Climate action in Puducherry Union Territory

Mitigation

Introduction

Objective:

The ultimate objective of the Climate Change Convention (UNFCCC) is to achieve "... stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."

Approach:

Estimating the levels of greenhouse gas (GHG) emissions and removals is an important element of the efforts to achieve this objective.

Method:

A greenhouse gas (GHG) inventory is a list of emission sources and the associated emissions quantified using standardized methods.

GHG EMISSION PROFILE OF PUDUCHERRY UT

The Energy and Resources Institute
Creating Innovative Solutions For A Sustainable Future

ENERGY AGRICULTURE ENVIRONMENT HABITAT RESOURCE SECURITY CLIMATE HEALTH & NUTRITION

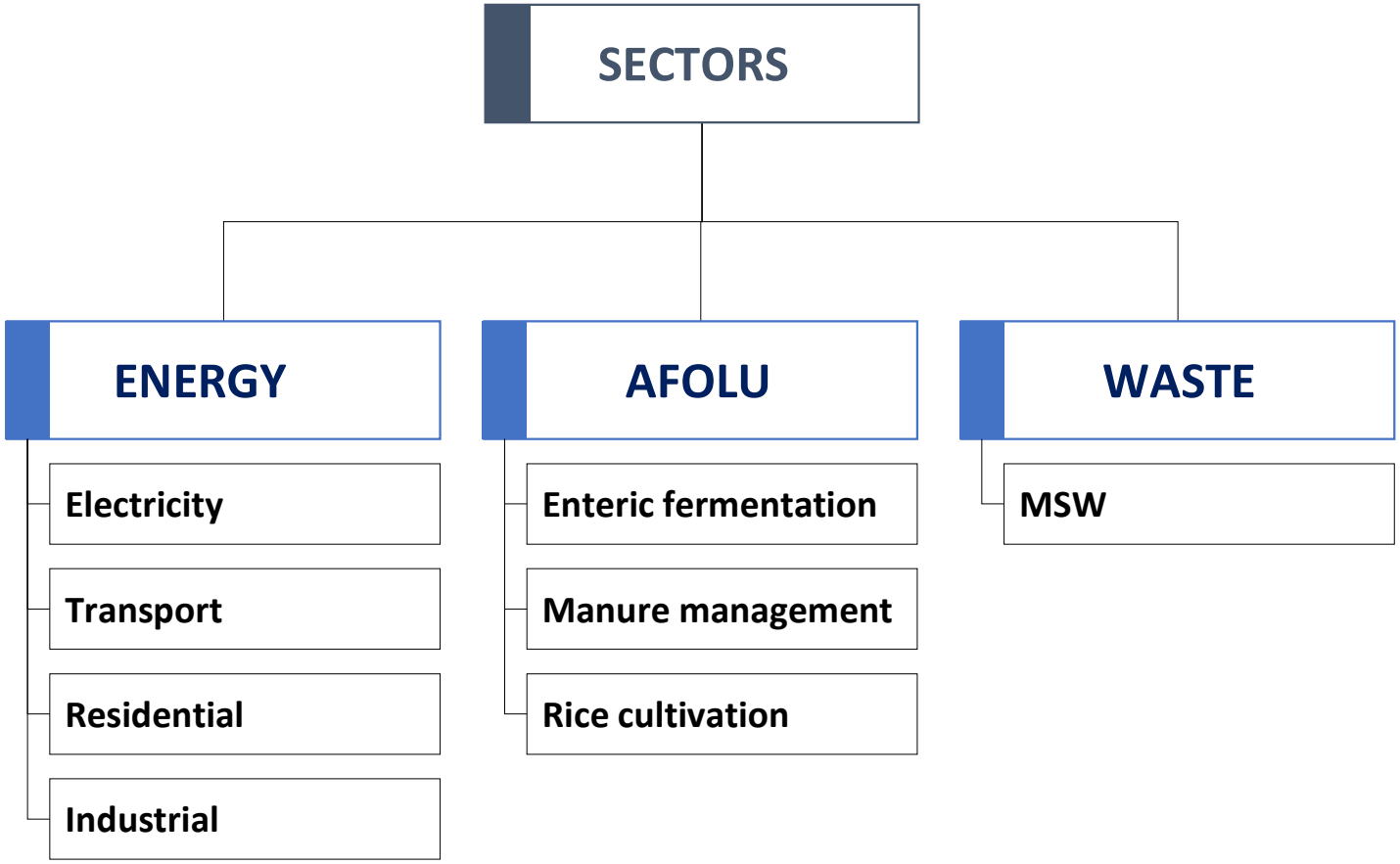
Developing GHG Inventory for Puducherry UT

