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Towards Responsible Urban Development



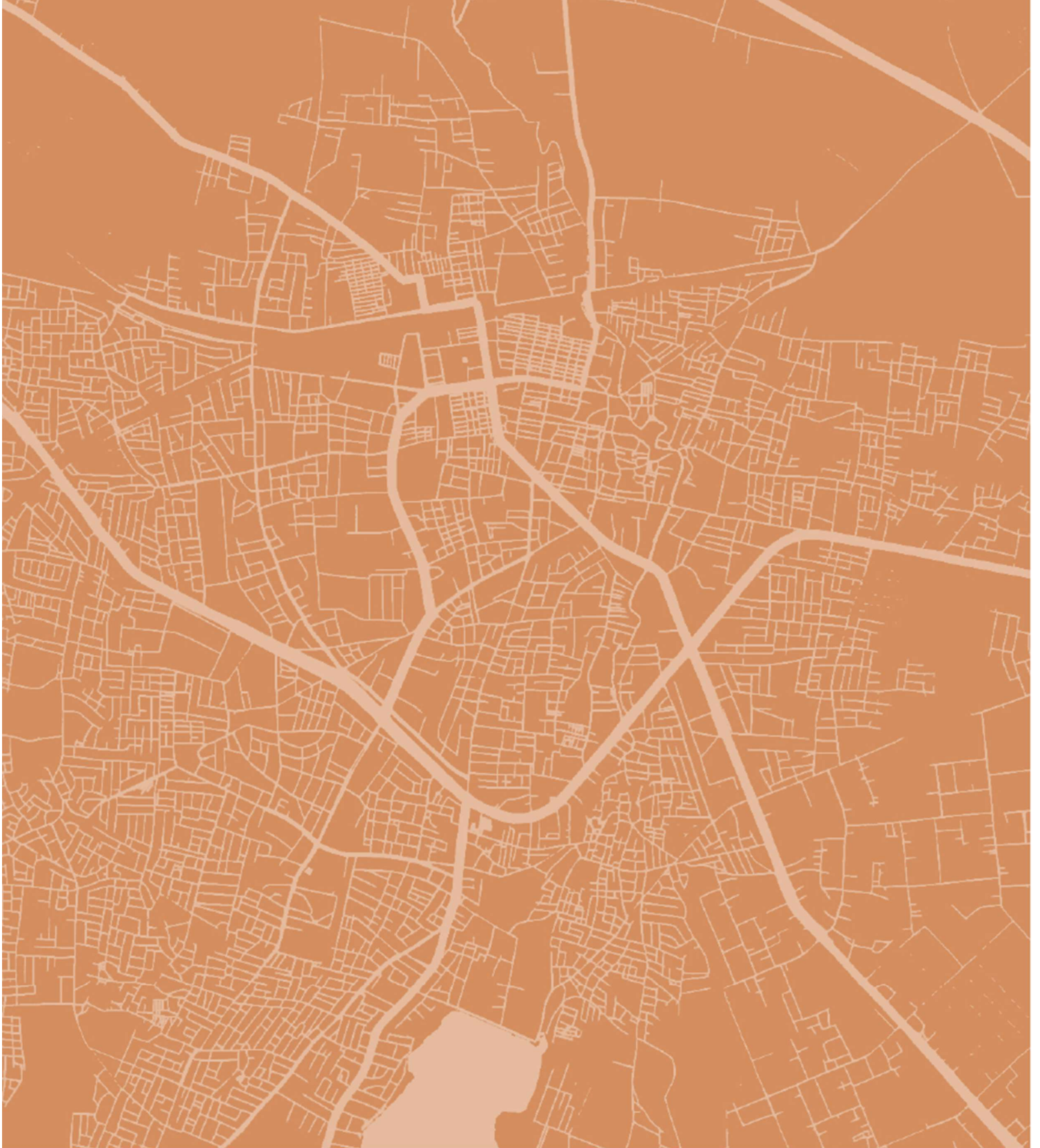
UofT INDIA
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JALGAON CITY MUNICIPAL CORPORATION

JALGAON HEAT ACTION PLAN

*Understanding Heat Risks.
Building a Resilient Jalgaon.*





About this document

This Heat Action Plan for Jalgaon has been developed by the Jalgaon City Municipal Corporation (JCMC) in collaboration with Mahila Housing Trust (MHT) through a participatory and multi-stakeholder process. The plan integrates inputs from key stakeholders, including various departments of JCMC, institutes, community women leaders, and civil society organisations.

The Jalgaon City Municipal Corporation (JCMC), as the primary urban local body, is responsible for civic administration and governance in Jalgaon. It oversees essential municipal services including solid waste management, water supply, urban planning, and public health infrastructure. JCMC also plays a pivotal role in implementing state and national schemes related to urban development, sanitation, and climate resilience. JCMC has been instrumental in supporting the development of this plan by facilitating access to key datasets, ward-level information, and spatial maps, which have been critical for evidence-based planning and analysis.

The U of T India Foundation (UTIF) The University of Toronto India Foundation (UTIF) serves as a strategic liaison between the University of Toronto and partners across India, facilitating collaborations that translate research into policy, practice, and scalable public impact while advancing innovation and industry-led solutions to address complex urban challenges. By convening governments, academia, civil society, industry, and entrepreneurial ecosystems, UTIF enables interdisciplinary partnerships that bridge research, entrepreneurship, and implementation. Acting as a trusted intermediary, UTIF helps align institutional priorities, broker cross-sector collaborations, and support co-development of research, innovation, entrepreneurship, and capacity-building initiatives that respond to emerging public policy and development needs. Through its research and entrepreneurship portfolios, UTIF not only advances knowledge generation but also supports the translation of ideas into scalable solutions with tangible societal impact.

Mahila Housing Trust (MHT) is a techno-social organisation that works with women in the informal sector, enabling them to actively engage with governance and planning processes. MHT focuses on building capacities by providing knowledge, tools, and skills to address critical development challenges such as housing, livelihoods, water, sanitation and hygiene (WASH), health and climate adaptation. Through this approach, MHT empowers women to lead transformative change within their communities.

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1.Introduction

Cities across the world are increasingly being exposed to the impacts of rising temperatures and extreme heat events due to increase in the frequency, intensity, and duration of heat stress driven primarily by climate change. Rapid urbanisation, changing land-use patterns, and expanding built environments have altered the thermal characteristics of cities, reducing their natural cooling capacities and increasing heat exposure. Rising temperatures have emerged as a major challenge affecting public health, livelihoods, environmental quality, and urban infrastructure systems (Milner, 2019).

1.1 Global Warming and Escalating Heat Risks

Following the Industrial Revolution, a significant rise in global temperatures-approximately 1.2 °C has been observed, as illustrated by the Intergovernmental Panel on Climate Change (IPCC). This increase in temperature has led to multiple environmental and socio-economic impacts across the globe. Prolonged exposure to high temperatures can also result in heat-related illnesses such as heat stroke, heat exhaustion, and heat syncope, which can be fatal without timely medical intervention (NIOSH, 2026).

Rising global temperatures have contributed to a substantial increase in heat-related mortality. About half a million deaths between 2000 and 2019 have been attributed to extreme heat (WHO, 2026). Furthermore, rising temperatures intensify the Earth's hydrological cycle by increasing evaporation, which disrupts precipitation patterns. As a result, some regions experience more intense rainfall and flooding, while others face reduced precipitation and a higher risk of drought. (NASA, 2026).

Increasing temperatures also have significant implications on livelihoods and income. Globally, 80 million jobs are likely to be lost by 2030 accompanied by a GDP loss of USD 2.4 trillion adjusted for purchasing power parity (PPP) (ILO, 2019).

1.2 Impact of Heat Stress in India

The increase in global temperatures has also intensified the frequency and severity of heat waves in India. Heat waves have widespread impacts on critical sectors, including public health, agriculture, ecosystems, and the national economy.

The 2015 heat wave is considered one of the deadliest events, affecting the south-eastern regions of the country and resulting in more than 2,500 deaths. Most heat waves in India typically occur between March and June, prior to the onset of the Southwest Monsoon (NRDC, 2023).

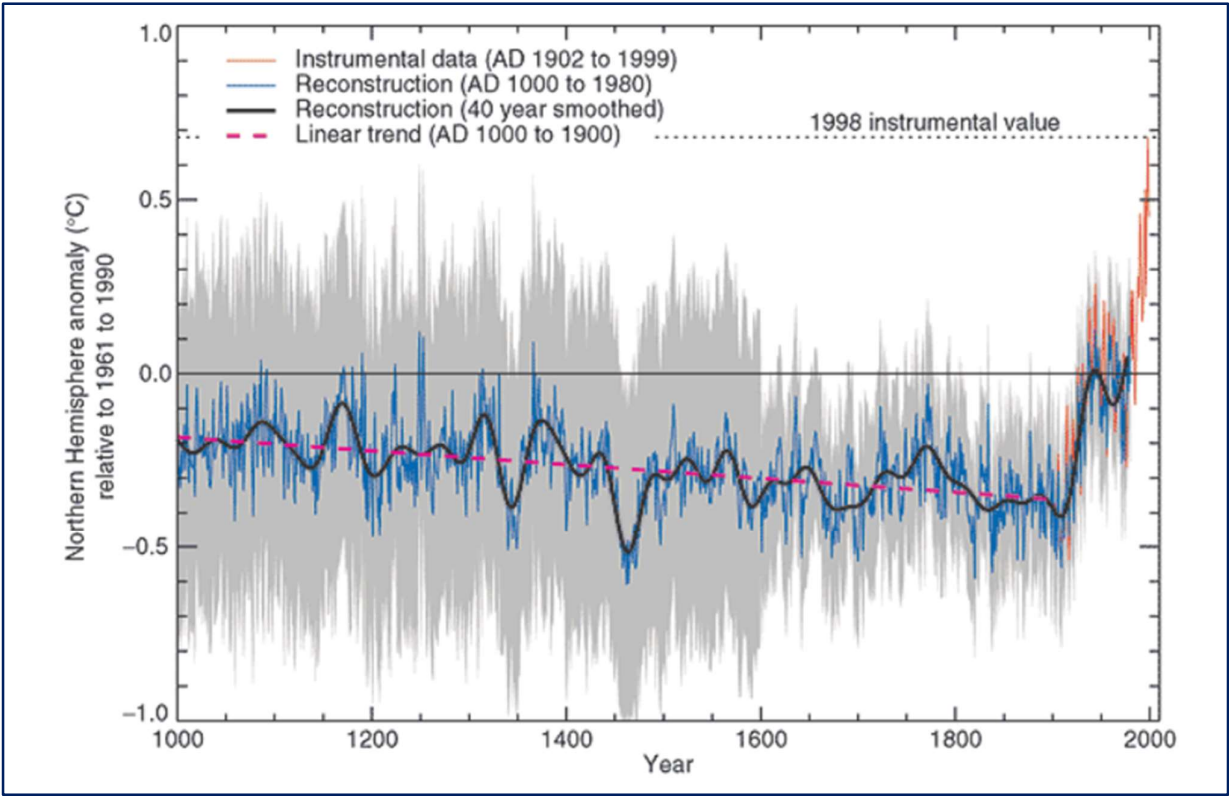


Figure 1 Long-term change in global temperatures(Source : IPCC)

Heat waves can also lead to drought-like conditions by accelerating evaporation and reducing soil moisture levels. Decreased rainfall during heat waves can lead to water scarcity and restrict availability of water for human consumption. Water scarcity induced due to heat wave can also impact agricultural production, livestock, poultry and fisheries production (Dubey, *et al*; 2025).

Moreover, livelihoods are affected due to increase in heat stress. India could lose the equivalent of 34 million full-time jobs and experience a 4.5% reduction in GDP by 2030 due to heat stress (ILO, 2019).

2 Climate insights for Jalgaon

Jalgaon is a city in the Khandesh region of North Maharashtra, on the banks of the Girna river, and it serves as the administrative headquarters of Jalgaon district. Jalgaon is the largest city in the Khandesh region. Jalgaon City spans approximately 68.78 sq. km and has a population of 6.5 Lakh (Census Projection, 2011).

Jalgaon's geographic location, regional climatic conditions, topography, and changing weather patterns significantly influence the intensity and duration of heat exposure experienced across the city.

2.1 Background

Maharashtra's climate is shaped by the Western Ghats (Sahyadri), which run north–south and act as a major barrier to the southwest monsoon. As moist monsoon winds hit the western slopes, the coastal districts receive very heavy rainfall (around 2000 mm) while rainfall drops sharply east of the Ghats. (IMD, 2026).

Jalgaon District is located in the north-west region of the state of Maharashtra. It is bounded by Satpuda mountain ranges in the north and the Ajanta mountain ranges in the south. (Ministry of MSME, 2012).

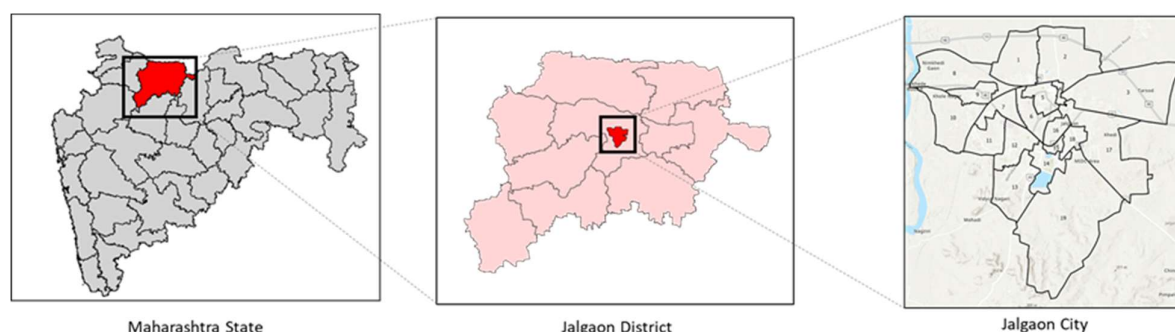


Figure 2 Location of Jalgaon in Maharashtra

The city of Jalgaon experiences a semi-arid climate, characterized by significant seasonal temperature variation. The maximum recorded temperature reaches approximately 45.3 °C during the peak summer months, while the minimum recorded temperature drops to around 4.7 °C in winter, as per data from the India Meteorological Department (IMD). Jalgaon receives an average annual rainfall of about 778 mm, concentrated mainly during the

southwest monsoon (IMD). The rainy season typically lasts for about two to three months (June to September).

