



GLOBAL COOLING PLEDGE ASSEMBLY

SINGAPORE 15 - 18 SEPTEMBER 2026

Parallel Session: Beat the Heat Training

Session 3: Financing and Implementing Urban Heat and Cooling Resilience

11:00-12:30, 16 September 2026

UN
environment
programme

Cool
Coalition
a UNEP-convened initiative



Ministry of Sustainability
and the Environment
— SINGAPORE —

**BEAT
THE
HEAT**

Welcome & session objectives



Elsa Lefevre

Programme Manager,
Beat the Heat,
UNEP

Session 3C. Financing and implementing urban heat and cooling resilience



Co-host:

What this session looks at:

- Where the money for heat action and cooling infrastructure actually comes from — and where the gaps are.
- Blended finance models already in use: concessional funding paired with private capital, results-based financing, municipal bonds.
- Case studies showcasing successful approaches.

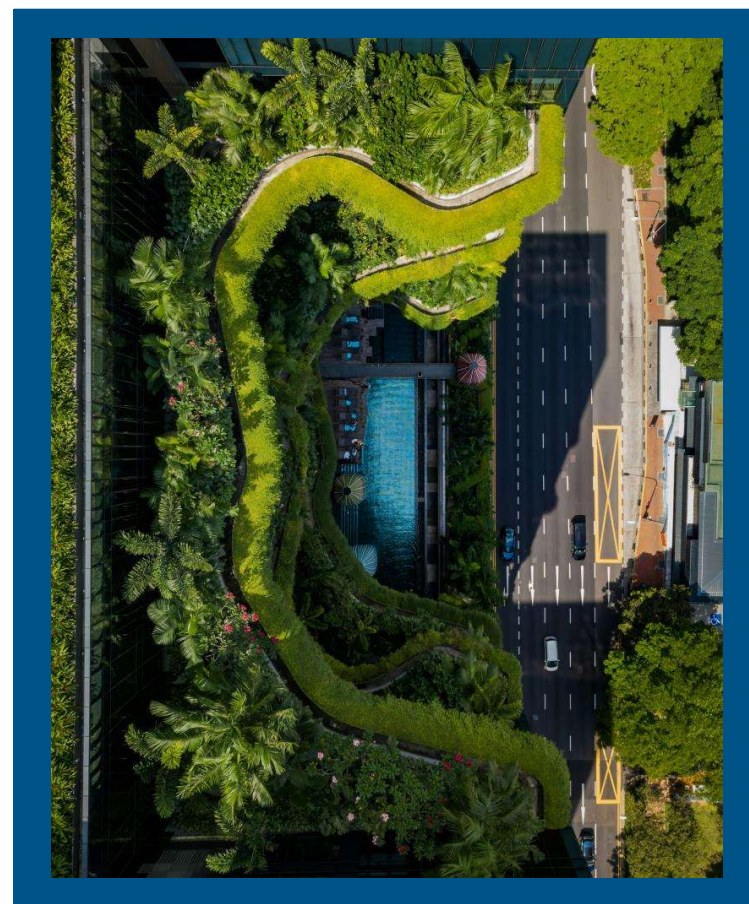


Session 3C. Financing and implementing urban heat and cooling resilience



Key definitions

- **Public/concessional finance:** grants and low-interest loans from development banks (World Bank, ADB, GEF) — typically funds early-stage planning, pilots, and de-risking
- **Private/commercial finance:** equity and debt from private investors — typically requires a proven revenue model or cost-savings case (e.g., district cooling, energy-efficient retrofits)
- **Blended finance:** combining the two — concessional capital absorbs early risk so private investment can follow at scale



Survey results:

Access to funding is the main barrier for action.

Reliance on external funding is widespread, but technical capacity remains the most commonly cited challenge.

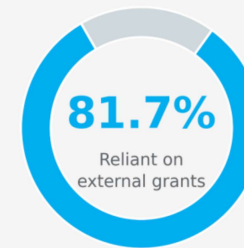
Relatively small amounts of technical assistance can unlock substantially larger implementation opportunities.



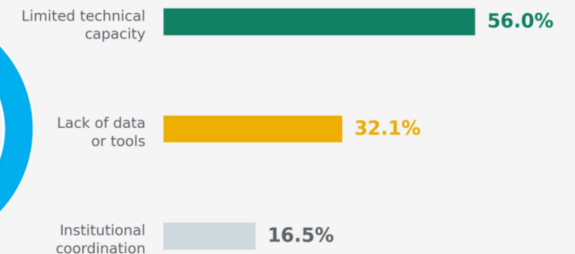
Funding and Capacity Block Action

Cities are financially stranded. Even if funded, a lack of technical capacity remains the core barrier.

The Financial Reality



The Operational Bottlenecks



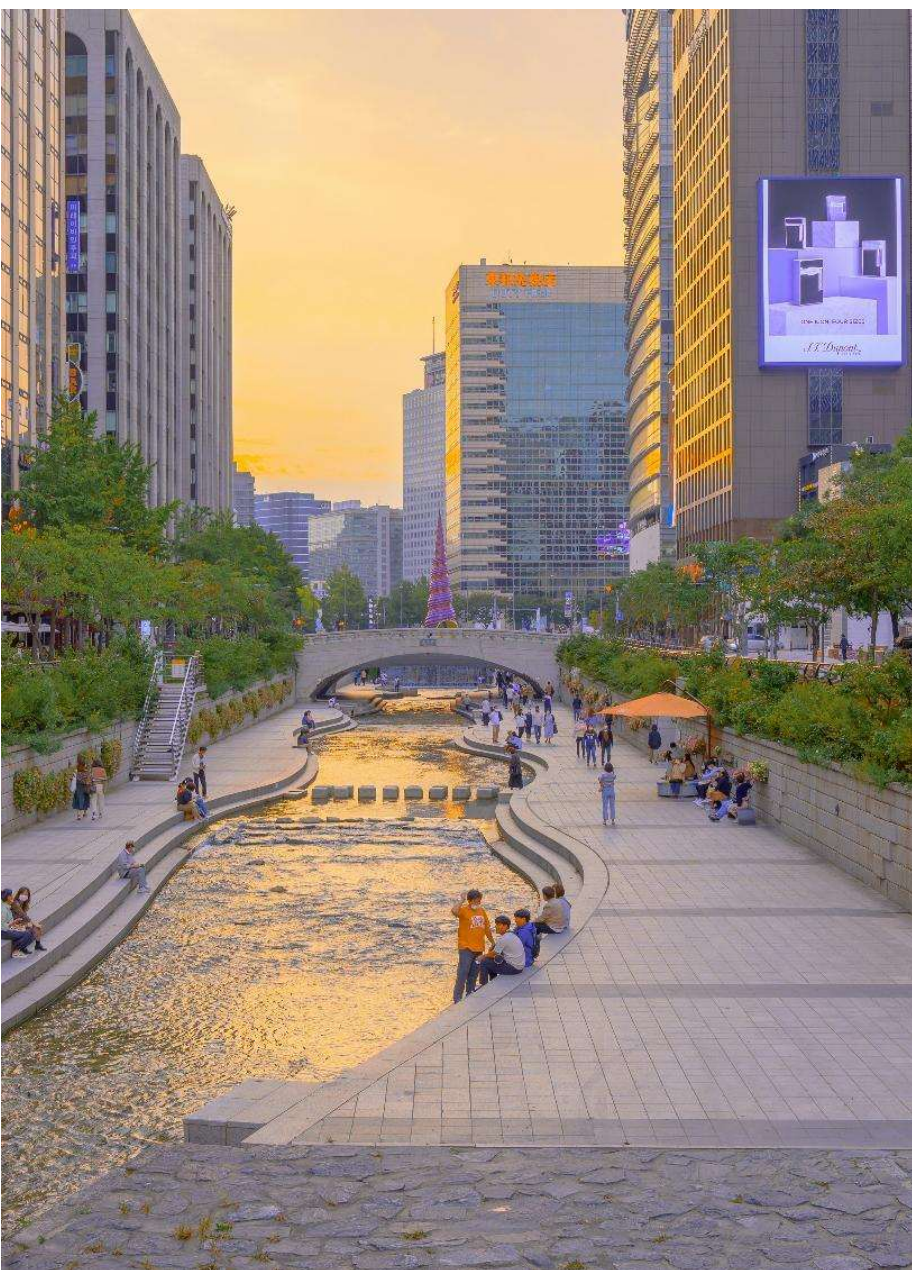
**Respondents could select multiple operational barriers.*

Framing presentation



Hamza Abdullah

Analyst,
Urban Climate Finance,
Cities Climate Finance Leadership
Alliance (CCFLA)



Beat the Heat training

Session 3C. Financing and implementing urban heat and cooling resilience

Financing opportunities and investment approaches for heat resilience initiatives.

16 September 2026

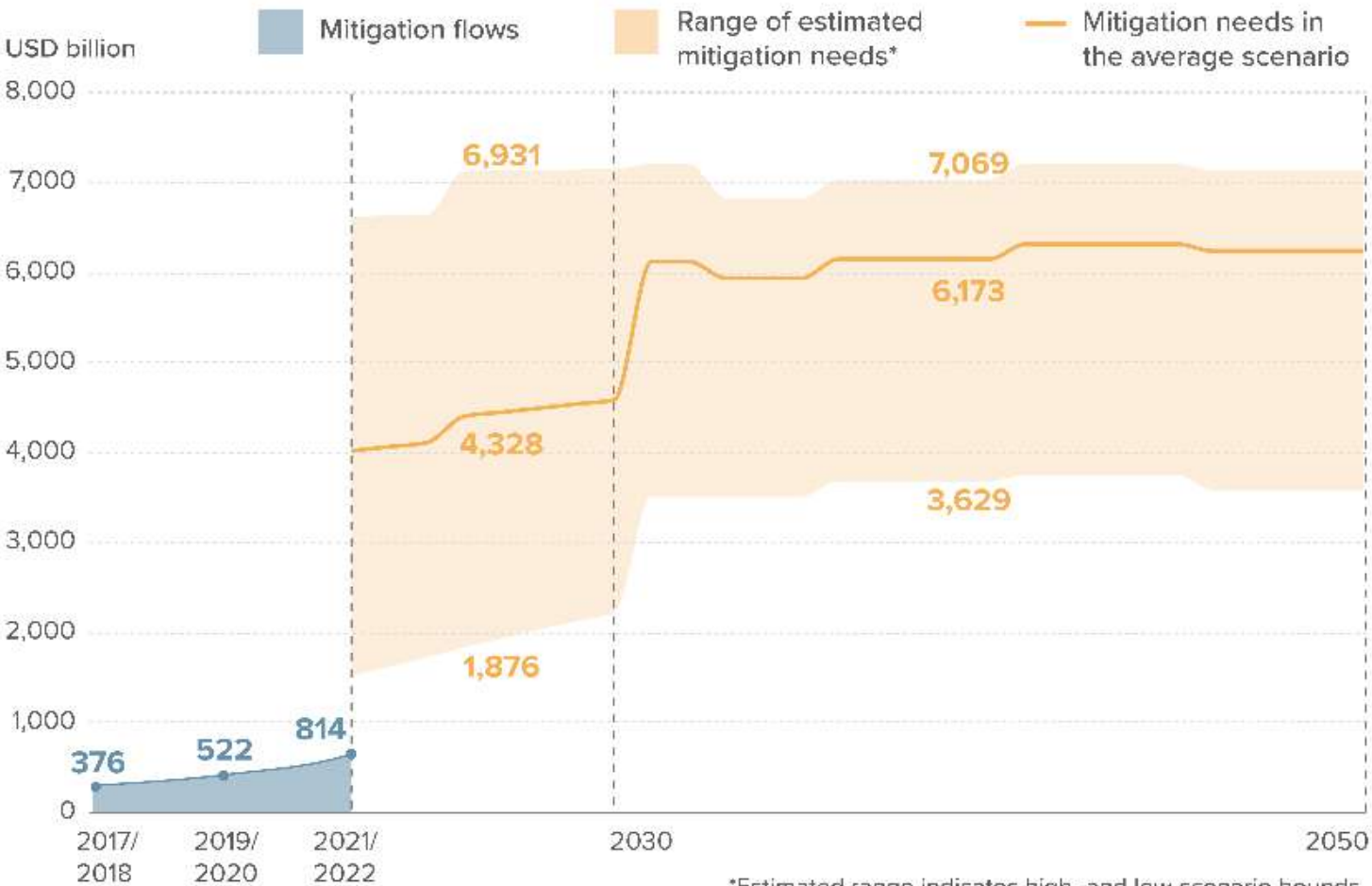
Hamza Abdullah, Analyst, CCFLA



Presentation Objectives

- **Deepen the understanding of the urban adaptation finance landscape**, including key financing gaps, barriers, and financial instruments available for heat resilience.
- **Explore how cities can mobilize investment for heat resilience**, by matching financing approaches to different solutions and using their own fiscal, regulatory and financial levers alongside external finance.

Cities need USD 4.3 trillion per year by 2030 for mitigation alone and over USD 6 trillion by 2050



814 B*
(mitigation)

10 B
(adaptation)

7 B
(multiple objectives)

***BILLION USD ANNUAL AVERAGE**

Urban Climate Finance
Flows in 2021-22

Cities are facing increasingly high cost of inaction

We estimate urban adaptation investment needs for cities in developing economies to average USD 147 billion annually by 2030, rising to over USD 165 billion by 2050.

By 2050, 970+ EMDE cities are projected to experience average summertime highs of at least 35°C.

Extreme heat causes average urban worker productivity losses of \$44 billion annually*

*Productivity losses were tracked across 12 cities. Know more [here](#)

Why is adaptation difficult to finance?