- The UT's GHG inventory was carried out in reference to the **2006 IPCC Guidelines for National Greenhouse Gas Inventories.**

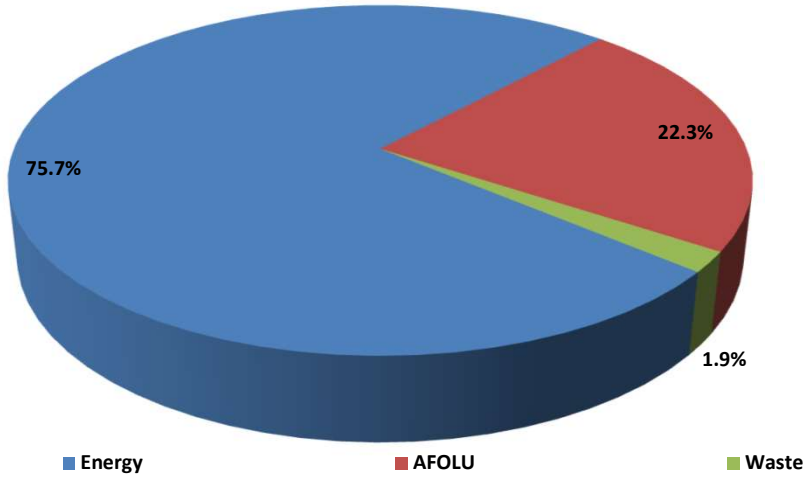
- The study exercise primarily adopts the Tier 1 approach for estimating GHG emissions, where the default emission factors for various activity data are applied.

Annual emissions (tCO2e/y)= Activity data x emission factor

SECTORS & SUB-SECTORS



Sectorial emission contribution percent between 2014 to 2019



ENERGY SECTOR

The energy sector is responsible for about **76% of total emissions** during the study period between 2014 to 2019.

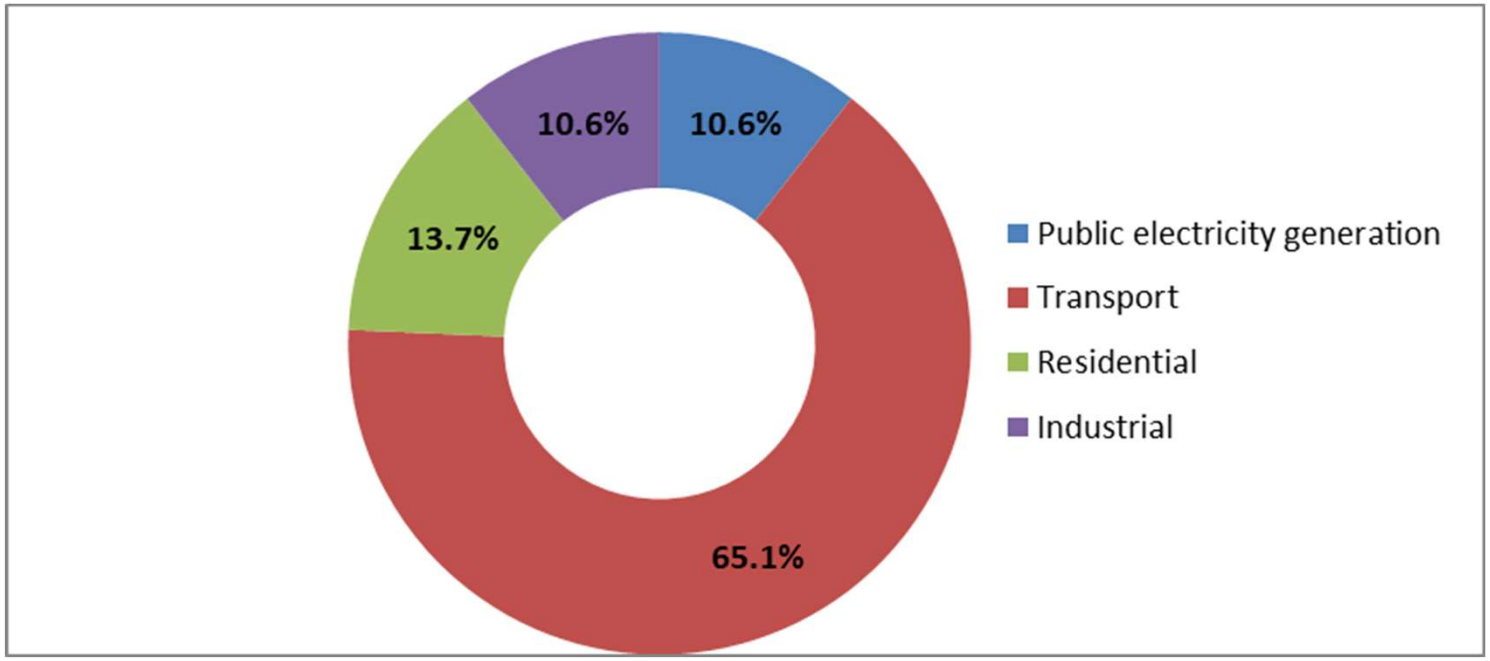
The transport sector emits the maximum emissions amongst all sectors, due to its high density vehicle population, rapid growth in vehicle ownership and tourism needs.