Jalgaon is rich in volcanic soil which is well suited for cotton production. It is a major business centre for tea, gold, pulses, cotton and bananas. Jalgaon functions as a prominent agricultural and commercial centre in northern Maharashtra. The city of Jalgaon is administratively divided into 19 wards, as illustrated in the Figure 3.

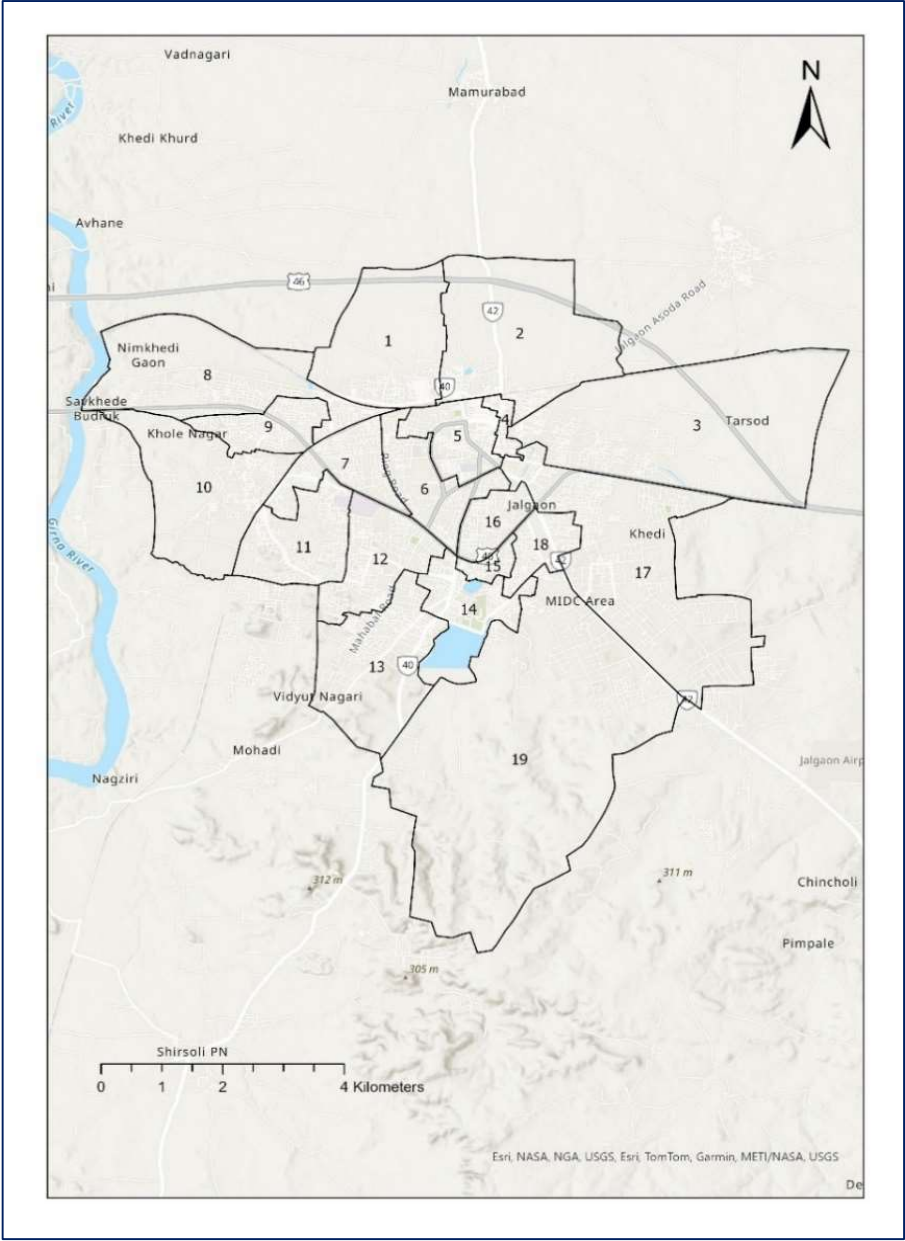


Figure 3 Jalgaon City Administrative Wards (Source: JCMC)

2.2 Heat Hazard

2.2.1 Climate change Projections

The state of Maharashtra is projected to experience an upward trend of average temperatures as per CMIP6 SSP5-8.5 (High emission scenarios) (Fig. 4). From 1980 to 2014, seasonal temperature anomalies show relatively minor fluctuations, increasing gradually. However, temperatures are projected to rise sharply after 2014, reaching around 29 °C by 2070.

This can have significant public health implications including incidences of cardiovascular disease, diabetes, mental health and asthma (WHO, 2026). Rising temperatures have an impact on vulnerable population groups such as older adults, infants and children, outdoor workers, pregnant women, persons with disabilities, and individuals with chronic health conditions (CDC, 2024).

2.2.2 Temperature trends in Jalgaon

Analysis of long-term temperature data of Jalgaon reveals a gradual increase in temperature over the past four decades. Analysis of the 30-year average temperature of Jalgaon revealed a 0.2 °C rise above normal.

Although inter-annual variations in mean temperature remain relatively modest, the frequency and magnitude of high-temperature events have shown a noticeable increase. The temperature peaks are observed in years 2010 and 2015 - 2019. In year 2010, the average annual temperature rose by 0.9 °C, while in the year 2015 - 2019, a deviation of 0.4 °C from normal was observed.

To understand the frequency of extreme heat events, annual averages from 1985 to 2023 were analysed. The below graph shows the annual number days above 40 °C in the past 40 years. The years 2010, 2019 and 2022 observed more than 60 days in the year when the temperature was above 40 °C. When the annual days above 40 °C were aggregated across respective decades, it was found that such days have significantly increased in 2015- 2024 compared to the previous decade.

According to the India Meteorological Department (IMD), warm nights are defined as those when the minimum temperature is 4.5°C above normal. Decadal analysis of average annual frequency of warm nights revealed that the frequency of warm nights has increased from 27 warm nights per year in 2004-2013 to 33 warm nights per year in 2014-2023.

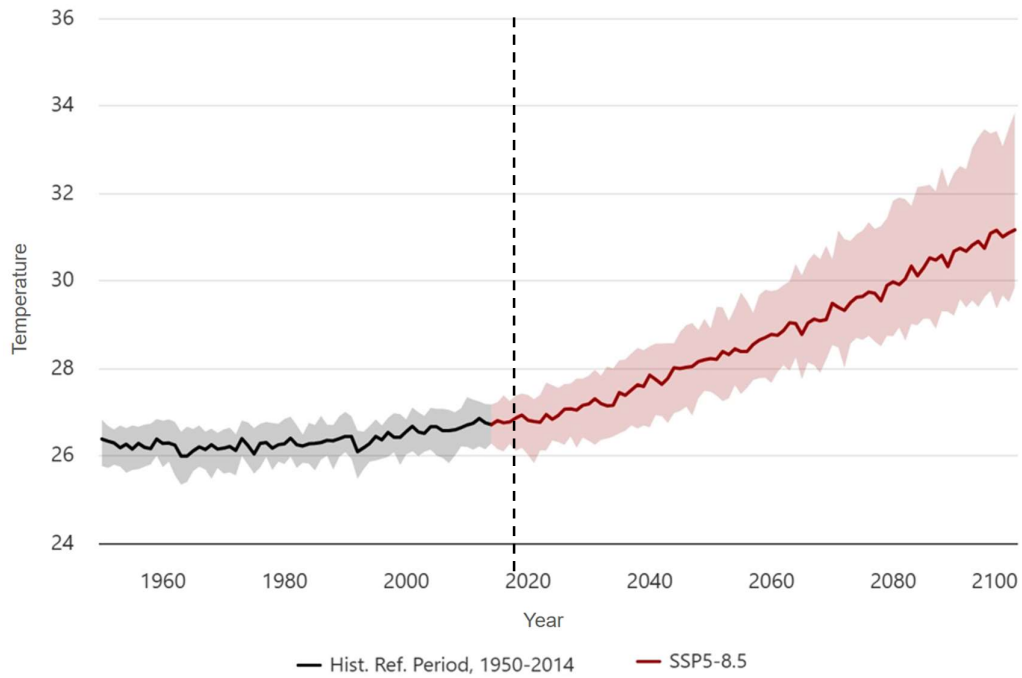


Figure 4 Temperature trends for Maharashtra as per SSP-8.5 Scenario (Source: CCKP)

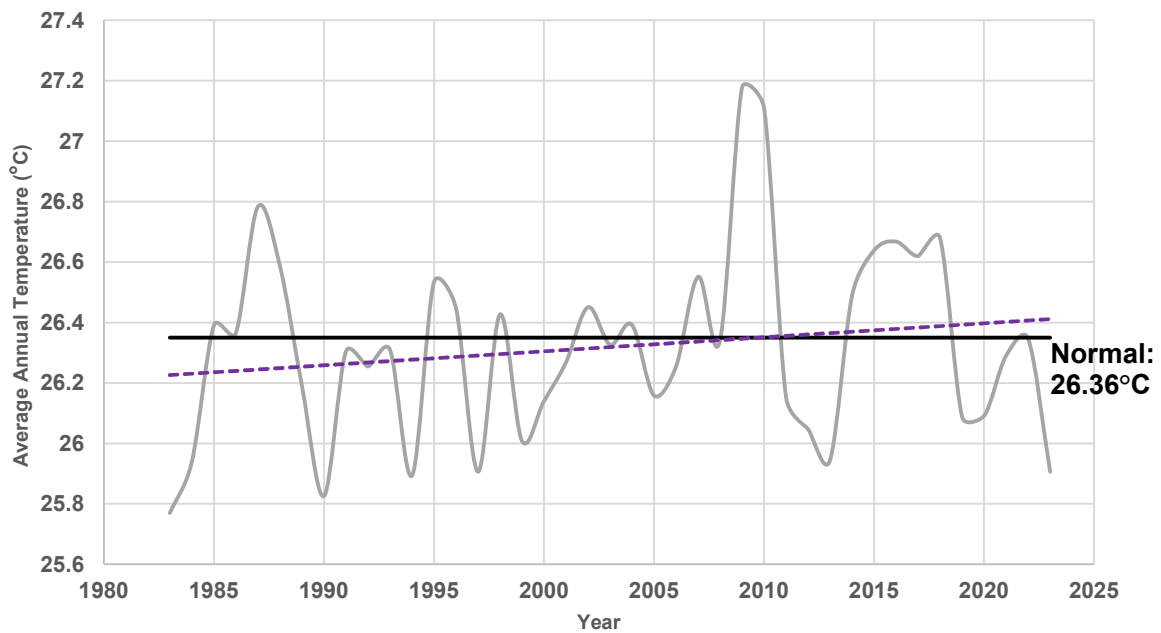


Figure 5 Trend in Average Temperature over the past 30 years (Source : IMDWEB)

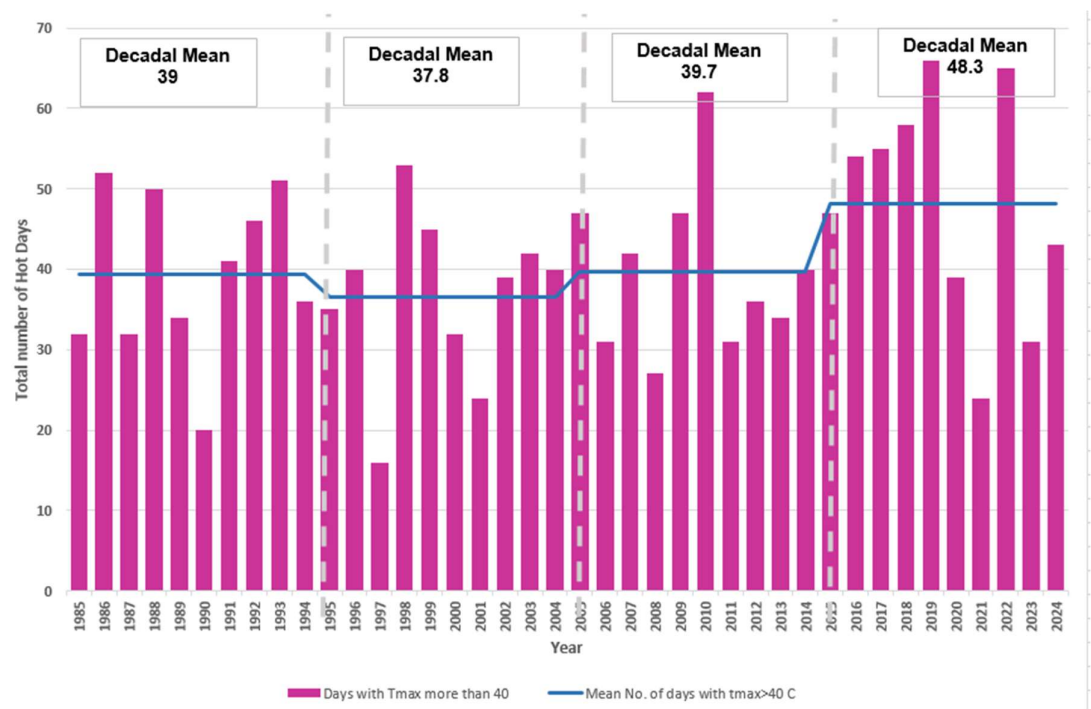


Figure 6 Annual Average (number of hot days) in Jalgaon (Source: IMD)

