

IT'S A TEAM

ECOSTRATEGIST-CASE STUDY

Heat Islands and their impacts on Gig Workers' Wellbeing and Livelihoods



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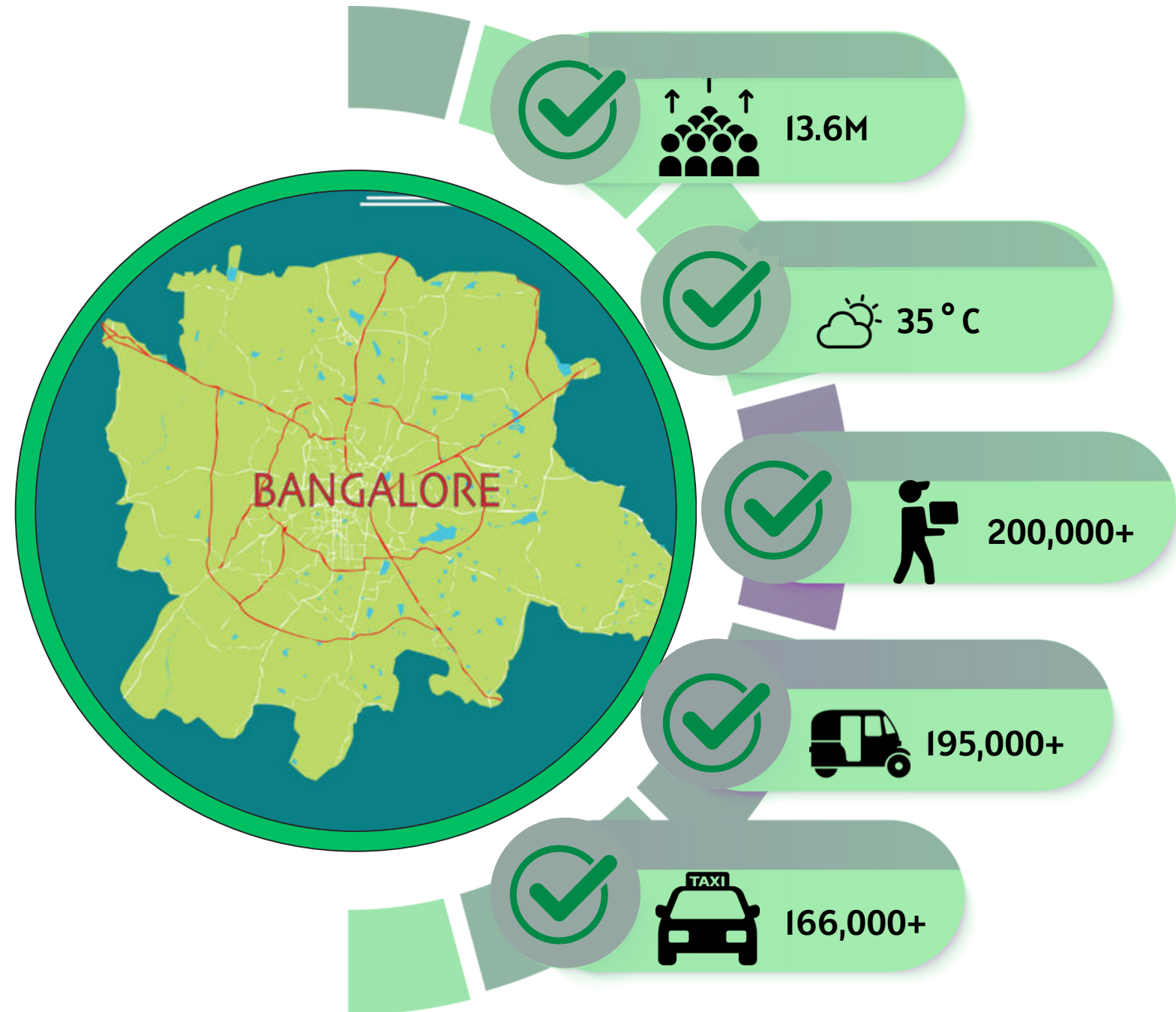
Bangalore & Gig Workers

