



# Developing a Climate Change Risk Assessment Tool for Puducherry

**DATE: 20 JULY 2023**

**VENUE: LEGEND HALL,  
THE RESIDENCY TOWERS,  
PUDUCHERRY**

**Inception Workshop Proceedings**

Prepared by the Center for Study of  
Science, Technology and Policy

# AGENDA

11:00 am–11:05 am	Welcome address	<b>Dr Sagaya Alfred,</b> Senior Scientific Officer, Department of Science, Technology and Environment
11:05 am–11:10 am	Keynote address	<b>Dr A Muthamma, IAS</b> Secretary (Science, Technology and Environment), Government of Puducherry
11:10 am–11:40 am	Presentation: Climate change science and impacts and the need for adaptation	<b>Dr Indu K Murthy,</b> Sector Head, Climate, Environment and Sustainability, CSTEP
11:40 am–12:00 pm	Tea break	
12:00 pm–12:30 pm	Presentation: Climate change scenarios for Puducherry and potential impacts	<b>Dr Anushiya J,</b> Group Head, Adaptation and Risk Analysis, CSTEP
12:30 pm–01:00 pm	Presentation: Climate Risk Assessment Tool (CRAT): Need and utility of the tool	<b>Ms Tashina Madappa Cheranda,</b> Senior Associate, Adaptation and Risk Analysis, CSTEP
01:00 pm–02:00 pm	Lunch	
02:00 pm–04:00 pm	Stakeholder Consultation for Indicator Selection	<b>Ms Tashina Madappa Cheranda,</b> Senior Associate, Adaptation and Risk Analysis, CSTEP
04:00 pm–04:15 pm	Closing remarks	<b>Dr Indu K Murthy,</b> Sector Head, Climate, Environment and Sustainability, CSTEP

## Welcome address

*Dr Sagaya Alfred, Senior Scientific Officer,  
Department of Science, Technology &  
Environment (DSTE)*

Dr Alfred welcomed the gathering to the inception workshop held jointly by the Puducherry Climate Change Cell (PCCC) and Center for Study of Science, Technology and Policy (CSTEP). He emphasised the need for a climate risk assessment for Puducherry and welcomed CSTEP's enthusiasm and credibility to head this project.



## Keynote address

*Dr A Muthamma, IAS, Secretary (Science,  
Technology and Environment), Government of  
Puducherry*

Dr Muthamma delivered an engaging and thought-provoking keynote address on the urgency to address climate change in Puducherry. She weaved through multiple themes on the global concerns for climate change and urban planning and Puducherry's role in this global phenomenon. She encouraged the attendees to factor in climate change in all their work and reminded us that climate change is a current reality and not just a future threat. She also endorsed the new 'Green budget', which has been tabled by the Puducherry UT, and highlighted some of the UT's steps towards tackling climate change.



## Presentation: Climate change science and impacts and the need for adaptation

*Dr Indu K Murthy, Sector Head, Climate Environment and Sustainability, CSTEP*

Dr Murthy provided the audience with a primer on climate change. Her talk focused on the fundamentals and science of climate change, including global warming, the albedo effect, and changing weather patterns. She made a case for climate adaptation by describing the cumulative effect of carbon dioxide in the atmosphere, highlighting that even if zero emissions could be achieved today, we would still face climate impacts due to cumulative emissions from the past.



## Presentation: Climate change scenarios for Puducherry and sectoral impacts

*Dr Anushiya J, Group Head, Adaptation and Risk Analysis, CSTEP*

Dr Anushiya provided a snapshot of the climate trends for Puducherry. She highlighted the rising variation in the diurnal temperature range (DTR), increasing temperature and precipitation trends, and projected inundation due to rising sea levels.



## Presentation: Co-creation of a climate risk assessment tool

*Ms Tashina Madappa Cheranda, Senior Associate, Adaptation and Risk Analysis, CSTEP*

Ms Cheranda summarised key details of the Intergovernmental Panel for Climate Change (IPCC) Assessment Report 5 (AR5) risk assessment framework that combines hazard, exposure, and vulnerability analysis to assess risk at the desired scale. Her presentation also included details of the activities and timelines of the project over the next year.



## Stakeholder consultation for indicator selection

*Moderated by Ms Tashina Madappa Cheranda,  
Senior Associate, Adaptation and Risk Analysis,  
CSTEP*

Prior to the meeting, the team at CSTEP conceived a set of indicators for the agriculture, water and sanitation, coastal resources and fisheries, health, livestock, and tourism sectors. These indicators were presented to the stakeholders in attendance to gather feedback for improvement. The following comments and required changes were noted:



### *Agriculture:*

- Coastal hazards are critical for crops such as banana, papaya, and coconut, which are grown in close proximity to the coast. However, sea-level rise does not pose a threat to these abovementioned crops but can be problematic for paddy, which is currently not grown close to the coasts.
- Other modes of micro-irrigation such as drip and sprinkler must be included as an indicator.
- There was contention for the indicator ‘percentage of the area under the safety-net farming practices’. Collective farming is not practised in Puducherry. Cluster farming is practised with the vision of making Puducherry a fully organic UT. Further, data on the total area for mixed farming are unavailable. It was decided that this indicator would be replaced with an indicator representing cluster farming.
- ‘Stage of groundwater development’ is to be used as an indicator instead of groundwater availability (ha m/km<sup>2</sup>).
- In some regions of Puducherry such as Mahe, surface irrigation is not possible due to geographical restrictions. Therefore, assessment for a surface irrigation indicator in Mahe would be incorrect.
- A resilience indicator to represent the percentage of farmers that have responded to the government’s incentives of converting one season of their paddy crop to another crop can be introduced.