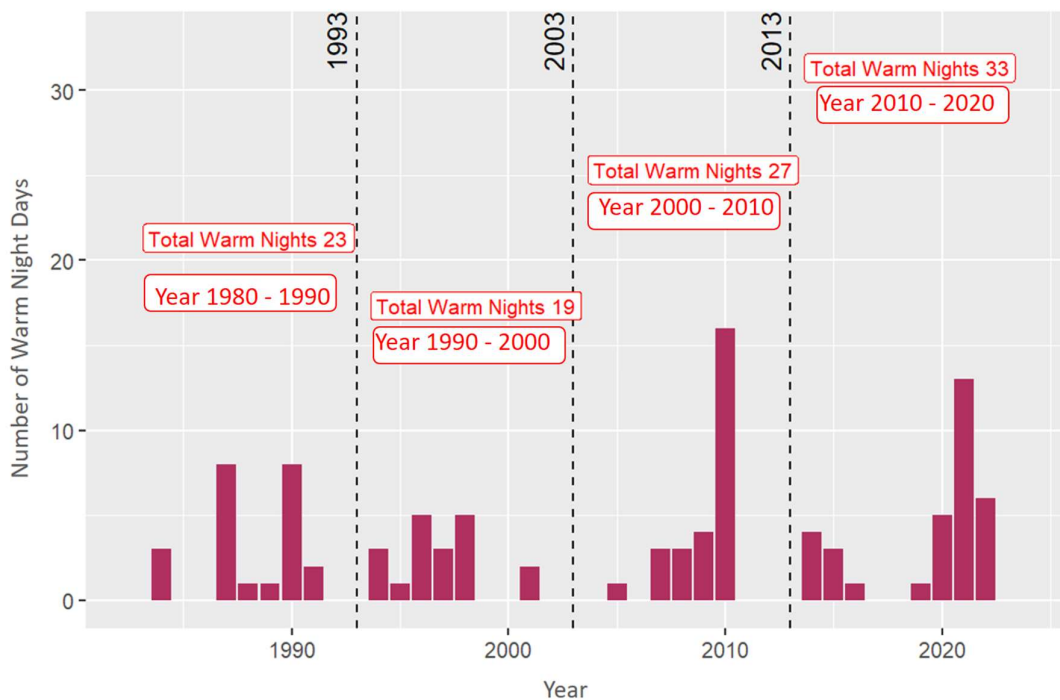


Figure 7 Annual Average number of warm nights in Jalgaon (Source: IMD)

2.2.3 Land Surface temperature

Land Surface Temperature (LST) represents the amount of solar radiation absorbed and re-emitted by the Earth’s surface and serves as an important indicator of urban thermal condition. The figure below shows the spatial spread of LST across Jalgaon for both day and night.

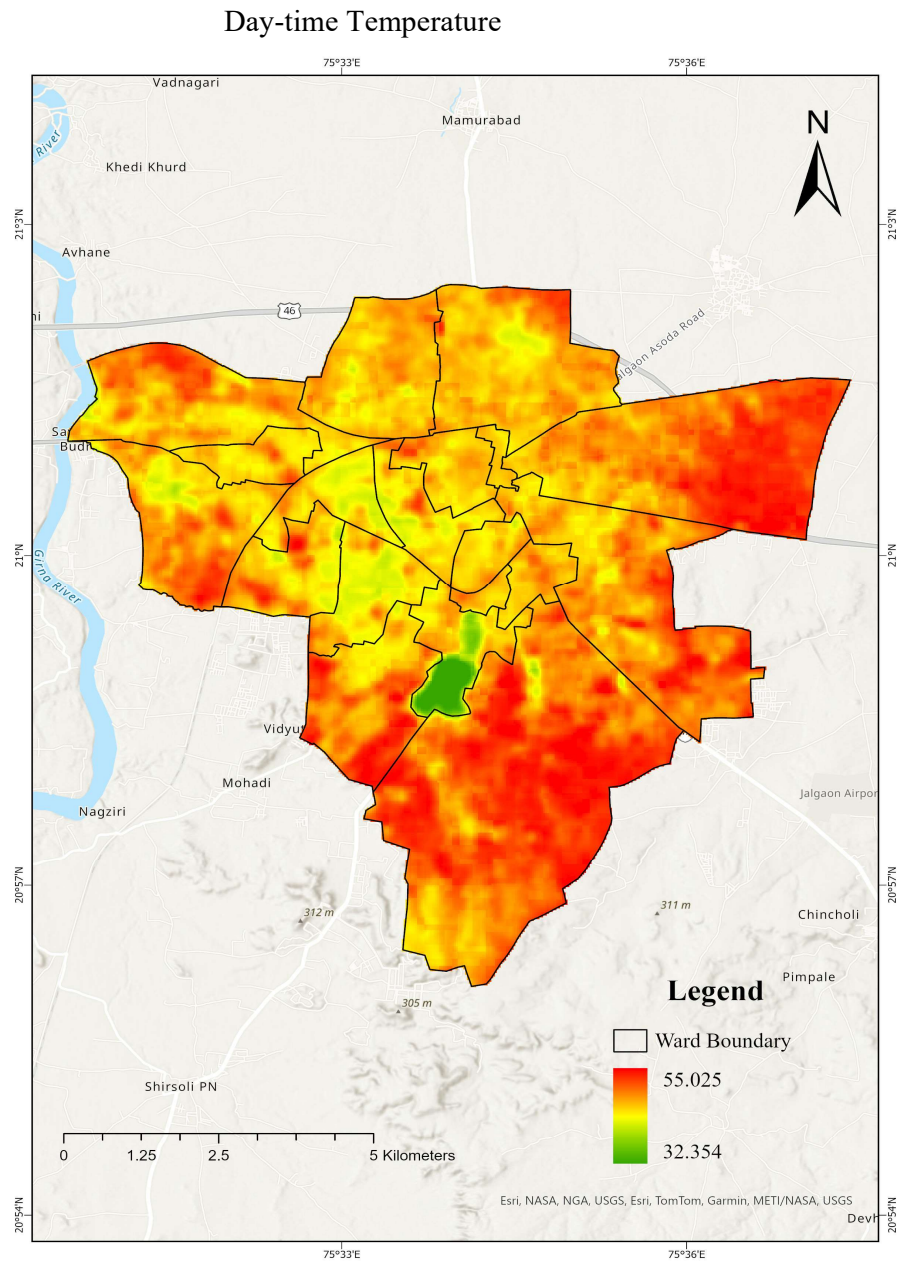


Figure 8 Day-time Land Surface Temperature of Jalgaon (Source: LANDSAT8. Analyses by the Authors)

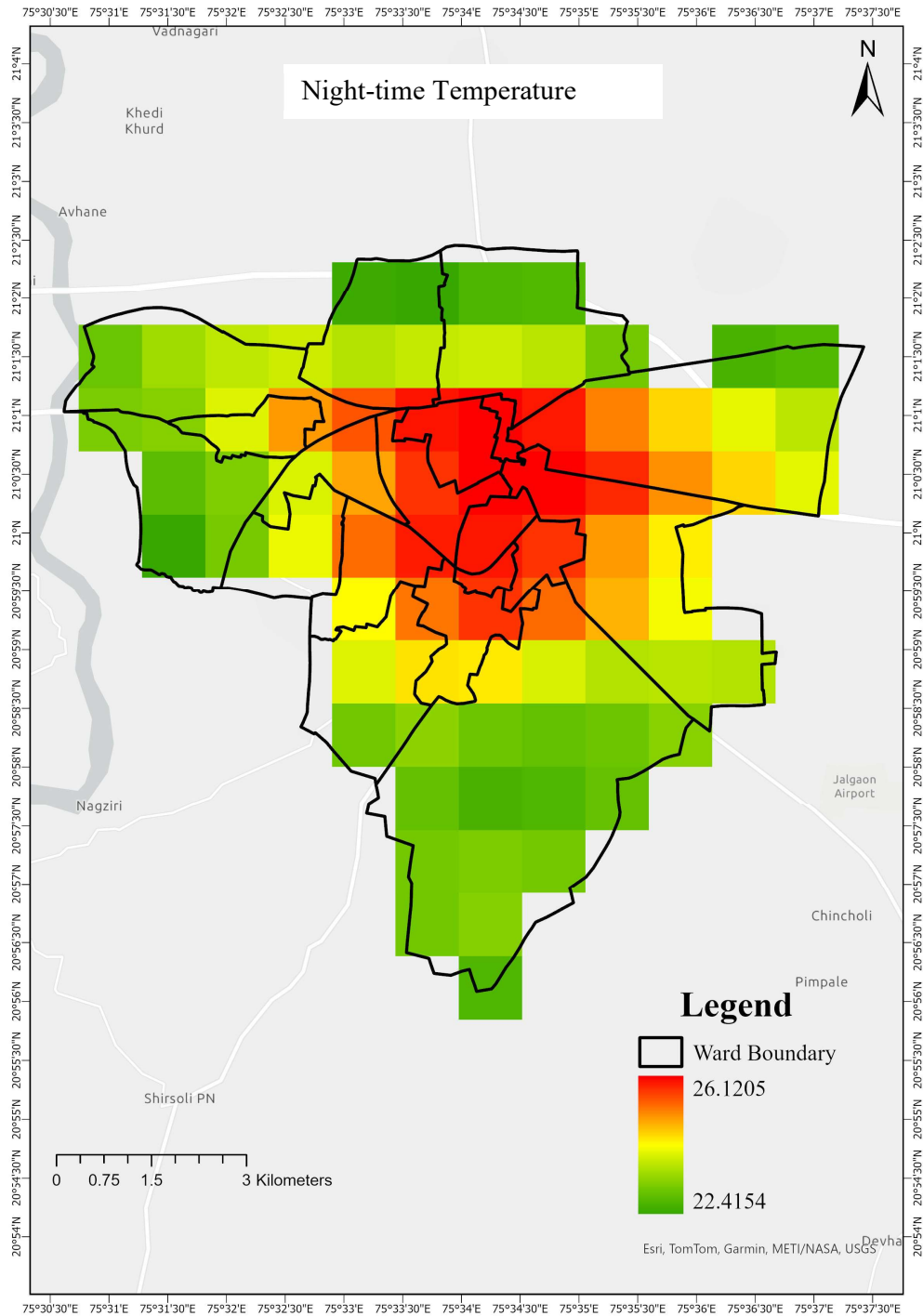


Figure 9 Night time Land Surface Temperature (Source :MODIS. Analysis by the Authors)

The central region of the city is characterized by a predominantly built-up area, whereas the peripheral zones largely comprise barren land. Owing to the variation in surface characteristics, barren areas tend to absorb and release heat more rapidly than built-up surfaces. As a result, peripheral regions exhibit comparatively higher land surface

temperatures, reaching approximately 50 °C, while the central built-up areas record relatively lower temperatures, around 40 °C, during daytime hours. An inverse pattern in land surface temperature (LST) is observed in the night. During the night, the peripheral areas lose heat more rapidly, while the central built-up regions retain thermal energy for longer periods, leading to comparatively higher LST values in the urban core.

The map below demonstrates LST averages (ward-wise). The higher LST temperature is in peripheral areas (50°C), which is in ward no. 3, 13 and 19, and lowest peripheral temperature is seen in ward 14 (42°C), due to the presence of Mehrun Lake.

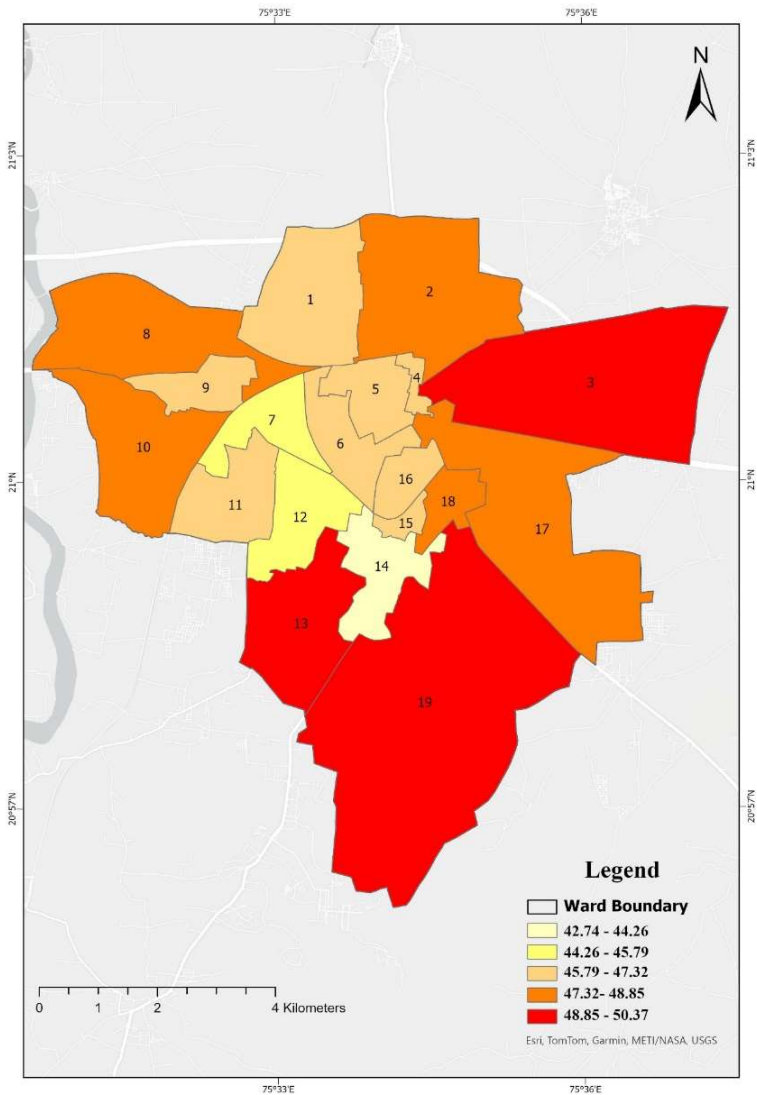


Figure 10 Ward-wise Land Surface Temperature of Jalgaon City

3 Jalgaon's Roadmap to Heat Resilience: Context, Goals and Strategic Approach

Analysis of multiple hazards in the Jalgaon Climate Action Plan (JCAP) revealed that extreme heat, water scarcity, and air pollution were the relevant hazards for Jalgaon. Heat stress emerged as the most critical hazard due to increasing temperatures, recurrent heat wave conditions in the city and its widespread impact on public health, livelihoods, infrastructure, and overall urban systems.