DEMAND-SIDE

Challenges include:

- Lack of city capacity
- Limited revenues and revenue-generation potential
- Lack of creditworthiness
- Fragmented urban management



SUPPLY-SIDE

Challenges include:

- Limited supply of private finance inc. insurance
- IFI and NDB mandates limit direct investment
- Limited capacity in investors to assess A&R projects

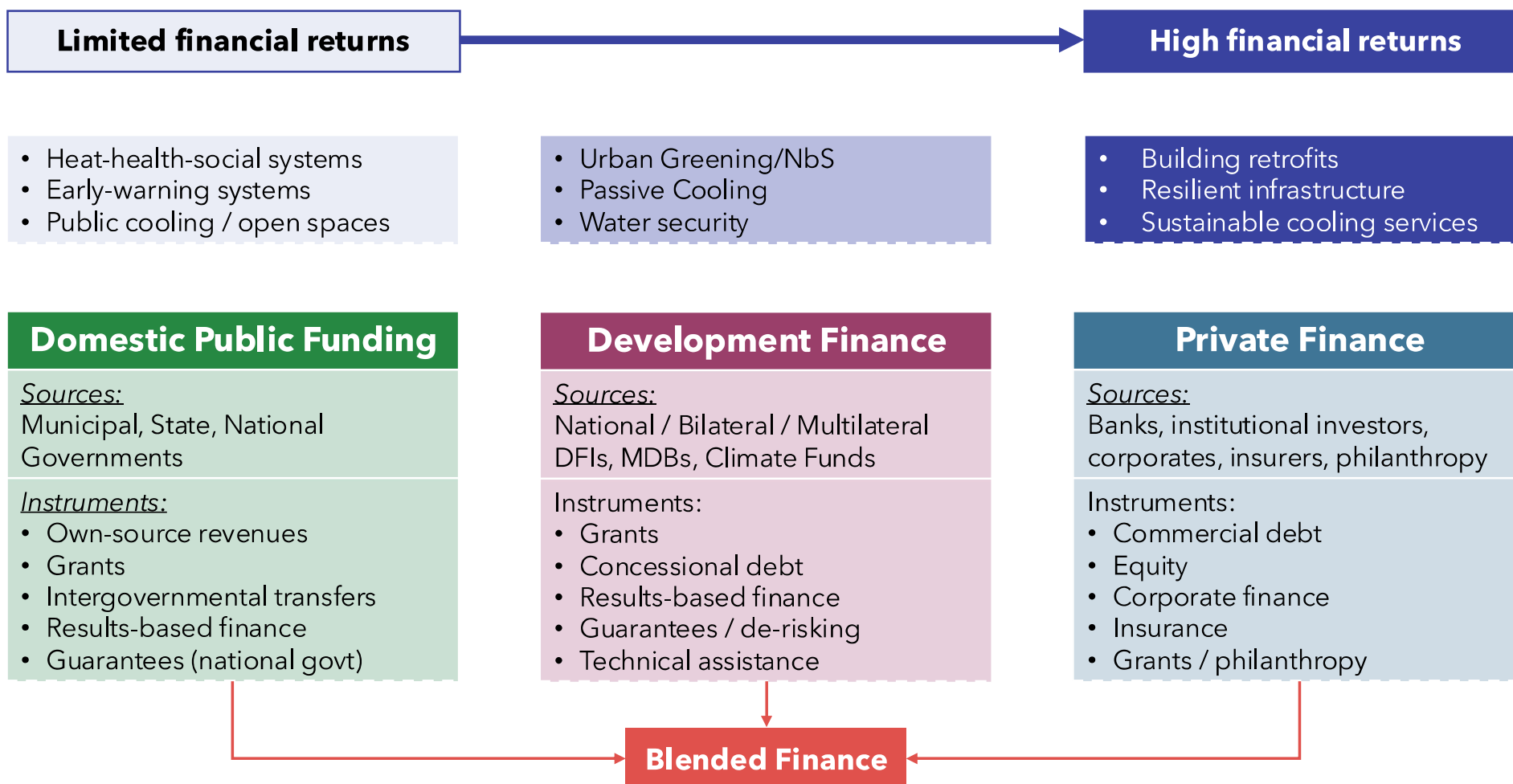


ENABLING ENVIRONMENT

Challenges include:

- Weak incentivization of risk management
- Inadequate multilevel coordination
- Insufficient market to facilitate private finance
- Lack of climate risk data

Heat resilience finance: solutions, sources and instruments



Cities can use “ internal levers” to scale heat-resilience investment

Internal levers are the mechanisms that cities usually have control over that can be used to fund, leverage finance for, or incentivize investment in urban adaptation and resilience.

Direct existing resources towards heat resilience

- **Climate budgeting:** track and plan investments
- **Procurement:** purchase resilience solutions
- **City utilities:** leverage as financing platforms
- **Pilots Projects:** unlock additional finance by demonstrating success

Unlock revenues and private investment

- **Property taxation:** improve revenues for resilience
- **Building regulations:** mandate / incentivize private heat-resilient development
- **Payments for ecosystem services:** pay communities for protecting ecosystems

Mobilize capital and manage financial risks

- **Municipal funds:** ring-fence internal revenues and public/private resources
- **Land value capture:** capture value increases to fund resilience
- **Asset monetization:** mobilize private capital leveraging municipal assets
- **Insurance:** manage climate-related fiscal risks

Recommendations for financing urban heat resilience

- 1. Make heat resilience an investment priority:** Embed heat resilience into plans, policies and budgets
- 2. Build the collaborations and capacity needed to mobilize finance:** Coordinate with national governments, communities, technical partners and finance providers to strengthen city capacity, co-develop solutions, and mobilize investment.
- 3. Start with the resilience outcome – not the financial instrument:** Different heat-resilience solutions have different benefits, costs, revenue potential and risks; match funding and financing approaches to the characteristics of the solution.
- 4. Use the available internal levers** (i.e., fiscal and regulatory toolbox): Utilize budgets, procurement, regulation, revenues and financial tools to fund heat-resilience investment, strengthen your financial capacities, and mobilize additional private investment
- 5. Combine internal levers with external finance:** explore national funding, grants, concessional and private finance, and technical support to complement what cities can do themselves.

Contact

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AllianceSecretariat@cpiglobal.org



[@citiesclimfinleadershipalliance](https://www.linkedin.com/company/citiesclimfinleadershipalliance)

CITIES CLIMATE
FINANCE
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Thank you!

Case study 1: Greening Singapore's Skyline



Nicolette Loo

Senior Planner,
Urban Redevelopment Authority (URA),
Singapore

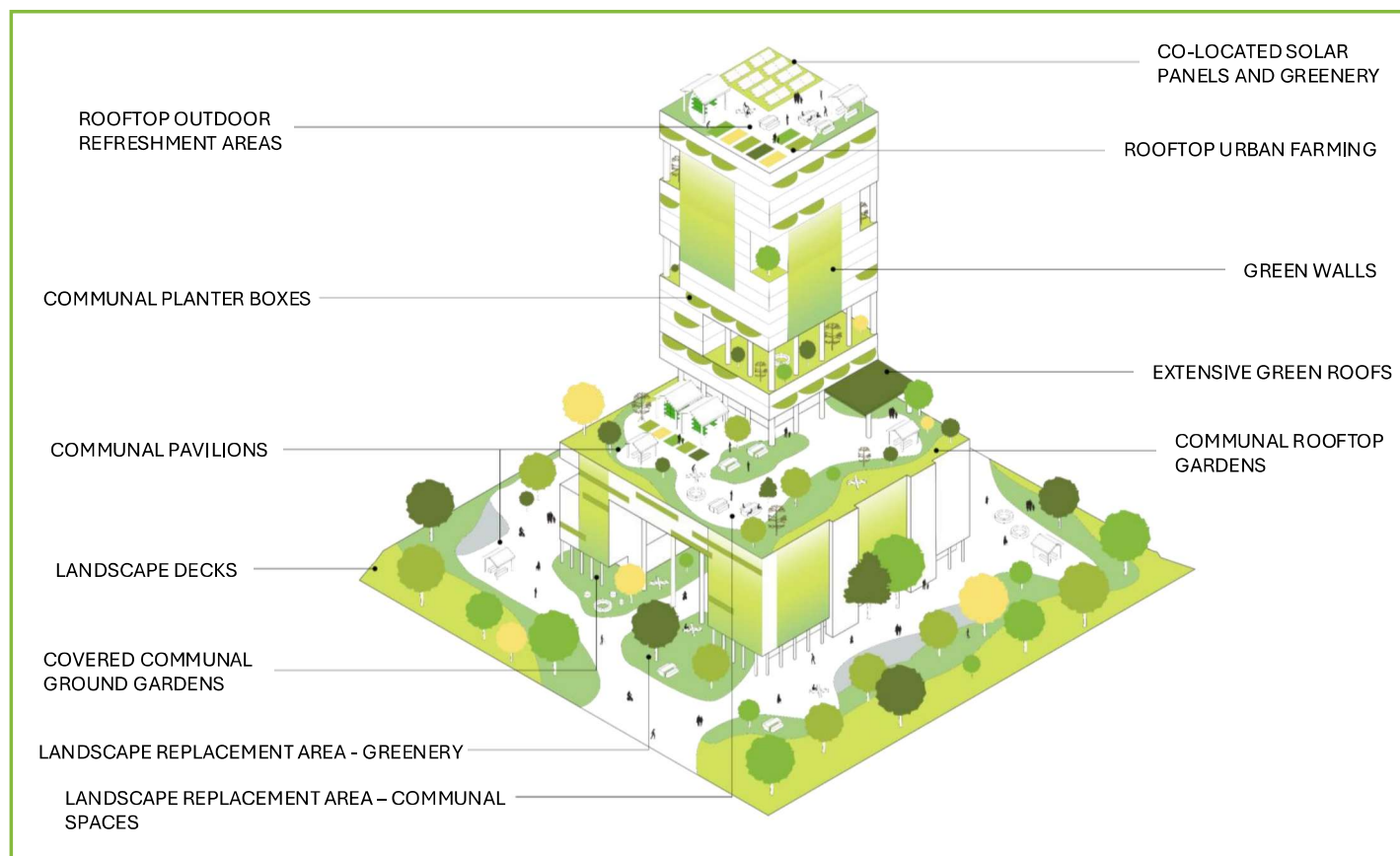
Landscaping for Urban Spaces and High Rises (LUSH)

Global Cooling Pledge Assembly

16 Sep 2026

What is the LUSH scheme?

- A consolidated urban and skysrise greening scheme first introduced in 2009, comprising **requirements** and **incentives**
- Leverage on **development as an opportunity** to inject greenery throughout the built environment
- **Collaborative effort** with private sector stakeholders (architects, developers) and Government agencies



Why was LUSH introduced?

- With Singapore's land constraints, high density urban development is necessary to meet the needs of both a city & country
- Introducing both ground-level and skyrise greenery would bring about benefits:
 - Enhanced quality of life – offer visual and spatial relief
 - Environmental benefits – mitigate urban heat island effect, improve air quality

LUSH Requirements

1. Landscape Replacement Area (LRA)

- Replacement of greenery lost when a site is developed, in the form of greenery (softscape) and communal areas (hardscape) at ground and skyrise levels
- Based on % of development site area

2. Green Plot Ratio

- Measures density of greenery within a site to ensure that landscape replacement greenery is sufficiently 'lush'

$$\text{Green Plot Ratio} = \frac{\text{Total Leaf Area of greenery}}{\text{Site Area}}$$

Softscape (permanent planting areas)



Communal planter boxes



Green walls

Hardscape (communal areas)



Playgrounds



Paths within garden area

LUSH Requirements

Requirement are calibrated based on:

1. **Location:** developments within identified Strategic Areas (key growth nodes, town centres) have higher landscape replacement requirements
2. **Development type** (e.g. hotel, commercial, residential)
3. **Intensity** of the development

Requirements apply to both private and public sector buildings



Artists' impression of Punggol Digital District, an identified Strategic Area with higher landscape replacement requirements

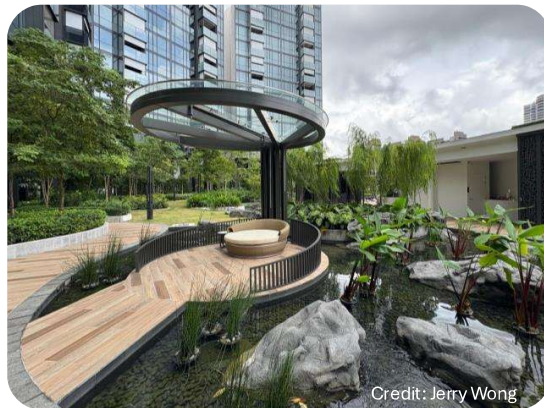


Eunoia Junior College: a public sector project with 103% landscape replacement area

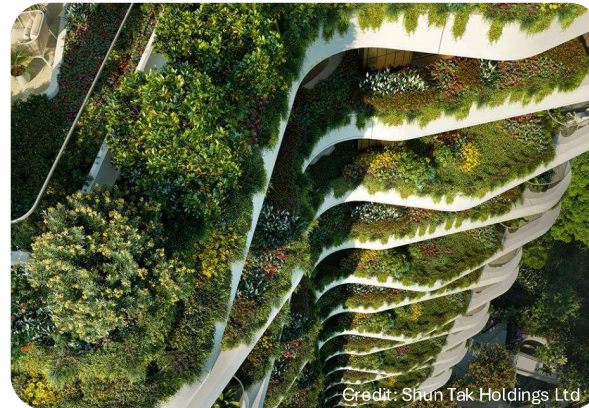
LUSH Incentives

Gross Floor Area (GFA) incentive schemes have been introduced to encourage the provision of greenery and communal spaces