### *Livestock:*

- Yanam and Mahe regions are almost completely urban; hence, assessing a livestock indicator in these regions would be incorrect.



#### *Coastal resources and fisheries:*

- For the indicator 'percentage of fisherfolk living within 50 m from the high tide line', the safety line for habitations next to the coast is 500 m from the coast, not 50 m. In some areas, a hazard line is drawn, which can be used as the benchmark.
- Cold storage units, fish landings, fish markets, and fishing harbours need to be included as exposure variables.

#### *Water resources and sanitation:*

- Storm water drains and rainwater harvesting structures are to be included as exposure indicators.
- Further consultations with the respective department need to be conducted to assess the feasibility of including masonry structures, check dams, and catchment areas.
- Data on surface water quality are not collected.
- For saltwater intrusion, consultations are required to finalise whether tidal or salinity intrusion will be considered.

#### *Health:*

- Instead of disaggregating the exposure indicators into 'old age homes', 'Anganwadis', etc, it may be beneficial to consider all habitations.
- For the indicator that assesses the 'number of households with health insurance coverage', 'households' should be replaced with 'individuals', as schemes such as Ayushman Bharat are applicable for individuals.
- The indicator on open defecation is to be removed due its negligible prevalence in the UT.
- The indicator on the 'percentage of individuals below poverty line' might underestimate poverty, since there are many migrant workers in Puducherry with unaccounted data.
- Along with water- and vector-borne diseases, illnesses related to heat and acute respiratory illnesses must be included.

#### *Tourism:*

- Bed and breakfast facilities must be added as an exposure indicator.
- It is unclear whether the indicator 'length of walkable footpaths/total footpath' could be quantifiable.

Throughout all sectors, a common suggestion was that cyclones must be added as a hazard. Cyclones were initially not added due to difficulties in projections

## LIST OF ATTENDEES

S. No.	Department	Nodal officer	Designation
1.	District Rural Development Agency	Thiru N Balasubramanian	Executive Engineer
2.	Directorate of Forest and Wildlife	Thiru S Kumaravelu	Deputy Director
3.	Public Works Department	1. Thiru A Selvarasu	Assistant Engineer
		2. Thiru K. Mohanraj	Assistant Engineer (Planning)
4.	Directorate of School Education	Thiru S Rajkumar	Lecturer, STC
5.	Tourism Department	Thiru M Poubalane	Manager
6.	Renewable Energy Agency	Thiru J Arun Prakash	Technical Assistant (Civil)
7.	Electricity Department	Thiru V Madhavan	Assistant Engineer/ MMC
8.	Department of Agriculture and Farmers Welfare	Thiru H Jakir Hussain	Joint Director
9.	Department of Animal Husbandry and Animal Welfare	Dr S Anbukkarasu	Joint Director
10.	Department of Fisheries and Fishermen Welfare	Thiru P Meera Saheb	Project Officer
11.	Department of Health and Family Welfare Services	Dr K Vivekandanda	State Surveillance Officer
12.	Labour Department	1. Smt P Ragini	Deputy Labour Commissioner
		2. P Murugaiyan	Joint Chief Inspector of Factories and Boilers
13.	Local Administration Department	Thiru R Yuvaraj	Assistant Engineer, Puducherry Municipality
14.	Department of Revenue and Disaster Management	Thiru Bhaskara Rao Mulam	Sr Consultant
15.	Department of Social Welfare	Thiru S Saravanan	Welfare Officer

16.	Department of Town and Country Planning	Thiru A Elango	Junior Town Planner
17.	Adi Dravidar Welfare and Scheduled Tribes Welfare Department	Thiru V Vinayagamourthi	Superintendent
18.	Planning and Research Department	1. J Devidasan	Deputy Director
		2. A Swaminaden	Planning Assistant
19.	Directorate of Economics and Statistics	Tmt G Indra	Deputy Director
20.	Puducherry Ground Water Authority	Thiru U Prabakaran	Deputy Director
21.	Department of Science, Technology and Environment, Puducherry	Thiru Yasam Lakshmi Narayana Reddy	Director, DSTE
		Dr Sagaya Alfred	Senior Scientific Officer, DSTE
		Thiru N Ramesh	Member Secretary, PPCC
		Thiru K Kalamegam	Environmental Engineer, DSTE
		Thiru Vipin Babu	Scientist, PPCC
		Tmt Rukmani	Scientist, DSTE
		Tmt Sumathi	Scientist, DSTE
		Thiru Devaanandh	Assistant Environmental Engineer, PPCC
		Thiru. Prabhu	Junior Engineer, DSTE
		Thiru Poogajendy	Junior Engineer, DSTE
		Thiru Balaji T	Senior Project Associate, Puducherry Climate Change Cell
		Tmt S Santhalakshmy	Senior Project Associate, Climate Change Cell
		Tmt R Thenmozhi	Senior Project Associate, Puducherry Climate Change Cell
		Tmt K Deebea	Project Assistant, Puducherry Climate Change Cell
		Tmt Jayabarathi	Project Assistant, Puducherry Climate Change Cell



22.	CSTEP	Dr Indu K Murthy	Sector Head, Climate, Environment and Sustainability
23.		Dr Anushiya J	Group Head, Adaptation and Risk Analysis
24.		Ms Tashina Madappa Cheranda	Senior Associate, Adaptation and Risk Analysis
25.		Ms Srilakshmi Jayasankar Menon	Senior Analyst, Adaptation and Risk Analysis
26.		Mr Sahil Mathew	Analyst, Adaptation and Risk Analysis

## GLIMPSES OF THE EVENT

