Comfort, health and energy-use behavior for homeostasis in informal settlements

Investigating sustainability of the slum rehabilitation process in Mumbai using backcasting approach

Ramit Debnath | Centre for Sustainable Development | rd545@cam.ac.uk
Supervisor: Dr. Minna Sunikka-Blank | Department of Architecture

Overview

Problem statement and research questions

- India’s commitment towards SDG 11 → Housing for All 2022 scheme
- In Mumbai, more than 50% of the 18.41 million people live in informal settlements like slums.
- Government is addressing this problem through Slum Rehabilitation Authority by providing free housing to the slum dwellers, called Slum Rehabilitation Housing.

SDG 11: TARGET 11.1
By 2030, ensure access for all to adequate, safe and affordable housing and basic services.

Our Hypothesis:
Rebound phenomenon can be prevented by mitigating occupants’ discomfort and distress in the rehabilitated housing.

Methodology: Backcasting to investigate the cause of rebound phenomenon

Household survey to investigate homeostasis through their behaviour and habits in energy use, comfort, health and wellbeing.

Survey design

Thirty households were surveyed in the Natvar Parel Compound in Mumbai to investigate occupants’ loss of homeostasis (i.e. discomfort-stress).

Results: Cause of distress

- Lack of social and community spaces in the current rehabilitation housing design leads to social isolation and loneliness. It affect the wellbeing of the occupants.
- Distress due to the poor built environment contributes significantly to the rebound phenomenon.

Work in progress

- Performing fault tree analysis on the survey results.
- Deriving counter measures based on the fault tree analysis and converting it to policy recommendations for the Slum Rehabilitation Authority.

References


Problem statements:

1. What causes distress or discomfort (i.e. loss of homeostasis) in slum rehabilitation housing?
2. What could be the countermeasures to prevent loss of homeostasis, and reduce this rebound phenomenon to improve the sustainability of the rehabilitation process?