In numbers: Heat strokes killed more than 2,500 people in UP, Bihar in 10 years

The least heat stroke mortalities were recorded in 2021 when only 374 people lost their lives. That year, 57 and 36 people died in Bihar and UP respectively because of the extreme heat.

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THIS STORY IS FROM JULY 29, 2023

250 died this summer due to heat wave

Deepak Lavania / TNN / Updated: Jul 29, 2023, 06:26 IST

Data presented by the Union minister of state for health and family welfare, SP Singh Baghel, has revealed a significant increase in heat-related fatalities during the sum ... Read More

New For You

Extreme heat in North America, Europe and China in July 2023 made much more likely by climate change

25 July, 2023

Heatwave

Asia, Europe, North America

Following a record hot June, large areas of the US and Mexico, Southern Europe and China experienced extreme heat in July 2023, breaking many local high temperature records.

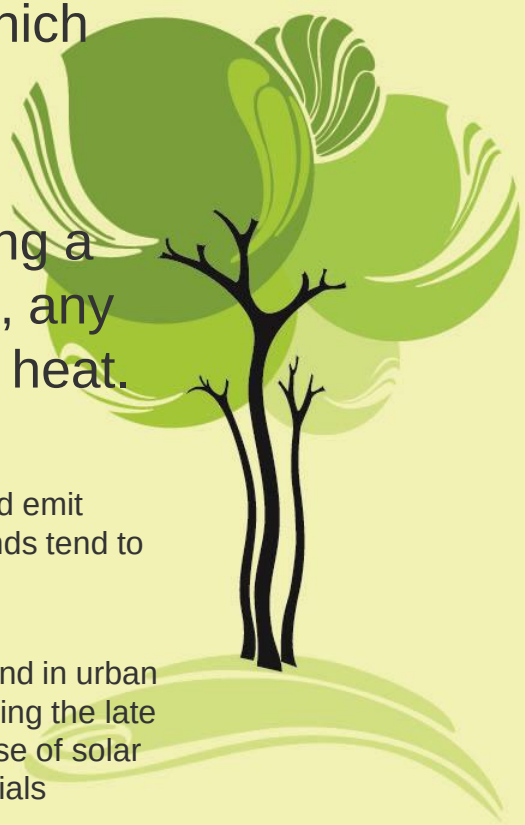
July 2023 saw extreme heatwaves in several parts of the Northern Hemisphere, including the Southwest of the US and Mexico, Southern Europe and China. Temperatures exceeded 50C on the 16th of July in Death Valley in the US as well as in Northwest China (CNN,2023). Records were also reached in many other weather stations in China and the all-China heat record was broken in Sanbao on the 16th of July. In Europe, the hottest ever day in Catalunya was recorded and highest-ever records of daily minimum temperature were broken in other parts of Spain. In the US, parts of Nevada, Colorado and New Mexico tied their all time high, parts of Arizona, Cayman Islands, highest ever night time temperatures in Phoenix Arizona which also had its record for longest

Urban Heat Islands

- **Urban Heat Islands** are areas within urban and suburban environments that experience elevated temperatures — especially when compared to rural areas.

- When homes, businesses and industrial buildings are built close together, they generate, trap and store heat, which significantly increases surrounding air temperatures.

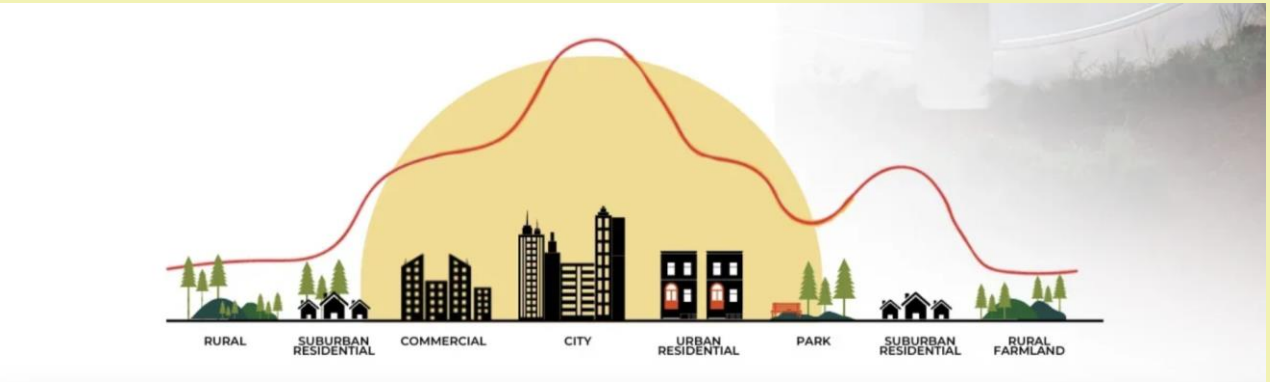
- Another source of heat are People. Whether it's driving a car or using cooling appliances like AC & refrigerator, any time that people burn off energy, they are generating heat.