Upgrade Existing Centers

Building New Centers

Partnerships & Models

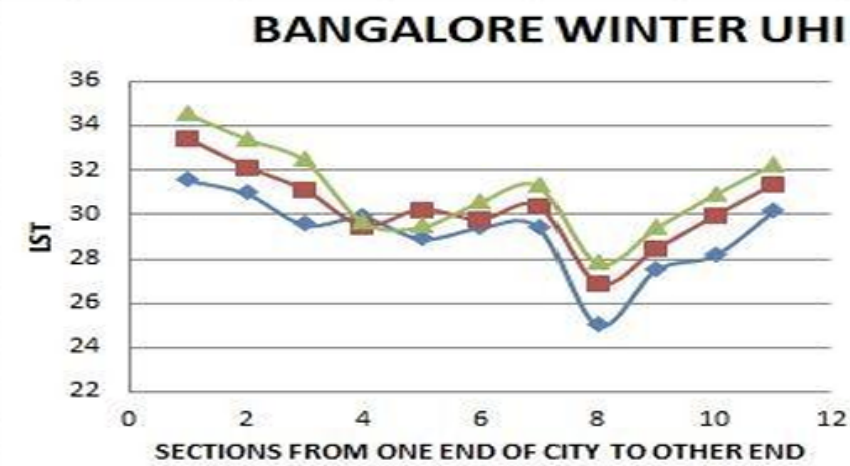
Funding



High-density areas

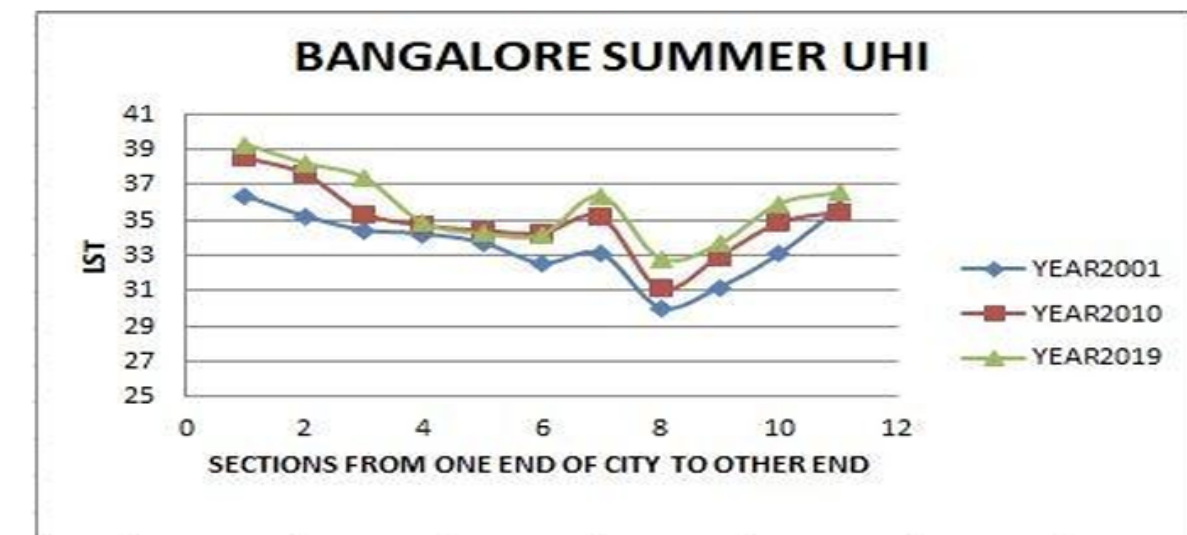
1. Horamavu
2. Padarayanapur
3. Chamrajpet

4. Shivajinagar
5. Basavanagud
6. Jayanagar



Daily power demand
2300 MW 20% of which
is met by solar energy

Bangalore has :
2300+ bus stops
51 active Metro stations
4 Major Railway stations



The UHI effect in Bangalore worsened due to rising energy consumption by 500% & reduced green spaces from 200 sq. km. to just 120 sq. km. in the last two decades, impacting Gig workers significantly.