Communal pavilions



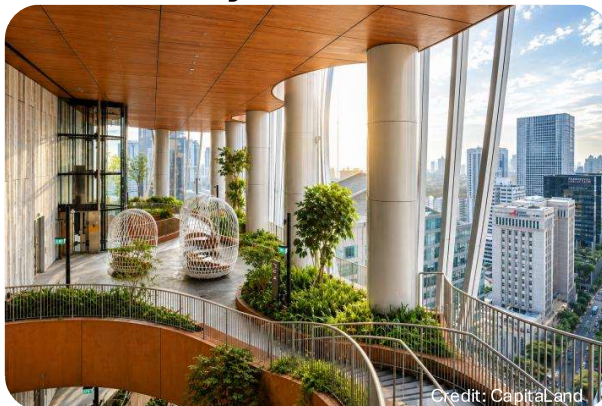
Communal planter boxes



Covered communal ground gardens



Sky terraces



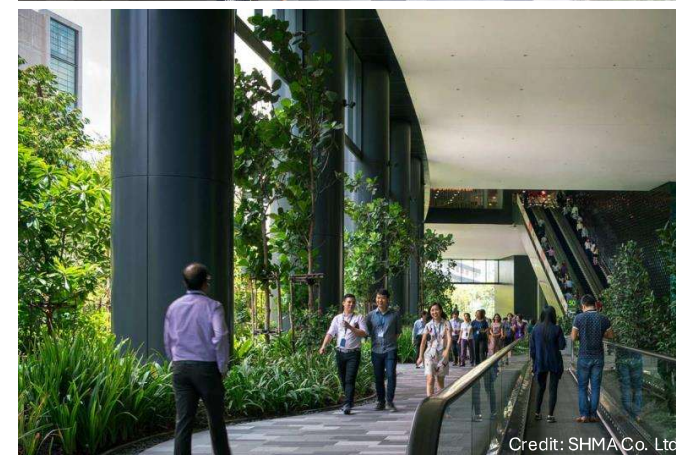
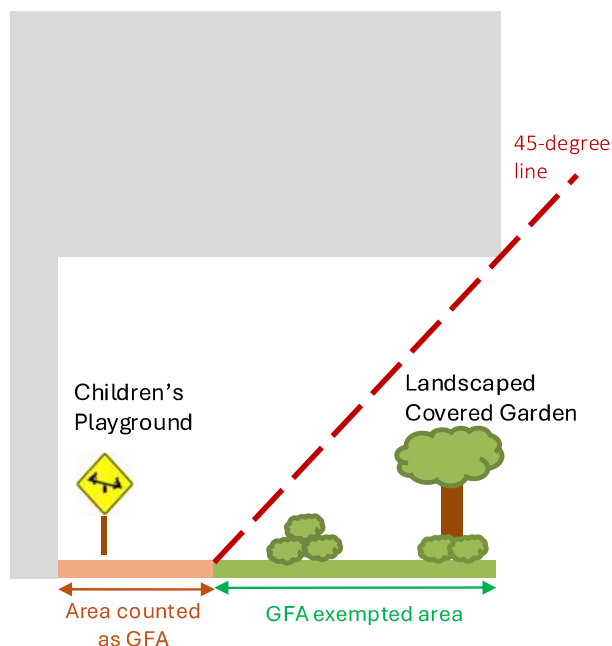
Outdoor refreshment areas on landscaped roofs



LUSH Incentives

Covered Communal Ground Gardens

- Encourages the provision of lofty ground-floor gardens that flow seamlessly between the covered and uncovered spaces of the 1st storey
- Additional GFA exemption beyond 45-degree line can be granted for larger gardens

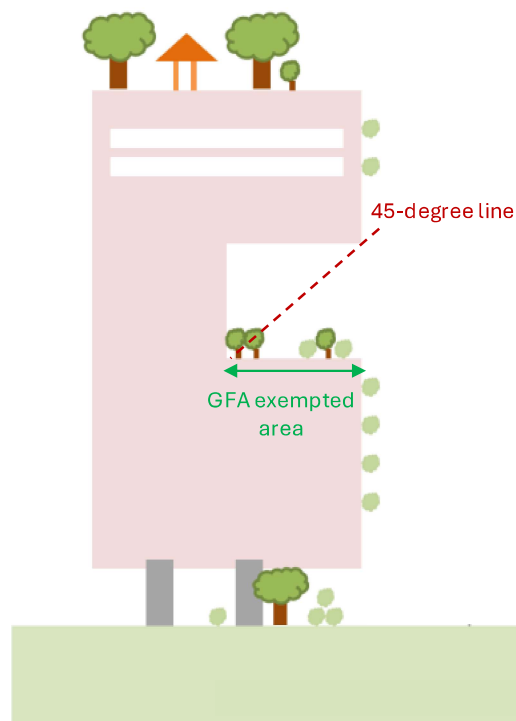


Mapletree Business City

LUSH Incentives

Sky Terraces

- Facilitates provision of lofty, covered gardens at mid-levels of buildings
- Minimum criteria for open perimeter (min. 40%) and depth (min. 5m)
- Additional GFA exemption beyond 45-degree line can be granted for larger gardens



Pan Pacific Orchard

Credit: Finbarr Fallon

Impact of LUSH

> 440 ha

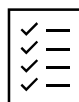
of greenery islandwide

More than 600 football fields!   

Key Drivers of Success



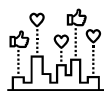
Embedding LUSH requirements within the planning approval process ensures landscape design is considered from the beginning of the project



Clear, measurable requirements which still provides developers flexibility to incorporate requirements as part of their design



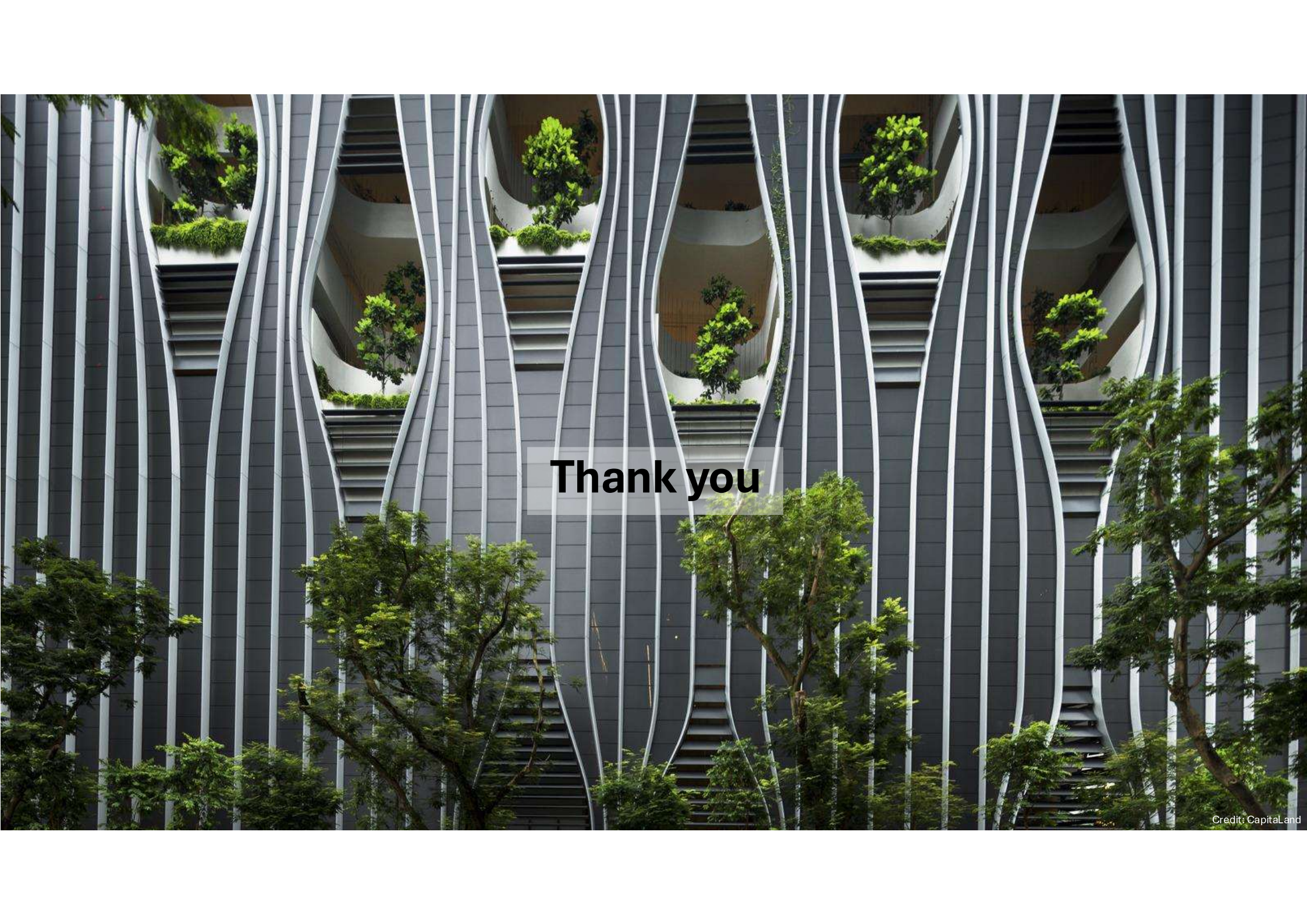
Industry acceptance was built progressively – LUSH started small, before requirements were scaled up as the industry matured



Incentives (e.g. GFA exemptions) foster private sector buy-in



Credit: Finbarr Fallon



Thank you

Case study 2: Nature-based Solutions (NbS) Accelerator for Finance



Anjali Mahendra

Director of Global Research;
Interim Director for Urban Development,
WRI Ross Center for Sustainable Cities



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BEAT THE HEAT TRAINING

Closing the data-to-investment gap to scale urban cooling projects: *Cool Cities Lab & Urban Heat Solutions Accelerator*

- Dr. Anjali Mahendra
- Global Director, Research
- Interim Global Director, Urban Development
- WRI Ross Center for Sustainable Cities
 - Global Cooling Pledge Assembly 2026
 - September 16, 2026, Singapore



Urban infrastructure is a key cooling solution

- Heat-resilient infrastructure strengthens urban resilience by reducing the contribution of the built-environment to heat and decreasing exposure.

46% of urban heat decisionmakers do not have sufficient access to heat-related data

COOL CITIES LAB
coolcities.wri.org

Closing the Information-to- Action Gap

Relevance

Problem- and user-centered design

Scalability

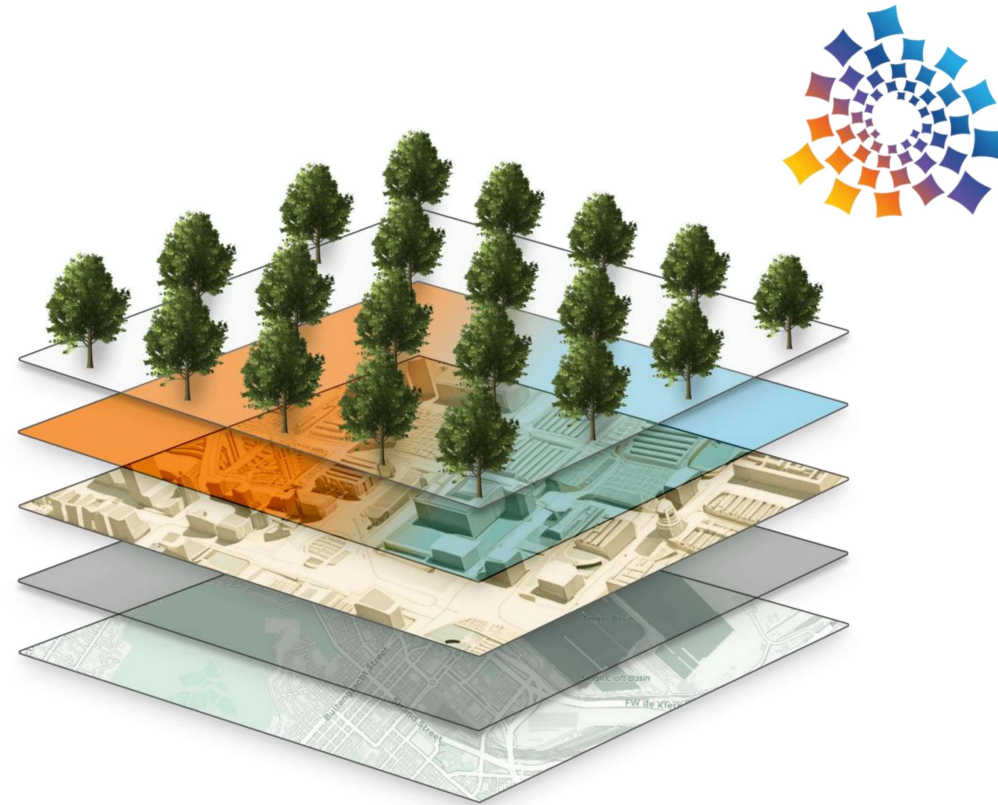
Globally transferable, locally customizable

Accessibility

Open data and open-source software

Spatial Resolution

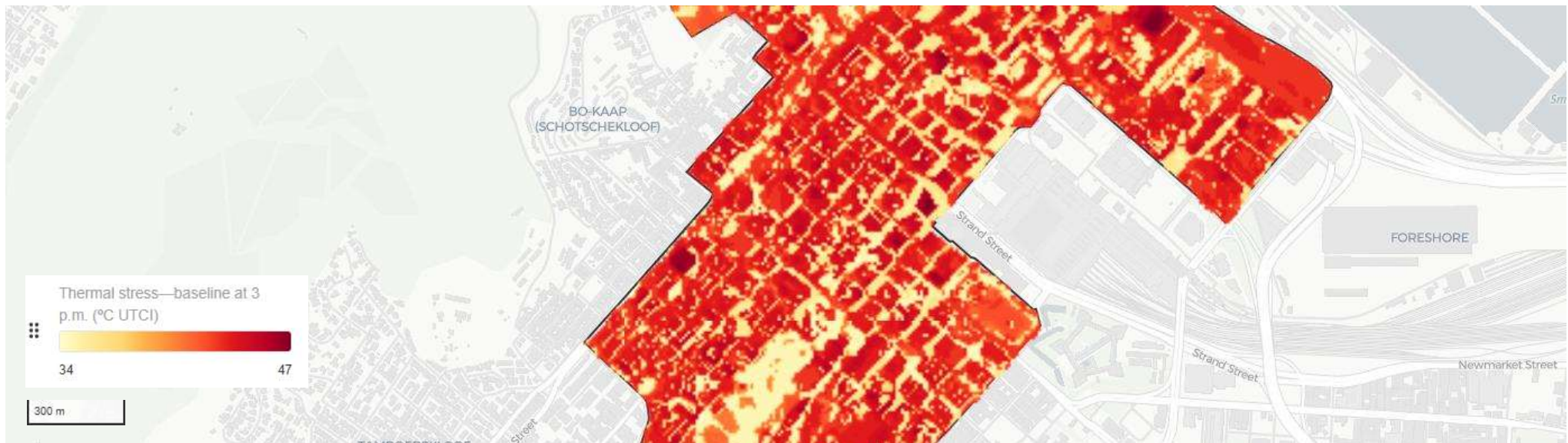
Human-scale, street-level insights





What makes Cool Cities Lab unique?