  - **Surface Heat Islands:** Man-made surfaces like roadways and rooftops absorb and emit significantly more heat than natural surfaces like grass and soil. Surface heat islands tend to be most intense during the day when the sun is shining.

  - **Atmospheric Heat Islands:** These heat islands are defined as the warmer air found in urban areas as compared to cooler air in less heavily settled areas. Typically weaker during the late morning and throughout the daytime hours, they form as a result of the slow release of solar heat that has been absorbed by buildings, concrete surfaces and other built materials throughout the day.

How does planting trees and creating Urban Green Spaces help to reduce temperatures ?



- Trees Provide shade
- Trees help with evapotranspiration
- Trees reduce energy use
- Trees intercept rainfall
- Trees reduce atmospheric CO2 emission

Nagar Van Yojana

Role in Heat Wave Management

Dr Sanjay Kumar Shukla
Member Secretary,
Central Zoo Authority, MoEFCC

Scheme Background

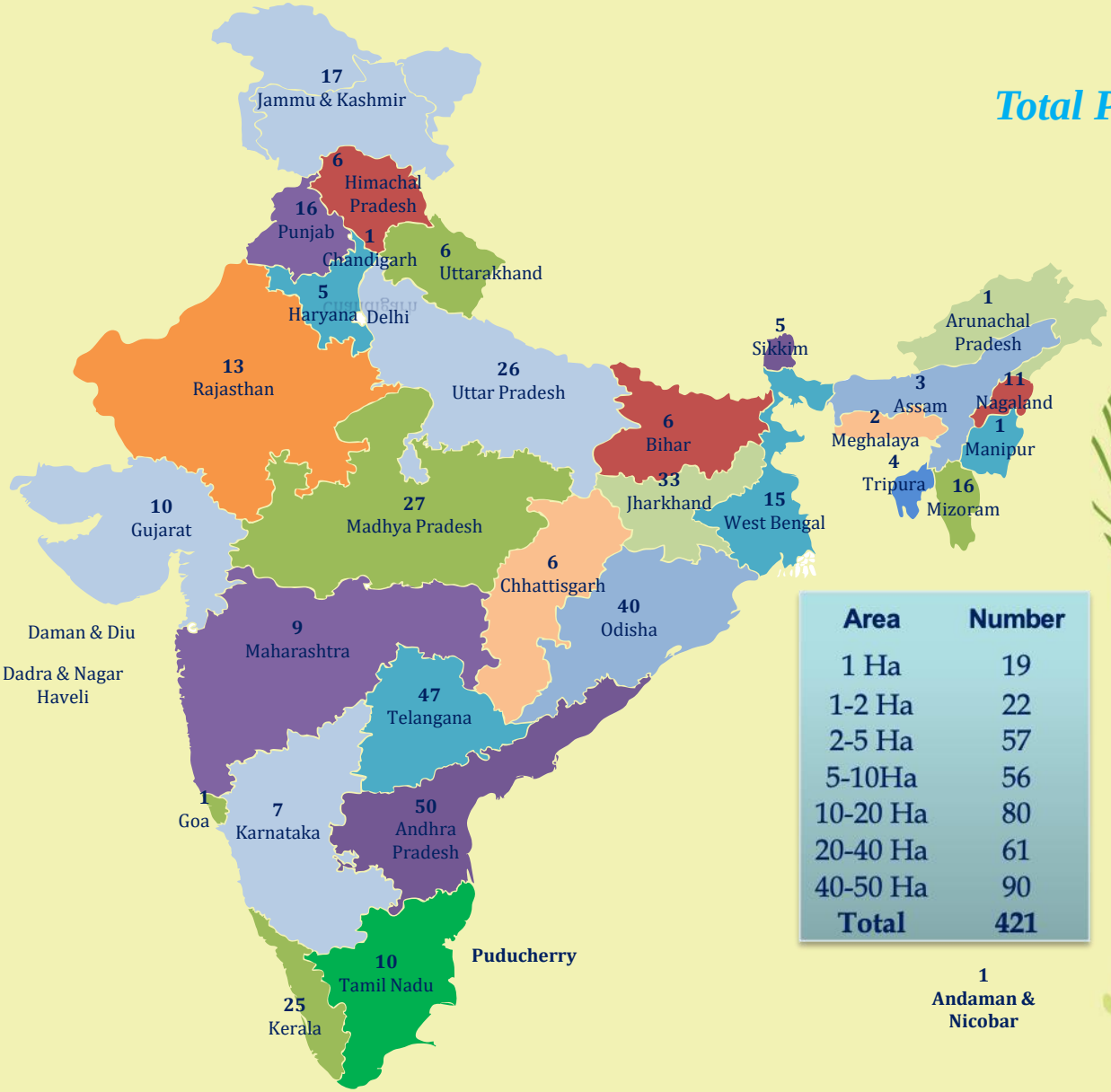
- Scheme was launched in 2020-21
- Target of Scheme - 1000 Nagar Vans till 2026-27
- Nagar Van – 10-50 Ha, within 10 km Municipal Corporation limit
- Nagar Vatika – up to 10 ha within city limits
- Municipalities/ULBs can also be the Implementing Agencies other than Forest Departments
- University/NGO/ULB may also take up 'Nagar Van/Vatika' on their own land