Addressing these challenges required an integrated approach to heat adaptation and mitigation involving the Urban Local Body (ULB), institutions, and communities. Heat Action Plans (HAPs) are a key policy instrument to systematically and effectively address heat-related risks.

The primary objective of a Heat Action Plan is to identify populations and systems that are most vulnerable to extreme heat and to provide a structured roadmap for policy interventions aimed at reducing these vulnerabilities.

HAPs enable policymakers to make informed, evidence-based decisions by prioritizing high-risk areas and vulnerable populations, facilitating efficient resource allocation, and strengthening coordinated response mechanisms across institutions.

The Jalgaon Heat Action Plan aims to strengthen the city's preparedness, response mechanisms, and long-term resilience through a combination of strategic actions, institutional coordination, and adaptive measures to reduce heat-related vulnerabilities.

3.1 Approach for Jalgaon Heat Action Plan and Distinguishing Features

The Heat Action Plan has been tailored to reflect the specific context of a Tier II city like, emphasizing its local characteristics, vulnerabilities, and heat-related challenges.

Vulnerability assessment is a critical part of a Heat Action Plan. Key components of Vulnerability assessment include Exposure, Sensitivity, and Adaptive Capacity. This plan has been customized to the realities of the city in terms of its needs and data availability. This has led to some differences from the commonly-used approaches.

For example, this HAP uses healthcare catchment areas as per National Urban Health Mission (NUHM) norms to measure access to healthcare and the use of road density per capita instead of road density as an adaptive capacity parameter.

In development of Heat Early Warning System thresholds, daily all-cause mortality data from 2015 to 2024 for Jalgaon city has been collected and plotted against daily temperature records. The temperature value at which a significant upward trend in mortality was observed was identified as the threshold temperature for yellow alert. Consecutive points of inflection were identified as orange and red alerts respectively.

This HAP is an evolving document co-created with multiple stakeholders, but it is ultimately owned by the city of Jalgaon.

3.2 Methodology

The preparation of the Jalgaon Heat Action Plan followed a systematic and participatory approach involving stakeholder engagement, data-driven analysis, and the identification of targeted interventions. The process commenced with a series of stakeholder consultations involving representatives from Jalgaon City Municipal Corporation (JCMC), government departments, community and other key stakeholders. These consultations helped to establish a common understanding of heat-related challenges in the city and facilitated the identification of relevant indicators for the Heat Vulnerability Assessment.

Following the identification of indicators, data were collected from various sources through coordination with concerned departments and agencies. The collected data underwent verification, processing, and analysis to ensure accuracy, consistency, and suitability for assessment. Subsequently, maps were prepared to analyse the heat exposure, sensitivity, and adaptive capacity across the city.

Based on the assessment findings, heat-vulnerable wards were identified to understand the spatial distribution of heat risk across the city. The identified hotspots served as the basis for prioritising intervention areas and formulating targeted heat mitigation and adaptation strategies. These strategies include measures such as early warning systems, cool roofing initiatives, urban afforestation etc.

In parallel, community awareness and mobilisation activities were conducted to enhance public understanding of heat risks and promote community participation in heat resilience initiatives. Building on these efforts, pilot interventions were implemented.

3.3 Implementation Strategy

The need for a comprehensive approach becomes critical to systematically address heat-related vulnerabilities, reduce exposure, and enhance preparedness across the city. However, as heat risks are experienced across communities, especially among vulnerable groups, there is a pressing need for an integrated approach that brings together multiple sectors and stakeholders. Inputs from stakeholders like local communities, government agencies, health institutions, and civil society have been included in designing and implementing effective heat resilience strategies. This ensures that solutions are context-specific, inclusive, and sustainable over the long term.

3.3.1 Stakeholder Engagement

Since 2022, a Memorandum of Understanding (MoU) has been signed between Jalgaon City Municipal Corporation (JCMC) and Mahila Housing Trust (MHT), in which MHT was acknowledged as knowledge and technical partner. As part of this initiative, a Nodal officer has been appointed by JCMC.

A series of consultative workshops were conducted to incorporate insights from communities and key stakeholders. These city-level engagements brought together Urban Local Bodies (ULBs), academic and research institutions, Civil Society Organisations (CSOs), and community representatives.

These workshops facilitated participatory discussions, enabling the incorporation of on-ground insights, identification of key heat-related challenges, and co-development of context-specific strategies for effective implementation of the Heat Action Plan.

Figure 11 Stakeholder Discussion with Jalgaon City Municipal Corporation

In the subsequent workshops, stakeholders discussed key heat-related concerns and explored potential solutions to enhance urban resilience. Mahila Housing Trust (MHT) also presented the findings of the Heat Vulnerability Assessment, including threshold temperatures derived from mortality data. Building on its experience in other cities, MHT proposed a range of interventions such as cooling stations, cool bus stops, urban afforestation, cool roofs, and early warning systems. The discussions emphasized increasing green cover through afforestation (including techniques such as the Miyawaki method), implementing heat early warning systems, and strengthening basic infrastructure

in informal settlements -particularly water supply and sewerage. Additionally, the formation of Community Action Groups (CAGs) at the slum level was recommended to support effective implementation, community participation, and ongoing monitoring of interventions.



Figure 12 Discussions in workshop held in Jalgaon

4 Vulnerability Assessment of Heat Risks in Jalgaon

Assessing heat vulnerability is essential for the strategic allocation of resources, as it enables the identification of the most susceptible areas within a city and supports the prioritization of appropriate interventions. The assessment is guided by three fundamental components of vulnerability- Exposure, Sensitivity, and Adaptive capacity.

Exposure is defined as the presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places and settings that could be adversely affected (IPCC, 2014). This indicator consists of Land Surface Temperature(LST) and Population Density. LST represents the solar radiation absorbed and re-emitted by the Earth's surface. It is the most important indicator to measure heat stress. Similarly, to understand the number of people exposed to heat, population density was calculated. Population distribution across wards is an important factor in assessing heat exposure, as it indicates the number of residents who may be affected during extreme heat events and require access to heat-related preparedness, response, and support measures.

Sensitivity is the degree to which a system or species is affected, either adversely or beneficially, by climate variability or change. (IPCC, 2014) Socio-economic indicators like literacy rate, low-income households were included along with indicators like built-up index and land use. Since the higher built-up areas are more vulnerable.

Adaptive Capacity represents the ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences (IPCC, 2014). Various access parameters have been used for the analysis of the Adaptive Capacity.

Heat Vulnerability Assessment involves the development of composite vulnerability indices, which integrate socio-economic, environmental, and infrastructural indicators. The figure below illustrates the key indicators considered for the vulnerability assessment of Jalgaon.

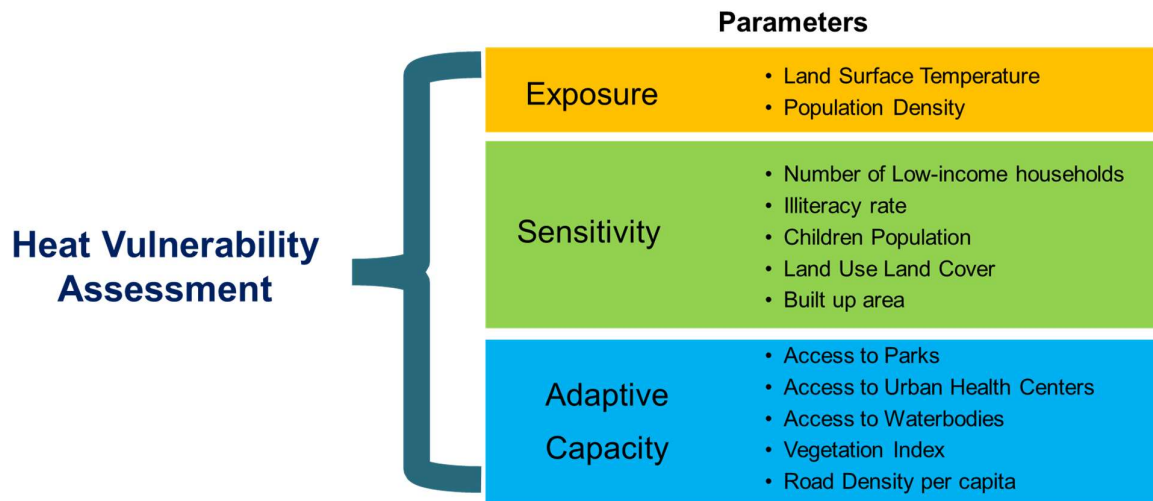


Figure 13 Indicators of Heat Vulnerability Assessment

To assess the heat vulnerability across wards, individual composite indices were evaluated for exposure, sensitivity, and adaptive capacity. These indices were then integrated using a methodological approach to calculate the overall vulnerability score for each ward.

4.1 Vulnerability Assessment Indicators

For the preliminary analysis, heat vulnerability is conceptualized as a function of exposure to heat and the sensitivity of the population. A total of twelve indicators encompassing physical, socio-economic, land use, and land surface temperature parameters were identified for this assessment. These indicators were subsequently utilized to develop a ward-level vulnerability index, aimed at quantifying and spatially representing the relative degree of heat vulnerability across different wards. Table 1 below shows the list of parameters and their details. As all individual parameter layers are aggregated at the ward level, the resolution of all data is at the ward level.

The selected indicators represent multiple dimensions of heat vulnerability, including exposure to elevated temperatures, demographic and socio-economic sensitivity, and the capacity of residents to cope with and respond to heat stress. While several of these indicators are commonly used in heat vulnerability assessments, certain indicators were adapted to better reflect the local context and spatial characteristics of Jalgaon.

Table 1 Indicators used in the model with corresponding data sources and computation

Indicator	Possible Rationale for Inclusion	Units	Source
Exposure			
Land Surface Temperature	Direct measure of heat intensity on the ground surface.	°C,	USGS (United States Geographical Survey)
Population Density	Higher density can exacerbate heat effects due to increased human activity and infrastructure.	No. of persons per square km, Vector	Census 2011
Sensitivity			
Low-income Households	If a slum falls within an urban heat island, it is likely to be more vulnerable. In addition, there is a likelihood of its location determining other factors that may contribute to UHI.	No. of slums per square km, Vector	JCMC
Illiteracy Rate	Higher literacy rates can better access to information, better awareness and preparedness for heat events.	No. of illiterate people per square km, Vector	Census 2011
Built-Up Index (NDBI)	Determines the distribution of heat-absorbing and heat-reflecting surfaces.	Km ² , Vector	USGS
Children Population (Less than 6 years)	Children are most vulnerable to extreme heat	-	Census 2011
Land Use	Determines the distribution of heat-absorbing and heat-reflecting surfaces.	No. of health centers per km ² , Vector	USGS
Adaptive Capacity			

Indicator	Possible Rationale for Inclusion	Units	Source
Access to Urban Health Centres	Access to Public Health facilities enables a population to counter heat related illnesses	No. of parks per km ² , Vector	GIS + JCMC
Access to Parks	Resting in parks can be a coping strategy against extreme heat.	Zonal Pixel Ratio	GIS + JCMC
Normalized Difference Vegetation Index	Green spaces can mitigate heat through shading and evapotranspiration.	Zonal Pixel Ratio	USGS
Normalized Difference Water Index (NDWI) and water vicinity	NDWI helps determine presence of water bodies in the selected area	Zonal Pixel Ratio	USGS
Access to Roads	Access to well-maintained roads enables a population to ensure efficient transportation and emergency response during extreme heat events.	Km ratio,	GIS + JCMC

Road accessibility is often used in heat vulnerability assessments as a proxy for access to services, emergency response, and mobility during extreme heat events. Conventionally, this indicator is calculated using road density per unit area. However, preliminary analysis indicated that this approach underestimated accessibility in Jalgaon's peripheral wards, where population densities are relatively low but the existing road network remains adequate for local needs. To better capture service accessibility, road availability was therefore assessed on a per-capita basis, aligning the indicator with the population served rather than land area alone.

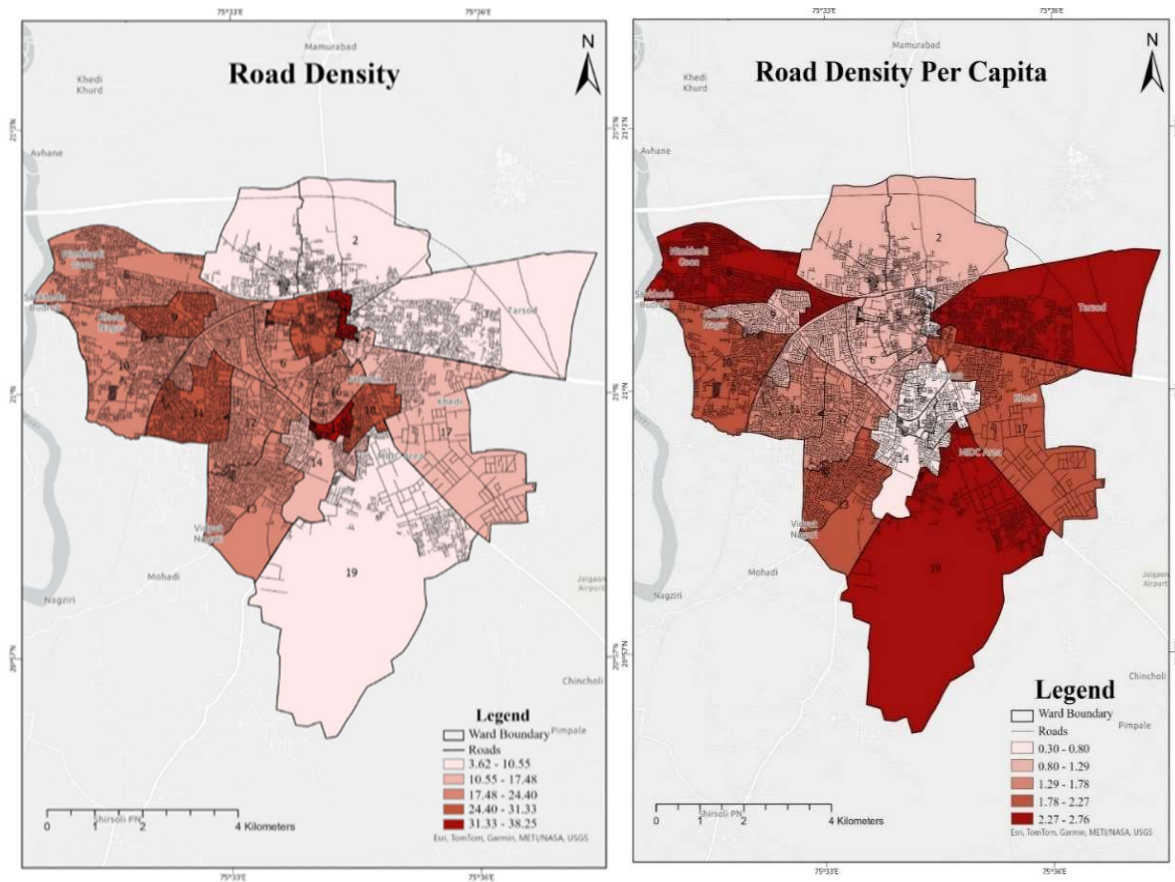


Figure 14 Map showing Road density indicator calculated considering area and Population (Source: OSM)

Access to healthcare services is a critical determinant of adaptive capacity. Timely medical attention can significantly reduce the severity of heat-related illnesses and improve health outcomes during extreme heat events. Therefore, an indicator measuring access to Urban Health Centres was incorporated into the vulnerability assessment.