- Standard metrics like land surface temperature do not capture what a person actually experiences.
- Cool Cities Lab calculates the **Universal Thermal Climate Index, or UTCI** seen here for Monterrey, Mexico, which **integrates solar radiation, temperature, humidity, and airflow at one-meter resolution**.
- Shows what temperature the body feels under different cooling solutions —specificity that makes it actionable for designing transit stops, siting cooling centers, helping understand health impacts.



Developed through user input, Aimed at Co-Creating Solutions With Local Actors

- Effective heat action tools must reflect real-world decision-making. We engaged communities directly through a range of participatory methods.



In-Person Workshops

Collaborative sessions with local stakeholders to surface real needs



Surveys

Structured data collection on decision-making and information gaps



User Testing

Hands-on feedback on tool concepts and interface design



Data Feedback

Iterative refinement based on community input and local context

Where are we working?





COOL CITIES LAB

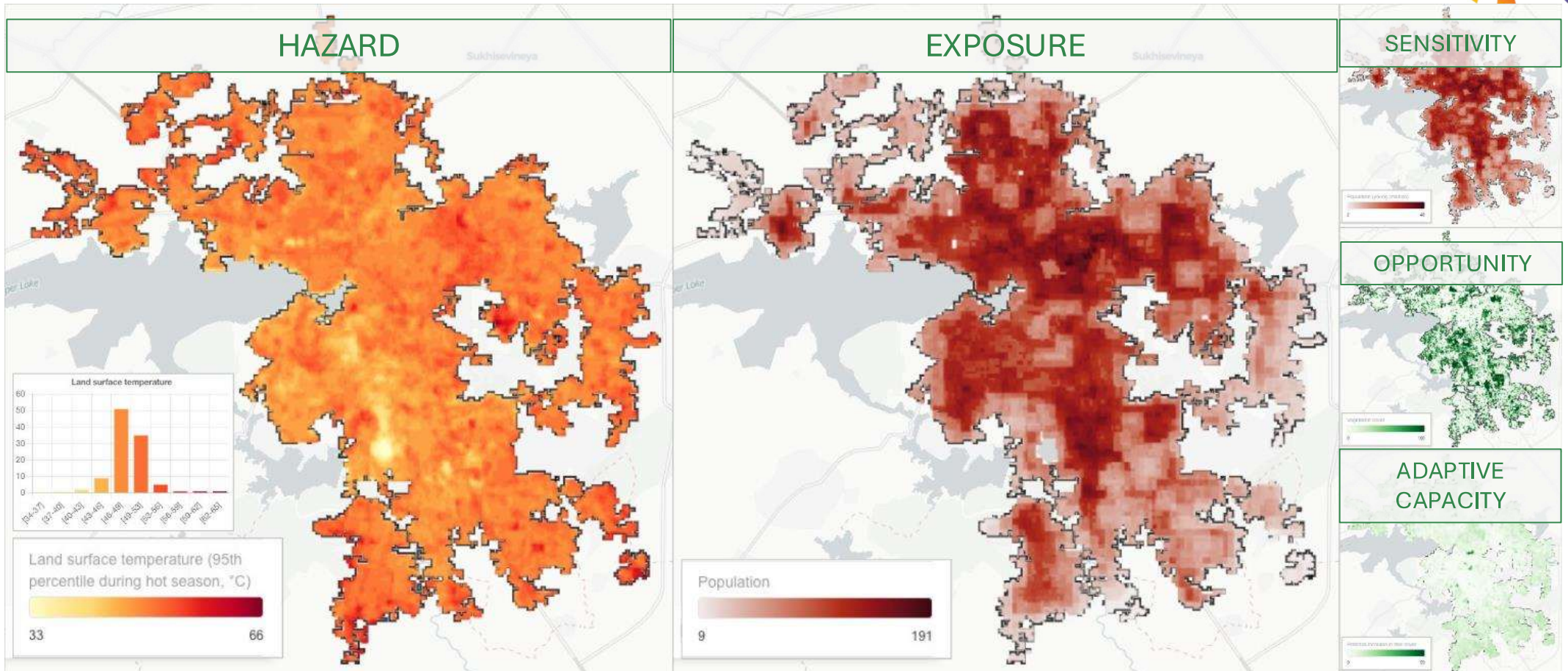
use cases

- Explore baseline data
- Map priority areas for heat action
- Assess hyper-local heat resilience

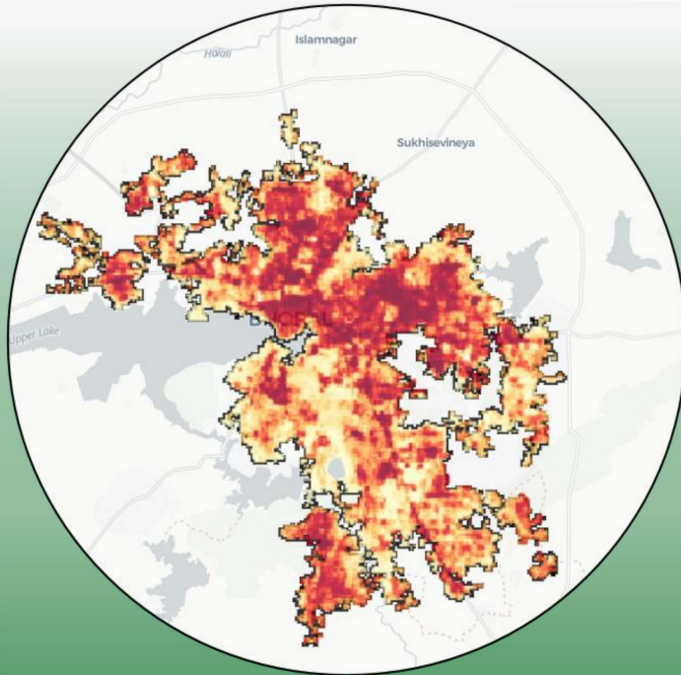
Model scenarios and estimate cooling potential



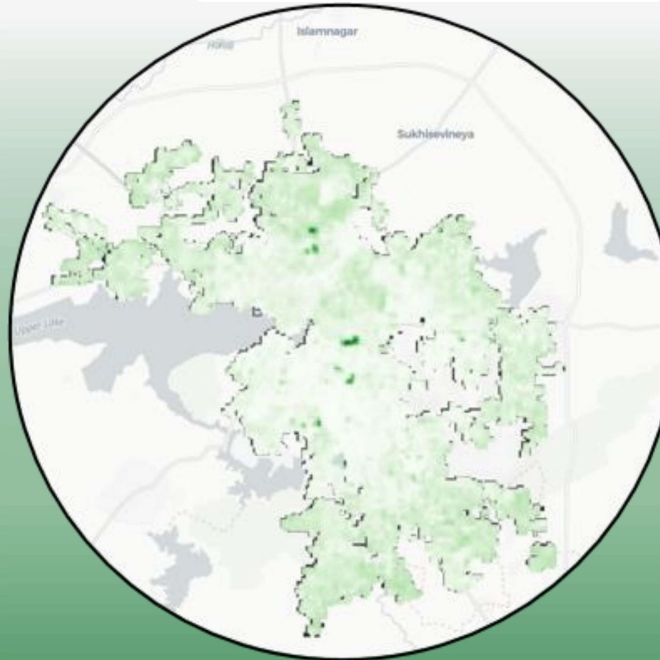
Explore baseline data



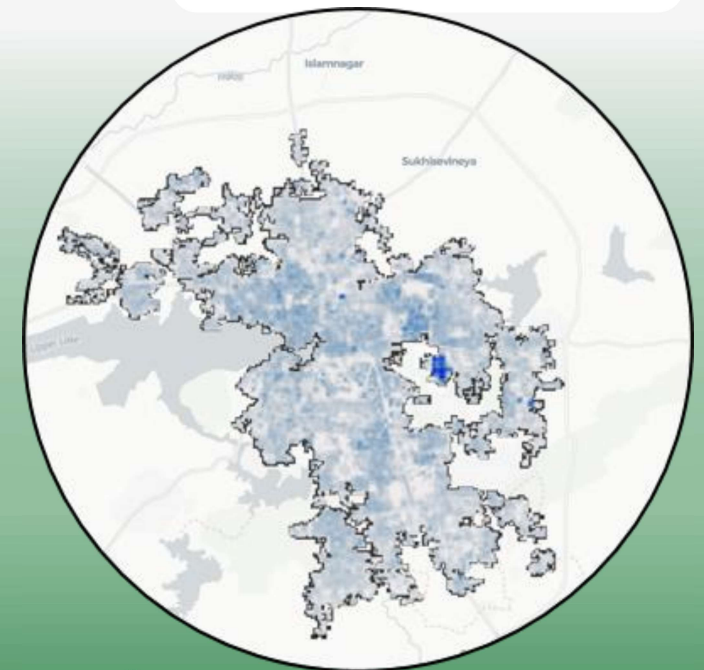
Heat Risk Index



Potential increase in tree cover

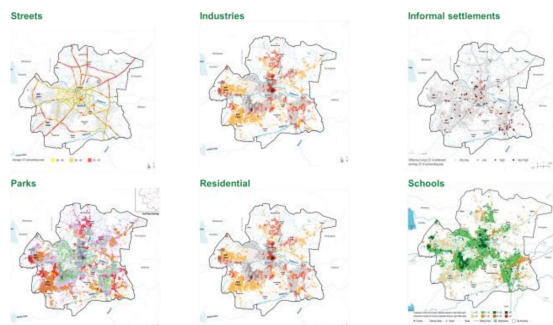


Potential increase in roof albedo



Map priority areas
for heat action

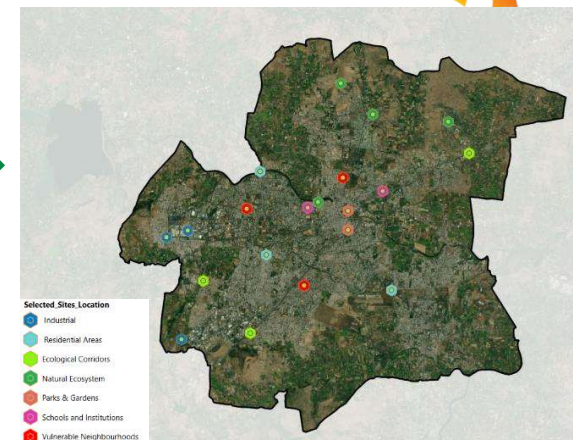
Developing a Blue-Green Infrastructure Strategy for Nashik, India from the Ground-up



