNPCB website.

Goal - 13, 'Climate Action' set a target - 13.3, to improve education, awareness raising and human and institutional capacity on

climate change mitigation, adaptation, impact reduction and early warning.

This Goal comes under Working Group-7 'Sustainable Environment and Climate Change'. Strengthening of institutional, systemic and individual capacity building to implement adaptation, mitigation and technology transfer and development actions in the State (Indicator No.13.3.2) is set as one of the Indicator and this comes under TNPCB. The TNPCB conducts training programme through the Environmental Training Institute (ETI) and awareness programme through the District Environmental Engineers on regular basis.

During the year 2021-22, 10 training programmes were conducted by the Environmental Training Institute of TNPCB and 5 training programmes were attended by TNPCB officials. Further, during the year 2021-22, 197

awareness programmes were conducted during festival seasons throughout Tamil Nadu by the District Environmental Engineers of TNPCB.

The TNPCB officials observe ECOmmute Day every Wednesday by travelling to & fro from Board offices through public transport system and eco-friendly means to reduce carbon print. Use of personal / Board vehicles powered by fossil fuels is avoided by the Board employees for their commute to the office every Wednesday. Several District Collectors have begun to observe ECOmmute day in their districts. The Board has also requested other Government Departments to observe ECOmmute Day.

The ECOmmute concept is also encouraged among school students and TNPCB has proposed to award certification to schools as

"ECOmmute School" on meeting the criteria prescribed by TNPCB, with attractive awards and citations. Students will also be awarded certificates.

Siva. V.Meyyanathan

Minister for Environment- Climate Change and Youth Welfare and Sports Development

Hon'ble Chief Minister launching Meendum Manjappai Campaign on 23.12.2021

Hon'ble Chief Minister addressing during Meendum Manjappai Campaign inauguration.

Hon'ble Chief Minister visits stall displaying eco alternatives for single use plastics(SUP)

Meendum Manjapai Awareness
Program Advertisement

Multiple Effect Evaporator of a Textile CETP, Tiruppur with recovered salt

Aerial view of textile CETP at Tiruppur

Meendum Manjappai Campaign at Madurai

Aerial view of Sewage Treatment Plant at an Educational Institution in Erode

Atomic Absorption Spectrometer (AAS) In TNPCB Advanced Environmental Laboratory, Chennai

Mobile Continuous Ambient Air Quality Monitoring Station.

Reverse Vending Machine for collection of Plastic bottles for recycling.

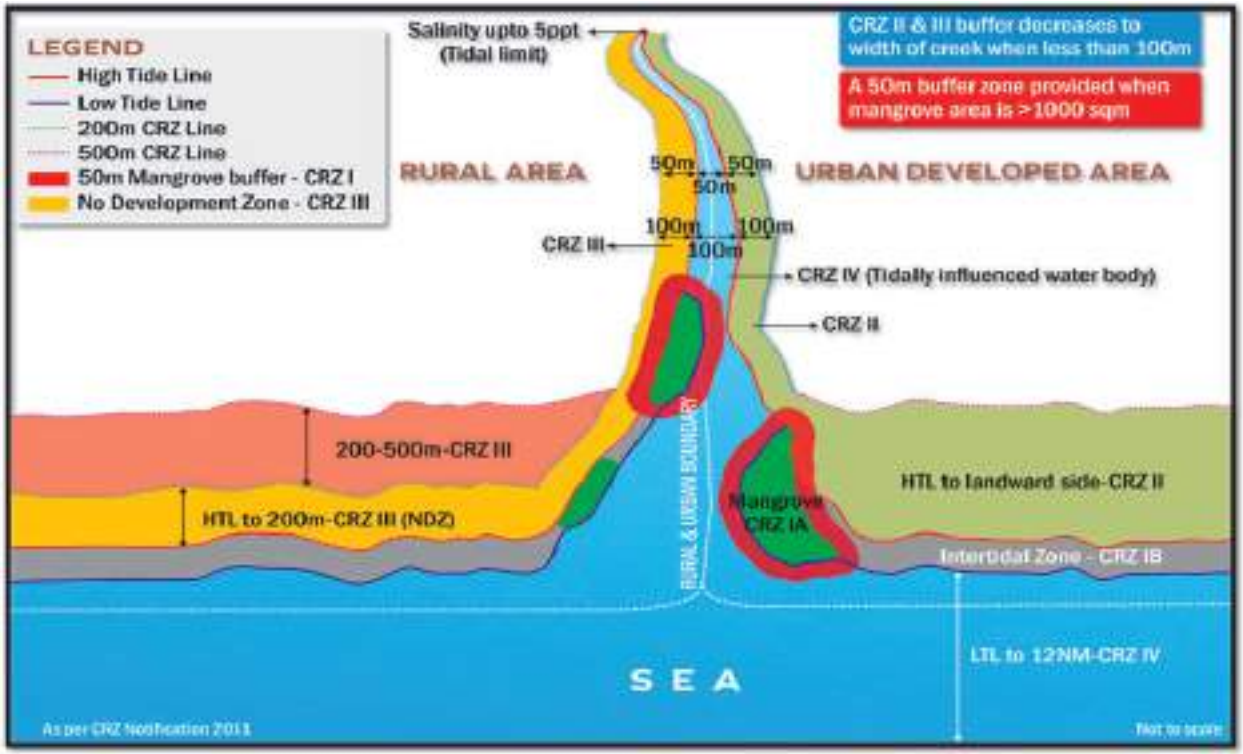
E-Waste segregation for recycling in a factory at Oragadam.