The household sector is one of the second largest contributors of GHG emissions due to the increasing consumption of LPG for cooking. The residential sector consistently emits about **1.3 lakh tCO2e/y.**

The industry sector has the third largest contribution, an average estimated emission of about 1 lakh tCO2e/y.

Sub-category	Emissions in tonnes of carbon dioxide equivalent per year (tCO_2e/y)					
	2014	2015	2016	2017	2018	2019
Electricity generation	78,438	75,750	1,10,954	1,14,984	1,10,933	1,01,887
Transport	7,01,652	7,18,462	5,58,109	5,61,006	5,59,948	5,54,594
Residential	1,13,910	1,25,848	1,31,817	1,31,488	1,31,324	1,34,371
Industrial	71,920	71,920	87,555	1,15,698	1,25,078	1,21,951

Sub-sectorial emission contribution percent between 2014 to 2019



Agriculture, Forest and Other Land Use (AFOLU)

The overall average emission from the AFOLU sector was **1.75 million tCO2e/y** annually contributing to **22.3 % to the total UT's emissions.**

Average GHG emissions from the agriculture sector during 2014-2019 from

- Rice cultivation= 1.4 lakh tCO2e/y
- Livestock (Enteric fermentation & Manure management) =1.37 lakh tCO2e/y

Sub-category	Emissions in tonnes of carbon dioxide equivalent per year (tCO_2e/y)					
	2014	2015	2016	2017	2018	2019
Enteric fermentation	1,17,044	1,21,598	1,26,336	1,31,264	1,31,264	1,31,264
Manure management	9,860	10,227	10,607	11,003	11,003	11,003
Rice cultivation	1,47,316	1,44,271	1,40,313	1,30,895	1,31,363	1,34,521

Waste sector

- The Waste sector averagely contributed to almost **2% to the total emissions for the UT of Puducherry** during the studied timeline 2014-2019.

- For a population of 1.6 million people, an estimated average amount of 1.76 lakh tonnes of municipal solid waste were sent to disposal sites which contributed to an overall **23,300 tCO2e/y.**

Sub-category	Emissions in tonnes of carbon dioxide equivalent per year (tCO_2e/y)					
	2014	2015	2016	2017	2018	2019
MSW	7,754	14,295	20,252	26,514	33,098	37,931

MITIGATION STRATEGIES

Background

Puducherry is a rapidly urbanizing and developing UT, however, it is still prone to the changing extreme weather primarily to rising temperatures and formation of Urban Heat Islands.

The biggest challenge facing would be ensuring the growth of the economy, infrastructure, and industrial production while reducing GHG emissions across all the sectors.