1 Heat Hazard Baselining



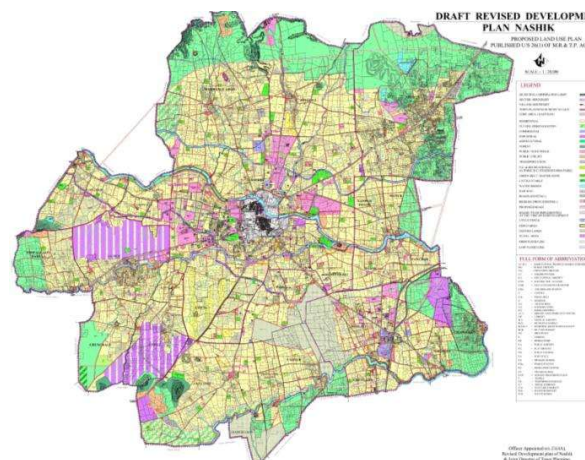
2 Rapid Field Assessments



3 Analysis for site prioritisation

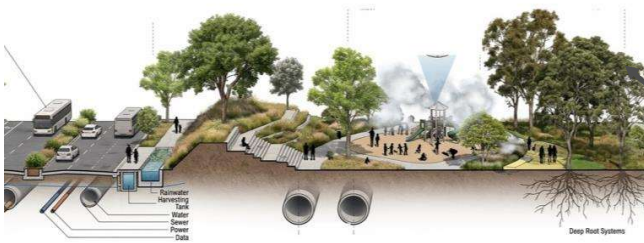


5 BGI Strategy and corresponding projects

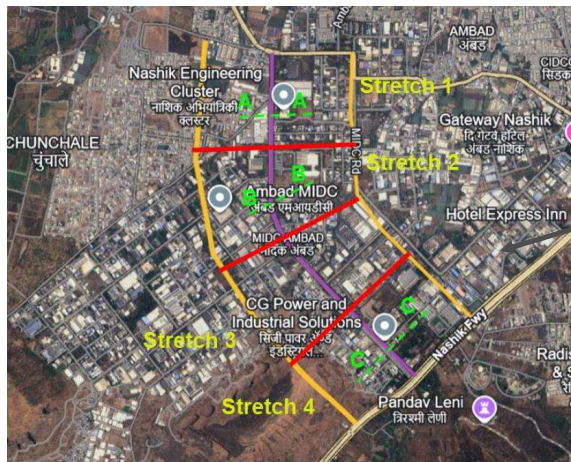


4 Assessing gaps in the Development Plan

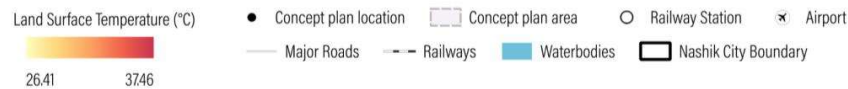
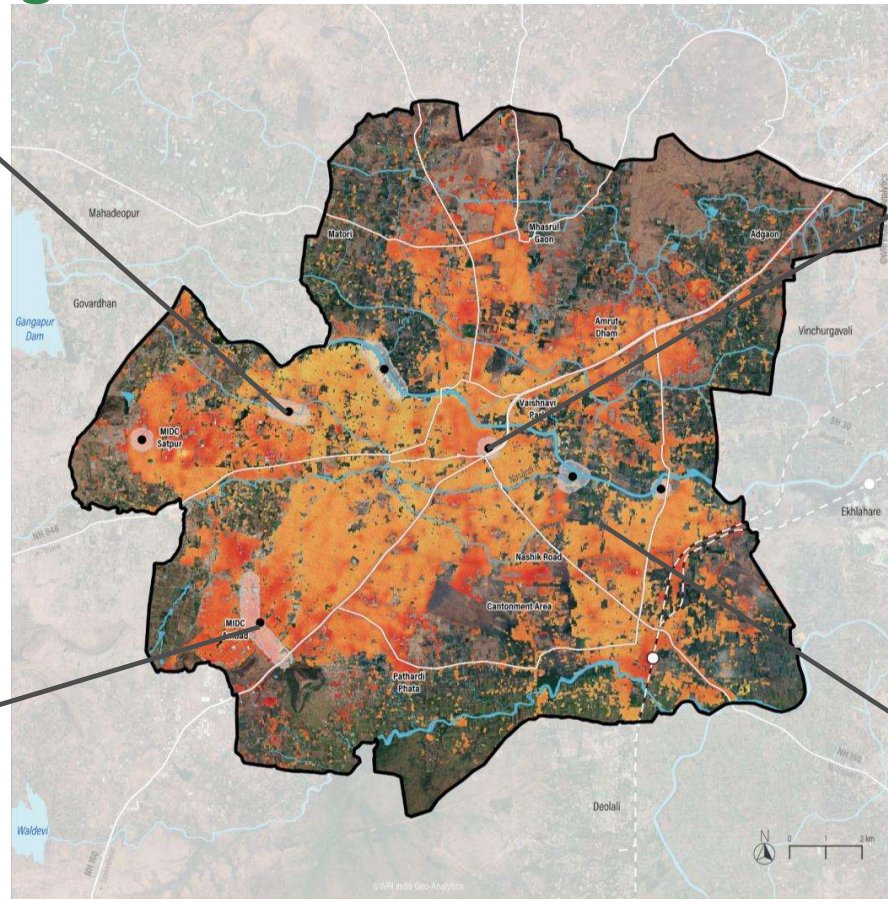
Retrofitting heat islands with Blue-Green Infrastructure interventions for long-term resilience



Long term Intervention –Ecological Street Corridor Right bank Canal Road



Climate-Resilient Industrial Corridor: Ambad – Satpur Link Road (Garware–XLO Point)



Data: Waterways, Waterbodies from CWC, Railways and Transportation from Open Street Maps/WRI India, Landuse from Nashik Municipal Corporation.
Disclaimer: This map is for illustrative purpose and does not imply the expression of any opinion on the part of WRI India, concerning the legal status of any country or territory or concerning the delimitation of frontiers or boundaries.



Climate-Responsive Urban Park for a Heat-Stressed Neighbourhood:
Dr Baba Saheb Ambedkar Garden, Koknipura,
Near Dwarka Junction



River Confluence Ecological Restoration:
Godavari Nandini Confluence Point



1. Baseline

Shade, thermal stress and air temperature along streets are impacted by street trees.

Thermal stress at 3 p.m. (in pedestrian areas, °C UTCI) :

45.9 °C

Shade cover at 3 p.m. (in pedestrian areas, %):

24.7%

Tree cover (in pedestrian areas, %):

8.1%

☒ Thermal stress—baseline at 3 p.m. (°C UTCI)

LESS LAYERS ^

☐ Shade cover—baseline at 3 p.m.

☐ Tree cover—baseline

☐ Thermal stress—baseline at 3 p.m. (categories, in outdoor areas)

Assess hyper-local heat risk and resilience

Tree cover

Building shade

Tree shade

Legend 2 active

Area of interest boundary

Thermal stress—baseline at 3 p.m. (°C UTCI)



2. Action

Increase tree cover along streets to match the levels found on the city's most tree-lined streets (90th percentile pedestrian area tree cover).

Tree cover — change (in pedestrian areas, %):

+9.1% (from 6.4 → to 15.5)

Tree count—change (#):

+3,683 trees

3. Impact

Increased tree cover decreases thermal stress for people by increasing shaded areas and cools the air through evapotranspiration. On public streets, trees can provide cool corridors for pedestrians and for people traveling by active modes or public transportation.

Thermal stress — change at 3 p.m. (in pedestrian areas, °C UTCI):

-0.5 °C

Shade cover — change at 3 p.m. (in pedestrian areas, %):

+0.1%

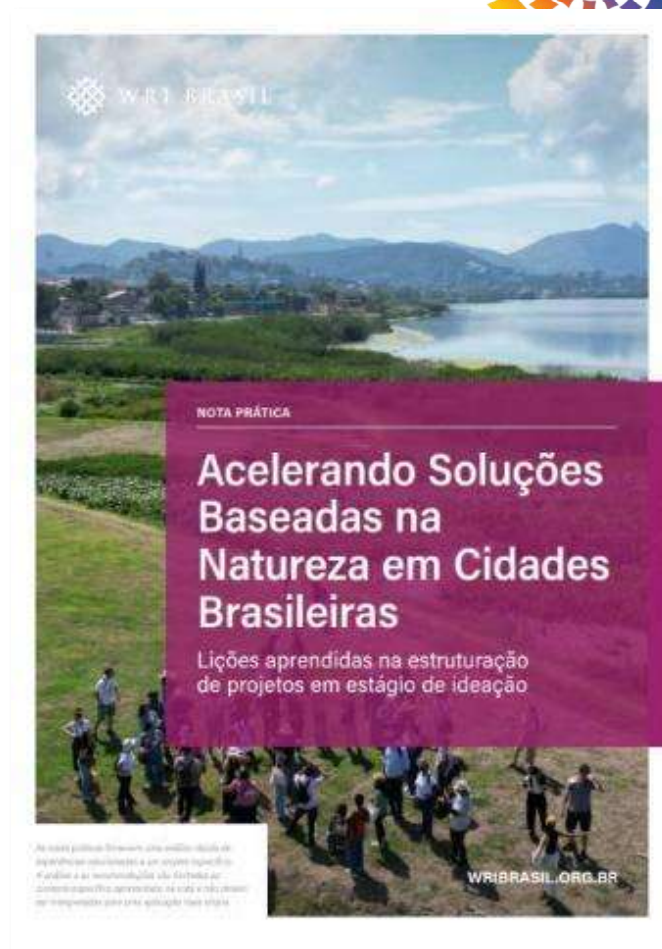


Model scenarios and estimate cooling potential

What is the UHSA

- Based on WRI Brazil's NBS Accelerator, the **Urban Heat Solutions Accelerator** supports Brazilian cities in moving from risk assessment to implementation of passive cooling and nature-based solutions.
- It seeks to transform solution ideas into **bankable projects**, that strengthen public health, address inequalities and build more resilient cities.
- WRI's role: data-driven assistance, technical mentoring, and facilitating institutional linkages

URBAN HEAT SOLUTIONS
ACCELERATOR



More information about the NBS Accelerator at: <https://www.wribrasil.org.br/projetos/acelerador-de-solucoes-baseadas-na-natureza-e-solucoes>

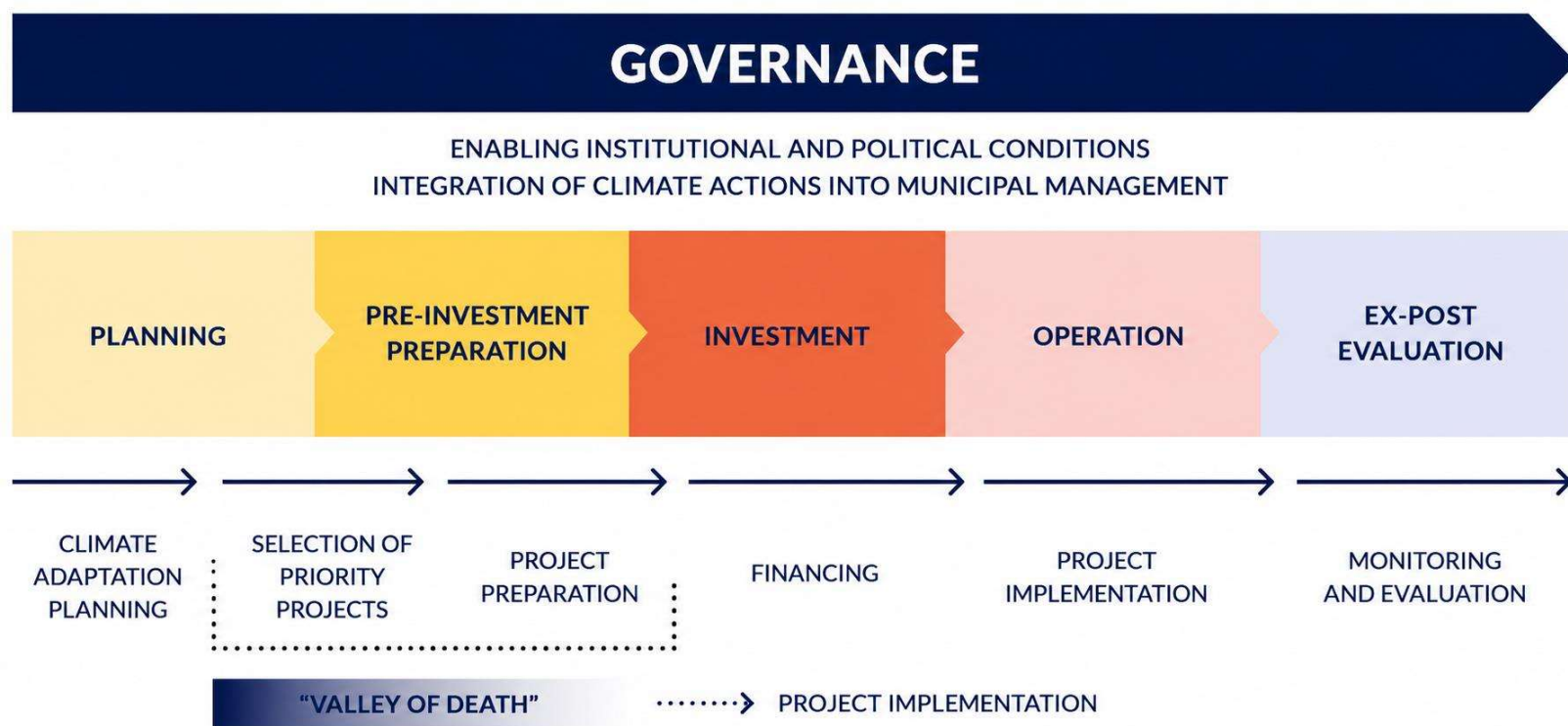


Ministry of Sustainability
and the Environment
SINGAPORE

UHSA overcame the chasm between plan and implementation



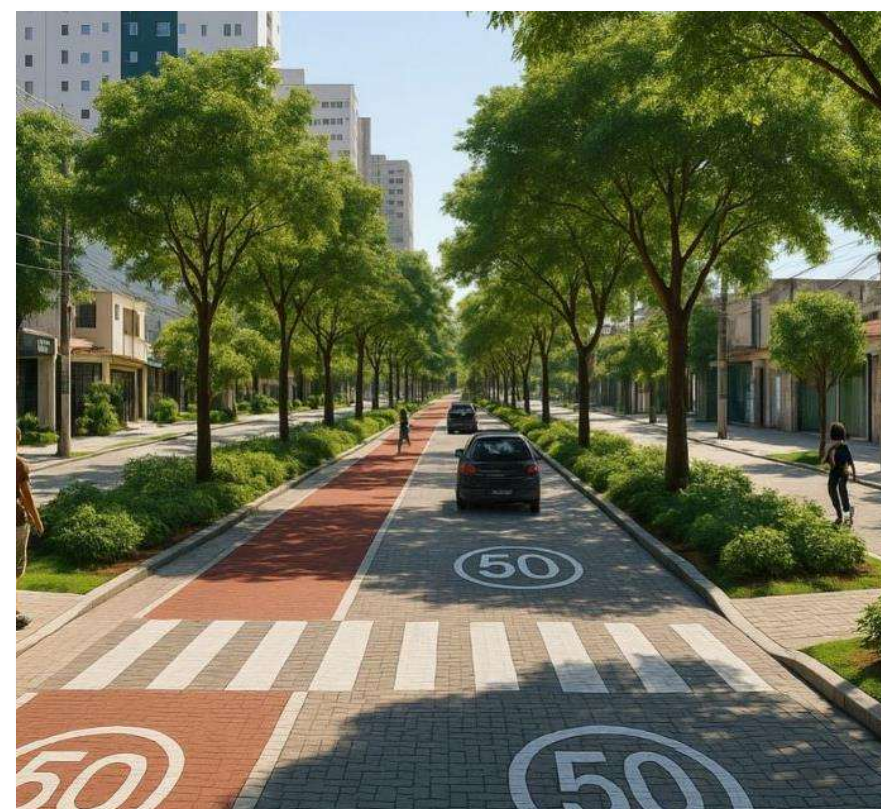
The UHSA model aims to help cities advance in the initial stages of project design to overcome the “Valley of Death of Projects”