As per the National Urban Health Mission (NUHM) guidelines, one Urban Health Centre should serve a population catchment of approximately 50,000 people. Using this benchmark, accessibility to public health facilities was assessed across Jalgaon to identify areas where residents may face constraints in accessing healthcare during heatwave conditions.

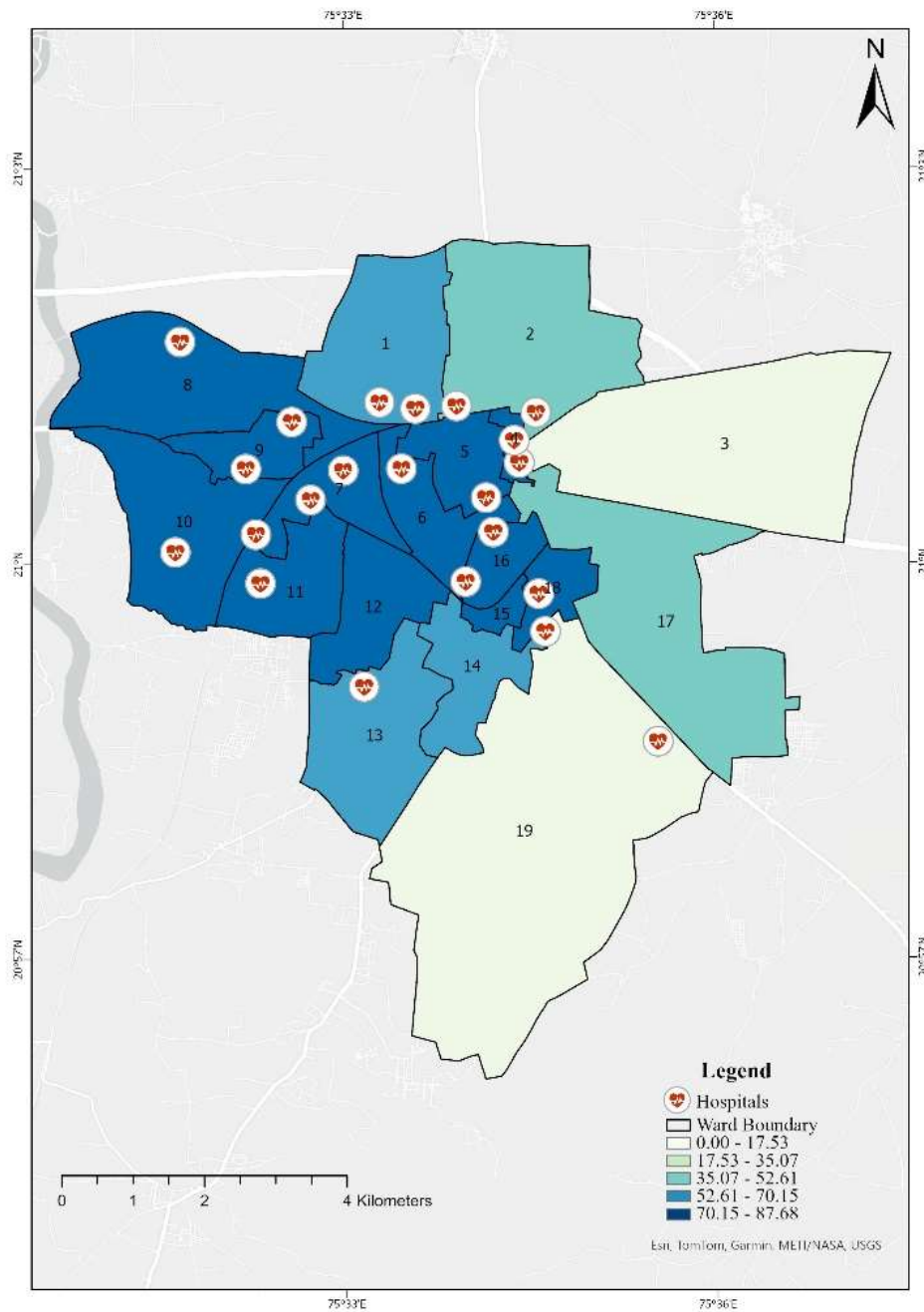


Figure 15 Access to Urban Health Centres in Jalgaon City

The analysis indicates that wards located in the central and western parts of the city generally have better access to Urban Health Centres. In contrast, Wards 3 and 19 exhibit comparatively lower levels of healthcare accessibility, potentially increasing the vulnerability of residents to heat-related health impacts.

4.2 Results of Heat Vulnerability assessment

Using the methodology described above, individual indices for exposure, sensitivity, and adaptive capacity were developed for each ward. These indices were subsequently combined to generate a composite Heat Vulnerability Index, providing a spatial representation of relative heat vulnerability across Jalgaon.

The component maps reveal notable spatial variations across the city. Higher exposure levels are generally concentrated in wards characterized by elevated land surface temperatures and dense built-up areas. Exposure is highest in Ward 4 due to high population density.

Sensitivity is influenced by the concentration of informal settlements, including low-income households, children, and populations with low literacy. Therefore, Ward 19 which houses informal settlements like Supreme Colony, Siddharth Nagar, and Laxmi Nagar (Mehrun) is the most sensitive ward.

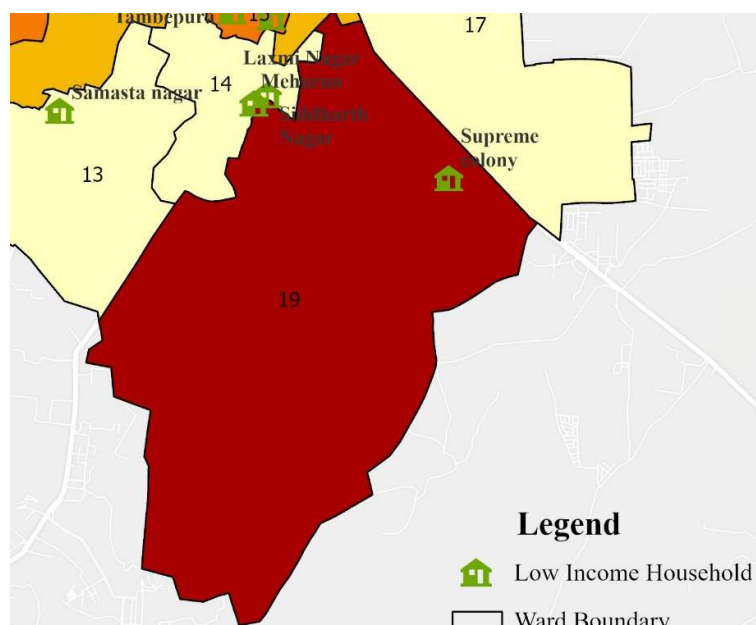
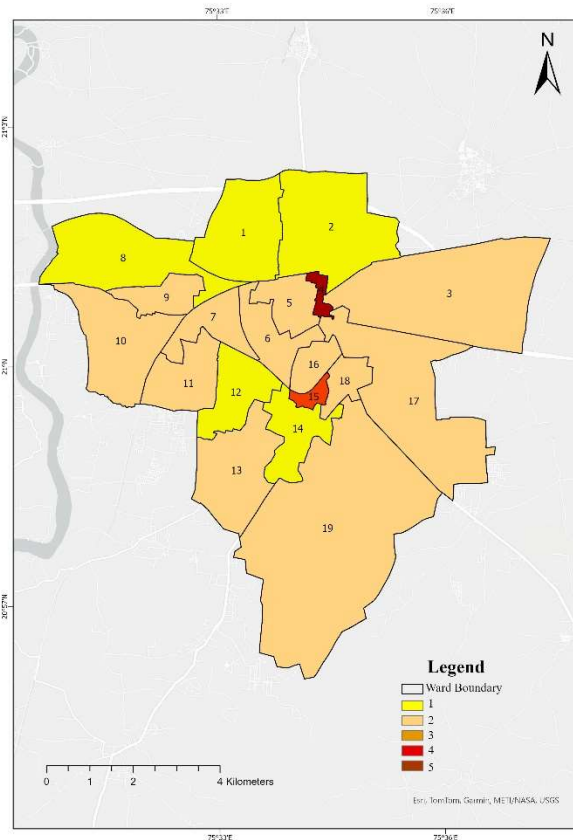


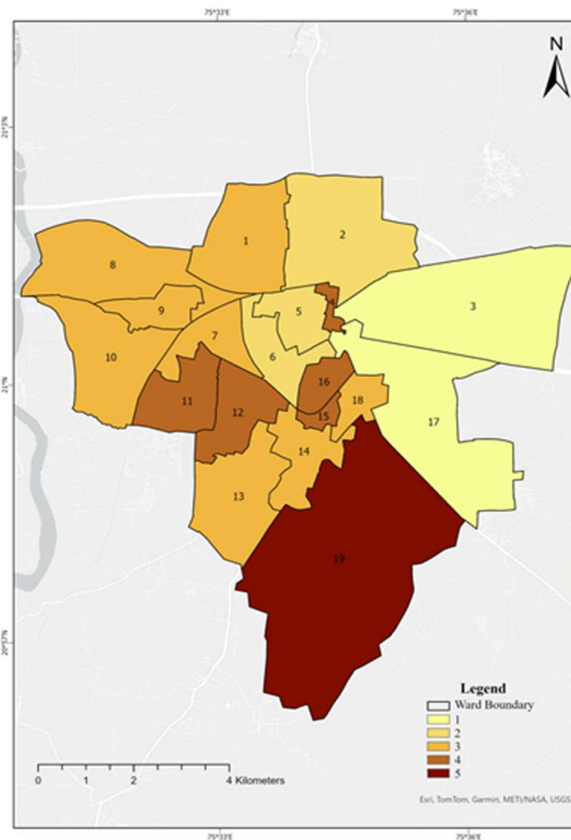
Figure 16 Informal Settlements in Ward 19

Adaptive capacity varies across wards depending on factors such as access to healthcare services, vegetation cover, water resources, and transportation infrastructure. Wards near the city core have the highest adaptive capacity.