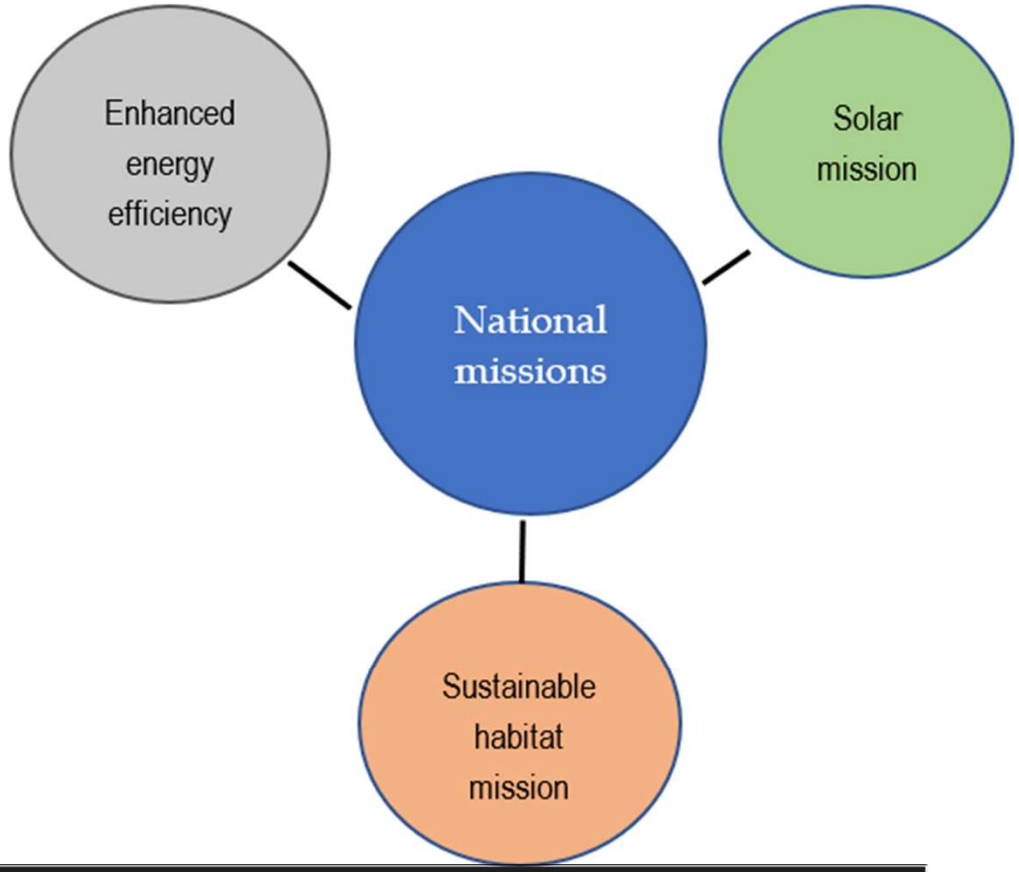
This requires for a robust framework of strategies and interventions that address the concerns of the population at the regional level.

The SAPCC of Puducherry UT has mapped out several short, medium and long-term climate interventions for lowering emissions from carbon-intensive sectors.

Sectors in focus

Mitigation strategies in Puducherry UT are mainly focused on four areas that align with the sectoral GHG emissions, namely: -

