

Heat Wave and mitigation plans (Trichy District-Tamil Nadu)

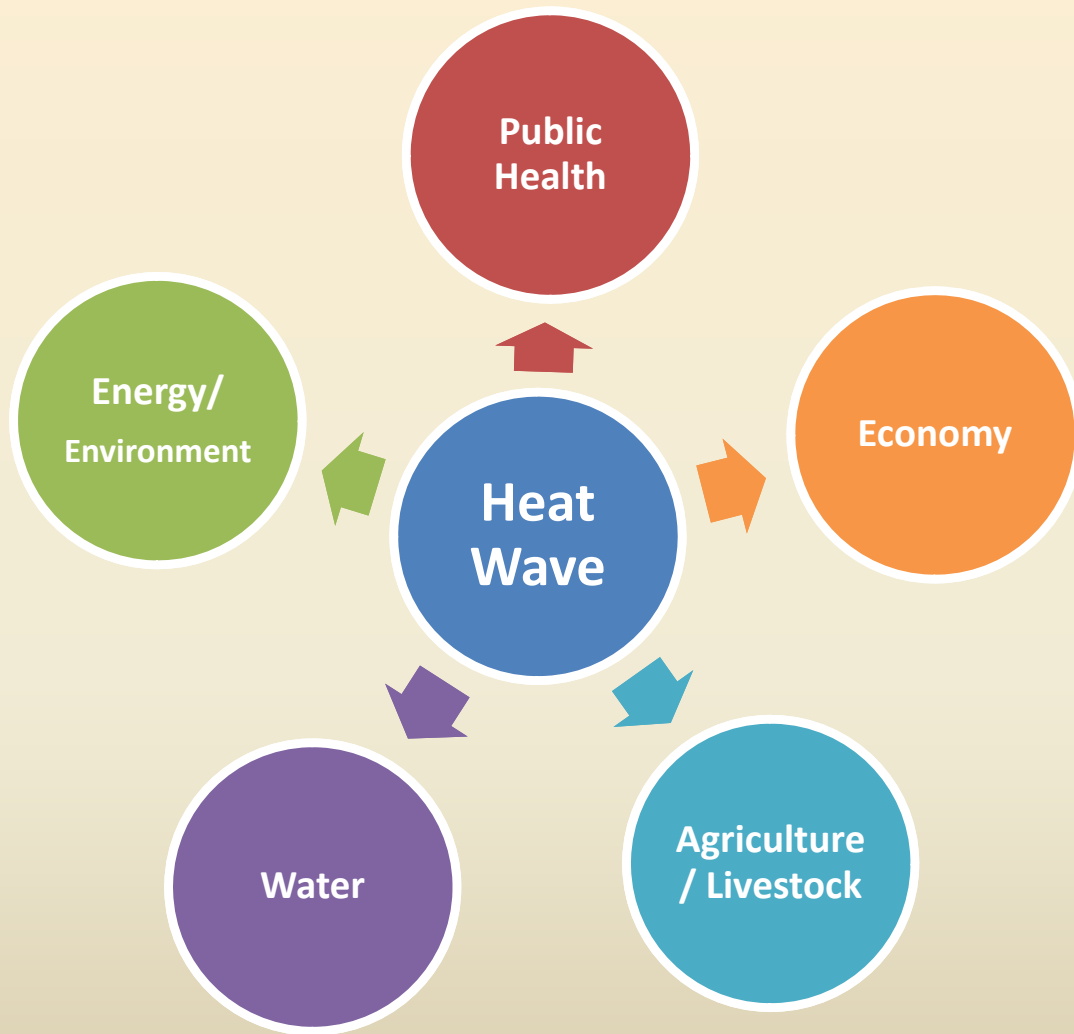


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Heat waves in Tamil Nadu

- Tamil Nadu on an average experienced ≥ 8 Heat Wave (HW) Days/year during the past 25 years (Pai et al.2013)
- Experienced longest HW spells of 15 days during 6th May to 9th June, 1996 (Pai et al.2013)
- Mainly the heat waves are observed in connection with El-Nino years (Chaudhury et al. 2013)
- The 2012 heat wave observed randomly in the months of May, June and July, which results in major impacts. (Nair et al. 2017)

Heat waves impacts in Tamil Nadu



Heat waves results in various direct and indirect impact in State of Tamil Nadu

1. Public Health
2. Agriculture / Live stock
3. Water
4. Energy / Environment
5. Economy

Water Scarcity & Heat waves !!!