Projects supported



Project	Heat solutions	Scale	Investment
CAMPINAS	- Linear park - Green corridors - Naturalized schoolyards	249,000 m ² linear park; 6 km green corridors; 1,000 new trees; 13 km upgraded sidewalks; 4 naturalized schools (19,000 m ²)	R\$ 35–45 million USD 7-9 million
FORTALEZA	- Urban forest - Green corridors - Sidewalk retrofits	6 km pilot corridor; 15,000 trees; 50,000 m ² restored green areas; 80,000 m ² sidewalks	R\$ 45–60 million USD 9-12 million
FLORIANÓPOLIS	- Green corridors - Blue infrastructure - Public Spaces - Active mobility	Metropolitan-scale corridor connecting Coqueiros and Estreito districts	R\$ 50–70 million USD 10-12 million
RECIFE	- Shaded green corridors - Climate refuge hubs - Permeable surfaces	Pilot network across Recife's historic centre	R\$ 20–30 million USD 4-6 million
TERESINA	- Climate corridors - Linear park - Agroforestry - Cooling plazas - Heat lab	District-scale intervention serving >120,000 residents	R\$ 60–80 million USD 12-16 million



Results

4

new capacity-
building modules

15

mentoring sessions
with experts

41

staff trained;
75% women

5

cities with access
to CCL Data

\$55M

pipeline of projects
on urban heat

\$4M

unlocked in
project financing

Advanced discussions with DFIs

* Campinas moved to consultation phase with BNDES



Rendering from the Recife Project



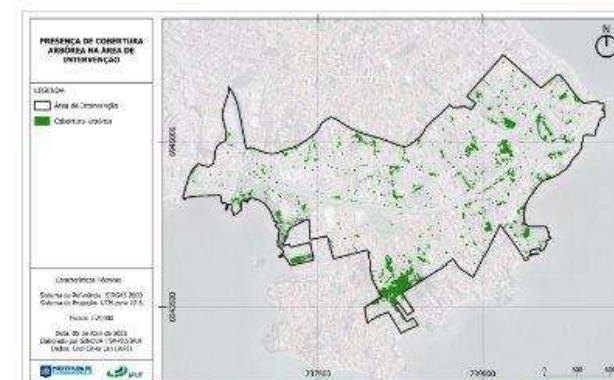
From data to investment

- Direct heat benefits can be used to calculate energy savings from reduced cooling demand and health benefits
- Project details and heat impacts can be used to complete cost-benefit analyses
- Project details and projected impacts can be integrated into technical and financial documentation like the Urban Heat Solutions Accelerator project dossiers (shown here for Florianopolis).



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ACELERADOR DE SOLUÇÕES
PARA O CALOR URBANO



Mapeamento da cobertura arbórea na poligonal de intervenção. Elaboração: Ginova/SMPHDU/PMF (2023).



Foto aérea do Parque de Coqueiros.
Fonte: Prefeitura de Florianópolis (2023)

Foto da Avenida Gov. Ivo Silveira.
Fonte: Google Earth (2023)

Trata-se de um território com **elevada emissão de gases de efeito estufa (GEE)**, associada principalmente ao intenso fluxo de veículos automotores, à destinação de resíduos sólidos a aterro sanitário e ao elevado consumo de energia para resfriamento das edificações. Segundo o Inventário de Emissões de GEE de Florianópolis (Plano de Descarbonização de Florianópolis, 2024), 66% das emissões do município provêm do setor de transportes, com predominância do subsetor rodoviário (86,1%); 21% estão vinculadas ao setor de resíduos, sobretudo à decomposição de resíduos sólidos aterrados (69,1%); e 11% decorrem do setor de energia estacionária, principalmente do consumo de eletricidade nas edificações (72,2%). Esses dados refletem características presentes tanto na área de intervenção quanto na cidade como um todo: Florianópolis é a quarta capital mais motorizada do Brasil, com frota de 0,66 veículos por habitante (0,62 na região metropolitana); 91,5% dos resíduos sólidos urbanos coletados são destinados ao aterro sanitário localizado em Biguaçu; e a demanda por resfriamento das edificações é intensificada pelo fenômeno das ilhas de calor urbanas e pela adoção de padrões construtivos que desconsideram princípios de adequação bioclimática.

ACELERADOR DE SOLUÇÕES PARA O CALOR URBANO

WRI BRASIL



Join the Cool Cities Lab community

- Explore the tool, share how your city could use the data, stay updated, and help shape what comes next.



Use Cool Cities Lab



Sign-up for updates

Contact us: citiesdata@wri.org

Thank you

- Connect and learn more
-



- wri.org/cities



- [@WRIRossCities](https://twitter.com/WRIRossCities)



- thecityfix.org

Email: Dr. Anjali Mahendra, WRI
anjali.Mahendra@wri.org

Case study 3: Maharashtra's Cooling Transition



Joy Shrikant Thakur

Scientist,
Environment and Climate Change Department,
State of Maharashtra,
India



GOVERNMENT OF MAHARASHTRA, INDIA

Maharashtra's Cooling Transition

Financing and implementing urban heat and cooling resilience
across a state of 125 million people

Session 3C · Financing and Implementing Urban Heat and Cooling Resilience
Beat the Heat Training & Study Tour · Day 2 · 16 September 2026 · Singapore
Co-hosted by Singapore and the UNEP-led Cool Coalition



At a glance

Maharashtra State Profile

Third largest State in India

Projected **GSDP is US\$566** billion for FY 2026–27

Policies Driving the Climate Action

National and State Action Plan on Climate Change (NAPCC & SAPCC)

City Level Climate Action Plans

District Level Climate Action Plans

My Earth Mission

Decarbonization and **Just Transition** Roadmap

Climate Governance in Maharashtra

Chief Minister's Task Force on Environment and Climate Change

State Climate Action Cell

District & City Climate Action Cell

My Earth Mission Directorate



At a glance

Maharashtra: Scale, Growth and the Cooling Challenge

125 mn

People across 36 districts

15.5%

of India's industrial output

310 Mt

CO₂e emitted annually
≈ 10% of India's total

36 mn

Hectares of crop lost
in last five years due
to climate change

15

districts classified
high heat risk

The point I want to make first

Maharashtra's cooling problem is not primarily a disaster-management problem. It is an infrastructure and investment problem that shows up as a disaster-management problem every April and May. Industrial electricity use reached 58,856 million units in 2022–23, up 10.3% in a single year. Mumbai hit 39.7°C in 2024, its highest in a decade. If we meet the coming demand the way we met the last decade's, we lock in the load — and the heat — for thirty years.



An energy transition that is, in effect, a cooling transition

India's projected trajectory

8×

growth in cooling demand by 2037–38 against a 2017–18 baseline (India Cooling Action Plan)

8% → 40%

air-conditioning penetration over the same period

45%

share of India's peak electricity demand attributable to space cooling by 2050

11×

growth in the building sector's cooling demand — the fastest-rising segment of all

Why this is a financing session, not a technology session

The technologies are known, proven and largely commercial. Reflective roofs, passive design, efficient chillers and district cooling all work.

What is missing is the machinery that turns them into projects: a mandate that bites at the approval stage, an incentive that changes a private decision, a contract a lender will accept, and a public body able to sign a thirty-year offtake.

That machinery is what Maharashtra has spent the last two years building.

Four layers of mandate, from the Ministry to a rooftop in Amravati

National

India Cooling Action Plan, 2019

World's first national cooling plan. Targets to 2037–38: cooling demand down 20–25%, refrigerant demand down 25–30%, cooling energy down 25–40%. BEE District Cooling Guidelines followed in 2023.

State

State Action Plan on Climate Change + State Cooling Action Plan

Cooling embedded in the SAPCC through the State Climate Action Cell. Partnership MoUs with AEEE and with UNEP, both signed August 2025.

City systems

Heat Action Plans, UHI mapping, Beat the Heat

State Heat Action Plan 2024 and 2026 SOPs. Thirty Maharashtra cities enrolled in Beat the Heat; urban heat island mapping with the State Disaster Management Authority.

Building

Bylaws, development control, procurement

UDCPR amendment for passive cooling under preparation; PWD schedule of rates and material specifications; municipal cool roof bylaws — Amravati first among them.

Institutions first: someone has to own the problem

1

State Climate Action Cell

Housed in the Department of Environment and Climate Change. A standing five-member cell with dedicated climate finance, mitigation and adaptation expertise — not a committee that meets quarterly.

2

AEEE partnership, August 2025

MoU with the Alliance for an Energy Efficient Economy to build the demand-side management and energy-efficiency framework across buildings, industry, space cooling and cold chains.

3

UNEP partnership, August 2025

MoU with the UN Environment Programme. Delivers the BeCool passive-cooling programme and connects our cities directly to the Beat the Heat drive that brings us here.

4

MAHAPREIT as the investment vehicle

A state undertaking able to sign commercial agreements. Its 2023 MoU with Tabreed, and its January 2025 tender to empanel Cooling-as-a-Service providers, gave district cooling a public counterparty.

30 cities from Maharashtra enrolled in the Beat the Heat drive

3 Deep dive cities (Nagpur, Kalyan-Dombivli, Chhatrapati Sambhajnagar) - map the heat then regulate against it

Moving heat from the relief budget to the building code

Where we were

- Heatwave declared; advisories issued
- Water tankers, ORS, temporary shelters
- Hospital beds reserved for heatstroke
- Work shifts rescheduled against IMD alerts
- Cooling centres opened for the season

Effective, necessary — and entirely temporary. Every rupee spent leaves the city exactly as hot the following year.

Where we are moving

- UDCPR amendment: passive cooling clauses written into development control regulations statewide
- PWD schedule of rates and material specifications, so a public engineer can actually procure it
- Green school scheme: passive cooling in school premises through the education department
- Municipal cool roof bylaws at the plan-approval and occupancy-certificate stage
- A state building code and climate-sensitive zoning as the long-term objective

Each of these outlives the officer who signed it. That is the whole point.

PILLAR THREE

Incentives: small public money moving large private money

Property tax rebates

Amravati: up to 10% for residential and public buildings, 5% for commercial, for three years after certification. Pune and Pimpri-Chinchwad already rebate GRIHA and IGBC certified buildings.

In force

Additional floor space index

A 20% FSI bonus on built-up area served by a district cooling system is under consideration. For a developer this is the single most powerful lever we hold — it costs the exchequer nothing in cash.

Proposed

Retrofit cost reimbursement

Up to 25% of retrofitting cost for IT and ITeS units adopting efficient equipment, set higher for those connecting to a district system.

Proposed

Tariff and permitting concessions

Power subsidy or reduced water tariff for data centres meeting at least half their cooling demand from a district system; fast-track approvals for developments that sign up.

Proposed

The design principle: an incentive is a nudge at the margin, not a subsidy. Amravati's rebate does not pay for a cool roof — it pays for the decision to install one.

PILLAR FOUR

District cooling: treating cold as a utility, not an appliance

One central plant chills water and pipes it to a cluster of buildings. Demand is aggregated, so the diversity of load across offices, malls, hotels and homes means the system installs far less capacity than the sum of its parts.

up to 50%

more energy efficient than
conventional decentralised cooling

up to 40%

reduction in peak power demand,
freeing grid capacity for other uses

up to 25%

lifecycle cost savings
for the building owner

zero

upfront capital for the customer
under Cooling-as-a-Service

And it does more than cool

A district plant can run on treated sewage effluent instead of potable water — material in a state where reservoirs fell to 23% of capacity in 2024. It can take waste heat from a waste-to-energy plant, absorb rooftop solar into thermal storage, shift load off the evening peak, contain refrigerant leakage at a single controlled site, and free the rooftops and basements that chillers occupy. It also stops rejecting heat into the street — the feedback loop that makes the next air conditioner necessary.

Five priorities for a just cooling transition

1 Finish the code

Land the passive cooling clauses in the UDCPR and move towards a state building code, so the default building is cooler without anyone having to opt in.

2 Give district cooling legal status

Recognise cooling as a utility with rights-of-way, a licensing regime and a tariff committee. Without this, every project negotiates from scratch.

3 Take one project to financial close

A single signed concession will teach us more than another study. Brownfield or a greenfield industrial area — but signed, and public.

4 Make it reach the people who need it most

Cooling is a public health measure before it is a comfort. Dharavi, informal settlements and outdoor workers must be inside the design, not a later phase.

5 Measure and publish

The 2027 Amravati reassessment, and equivalent evidence from the deep-dive cities. Publish it whichever way it comes out.

