

Climate-Proofing Taxi Ranks: Commuter and Taxi Industry Perspectives from Baseline Findings

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Why?

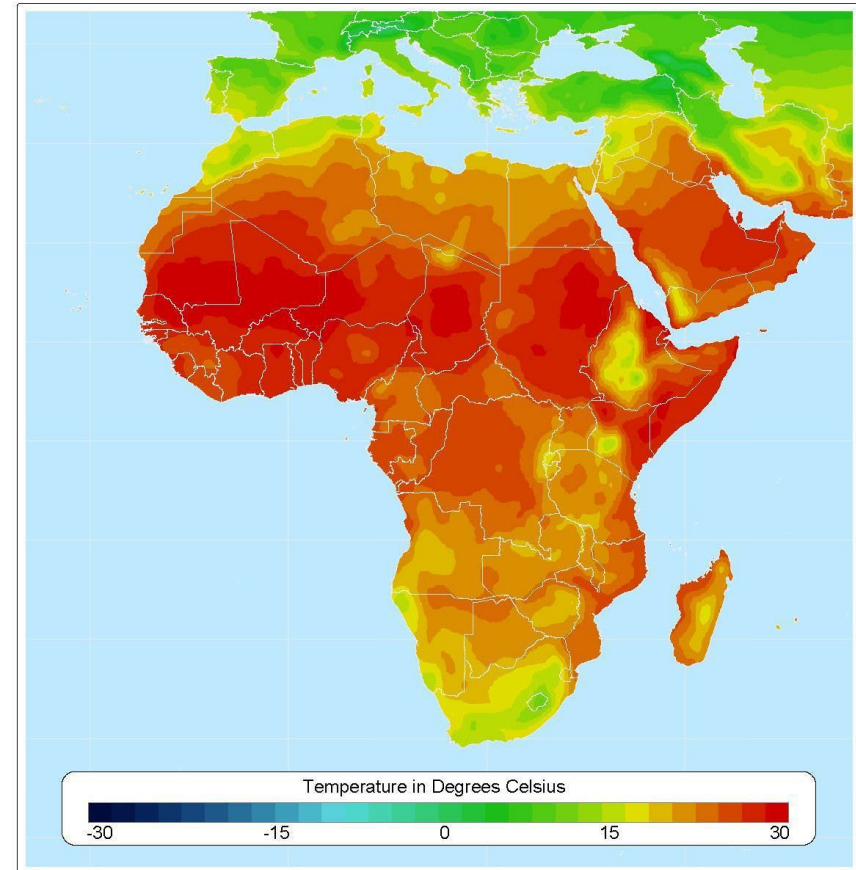
- About 80% of the urban population in African countries use public transport.
- In South Africa, minibus taxis service 66.5% of South African households, transporting around 15 million people daily.
- The minibus taxi industry has 150 000 minibus taxi owners operating between 200 000 to 250 000 minibus taxis in the country.
- The industry employs 300 000 drivers, 100 000 rank marshals, 100 000 car washers and 150 000 street sellers at taxi ranks.



Why?

- The Intergovernmental Panel on Climate Change Assessment Report 6 states that the average temperature across Africa is projected to increase by 1.5-3°C by 2050 and by 3-6°C by 2100 compared to pre-industrial levels.
- Heat and heat waves have impacts on human health causing heatstroke, dehydration and respiratory problems among other adverse effects.

Average Annual Temperature
Africa



Data taken from: CRU 0.5 Degree Dataset (New, et al.)

Atlas of the Biosphere

Center for Sustainability and the Global Environment
University of Wisconsin - Madison

Project aim

- This project aims to understand the heat experiences of commuters and the taxi industry in minibus taxis and in taxi ranks during hot weather.
- We co-designed a project with the City of Tshwane and the Taxi Associations.
- The first step was to do a survey (using RedCap) in a taxi rank to find out what people think about heat.
- The next step is to jointly decide what changes could be made to a taxi rank to make the space cooler in hot weather.
- We began attending the 'Bi-weekly Operation Inner City Decongestion and Clean-up meeting with the Tshwane Taxi Industry in January 2022.



Castle Gate Mall Taxi Rank – image captured by drone



Commuters

N=339

54% Male

46% Female

53% 26-35 years

Results

Taxi industry participants

N=45

100% Male

28% 26-35 years

30% 46-55 years



Feel hot in a taxi?

75% Sometimes

22% Always

97% Do something when it's hot

87% Drink water

72% Open a window

29% Remove jersey

28% Fan themselves

Feel hot in a taxi rank?

89% Yes



Feel hot in a taxi rank?

93% Yes

Feel hot in a taxi?