Exposure



Sensitivity



Adaptive Capacity

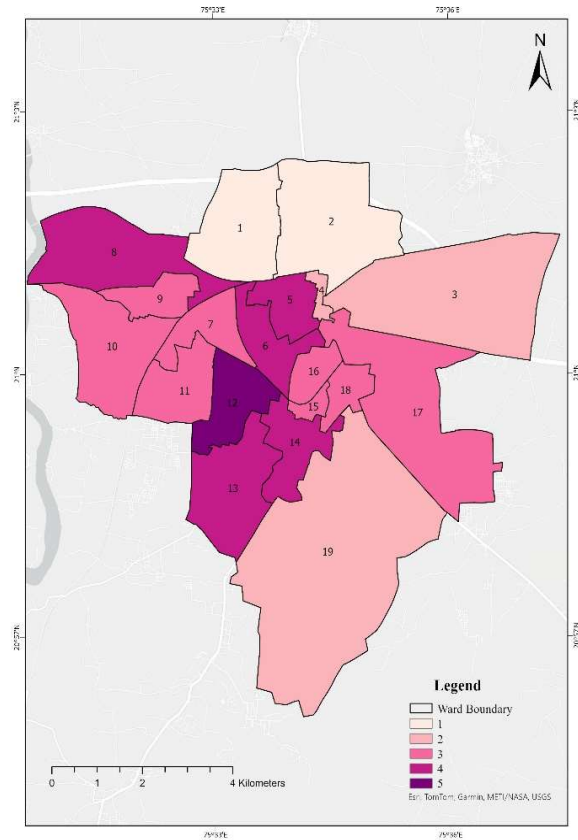


Figure 17 Maps of Heat Vulnerability Components

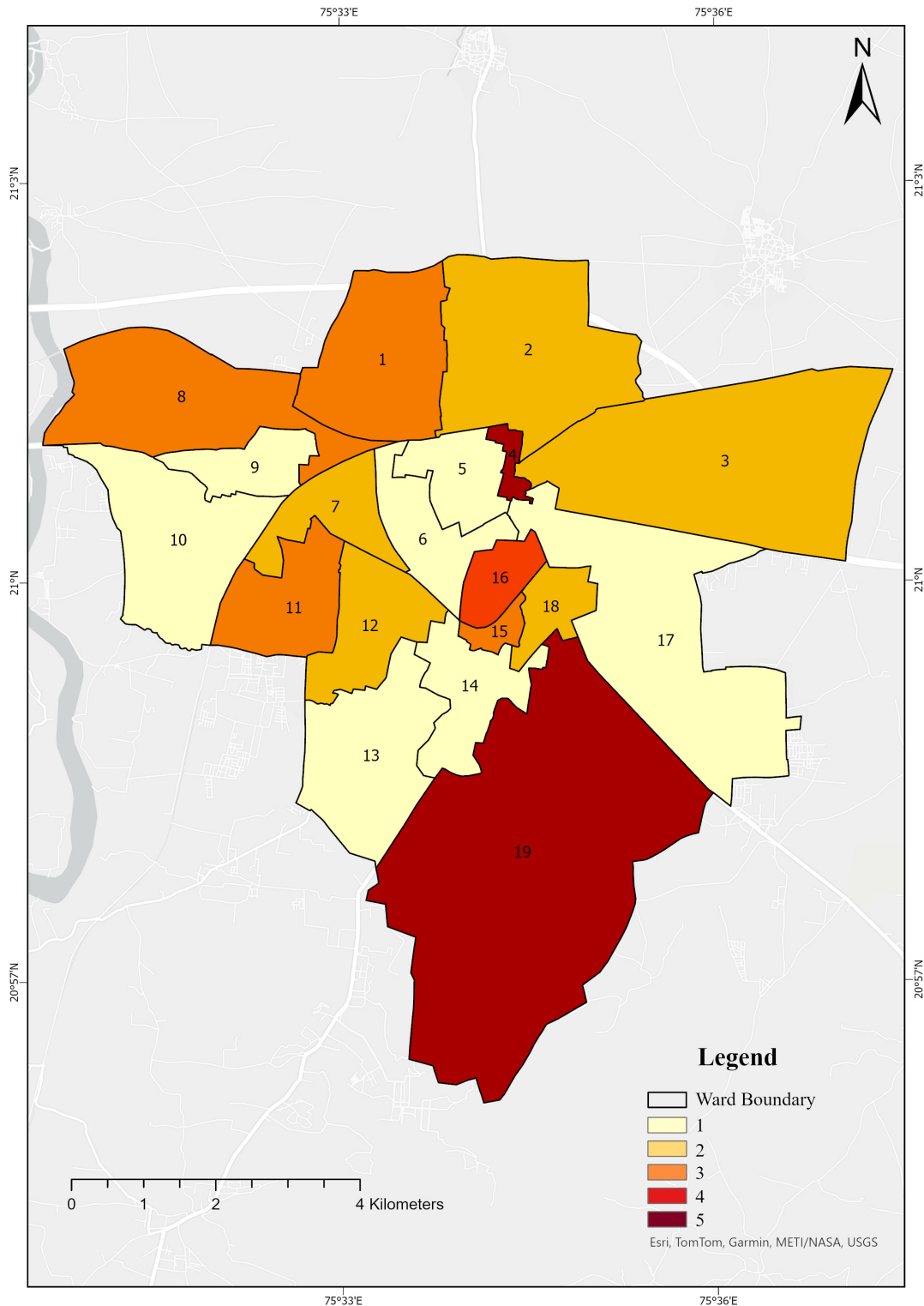


Figure 18 Overall Risk score composite (Light yellow-1(lowest) to dark brown-5(highest))

Of the 19 wards in risk map (shown in the figure above), they can be categorized as follows:

Table 2 Ward-Wise Risk Categorization in Jalgaon Based on Heat Vulnerability assessment

Category	Risk Score	Total No. of Wards	Ward number	Percentage(%)
High	4-5	3	4,16,19	16%
Moderate	2-3	9	1,2,3,7,8,11,12, 15,18	47%
Low	1	7	5,6,9,10,13,14, 17	37%

Ward no. 4 is highly vulnerable, since it has high Exposure and Sensitivity. Ward number 19 has Moderate exposure and high sensitivity, hence it is highly vulnerable. Also, ward number 16 has high sensitivity, making it vulnerable. It was found that 15% of population lived in highly vulnerable wards. (Ward 4,16 and 19).

Ward No.	Population	Exposure	Sensitivity	Adaptive Capacity	Vulnerability
4	38925	Very High	High	Low	Very High
19	24991	Moderate	Very High	Low	Very High
16	39088	Moderate	High	Moderate	High

5 Development of Early Warning System

The development of a Heat Early Warning System (HEWS) is essential to enable timely preparedness and response to extreme heat events. While the vulnerability assessment identifies high-risk areas and vulnerable populations, the Early Warning System helps translate this information into advance alerts and actionable measures. It allows city authorities, institutions, and citizens to take precautionary steps before severe heat conditions occur, thereby reducing heat-related health risks, improving inter-departmental coordination, and strengthening overall urban resilience in Jalgaon.

5.1 Determination of Threshold Temperature from Mortality data

The National Disaster Management Authority (NDMA) recommends that the HEWS must be tailored to local conditions in each city. Establishing appropriate temperature thresholds for issuing alerts is the most critical component of such systems. Given the strong relationship between heat and human health, NDMA advises determining these thresholds by analysing the relationship between daily mortality records and daily temperatures over the past ten years. The temperature at which mortality begins to show a marked increase can be designated as the Yellow Alert threshold, while subsequent inflection points in the trend can be used to define the Orange Alert and Red Alert thresholds.

Daily mortality data records were sourced from the Birth and Death Registration Department, JCMC. As the records were maintained only in physical registers and were not available in digital format, mortality data for the period 2014-2024 was manually transcribed and compiled for analysis.

The threshold temperatures were determined by correlating the daily mortality data with daily maximum temperature. The points of inflection in this graph were used to identify threshold temperatures beyond which mortality numbers significantly increased. To remove the effect of COVID, the mortality numbers during COVID year were replaced with average mortality over the last ten years.

The threshold temperatures determined from the graph are 41.0 °C, 41.9 °C and 42.8°C, which correspond to yellow, orange and red alert respectively. These thresholds help categorize heat severity and guide the graded municipal response under the Heat Action Plan.

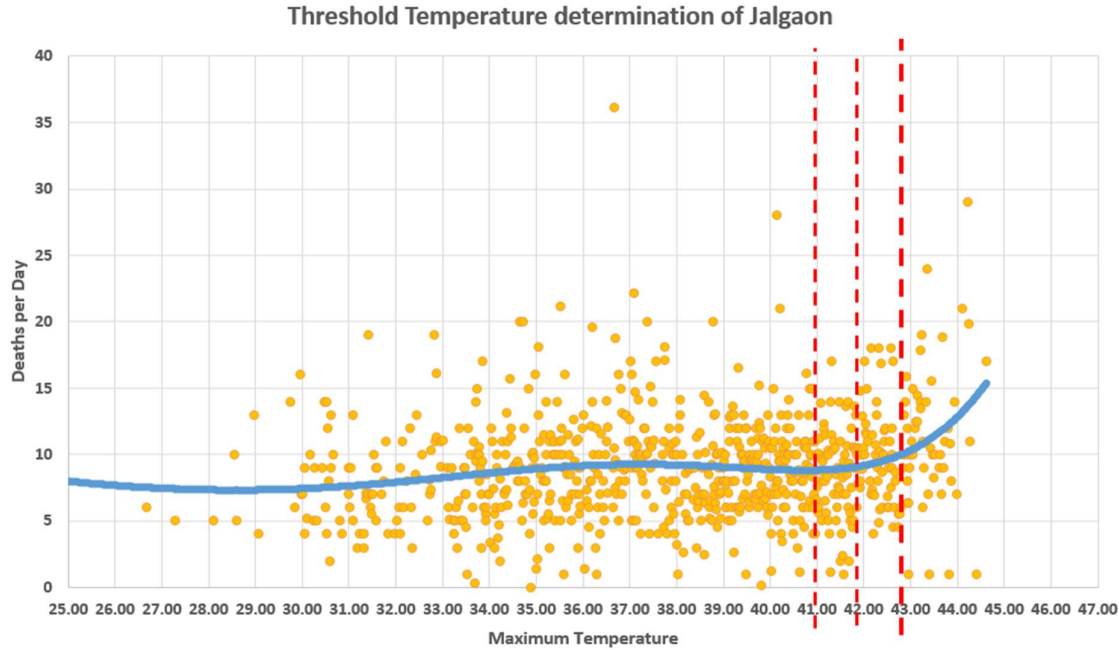


Figure 19 Determination of Threshold Temperature through Mortality Data

5.2 Operationalising the Early Warning System

As per NDMA guidelines, the city needs to inform the India Meteorological Office of the city-specific Heat Early Warning System Thresholds so that they can classify the temperature forecasts as per the HEWS. JCMC shared a formal request (Fig. 20) to the Regional Meteorological Centre (RMC), Mumbai to classify forecasts as per Jalgaon's HEWS thresholds. While the RMC shared the link for the forecasts, they suggested that the classification of the forecast can be done at the JCMC level. The one-week forecasts for Indian cities can be obtained from the following link:

<https://city.imd.gov.in/citywx/responsive>



जळगांव शहर महानगरपालिका, जळगांव

महात्मा गांधी रोड नेहरु चौक जळगांव-४२५००१ फोन-(०२५७)- २२२२२२२, २२२२२२३, २२२२२२४, २२२२२२५ फॅक्स-२२२२२२६०

MUNICIPAL CORPORATION OF THE CITY OF JALGAON

Mahatma Gandhi Road, Nehru Chowk, Jalgaon ४२५००१ Phone २२२२२२२, २२२२२२३, २२२२२२४, २२२२२२५ Fax : २२२२२२६०



जळगांवचा अमृत महोत्सव

संदर्भ/ज.श.म.न.पा/भ.प.न. / जा.क्र. १५/२०२६-२७

दिनांक: ०६/०९/२०२६

प्रति,
जिल्हा आपत्ति व्यवस्थापन विभाग
जळगांव महाराष्ट्र.

विषय :- भारतीय हवामान विभागाकडून (IMD) जळगांव शहराचा हवामान विषयक माहिती मिळणेबाबत...

महोदय,

जळगांव शहराचा वातावरणीय बदल कृती आराखडा वनविणे बाबत महिला हाऊसिंग ट्रस्ट यांच्यासोबत सामंजस्य करार करण्यात आलेला आहे. महिला हाऊसिंग ट्रस्ट (MHST) हे जळगांव शहराचा Climate Action Plan मधील Heat Action Plan बनवत आहे. यामध्ये शहरातील वाढत तापमाना नुसार नागरिकांना Alert करणे कामी Early Warning System (EWS) ची आवश्यक आहे. स्थानिक नागरिकांना तापमानानुसार त्यांचे वैयक्तिक कामे करण्यास योग्य वेळ मिळेल. तसेच जास्त तापमानात घराबाहेर गडू नये यानुसार खालील प्रमाणे तापमानाची नोंद

Yellow alert - ४१.२°C
Orange alert - ४२°C
Red alert - ४२.९°C

वरील प्रमाणे तापमान झाल्यास याबाबत नागरिकांना Jalgaon app वरून कळविणेस सोपे होईल. जळगांव शहराचे बदलेले तापमान बाबत भारतीय हवामान खाते (IMD) यांचेकडून मिळणारी माहिती आपण महिला हाऊसिंग ट्रस्ट यांना दिल्यास जळगांव महानगरपालिकेच्या वतीने शहरातील विविध संस्था, उद्योजक यांच्या मार्फत देण्यात येऊन नागरिकांना याबद्दल माहिती होईल.

तरी वरील प्रमाणे माहिती मिळणेबाबत महिला हाऊसिंग ट्रस्ट चे प्रातिनिधी आपल्यास संपर्क करतील.

(१२/०९/२६)
प्रतिपक्ष

जळगांव शहर महानगरपालिका, जळगांव

Figure 20 Request Letter for sharing forecasts as per Jalgaon's HEWS

5.3 Post-Summer Actions

Periodic post-summer assessments are necessary to evaluate the effectiveness of measures implemented during each heat season. This Heat Action Plan must be regularly reviewed, updated, and refined to respond to evolving climate risks and local needs.

Table 2 illustrates the framework which determines recommended actions based on different levels of alerts generated through the Heat Early Warning System. Roles of various departments of the JCMC in coordinating effective Heat response are also outlined in the framework.

Table 2 Early Warning Systems Action Framework

Colour Code	Alert	Impact	Suggested Actions
Green	Normal Day (< 41.0°C)	Comfortable temperature , no cautionary action required	Normal day-to-day activities can continue without special precautions
Yellow	Heat Alert (Maximum temperature is 41.0 °C)	Temperatures remain relatively manageable for the general population; however, they can pose moderate health risks for vulnerable groups such as infants, older adults, and individuals with pre-existing health conditions.	a) Minimize time spent under direct sunlight or in hot environments. b) Choose breathable, loose-fitting garments in lighter shades, preferably cotton. c) Ensure the head is covered while stepping outside. d) Carry protective coverings such as an umbrella, hat, or scarf.
Orange	Severe Heat Alert (Maximum temperature is 41.9 °C)	Elevated temperatures raise the risk of heat-related illnesses , particularly among individuals who remain exposed to direct sunlight for extended periods or engage in physical activities. Such conditions pose significant health risks for vulnerable groups, including infants, the elderly, and those with existing medical conditions	a) Stay in cooler environments as much as possible and take measures to prevent dehydration. b) Maintain regular water intake throughout the day, even if you do not feel thirsty. c) Consume rehydrating fluids such as ORS and traditional drinks like lassi, rice water (torani), lemon water, and buttermilk to maintain adequate hydration.
Red	Extreme heat alert (Maximum temperature is 42.8 °C)	Extremely high temperatures significantly increase the risk of heat-related illnesses , including heat stroke, affecting people across all age groups	Extreme care needed for vulnerable people

6 Preparedness and Response Plan

The increasing frequency, intensity, and duration of extreme heat events in Jalgaon necessitate a coordinated and proactive approach to heat risk management. Effective preparedness and response measures are critical to minimizing heat-related illnesses, mortality, disruptions to essential services, and adverse impacts on livelihoods. Given the wide-ranging impacts of extreme heat on public health, water supply, power systems, education, transportation, and labour productivity, a multi-sectoral response framework is essential.