Thank You



Case study 4: Amravati's Cool Roof Bylaws and Incentives

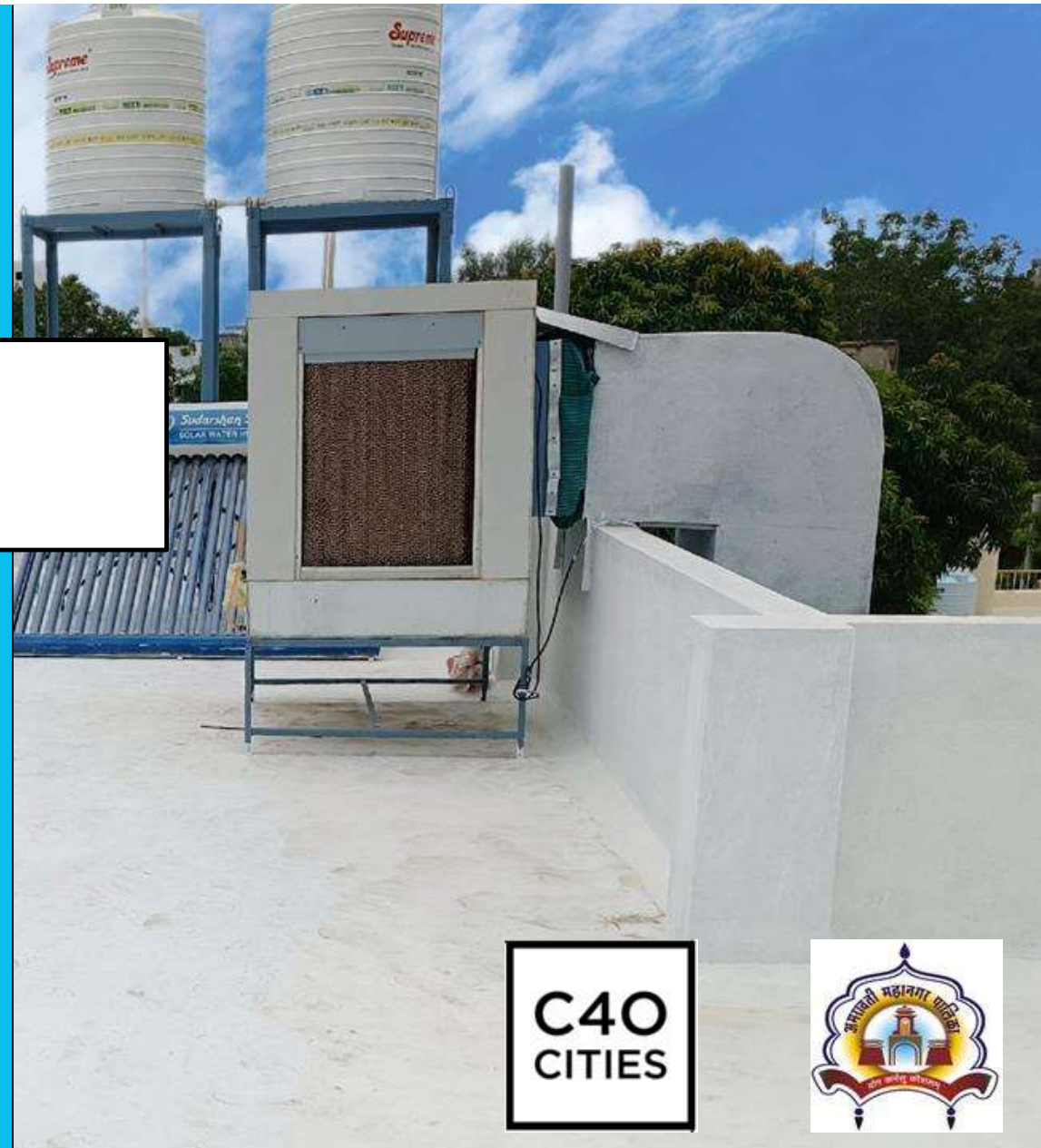


Christina Muniandy

Urban Climate Resilience Manager,
C40 Cities

Amravati's Cool Roof Bylaws and Incentives

Christina Muniandy
Urban Climate Resilience Manager,
C40 Cities
16 September 2026



The C40 Cities network

- Almost **600 million** residents represented
- **920 million people** living and working in the wider city influenced

AFRICA: ABIDJAN – ACCRA – ADDIS ABABA – CAPE TOWN – CASABLANCA – DAKAR – DAR ES SALAAM – DURBAN (ETHEKWINI) – EKURHULENI – FREETOWN – JOHANNESBURG – LAGOS – NAIROBI – TSHWANE | CENTRAL EAST ASIA: BEIJING – CHENGDU – DAIJIAN – FUZHOU GUANGZHOU – HANGZHOU – HONG KONG – NANJING – SHANGHAI – SHENZHEN – QINGDAO – WUHAN – ZHENJIANG | EAST, SOUTHEAST ASIA & OCEANIA: AUCKLAND – BANGKOK – HANOI – HO CHI MINH CITY – JAKARTA – KUALA LUMPUR – MELBOURNE – QUEZON CITY
SEoul – SINGAPORE – SYDNEY – TOKYO – YOKOHAMA | EUROPE: AMSTERDAM – ATHENS – BARCELONA – BERLIN – COPENHAGEN – HEIDELBERG – ISTANBUL – LISBON – LONDON – MADRID – MILAN – OSLO – PARIS – ROME – ROTTERDAM – STOCKHOLM – TEL AVIV – WARSAW
LATIN AMERICA: BOGOTÁ – BUENOS AIRES – CURITIBA – FORTALEZA – GUADALAJARA – LIMA – MEDELLÍN – MEXICO CITY – RIO DE JANEIRO – SALVADOR – SÃO PAULO – SANTIAGO – QUITO | NORTH AMERICA: AUSTIN – BOSTON – CHICAGO – HOUSTON – LOS ANGELES – MIAMI – MONTRÉAL – NEW ORLEANS – NEW YORK – PHILADELPHIA – PHOENIX – PORTLAND – SAN FRANCISCO – SEATTLE – TORONTO – VANCOUVER – WASHINGTON DC | SOUTH & WEST ASIA: AHMEDABAD – AMMAN – BENGALURU – CHENNAI – DELHI – DHAKA – DUBAI – KARACHI – MUMBAI

35 Cool Cities Accelerator Signatories



Heat wave and heat stress in Amravati city

- Vidharbha experienced extreme heat with maximums reaching **44°C in Amravati**
- **23 heat-stroke cases** across Maharashtra **over 28 days**, with **3 cases reported in Amravati**.

Heatwave conditions grip Maharashtra: 23 heatstroke cases in just 28 days

Health experts say need to implement heatwave action plan immediately

Written by [Rupsa Chakraborty](#) [Follow](#)
Mumbai | Updated: April 4, 2024 20:15 IST

 NewsGuard

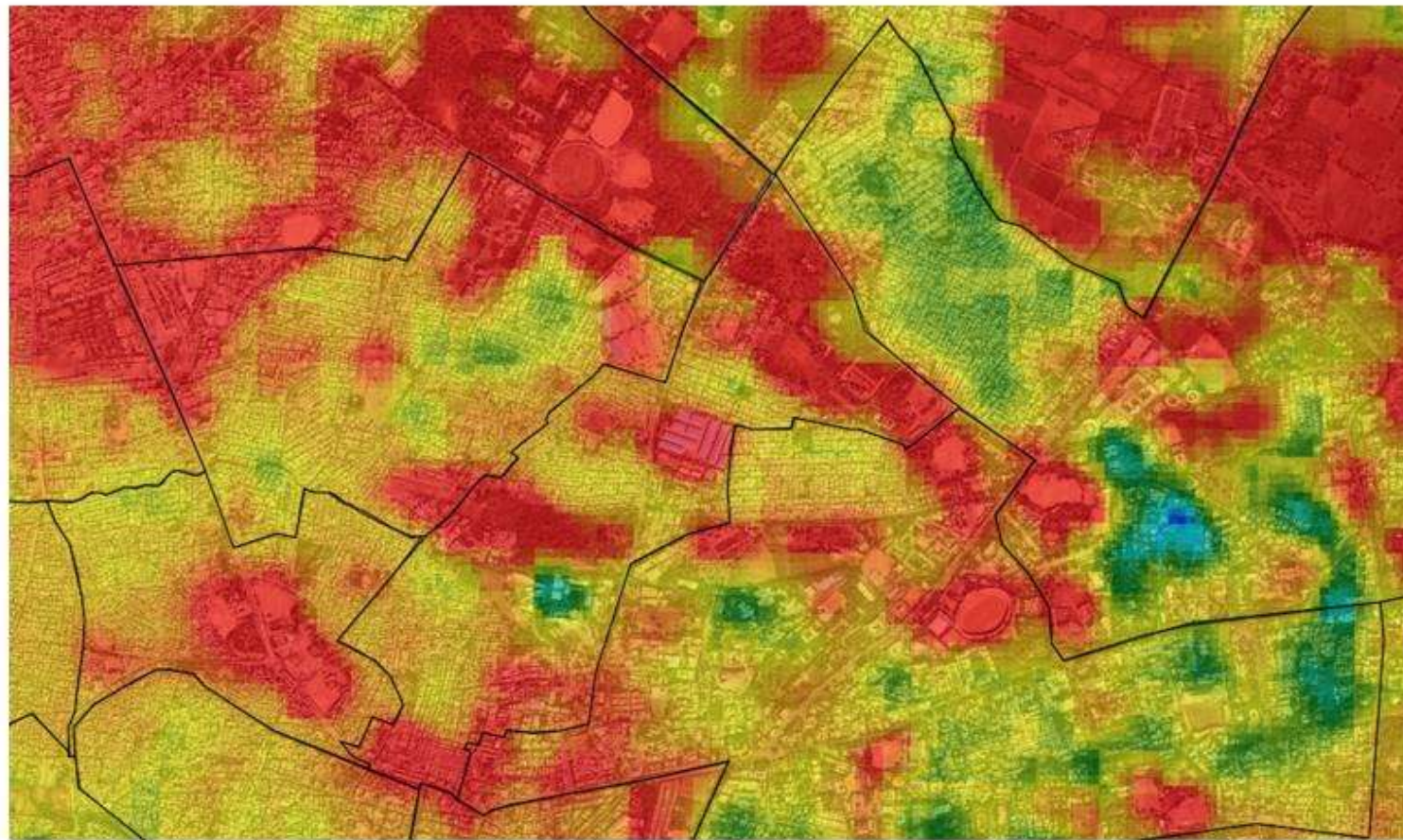
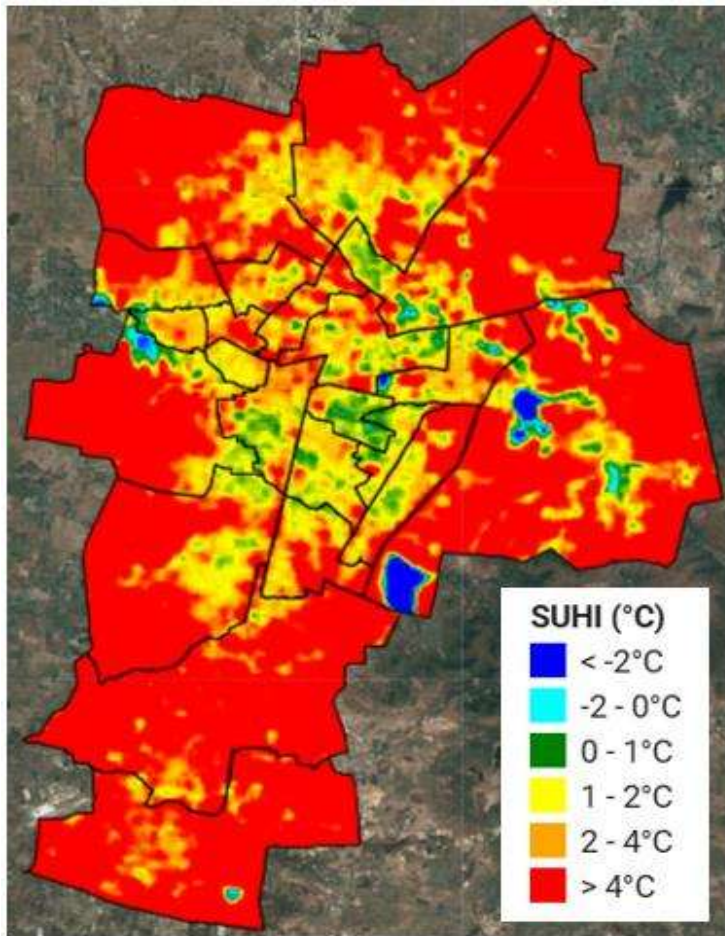
🕒 4 min read



The IMD issuing a warning as early as April 1 is unprecedented and speaks to the severity of the situation. (Representational image)

With temperatures soaring, the state has seen 23 cases of heatstroke so far, though no fatalities have been confirmed. In view of this, health experts emphasised the

Urban Heat Island (UHI) Intensity Analysis



UHI Distribution in The Amravati City

March-June 2025

Amravati is the first city in Maharashtra to launch Cool Roof Bylaws

- The launch was led by Shri **Chandrashekhar Bawankule** (Revenue Minister, Govt. of Maharashtra) and **Municipal Commissioner Smt. Saumya Sharma**
- Marked strong political leadership and state–city alignment.



