

Address the cause of UHI

Town Planning regulations and development control regulations are exacerbating UHI and exacerbating the impact of heat stress on citizens and their homes.

Affordable? Housing
for lower income
groups
Raised UHI



Anthropogenic contribution to UHI

The heat released by air conditioning in high density high rise urban fabrics surrounded by crawling traffic compounds rising temperatures and heat waves

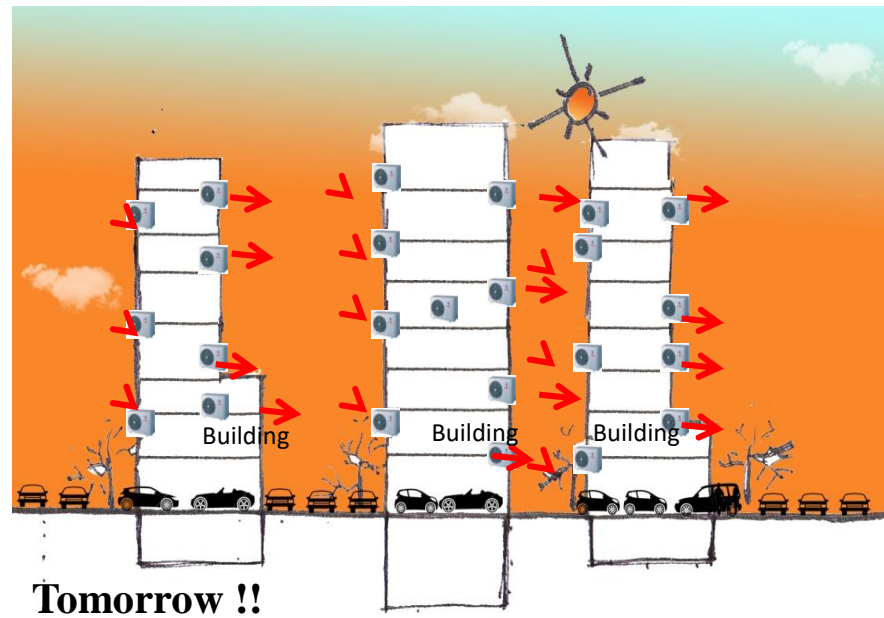
VISCIOUS CYCLE

HIGH UHI

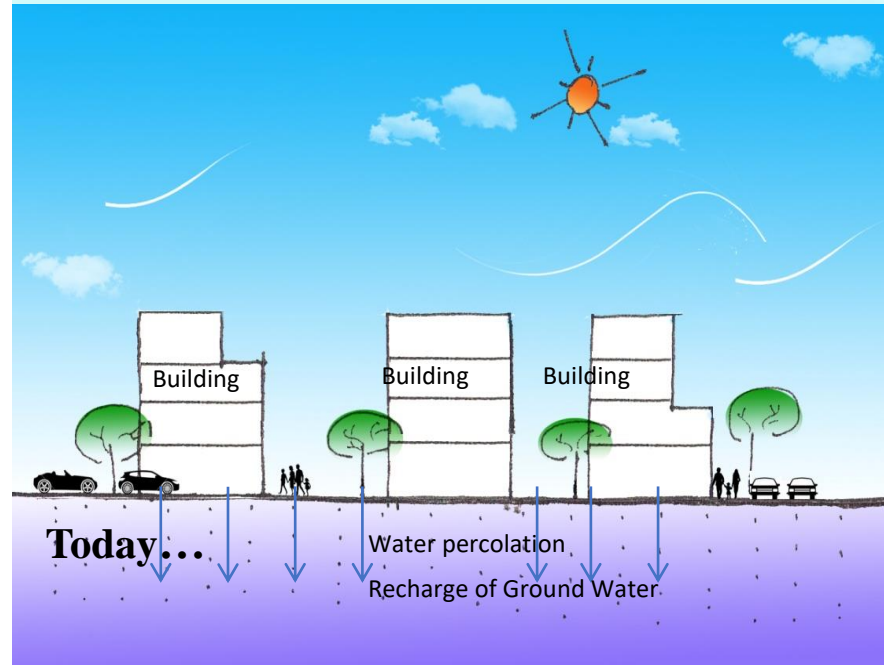
AIRCODITIONING

INCREASED UHI

MORE AIR CONDITIONING.....



Ground water almost finished



Low rise, compact, relatively car-free, urban fabrics are what we have in most cities today.