Karnataka budget July 2023 : Every Gig worker to have **Rs 4 lakh** insurance cover
This shows Bangalore's a dedicated commitment to enhancing the welfare of gig workers.

Upgrade Existing Transit Centers By Integrating New Technologies, Materials & Designs

- Energy Guard Cool Roof Paint with SRI of 17 and a price of around Rs. 1,500 per 10 kg.
- Reflects up to 85% of sunlight, which can help to reduce pavement temperatures by up to 20°F.
- Protects from weathering which reduces maintenance.

Roofs, Pavements & Sidewalks

Reflecting Paint

- Mitigates Albedo effect by increasing sunlight reflection & reducing the need for air conditioning and energy consumption.

Aligns with green standard-LEED

Eco - Concrete

- Porous nature allows improved airflow, reducing the heat island effect in cities.
- National Renewable Energy Laboratory found that eco-concrete saves 30% on energy costs.



- Liquid Tree photobioreactors to conserve water by recycling 90% of water used.
- Eliminates up to 100 kg of CO₂, 10 kg of nitrogen dioxide & 5 kg of sulfur dioxide daily.
- Airogrow, a Bangalore-based company, specializes in liquid tree technologies.

Absorb CO₂ & produce oxygen

Liquid Tree

Vertical Garden

- Vertical gardens can remove up to 100 pounds of pollutants from the air each year.
- California used vertical gardens on transit shelters to reduce temperature of surroundings by 5°F.

Better air quality & Fresh Design

- Besides temp it also helps in :
 - 1) Biodiversity
 - 2) Aesthetics
 - 3) Noise Reduction



Bangalore & Gig Workers

Upgrade Existing Centers

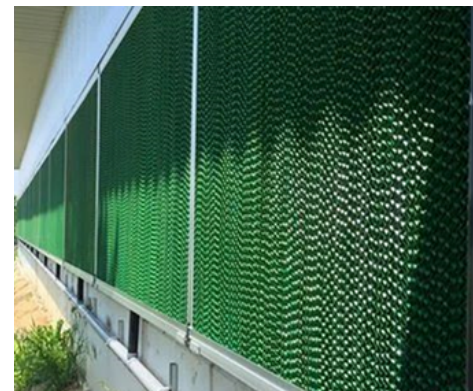
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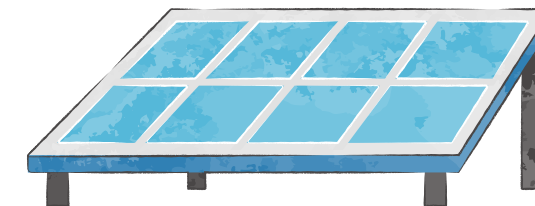
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- Cooling pads can be integrated into transit center's ventilation systems to provide energy-efficient cooling by utilizing water evaporation, with studies showing that evaporative cooling can lower temperature by 5-15 degrees Fahrenheit, as reported by the U.S. Department of Energy.

- These pads are typically made of a cellulose or synthetic material designed to hold water and facilitate the evaporation process.



- Installing solar panels on shelter roofs to harness renewable energy for lighting, fans, and other amenities, reducing reliance on the grid.
- Study by the National Renewable Energy Laboratory found that solar powered transit shelters can reduce the urban heat island effect by upto 70%.
- Energy-efficient LED systems powered by solar panels to enhance transit centers by providing sustainable lighting, reducing energy consumption by up to 50-80% compared to traditional lighting.



Cooling Pad

Bamboo Bus Stops

Solar Stations

Bamboo material for transit shelters, addressing environmental impact and energy needs effectively. Here's how:

- It has extensive surface area and unique growth properties enable it to absorb pollutants like nitrogen dioxide.
- Bamboo's dense foliage can absorb and dampen sound, reducing noise pollution by up to 5 decibels.
- Evidenced by its use in earthquake-resistant structures due to its strength-to-weight ratio, as highlighted by research in the International Journal of Engineering Research and Applications.