63% Sometimes

30% Always

93% Do something when it's hot

Feel hotter in the afternoon

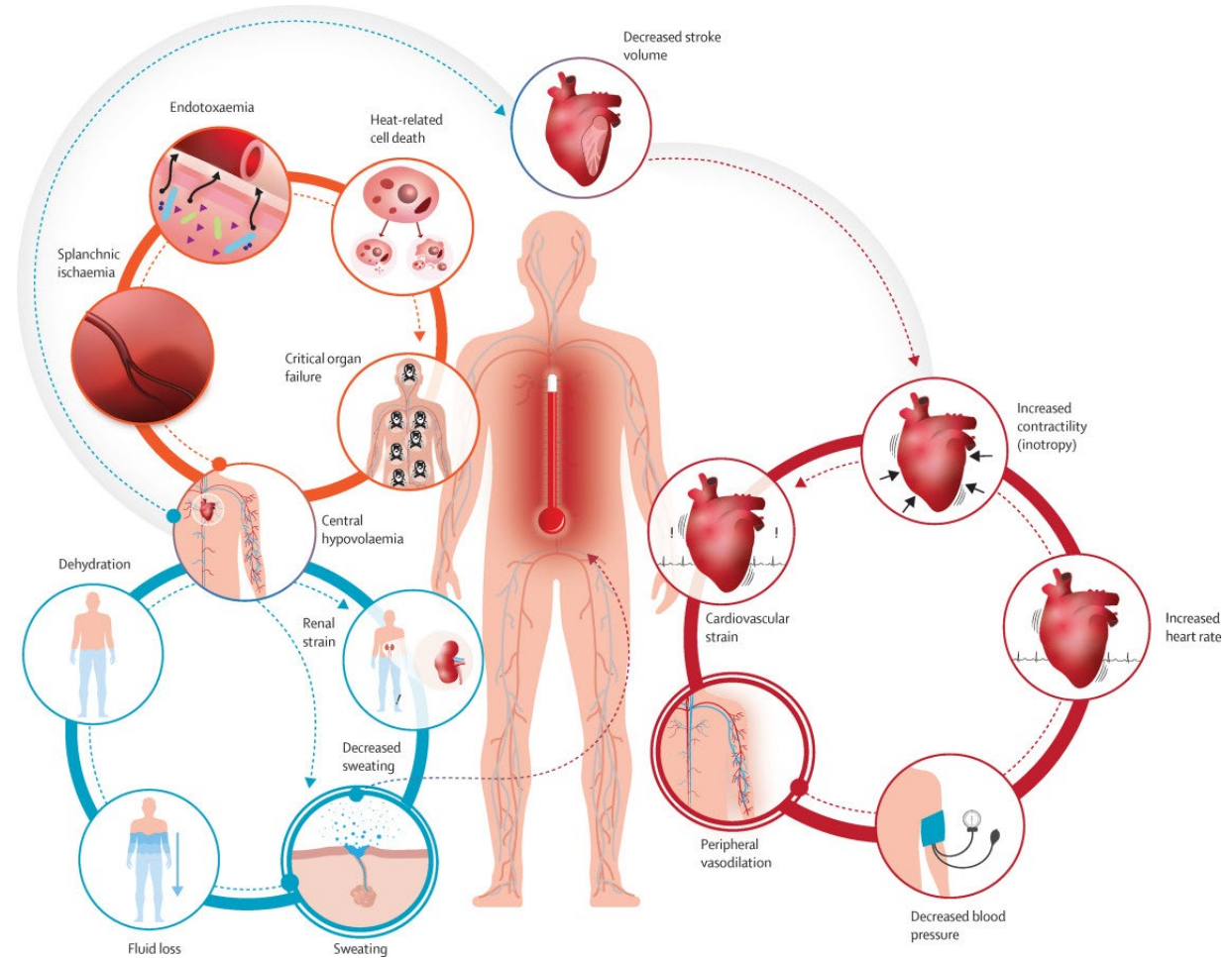
9% Drink water

84% Open a window

Results

- Self-reported health impacts in taxis and taxi ranks when its hot:

- Sweating
- Increased heart rate
- Headaches
- Fatigue
- Dizziness



Source: Ebi et al., (2021), *The Lancet*, 398 (10301), P698-708

Results

- Participants' suggestions to deal with heat in a taxi / taxi rank:
 - More shelters / extend shelters
 - More trees
 - Access to drinking water
 - Eat ice
 - Keep taxi door open in taxi rank when waiting
 - Use an umbrella when waiting for a taxi
 - Look at WhatsApp messages