The Preparedness and Response Plan establishes the institutional arrangements, communication protocols, and response actions required before, during, and after periods of extreme heat. It aims to ensure timely dissemination of heat warnings, coordinated action among relevant departments, protection of vulnerable populations, and continuity of critical services during heatwave conditions.

The plan adopts a multi-stakeholder approach involving Jalgaon City Municipal Corporation (JCMC), government departments, healthcare institutions, educational institutions, utility service providers, civil society organizations, and community groups. The effectiveness of the plan depends on clear roles and responsibilities, interdepartmental coordination, and the timely activation of response measures based on heat forecasts and early warning alerts.

6.1 Preparedness and Response Framework

Heatwave preparedness in Jalgaon is guided by a tiered response system linked to heat forecasts issued by the India Meteorological Department (IMD). The framework outlines actions to be undertaken before the onset of the heat season, during heatwave events, and after the summer season to strengthen future preparedness.

Early warnings facilitate the activation of sector-specific preparedness measures, targeted outreach to vulnerable populations, and implementation of emergency response measures during periods of extreme heat. The effectiveness of the HEWS depends on a clear communication mechanism that enables timely dissemination of alerts and coordinated action across departments and stakeholders.

6.2 Communication regarding heat warnings

The Municipal Corporation of Jalgaon has designated a Nodal Officer responsible for ensuring overall coordination and the effective implementation of the Heat Action Plan (HAP). Figure 21 illustrates the flow of information and implementation once temperature forecasts are received from the IMD. The heat alert process is initiated based on temperature forecasts issued by the IMD. Upon receiving these forecasts, the Jalgaon Municipal Corporation's Nodal Officer activates the heat alert mechanism and a series of collaboratively developed action if the forecasted temperature exceeds the pre-determined thresholds of the city.

6.3 Coordination at Planning and Implementing stage

Effective heat management requires integrated actions across multiple departments before, during, and after the heat season. While preparedness measures help reduce vulnerability prior to extreme heat events, response measures are required to safeguard public health and essential services during heatwaves. Post-season reviews are equally important for evaluating effectiveness and strengthening future preparedness. Table 3 outlines the roles and responsibilities of key departments across these phases

Figure 21 Communication, Implementation and Coordination of Heat Action Plan

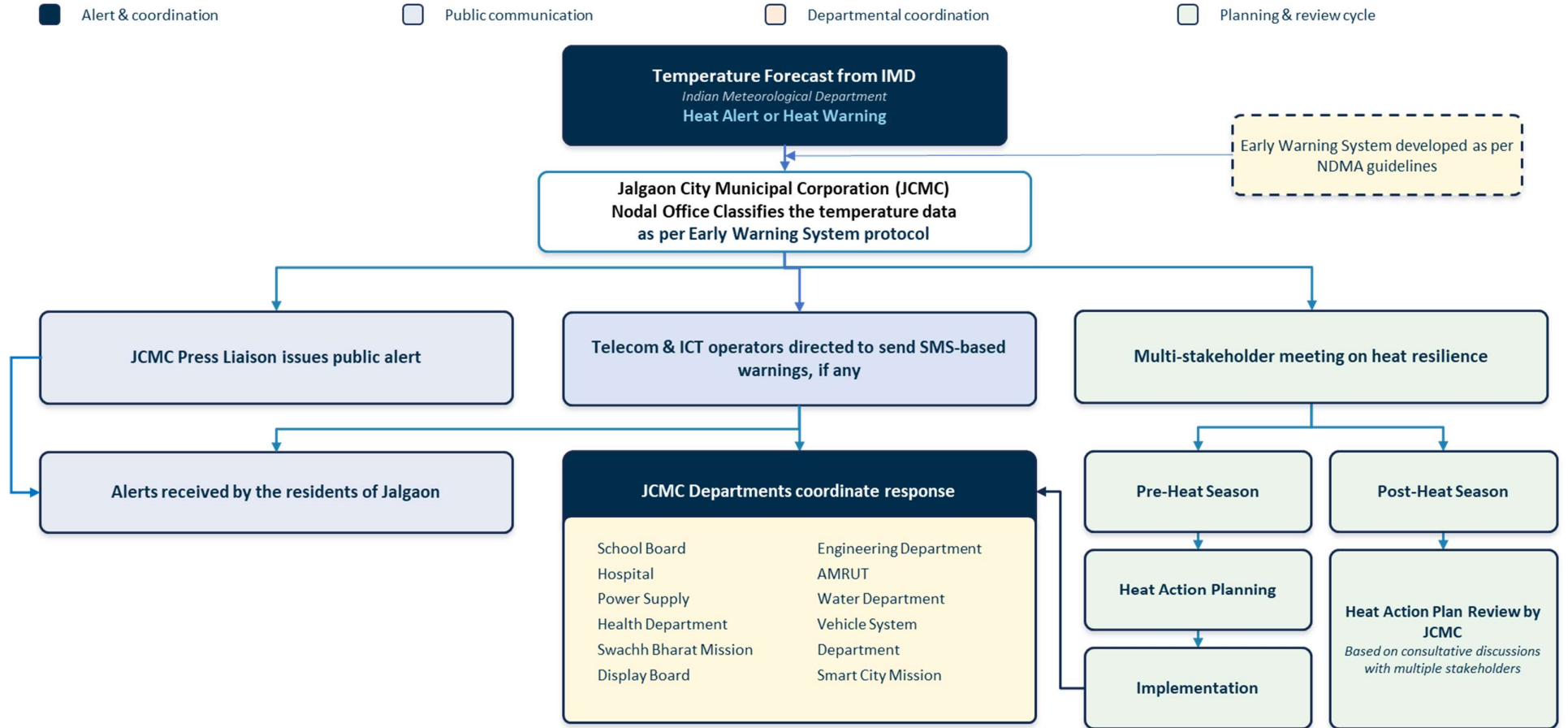


Table 3 Interagency Coordination Chart

Department	Pre-Heat Season Actions	During Summer / Heatwave Actions	Post-Summer Actions
School Board / Education Department	Develop school heat safety guidelines; ensure availability of ORS, drinking water and first aid kits; conduct awareness sessions and training for teachers and students	Adjust school timings; ensure availability of drinking water and ORS; limit outdoor activities during peak heat hours; and monitor students for heat-related illnesses; heat stress training can be provided to staff and students.	Review heat response effectiveness; document cases of heat illness in schools; strengthen preparedness for next heat season
Hospitals / Health Department	Prepare heat response protocols; train health workers on heat illness management; ensure availability of cooling equipment, medicines and ORS; strengthen referral linkages between hospitals and health centres	Treat and monitor heat-related illnesses; maintain referral system; share heat illness surveillance data; strengthen emergency response capacity, Develop heat preparedness at ward-level.	Analyse heat-related morbidity and mortality data; prepare seasonal health report; improve preparedness for next summer
Labour Department	Issue occupational heat safety guidelines; conduct awareness programs for workers and employers; ensure workplaces provide shade and drinking water.	Adjust working hours; provide rest breaks; ensure access to water, shade and cooler working conditions; Monitor workers for heat stress, Promote cooling jackets and helmets.	Review workplace compliance; evaluate worker safety outcomes; update labour protection guidelines
Water Department	Assess water supply infrastructure; identify vulnerable areas; prepare contingency plans for water tanker deployment. Availability of water for complete season.	Deploy water tankers to slum and high-risk areas; ensure adequate drinking water supply; restrict non-essential water usage. Check the water storage & availability, check the timings of supply.	Evaluate water supply performance; improve infrastructure before and after heat season; document water shortage areas.
Power Supply Department	Inspect electricity infrastructure; prepare load management plans; ensure backup supply for hospitals and critical facilities	Ensure continuous electricity supply; prioritize power to critical services and vulnerable communities; respond quickly to outages. Alternatives for supply.	Review demand and outages; strengthen power infrastructure for future summers
Transport Department	Prepare heat safety arrangements for transport hubs; install drinking water facilities	make preventive announcements for passengers based on HEWS alerts; equip railway stations and bus stops with cooling arrangements, drinking water, and ORS.	Evaluate passenger safety measures and improve facilities for next heat season

Effective implementation of these actions ensures the protection of vulnerable populations, continuity of essential services, and effective emergency response during extreme heat events.

6.4 Strategic Interventions

While preparedness and response measures are critical for managing acute heatwave risks, a combination of long-term and short-term strategies is essential for building heat resilience. Strategic interventions in cooling infrastructure, ecosystem restoration, institutional strengthening, and community capacity building can enable residents to better cope with extreme heat and strengthen the resilience of urban systems and vulnerable populations.

The following tables present a set of long-term and short-term interventions proposed under the Heat Action Plan. Together, these measures aim to enhance thermal comfort, improve public health outcomes, safeguard livelihoods, and strengthen Jalgaon's capacity to cope with increasing heat stress.

Table 4 Long-term Interventions for Heat Resilience

No.	Type of Intervention	Strategy	Description	Authority and Stakeholders	Tentative Funding Sources	Beneficiaries
1	Nature-based Solutions	City level Afforestation	Regular and timely monitoring of planted trees. Rs 1950 / tree maintenance cost	JCMC (Environment Department), Civil Society	Central: Nagar Van Yojana, CAMPA, AMRUT 2.0, MGNREGA State: Social & Urban Forestry Dept, state greening missions Local: ULB parks budget, DPC / MLA-MP LAD funds, Civil Societies & CSR Partners	Residents, commuters
2	Nature-based Solutions	Rain water Harvesting	Promoting recharge wells and Rainwater harvesting systems to strengthen water security during extreme heat periods. Scheme/Policy: AMRUT 2.0. Guideline: Housing societies on area not less than 300 sqm should have Rainwater harvesting system.	JCMC (Water Department & Town Planning Department), Civil Society, RWAs	Resident Welfare Associations (RWAs)	Residents

No.	Type of Intervention	Strategy	Description	Authority and Stakeholders	Tentative Sources Funding	Beneficiaries
3	Nature-based Solutions	Rainwater harvesting	Rainwater harvesting systems should be regularly monitored and maintained by residents of the society, there should be audit after every three years.	Water supply department (JCMC), Resident Welfare Association (RWA)	RWAs	Residents
4	Nature-based Solutions	Waterbody Rejuvenation	Mehrun lake, wells can be rejuvenated in Jalgaon (refer to DPR developed by MHT). Scheme/Policy: AMRUT 2.0.	JCMC (Water Department, Public Works Department), Government of Maharashtra	AMRUT 2.0, Maharashtra State	Residents, Vulnerable communities
5	Institutional and Operational Measures	Change in timings of Traffic signals	During extreme heat conditions, traffic signal waiting times can be reduced to minimize heat exposure for pedestrians and commuters.	JCMC (Transport, Electric & Environment Department), Traffic police	JCMC (Transport Department)	Commuters, Residents

Table 5 Short-term Interventions for Heat Action

No.	Type of Intervention	Strategy	Description	Authority and Stakeholders	Tentative Funding Sources	Beneficiaries
1	Nature-based Solutions	City level Afforestation	Plantation of local trees like Arjun, Neem, Peepal etc. Guideline: According to URDPFI, 15 to 18% green cover in Urban Area should be there. 10.3 sq km of area should have green cover in Jalgaon. Approx. Budget: Rs 850 / tree installation cost	JCMC (Environment Department), Social Forestry Department, Civil Society	JCMC, Mahila Housing Trust (MHT), CSR fund, Samajik Vanikaran	Residents, commuters
2	Built-up and Cooling Infrastructure	Cooling station	Identification of area of cooling stations according to locations of labour chowk, slums etc. Use public spaces (bus/rail stations/malls) transit hubs, labour chowks, tourist sites and other public areas as cooling centers with shade, cooling systems, drinking water and ORS, including shaded waiting areas and driver rest protocol. Can be implemented in Jalgaon bus stop. Approx. Budget: Rs 3000/sq ft	JCMC, Civil Society	Civil Society, Government of Maharashtra, JCMC	Residents

3	Built-up and Cooling Infrastructure	Cool roof	Apply reflective/heat resistant coatings on roof of govt schools, hospitals, anganwadis, PHCs, homes and businesses. Around 12000 households in 25 slums need cool roofing. Approx. Budget: Solar reflective white paint- Rs 25 to Rs 30 per sq ft, Bamboo Roof- Rs 150/sq ft, China Mosaic- Rs 150/sq ft, Tarpaulin sheet- Rs 10/sq ft	Public Works Department (JCMC), Civil Society	JCMC, Civil Society	Vulnerable populations (People living in slums)
4	Awareness and Capacity Building	Training for cool roofing initiative	Awareness and training sessions will enable slum residents to independently apply cool roof paint using the proper process.	Slum residents	Civil Society	Vulnerable populations (People living in slums)
5	Institutional and Operational Measures	Cool jackets for traffic police	Cooling jackets should be provided to traffic police personnel during the heat season to reduce heat stress and improve occupational safety. Approx. Budget: Rs 4000/cool jacket	JCMC (Transport Department, Police department), Civil Society	JCMC, Police	Traffic Police
6	Awareness and Capacity Building	ASHA worker training	Currently 227 ASHA workers in Jalgaon city. Scheme/Policy: National Rural Health Mission. Guideline: 1 ASHA worker per 1000 population according to National Rural Health Mission, Government of Maharashtra. Approx. Budget: Rs 12000 / training session	Disaster Management cell, Hospital, Civil Society	Health Dept, CSR Funds	Vulnerable Populations

7	Institutional and Operational Measures	Special precautions for industrial workers	1. Rescheduling working hours 2. Ensuring drinking water, rest arrangement and cooling arrangements 3. Providing emergency ice packs and heat illness prevention materials 4. Coordinating with Health Departments for regular health check-ups. Scheme/Policy: Ministry of Labour & Employment.	Maharashtra Industrial Development Corporation (MIDC), Hospital	Industry Owners	Labours
8	Awareness and Capacity Building	Capacity Building	Awareness and training sessions will enable slum residents to independently apply cool roof paint using the proper process.	Education Dept, Slum residents	Civil Society	Vulnerable populations (People living in slums)

6.5 Information, education and communication strategies

Timely and accessible communication is critical to reducing heat-related health risks. The effectiveness of early warnings and response measures depends on public awareness of heat risks and the actions required to protect themselves during periods of extreme heat. IEC activities therefore play an important role in ensuring that heat advisories reach residents in a clear, understandable, and actionable manner.