Water scarcity during heat wave period results in extreme impacts and reduces the chances to overcome the disaster

- Lack of drinking water in summer, particularly in rural areas
- Water Scarcity for cattle, poultry and other livestock
- Lack of water for irrigation
- Lack of water in unplanned urban areas
- During summer water scarcity is extreme in few districts such as Chennai, Sivagangai, Vellore, Ramanathapuram and Virudhunagar.



Heat wave and Energy Consumption

- Heat waves increases the consumption of electricity by public
- The usage of fan, air conditioner and air coolers results in power demand in summer particularly in urban areas
- In urban areas the necessity of power is important in both day and night.
- Water scarcity results in usage of motors and pumps which leads to more consumption on electricity and petroleum products
- High energy consumption results in numerous environments impacts



Heat wave impact on Economy

There are lot of direct and indirect economic losses in Tamil Nadu due to Heat waves such as

- Loss of Net productivity
- Health impacts on people results in loss of economy and production
- Individual income loss for outdoor workers
- Increases poverty among daily wage labourers
- Live stock and dairy products reduction
- Heavy consumption of electricity results to invest in energy sector
- Water scarcity results in loss of agriculture yield

Heat Island effect in Urban areas

Rapid and unplanned urbanization of cities and concomitant reduction in vegetation results in increased rise in temperature compared to non-urban areas.

In the last decade the impacts of heat waves is increasing in Urban area of Tiruchy