Scheme Objectives

- Creating green space and aesthetic environment in an urban set up.
- Creating awareness about plants and biodiversity and develop environment stewardship.
- Facilitating *in-situ* conservation of important flora of the region.
- Contributing to environmental improvement of cities by pollution mitigation, providing cleaner air, noise reduction, water harvesting and reduction of heat islands effect.
- Extend health benefits to residents of the city, and
- Help cities become climate resilient.

Nagar Van/Vatika Projects in the Country

Total Projects Approved : 421



Area	Number
1 Ha	19
1-2 Ha	22
2-5 Ha	57
5-10Ha	56
10-20 Ha	80
20-40 Ha	61
40-50 Ha	90
Total	**421**

1
Andaman & Nicobar

Nagar Van Yojana to Combat Heat Wave

- One of the objective of this scheme is reduction of heat island effect by creating green spaces in urban areas.
- Trees lower surface and air temperatures by providing shade and cooling through evaporation and transpiration, also called ***Evapotranspiration***.
- Urban forests have temperatures that are on average 2.9°F lower than non-forest urban areas.

Source: Knight, T., S. Price, D. Bowler, et al. 2021. How effective is 'greening' of urban areas in reducing human exposure to ground-level ozone concentrations, UV exposure and the 'urban heat island effect'? An updated systematic review. *Environmental Evidence* 10, 12.

- Cities are often 2°C to 9°C (3.6°F–16.2°F) hotter than surrounding peri-urban and rural areas because their densely concentrated roads and buildings absorb and store solar radiation.

- Therefore, there is significant opportunity for cooling by increasing urban forest cover through Nagar Van Yojana.

Source: Veena, K., Parammasivam, K.M. & Venkatesh, T.N. Urban Heat Island studies: Current status in India and a comparison with the International studies. *J Earth Syst Sci* **129**, 85 (2020).

Benefits Beyond Mitigating Urban Heat Islands

- ***Improved air quality and lower greenhouse gas emissions:*** By reducing energy demand, trees and vegetation decrease the production of associated air pollution and greenhouse gas emissions. They also remove air pollutants and store and sequester carbon dioxide.
- ***Enhanced storm water management and water quality:*** Vegetation reduces runoff and improves water quality by absorbing and filtering rainwater.
- ***Improved quality of life:*** Trees and vegetation provide aesthetic value, habitat for many species, and can reduce noise.

National Clean Air Programme (NCAP)

- MoEFCC has also launched National Clean Air Programme (NCAP) in January, 2019 as a long-term, time-bound, national level strategy to tackle the air pollution problem across the country in a comprehensive manner.
- Total Non- attainment cities* – 131
- NCAP Cities covered under Nagar van Yojana – 61
- Number of Nagar Van/Vatika approved in NCAP cities:107

*Non-attainment cities (NAC)- Cities are declared non- attainment if over a 5-year period they consistently do not meet the National Ambient Air Quality Standards (NAAQS) for PM 10 (Particulate matter that is 10 microns or less in diameter) or N02 (Nitrogen Dioxide)

THANKS