The IEC strategy for Jalgaon focuses on disseminating heat safety information through multiple channels, including social media, public announcements, posters, pamphlets, community outreach programmes, schools, healthcare facilities, and ward-level networks. Particular emphasis should be placed on reaching vulnerable populations, including outdoor workers, informal settlement residents, elderly persons, children, and individuals with pre-existing health conditions.

The following IEC materials have been developed to support heat-risk communication, promote protective behaviours, and strengthen community preparedness during the heat season.



7 Initiatives and Collaborative Actions

The Heat Action Plan for Jalgaon outlines a set of key initiatives structured around both awareness and intervention strategies. Under the awareness component, primary interactions across 25 slums were taken in which slum profiles were

prepared, in which slums lying in heat vulnerable ward were identified based on Heat vulnerability assessment, following which sensitization meetings were carried out on creating awareness regarding access to basic services and individual water and drainage.

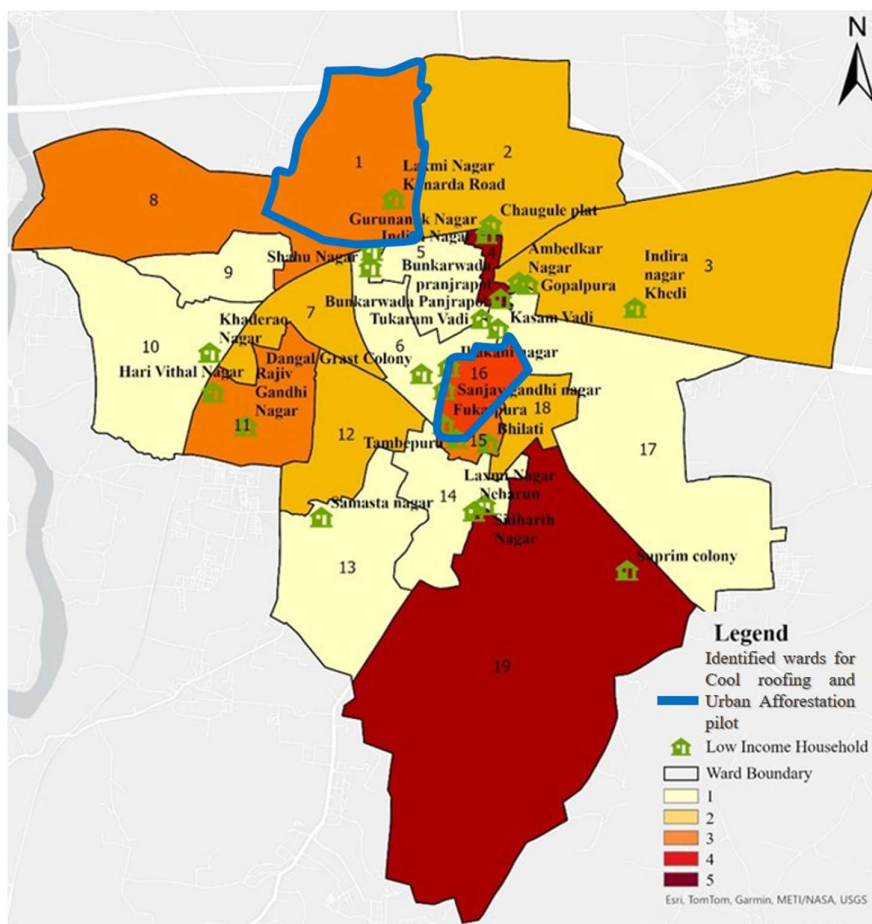


Figure 22 Identified Wards for Cool Roofing and Afforestation pilot initiative

The plan emphasizes targeted interventions to mitigate heat impacts at the urban scale. Wards were selected for Cool Roofing and Urban Greening Initiatives. These wards were identified by overlaying the mapped 25 slum settlements with the heat-vulnerable wards.

Based on Heat Vulnerability map, ward 1 was identified for cool roofing and ward number 16 was identified for Urban Afforestation.

7.1 Pilots for Cool Roofing

Cool roofing is a roofing technique that uses Solar reflective white paint to reduce heat absorption, keeping buildings cooler and improving thermal comfort. After the solar reflective white paint is applied in cool roof, the reduction of temperature is observed to 3 to 4 °C.

In Jalgaon, 25 slums were identified. Based on the vulnerability assessment, heat-vulnerable wards have been identified. Among these, Laxminagar, located near Kanarda Road, was found to fall within a high-risk ward (Ward number 1). Focused Group Discussions (FGDs) were carried out with the community. The identification of this settlement has therefore been selected as the pilot site for initiating the cool roof initiative. Focused Group Discussions were conducted to explain the benefits of cool roofing and for identification of beneficiaries.

Households with tin roofs and lacking surrounding trees or shaded areas were given priority for Cool Roofing, as they were more exposed to heat.

7.1.1 Implementation for Cool Roofing Initiative

The pilot on cool roofing was inaugurated in March 2026 at Laxminagar in the presence of the Honourable Additional Commissioner, the Sectional Engineer from the Environmental Department (JCMC), community and women from the Laxminagar community. This event marked the formal commencement of the cool roof pilot's implementation phase.

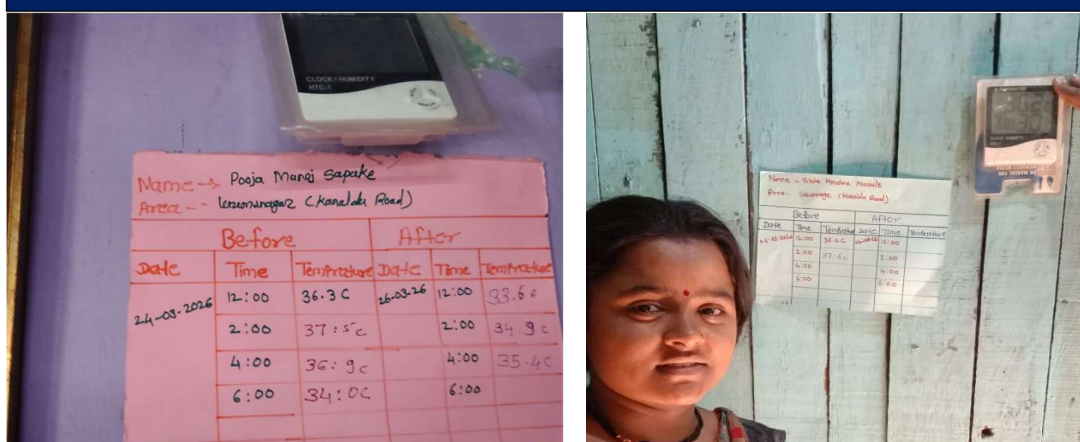
Cool roofing interventions were implemented across 50 households, and indoor temperature variations were monitored during different times of the day, at 12 noon, 2 p.m., 4 p.m., and 6 p.m. The observations indicate a significant reduction in indoor heat levels, with a maximum temperature difference of approximately 3°C, as illustrated in the figure below. This demonstrates the effectiveness of cool roofing measures in improving thermal comfort during peak heat hours.



Focussed Group Discussions for identification of beneficiaries for cool roofing



Add. Commissioner of Jalgaon participating in the cool roofing activity



Change in indoor temperature observed before and after Cool Roofing

Figure 23 Cool Roofing Initiatives in Vulnerable Communities of Jalgaon

Case Study:

Cool Roof Initiatives in improving thermal comfort in slums



“It was difficult to make the baby sleep before the cool roofing initiative. Earlier, we could not stay inside the house without using a cooler.” – Pooja Sabke,

Pooja Manoj Sabke, aged 28, residing in Laxminagar near Kanarda Road; earns her livelihood through ironing clothes. She lives with her husband, mother-in-law, and two children.

Pooja usually travels to the city for ironing work; however, due to encroachment-related challenges, continuing work outside became difficult.

Her husband also works as an ironing service provider, with his shop located near Suresh Collection. He earns approximately ₹8,000 per month, charging around ₹15 for ironing one pair of shirt and pant. Pooja's mother-in-law works as a domestic worker and earns ₹4,000 per month. Together, the household's total monthly income was approximately ₹12,000.

Criteria for Identification for Cool Roofing Initiative

Pooja's house was a kutchha structure with a tin-sheet roof. The house had two rooms and lacked surrounding trees or shaded spaces. During the summer season, the house became extremely hot, making indoor living uncomfortable.

Based on these vulnerability conditions, her house was identified as one of 50 beneficiary households selected under the Cool Roofing Initiative.

Impact of the Cool Roofing Initiative

Pooja has two young children, and high indoor temperatures significantly affected their comfort and wellbeing. Following the installation of the cool roof, indoor thermal comfort improved considerably. The children are now able to sleep comfortably, and overall living conditions inside the house have improved.

7.2 Pilot for Urban Afforestation

As part of the Heat Action Plan, urban afforestation has been undertaken as a pilot heat mitigation intervention in Jalgaon. An open space measuring 4,219.5 sq. m. was identified within a heat-vulnerable area in Ward No. 16 for implementation of the plantation initiative. The site is located within a residential neighbourhood, where increased tree cover is expected to contribute to local cooling, improved thermal comfort, and enhanced environmental benefits.

The site was identified through consultations between Jalgaon City Municipal Corporation (JCMC) and Mahila Housing Trust (MHT). Joint site visits were conducted by officials from JCMC and MHT to assess its suitability for plantation activities.

जळगांव शहर महानगरपालिका, जळगांव

महात्मा गांधी रोड नेहरू चौक जळगांव-४२५००१ (कोटन-०२५७). २२२२२६१, ६२, ६३, ६४, ६५. फॅक्स: २२२२२६०

MUNICIPAL CORPORATION OF THE CITY OF JALGAON

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संस्था/स.म.न.पा./सामंजस्य जा.क्र. /

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दिनांक: / २०२६

प्रति,

महिला हाऊसिंग ट्रस्ट,

अहमदाबाद, (जळगांव शाखा)

विषय :- जळगांव शहराची कलायमेट अंशदान प्लॅन व हॉट अंशदान प्लॅन संदर्भात वार्ड क्र. १६

मधील खुल्या जागेचे हरीतीकरण करणेबाबत...

संदर्भ :- १) आपले सोबत करणेत आलेला दिनांक ०३/११/२०२२ चा सामंजस्य करार

२) आपले कडील दिनांक १७/०२/२०२६ चे पत्र

महोदया,

बरील संदर्भात विषयावन्वये जळगांव शहरातील कलायमेट अंशदान प्लॅन करणे बाबत सामंजस्य करार आपल्यासोबत करणेत आलेला आहे. त्यानुसार आपण आपले दिनांक १७/०२/२०२६ चे पत्रानुसार पूर्वीचा वार्ड क्र. १६ मध्ये सर्वोपार्क उण्यात असल्याचे निदर्शनास आल्याचे कळवले आहे त्या प्रमाणे या भागातील खुल्या जागेचे हरीतीकरण करणे आवश्यक असल्याचे पत्रात नमूद केले आहे.

त्यानुसार या भागातील स.न.५११ मधील खुली जागा ४२११.५० चौ.मी आपणास हरीतीकरणासाठी अटी शर्तीवर देण्यात येत आहे.

१. सदर जागेवर आपणास कोणताही हक्क सांगता येणार नाही.

२. सदर जागेत हरीतीकरण करणेसाठी एक वर्षाचा कालावधी असेल या कालावधीत संपूर्ण निष्ठा व देखरेख घी जबाबदारी आपली राहिल. तद्दन्तर सदरचा प्रकल्प पुढील देखणीला साठी मनाचा कडे हस्तांतरित करायचा.

३. सदरची जागा भिमावाकी पध्दतीने विकसित करायची.

४. जागा हरीतीकरण झाल्यावर त्यावर मनाचा हा हक्क राहिल.

५. यासाठी लागणारा सर्व खर्च आपण करणारा आहात त्याची परीपूर्ती भविष्यात मनपाकडे मागता येणार नाही.

६. या ठिकाणी असलेल्या मनाचा मालमत्तेचे नुकसान होणार नाही याची जबाबदारी घ्यावी.

मा. आयुक्त सो यांच्या ११/०३/२०२६ च्या मान्यतेवरून

(Signature)
अति. आयुक्त

जळगांव शहर महानगरपालिका, जळगांव

प्रति माहितीस्वरुप

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२) मा. आयुक्त सो, मनपा जळगांव

Figure 24 Municipal Approval Letter for Plantation Work, Jalgaon

For implementation of the initiative, JCMC provided formal approval for plantation activities at the selected site. MHT will be responsible for the establishment and maintenance of the plantation during the first year, following which the long-term management and upkeep of the site will be undertaken by JCMC. Implementation of the urban afforestation initiative commenced on 10 August 2026.



Figure 25 JCMC team along with the Municipal Commissioner inspectin sites for tree plantation

7.3 Sensitization meetings

Sensitization meetings were carried out to explain the process of obtaining individual water and drainage connections to community members. Slums were identified based on two criteria: those located in heat-vulnerable wards, and those lacking individual water and drainage connections.

Awareness regarding water connections was spread in the slums of New Laxminagar and Sidharth Nagar, while awareness regarding drainage connections was carried out in Laxminagar, Fukatpura, and Tambepura.

Awareness was provided to a total of 406 beneficiaries. Additionally, beneficiaries paid demand notes amounting to a total of ₹6,90,000 for the initiation of water supply. The initiative aims to increase green cover in the city, helping to improve micro-climate in the area. It will also improve carbon sequestration in the area.



Figure 26 Focused group discussions for raising awareness for basic services

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