- Fire retardant paints by Fireguard India, Hi-Temp Fire Retardant etc. can be applied to coat bamboo, enhancing its fire resistance.
- With higher growth rate, regenerative properties, and minimal environmental impact bamboo is a sustainable choice for construction.
- Bamboo has a high albedo (typically between 0.15 and 0.20) meaning it reflects sunlight back into the atmosphere.

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BMTC Partnership with Yulu

- BMTC to give Yulu permission to build its bike stands on some bus stops which don't obstruct pedestrian pathways or bus operations.
- 56% of BMTC Bus stops still do not have shelter facility including roofs & seats.
- Yulu to install and maintain green roofs & clean water stations on the bus stops alongside their stands.
- Stimulate local economies by promoting EV cycle use and creating job opportunities for maintenance.



- **Dex GR** by Yulu an EV purpose-built for making delivery comfortable & profitable that holds upto 15 kg.



Sustainable Auto stand with Mahindra Electric

100% EV adoption by 2030



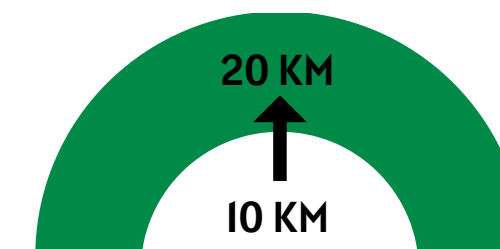
for the private transport segment in Bengaluru, target by Gov. of Karnataka.

- Sustainable EV auto stands to be built by Mahindra Electric
- Company to get 5 years promotional spaces on all stands built in partnership with BBMP
- Company to conduct training sessions to educate gig workers about the charging procedures, and basic maintenance.
- Special incentive program for gig workers to purchase electric autos from the sponsoring company.



Upgrading Stations with Consultancies

- Consulting firms to integrate smart technology to upgrade metro stations over time. Helping delivery personnel to increase their delivery radius.
- Smart lockers for delivery riders to store delivery bags while travelling on metro.
- Augmented Reality wayfinding app to guide gig workers to locate amenities, platforms & connections.



Avg. Delivery Distance

- Riders to combine metro travel with last-mile EVs which optimizes efficiency & extends the delivery radius.

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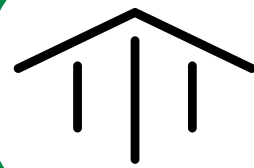


Government plans for upgrading

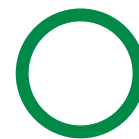


BMTC

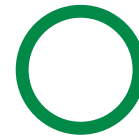
- Proposed a plan to upgrade existing transit centers in the city to accommodate gig workers.
- The plan includes providing dedicated spaces for gig workers, such as lockers, charging points, and restrooms.
- It also includes improving connectivity between transit centers and other parts of the city.
- The plan is still in the proposal stage, and it is not yet clear when it will be implemented.
- BMTC is hopeful that the plan will be approved and implemented in the near future.



Private Funding



Corporate donations



Foundation grants



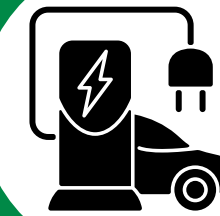
Crowdfunding



Partnerships

wipro foundation

amazon



Ev subsidy by the government

Scheme	Incentive	Eligibility
FAME II	Subsidy of up to ₹1.5 lakhs	Electric cars with a maximum ex-showroom price of ₹15 lakhs
State-level EV policies	capital subsidy of 15% of the cost of an EV, up to a maximum of ₹1.5 lakhs	Varies by state
Income tax benefits	Deduction of up to ₹1.5 lakhs on interest paid on loan	Individuals who purchase an EV
Scrapping incentives	Incentive of up to ₹25,000	The vehicle must be purchased from a dealer or manufacturer that is registered in Karnataka.

THANKYOU

APPENDIX - [CLICK HERE](#)