Chennai

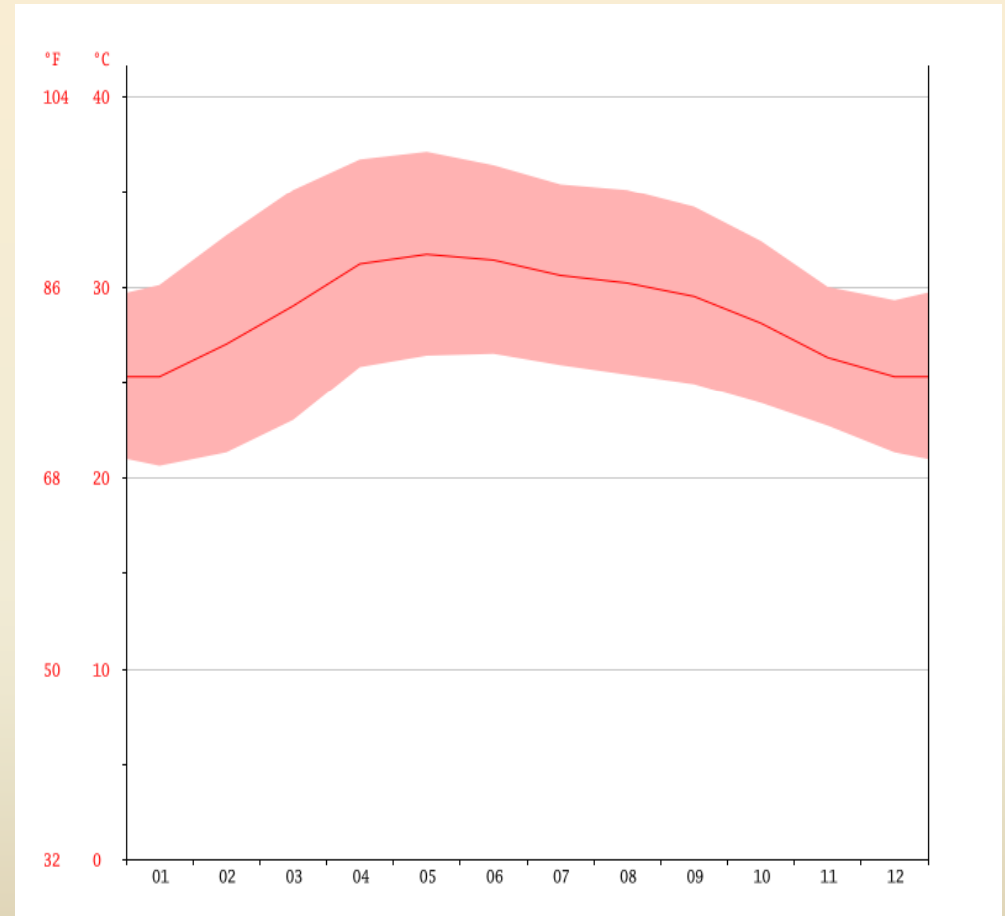


Trichy



Trichy-Background

- Trichy is land locked and have high temperature through out the year
- The climate is generally characterized by high temperature and low humidity
- The city is the hottest in the state
- The warmest month of the year is May, with an average temperature of 38.1°C. The lowest average temperatures in the year occur in January, when it is around 20.3 °C.



Climate data for Trichy (1971-2000)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	35.6	40	42.2	42.8	43.3	43.9	41.1	40.6	40.6	38.9	36.7	35.6	43.9
	-96.1	-104	-108	-109	-109.9	-111	-106	-105.1	-105.1	-102	-98.1	-96.1	-111
Average high °C (°F)	29.4	32.6	35.4	37.5	38.1	38	36.4	35.8	34.7	32.5	30.4	29.1	34.2
	-84.9	-90.7	-95.7	-99.5	-100.6	-100.4	-97.5	-96.4	-94.5	-90.5	-86.7	-84.4	-93.6
Average low °C (°F)	20.3	21.3	23.2	26.1	26.5	26.8	26.1	25.7	24.8	24.1	22.8	21.2	24.1
	-68.5	-70.3	-73.8	-79	-79.7	-80.2	-79	-78.3	-76.6	-75.4	-73	-70.2	-75.4

Source: India Meteorological Department (record high and low up to 2010)