- Renewable energy
- Energy efficiency
- Transport
- Waste

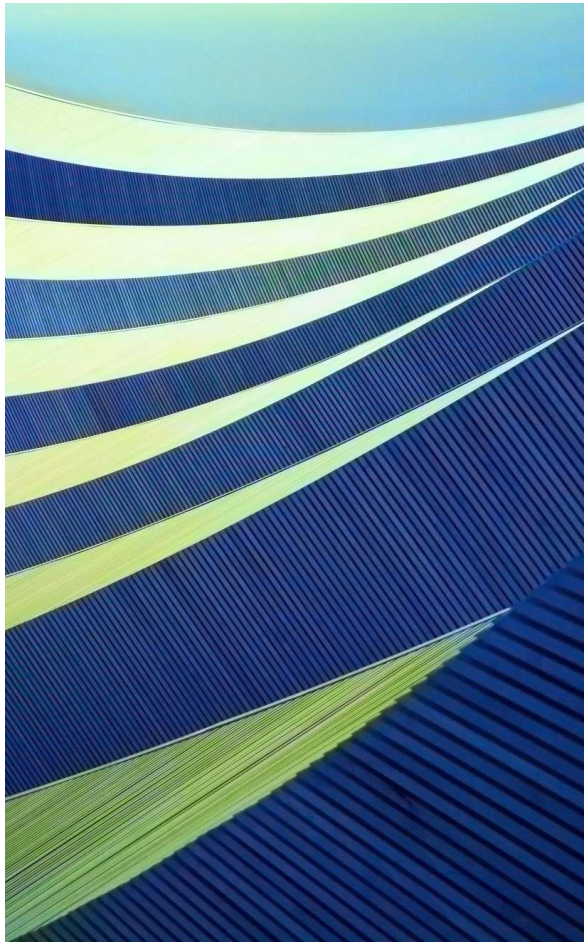


Renewable energy

- To raise impetus of solar energy in the UT, The Government of UT Puducherry recently formulated a Solar Power Policy in 2015.

- The Solar Power Policy aims to promote solar photovoltaic and solar thermal energy through implementation of policies, projects and programs.

- Owing to the high potential of rooftop solar in urban areas and the availability of grid connections in the rural areas as well makes Puducherry in an advantageous position to make use of solar energy.



Interventions

- Deployment of Solar utility scale and Rooftop systems
- Subsidy scheme for rooftop solar model across residential sector
- Establishing solar PV plants
- Installation of solar lights
- Installing rooftop solar system in public buildings in smart city area
- To increase renewable based energy generation through power purchase

Energy efficiency

- Puducherry has limited power generation capacity of its own and relies mainly on central electricity generating stations to meet its power demand.

- The remaining power demand is met by adjoining Tamil Nadu Electricity Board, Kerala State Electricity Board and Central generating stations. Almost 75% of the installed capacity comes from thermal sources followed by 11% from nuclear energy and a limited share from renewable energy sources.

- The domestic sector (46%) and the commercial sector (31%) are the major consumers of electricity constituting a quarter of the total consumption.

Interventions

- EE activities in Government and public institutions
- EE activities in urban areas
- Perform, Achieve and Trade (PAT) Scheme
- Capacity building programs and initiatives
- Energy conservation Building Code (ECBC)
- Installing LEDs as street lights in smart city areas

Transport

- The Union Territory of Puducherry, also known as Pondicherry, is well connected to parts of the country and the globe by road, air and rail network.

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- The city is visited by many local, national and global tourists all year round and hence needs to have an efficient public transport system to ease movement for the tourists.
- The current public transport in the city has Puducherry Road Transport Corporation (PRTC) inter-state and intra-city bus service, privately operated bus services.
- The taxi cabs and auto-rickshaws are important intermediate paratransit modes that the city has.

Interventions

- **Promotion of public transport**
- **Promoting EV vehicles/e-rickshaws and EV charging stations**
- **Setting up EV charging stations**
- **Installing Intelligent Transport System**
- **Developing pedestrian and cyclist pathways**

Waste

- Puducherry UT has systematic waste management schemes and programs under the Swachh Bharat Mission and sustainable habitat mission.
- The municipalities in Puducherry adopted different methods such as door-to-door collection with segregation of garbage at source for effective MSW management.
- Puducherry has improved its previous year's rank from 344 to 171 in Swachh Survekshan 2020 rankings.

Interventions

- Setting up Waste to Energy (WTE) plant
- Initiation and completion of Bio mining plant
- Integrated Waste Management Plan for handling and processing waste
- Setting up modern slaughterhouse

Way forward

The UT of Puducherry is rapidly urbanizing and developing, this comes with challenges as well. In general, infrastructure and other services are not accompanied along with the increasing urban population.

Therefore, policy actions should be more intended towards have a meaningful impact on emissions reduction and resilience-building in a coordinated way.

The best practice to follow will be the comprehensive development plan of Puducherry which entails all the sectors. This will help in the effective implementation of mitigation strategies.

THANK YOU