Key Features

✓ Mandatory for:

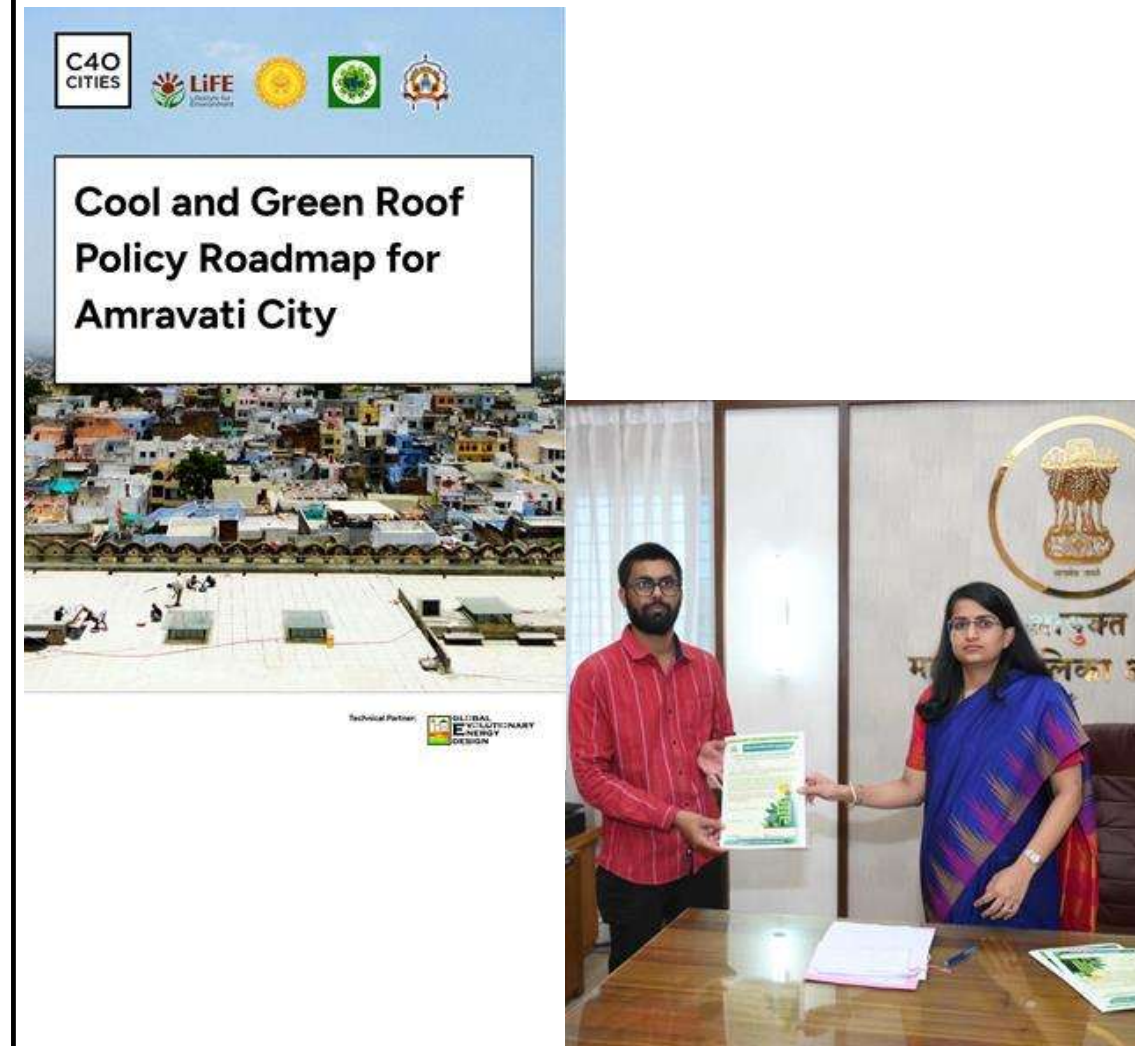
- 100% of new govt., commercial & public/semi-public buildings
- Residential & mixed-use buildings > 500 sq.m
- Residential flats with building height ≥ 15 metres

● Optional / Incentivised for:

- Buildings with rooftop solar
- Existing govt/public buildings (schools, hospitals, etc.)
- Private buildings through future policy incentives

🎁 Incentives Include:

- *Climate Resilient Cool Roof Certificate* for compliant buildings
- 10% property tax rebate (3 yrs) for eligible govt/residential buildings
- 5% rebate (3 yrs) for commercial/business buildings



- ❖ Amravati Cool Roof Bye Laws
- ❖ Amravati Baseline Assessment Report

Roadmap to implementation

Baseline assessment (build the case)

- Identified heat hotspots
- Walkthrough surveys
- Measurements of overdeck and underdeck temperatures
- Temperature differences in areas with vegetation cover, damp proof paint

Estimate future scenarios and impact

- Simulations showed cool roofs and green roofs reduce cooling energy
- Savings up to 32 GWh
- Offset over 23% of cooling electricity demand

City leadership, implementation

- Development of bylaws and roadmap
- Establish governance structure and roles
- Monitoring
- Enforcement

Outreach, awareness and capacity building

- Public: Broad awareness through media and targeted engagement through digital campaigns
- Targeted messaging to different stakeholders (eg. developers, homeowners, students)

Policy Roadmap

Table 6 Monetary and emission reduction benefits from cool roof implementation for year 2025

Building Type	Roof Area Bracket (m²)	Total Roof Area (km²)	Share of Roof Area (%)	Energy Savings (GWh/yr)	Monetary Savings (INR Lakh/yr)	GHG Reduction (tCO ₂ e)
Residential	0 - 50	1.72	17.52	5.11	675.48	172420.58
	50 - 200	6.83	69.55	20.27	2682.30	682868.73
	200 - 500	1.13	11.51	3.35	443.78	112761.04
	>500	0.14	1.43	0.42	54.98	14399.69
Subtotal (Residential)	-	9.82	100.00	29.15	3856.55	982450.04
Non-Residential	0 - 50	0.13	2.55	0.34	44.35	12978.89
	50 - 200	2.51	49.22	6.47	856.23	251221.38
	200 - 500	1.41	27.65	3.64	480.99	140847.16
	>500	1.05	20.59	2.71	358.18	104918.09
Subtotal (Non-Residential)	-	5.10	100.00	13.15	1739.75	509965.52
Total (Amravati)	-	14.92	-	42.30	5596.29	1492415.56

Figure 2 City's Policy targets for Cool Roof Implementation (2030-2041)

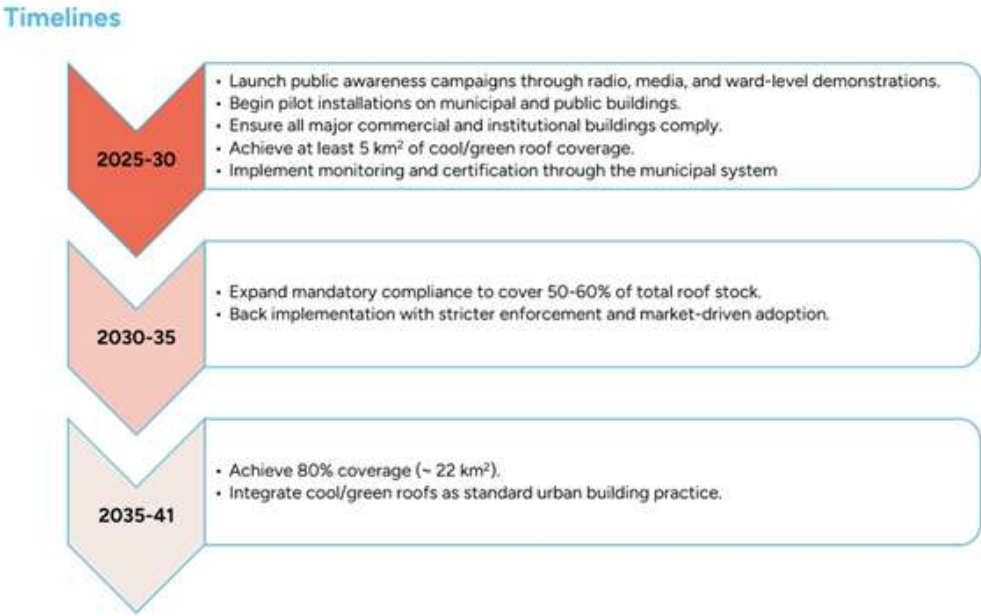


Figure 3 Timelines for project implementation

Way forward



Immediate Actions: Set up the Cool Roof Cell, launch awareness efforts, and retrofit priority public buildings to demonstrate early success with case studies.



Capacity & Infrastructure Building: Roll out training, certify local materials, and establish a remote-sensing baseline with a functioning monitoring dashboard.

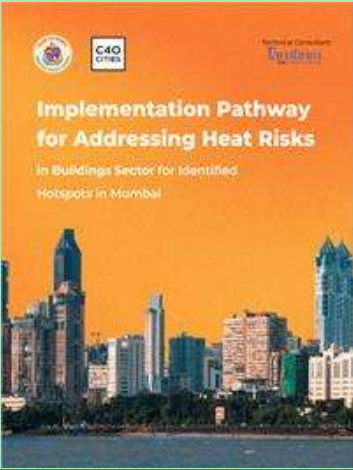


Citywide Scale-Up: Expand incentives, integrate cool/green roofs into all major projects, and institutionalize long-term MRV for sustained impact.

Other cities

In **Mumbai**, C40 helped develop an Implementation pathway to address heat risks in building sector. This helped chart out priority heat actions that can be taken in new and existing buildings in Mumbai.

Based on the learnings from this pathway and Amravati’s work, Mumbai published a tender for cool roofs for municipal buildings, especially focusing on schools and hospitals.



In **Chandrapur**, C40 worked with communities and the municipal corporation to implement and assess heat-resilient retrofits across 10 low-income households, with cool roofs, reflective coatings and lime plaster achieving 3–6°C reductions in indoor temperatures and up to 50% improvement in comfort hours.



Thank you



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GLOBAL COOLING PLEDGE ASSEMBLY

SINGAPORE 15 - 18 SEPTEMBER 2026

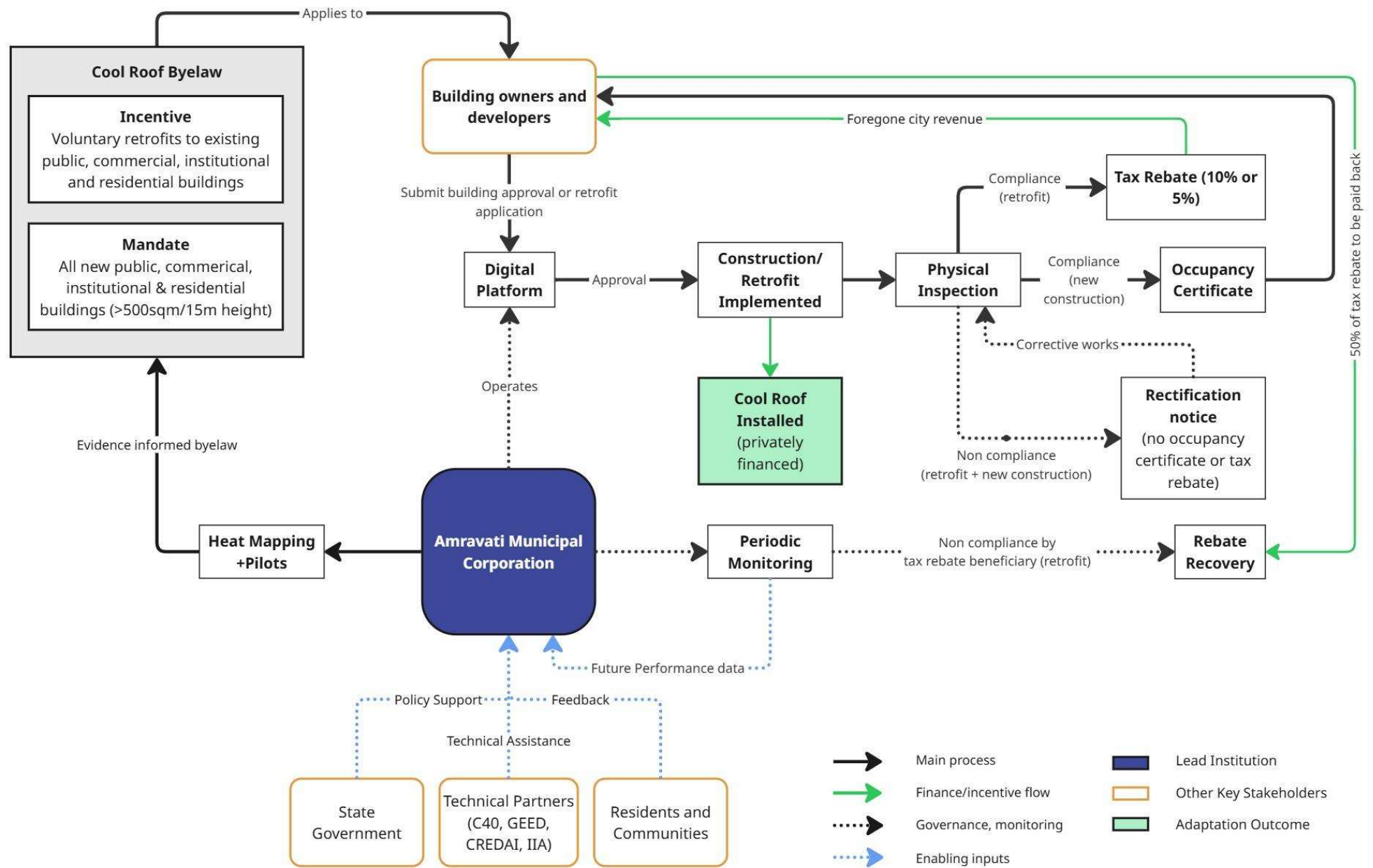
Group activity: Cool roofs bylaw and incentive scheme

- Introduction of the Amravati's blueprint
- Group discussions



Ministry of Sustainability
and the Environment
— SINGAPORE —





What policy, governance and financing arrangements would be needed to apply the Amravati blueprint in your city?

	Existing arrangements	Additional arrangements / changes needed
1. Leadership and partnerships	Which department could lead this approach, and which actors already work together?	Who else needs to be involved?
2. Policy and incentives	What existing policies or incentive structures could be used to support cool roofs?	What additional policies or incentives would be needed?
3. Financing cool roofs	Which private/public actors in your city could pay for installing cool roofs?	What additional sources of finance could you access to scale cool-roof investment?

Group Exercise



Instructions:

- Using Amravati as a reference, identify how a similar cool-roof approach could work in your city.
- Add your responses into the exercise framework provided on your table using post-it notes.
- Put existing arrangements you could leverage under “Existing arrangements” and gaps or changes needed to apply the blueprint under “Additional arrangements / changes needed.”
- Keep responses concrete and specific – name the relevant department, policy, process, incentive or funding source where possible.
- Choose a table representative to report back. The table representative gives a 90-second summary highlighting the common themes and priorities identified by the group in response to the question below:

“What is the most important step your city would need to take to apply the Amravati approach?”



GLOBAL COOLING PLEDGE ASSEMBLY

SINGAPORE 15 - 18 SEPTEMBER 2026

Reporting back



Ministry of Sustainability
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— SINGAPORE —



Training closing and feedback



Elsa Lefevre

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