SITE SURVEY OF AFFORDABLE HOUSING PROJECTS

AHMEDABAD

BAU



Site 2: Matrubhumi Housing Society

Location: Chamanpura, Asarwa,
Ahmedabad, Gujarat 380016

Co-ordinates: 23°02'50.7"N
72°36'36.7"E



Site 3: Laxman township, Smart
Ghar 3

Location: Behind Arya land
Residency, Jivraj Park,, Rajkot,
Gujarat 360005

RAJKOT

CLIMATE
RESPONSIVE

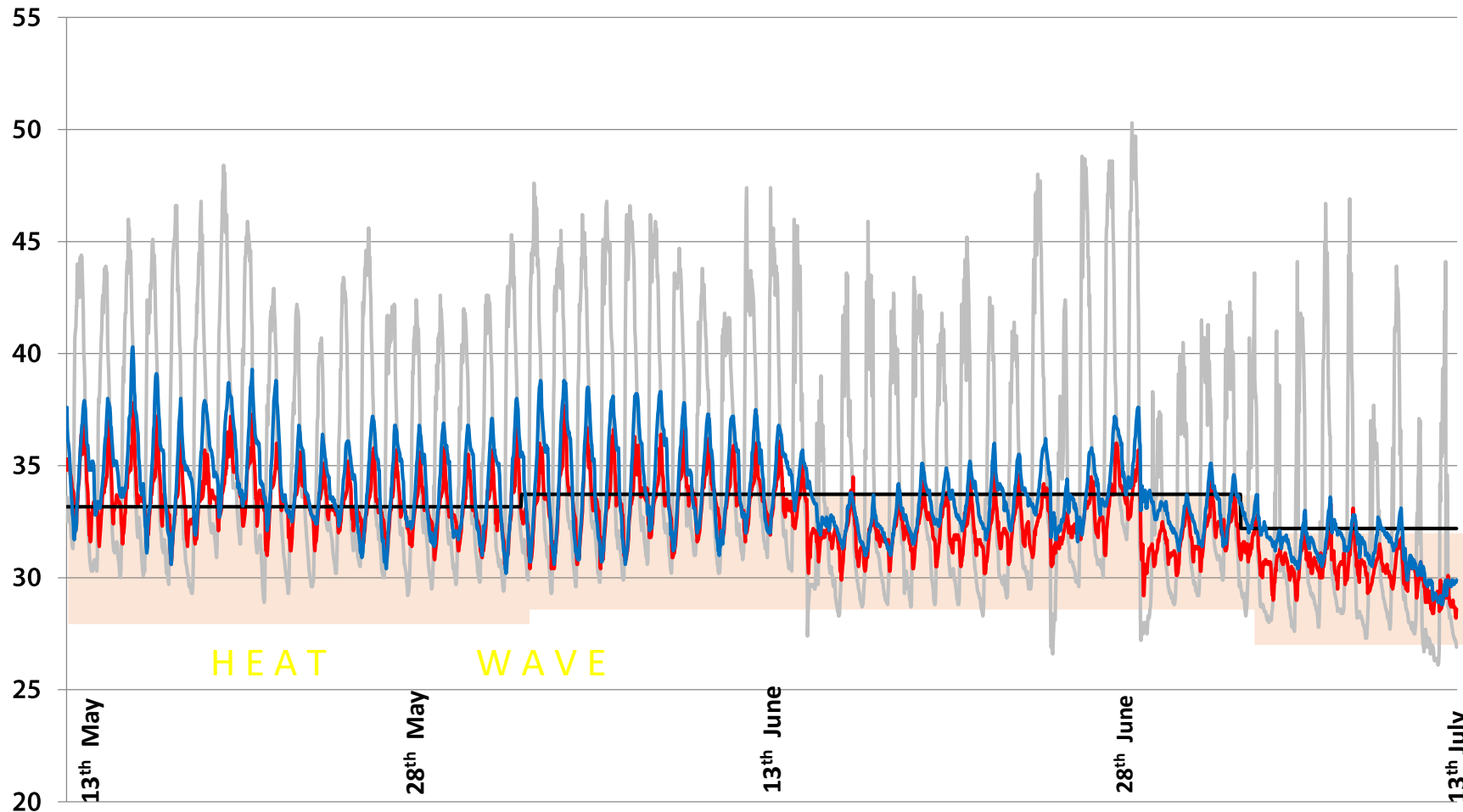
Insulated
reflective roofing

Insulated walls

Part opaque
casement
windows

PRELIMINARY FINDINGS – THERMAL PERFORMANCE SURVEY DURING HEAT WAVE

MATRUBHUMI HOUSING SOCIETY , AHMEDABAD



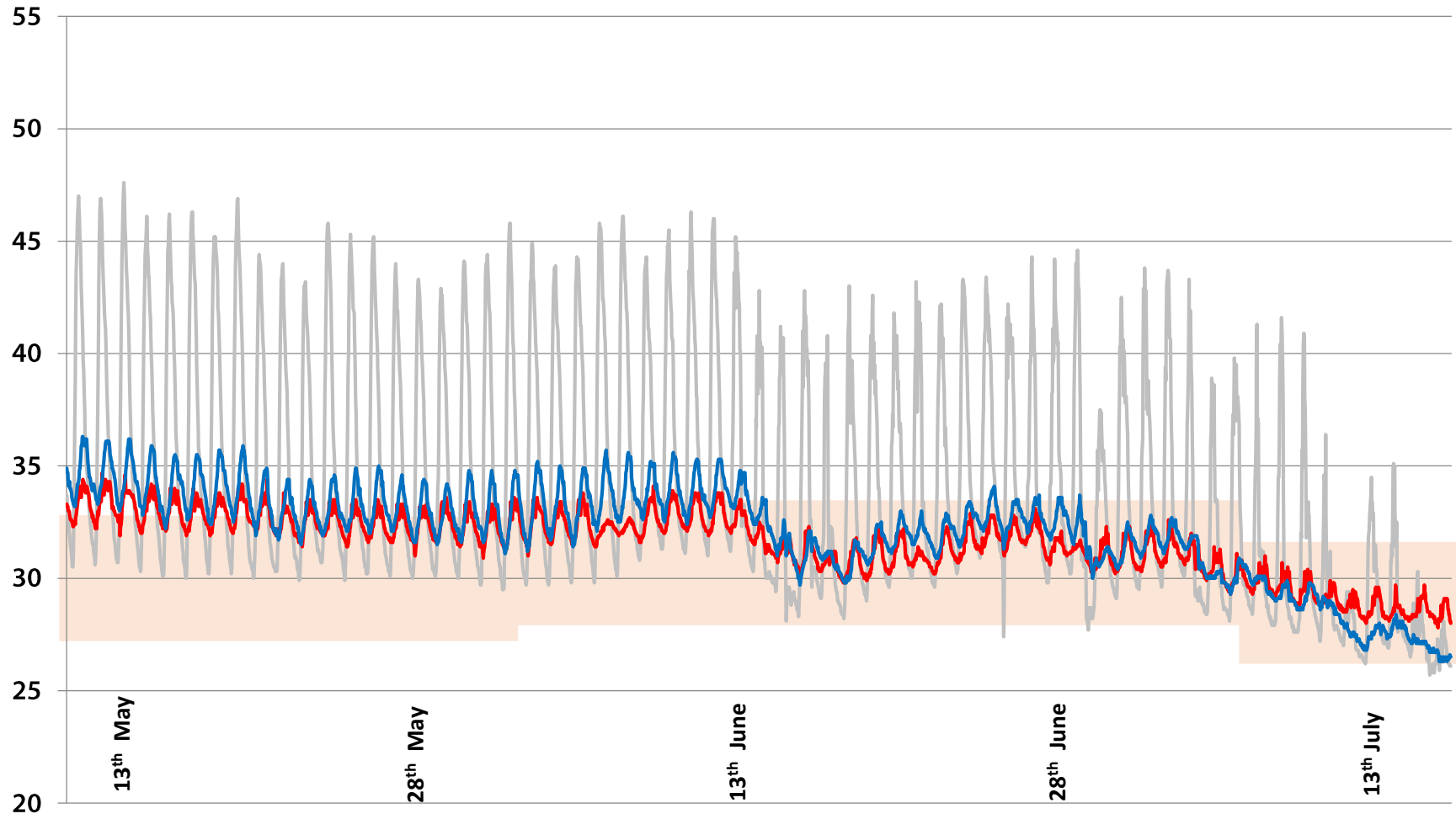
Comparing indoor DBT variation of 7th floor DU and 2nd floor DU

Note the effect of UHI

- DBT Living room of flat no. 703 (7th floor)
- DBT living room of flat no. 203 (2nd floor),
- DBT ambient (roof)
- IMAC Neutral Band

PRELIMINARY FINDINGS – THERMAL PERFORMANCE SURVEY DURING HEAT WAVE

SMART GHAR , RAJKOT



Comparing indoor DBT variation of top floor DU and 4th floor DU

Note the effect of UHI

- DBT Living room of flat no. K-703 (7th floor)
- DBT living room of .G-415 (4TH floor)
- DBT ambient (roof)
- IMAC Neutral Band

DNA of Urban Form : Low-rise High density with interspersed green spaces



DU/Ha – **300 - 400**

Open Space/DU- **15m²**

Construction Cost- **Rs.9000-11000/sqm**

80% Solar Potential for renewable energy from rooftops

3 million tonnes less of CO₂ emissions, if Low-rise format is used in Gujarat State instead of High-Rise in the next decade

Quick construction time with rationalized simple building technologies

Best opportunity for wealth distribution through the construction process

Address the cause of UHI Mitigate Heat Stress

For anticipated urban growth Town Planning regulations and development control regulations (DCR) must limit FSI, ground overage, and reduce requirement for parking and vehicular access.