Aerial View of capping of hazardous waste secured landfill facility at Gummidipoondi.

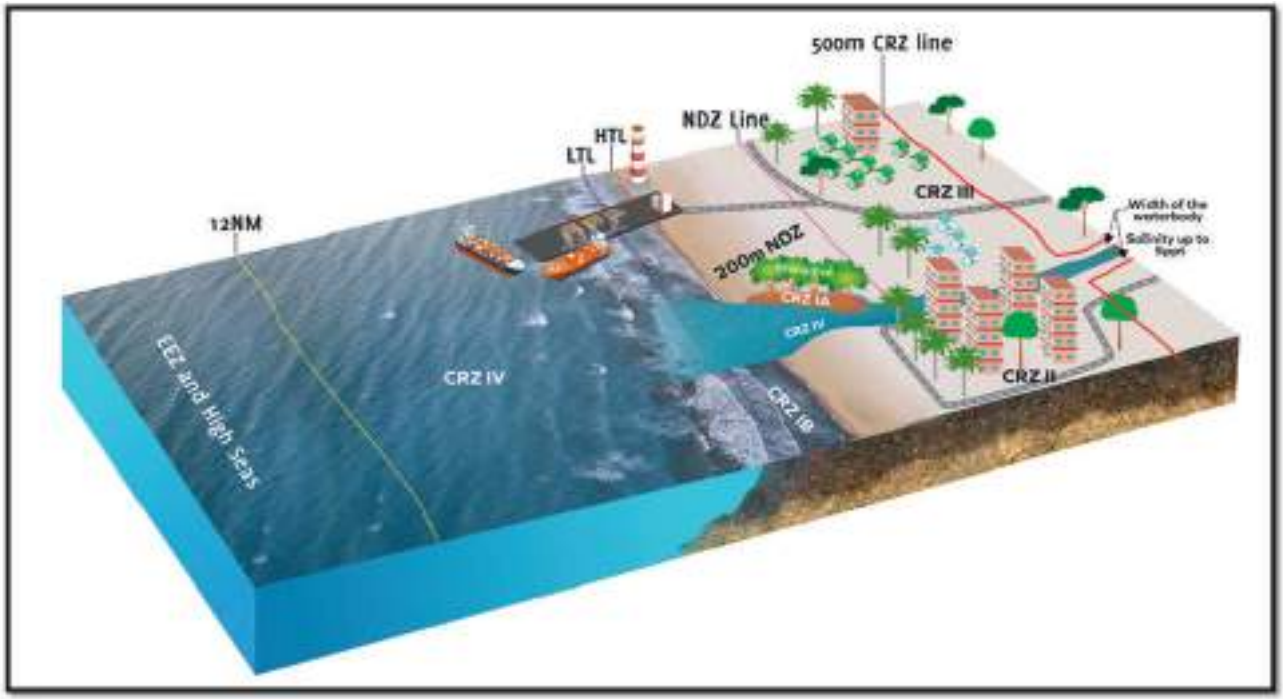
Multiple Effect Evaporator with Crystallizer in Textile CETP at Tiruppur

Meendum Manjappai Awareness Programme at Erode

Blue Beach Programme



Coastal Zone Management Plan CRZ Classification 2011



CRZ Classification in 2011 in 3D View

Tree Plantation by NGC Students

Green Skill Development Programme Wildlife Management Techniques using Geospatial – Certificate course

Printed by Govt. Central Press, Chennai - 600 001.