Meeting with the Tshwane Taxi Industry

- 17 April 2023 at the Menlyn Taxi Association HQ
- Taxi Associations, SAPS, City of Tshwane
- Welcoming of the feedback and our work
- Frustrations:
 - No say in building/location/design of ranks
 - No say in design of the Quantum taxi (engine is under the driver) and insufficient windows open
 - Problem of shade in holding areas
 - Would like to see our work shape policy



Suggestions from survey

- Participants' suggestions to deal with heat in a taxi / taxi rank:
 - More shelters / extend shelters
 - More trees
 - Access to drinking water
 - Eat ice
 - Keep taxi door open in taxi rank when waiting
 - Use an umbrella when waiting for a taxi
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More shelters / extend shelters

- Reliable shade
- Also rainproof
- Accommodates many people
- Could paint existing shelters' roof white to reflect heat
- Costly
- May not cast shade in the appropriate place
- May be vandalized
- May attract homeless people who need a place to sleep



More trees

- Casts shade all year round (evergreen so does not lose leaves)
- Well established, mature tree
- Good to plant now for it to be established by Spring
- Can afford two trees for the taxi rank with two long benches

- Needs water twice a week and fertilizer once a month
- May be cut down for firewood



Access to drinking water / ice

- Best way to keep people healthy during hot weather is to drink water
- Accessible water encourages people to drink more
- Drinking water fountain



- Costly
- Difficult to maintain infrastructure
- Difficult to ensure clean water and continuous supply as people may rely on it
- People may take a lot to meet their daily needs rather than to quench thirst
- Difficult to protect and keep safe
- People need a bottle or cup (litter)

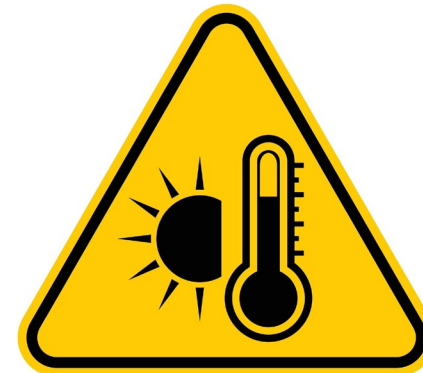
Keep taxi door open when waiting in rank

- Simple
- Easy
- Allows through-breeze
- Safety
- Exposure to air pollution
- Driver's choice (not passenger)
- May not help if in the sun or very high temperatures
- Difficult to 'enforce'



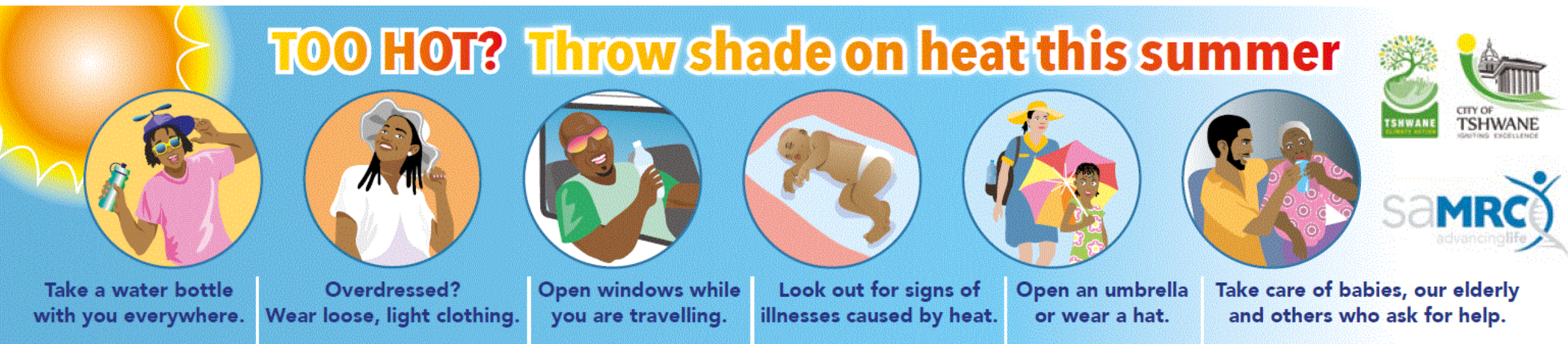
Receive a heat-health warning

- Poster / infographic / message is easy to make and disseminate
- Scan QR code for info plus poster
- Provided in local language
- Prompts people to act, e.g., open a window, take off a jersey
- Regular siting can lead to it being ignored
- Some actions may be difficult, e.g., drink more water, if people can't afford it or don't have access to clean water



Way forward

- We recruited an education campaign specialist to work with us, we prepared materials and are disseminating them.
- Pilot study measuring temperature in taxis and ranks in eThekwinini.



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- The taxi marshals and drivers at the Castle Gate Shopping Centre taxi rank.