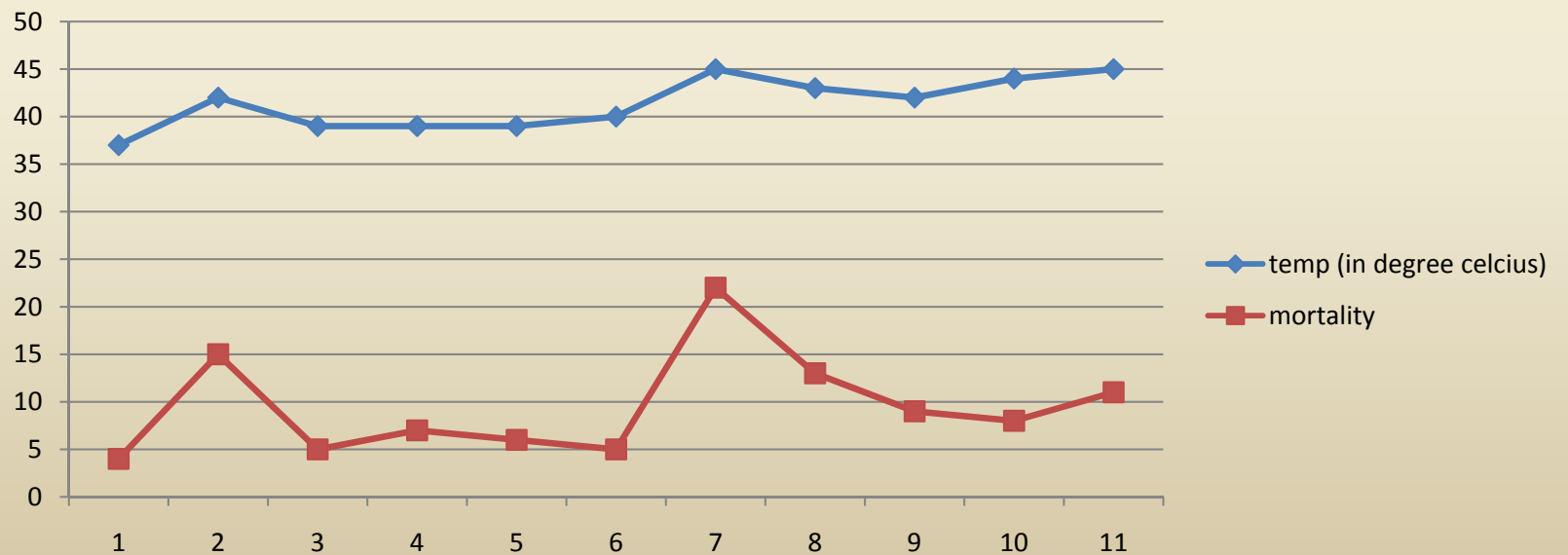
Heat Wave impacts in Trichy Urban Area

- ❖ Rapid Urbanization is observed in Trichy district in the last decade
- ❖ Urban development results in loss of vegetation cover
- ❖ Concrete structures, industries and transportation increases the heat in the urban area
- ❖ These factors results in increase in mortality rate for HW

Year	Maximum temp	Spell of HW	Mortality
2006	37	6	4
2007	42	13	15
2008	39	5	5
2009	39	7	7
2010	39	9	6
2011	40	9	5
2012	45	19	22
2013	43	14	13
2014	42	11	9
2015	44	11	8
2016	45	10	11

Threshold identification-Trichy

Year	Temp (in degree Celsius)	Mortality
2006	37	4
2007	42	15
2008	39	5
2009	39	7
2010	39	6
2011	40	5
2012	45	22
2013	43	13
2014	42	9
2015	44	8
2016	45	11



Stake holders and Roles

- State Emergency Operation Centre- Nodal Agency at state level
- District Emergency Operation Centre- Nodal Agency at District (Coordinated by the District Collector)
- Community- First Responders.
- NGOs, SHGs other civil society organizations

Department wise Action Plans

S. No.	Department	Action Plans
1	Media	Create awareness among Social Media, Electronic Media, Cable Net Work, FM Radio.
2	Horticulture	Develop Gardens in new layout and encourage open areas plantation.
3	Education	Drinking Water arrangements in Schools. All Private Schools and Colleges to Support activities. In May College and school examinations should be in morning.
4	Public Works Department	In new building plan must have water conservation plan, Heat proof roof and Heat proof colouring of buildings. Planatation and gardens in layout Drinking Water and cool shelter at work sites for labours.
5	Water Supply	Adequate water supply to community and drinking water spots.
6	Transport	Drinking water spots and Cool shelter at Bus/Railway Station and stops. Drinking water arrangement in Bus and Railway .

7	Police Department	Shelter to duty staff and drinking water arrangement. Change in duty timing of high risk staff.
8	Disaster management	Arrange training programme, community awareness activities in large public gatherings. Financial help to families of death cases due to heat wave effect.
9	Labour Commissioner	Change working time in summer. Drinking water and cool shelter arrangement to workers.
10	Electricity Board	No electricity cut in afternoon during summer.
11	Medical colleges / Hospitals	Doctors / Paramedical staff training. Regular report submission. Plan Research activity
12	Public Health institute	Training of Medical college and private Hospital doctors and plan research.
13	108 Emergency services	Doctor and Paramedical Staff training. Reporting of cases and community awareness.
14	Health Department	Doctor and Paramedical Staff training. Reporting of cases and community awareness.
15	Officers from all departments Govt / Corporate / Private .	Drinking water and cool shelter arrangement for staff and Public. .

A photograph of a tree-lined road. The road is paved and has white dashed lines. On the right side, a large tree has a black and white checkered band wrapped around its trunk. The trees are lush green, and the road leads into the distance. The text 'Thank You' is overlaid in a large, bold, black serif font.

Thank You

Grow more Trees.....mitigate heat waves