



# National Climate Change Response Dialogue

## The case of Joe Slovo, N2 Gateway Project on Low Income Housing National Department of Human Settlements

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human settlements

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Human Settlements  
REPUBLIC OF SOUTH AFRICA

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# Resilience in Human Settlements

“The capacity and ability of a community to withstand stress, survive, adapt, bounce back from a crisis or disaster and rapidly move on. Resilience needs to be understood as the societal benefit of collective efforts to build collective capacity and the ability to **withstand stress**” (ICLEI 2011 & van Wyk, L. 2014. CSIR. Building Resilient Human Settlements in a Climate of Change)

# Land Use Changes

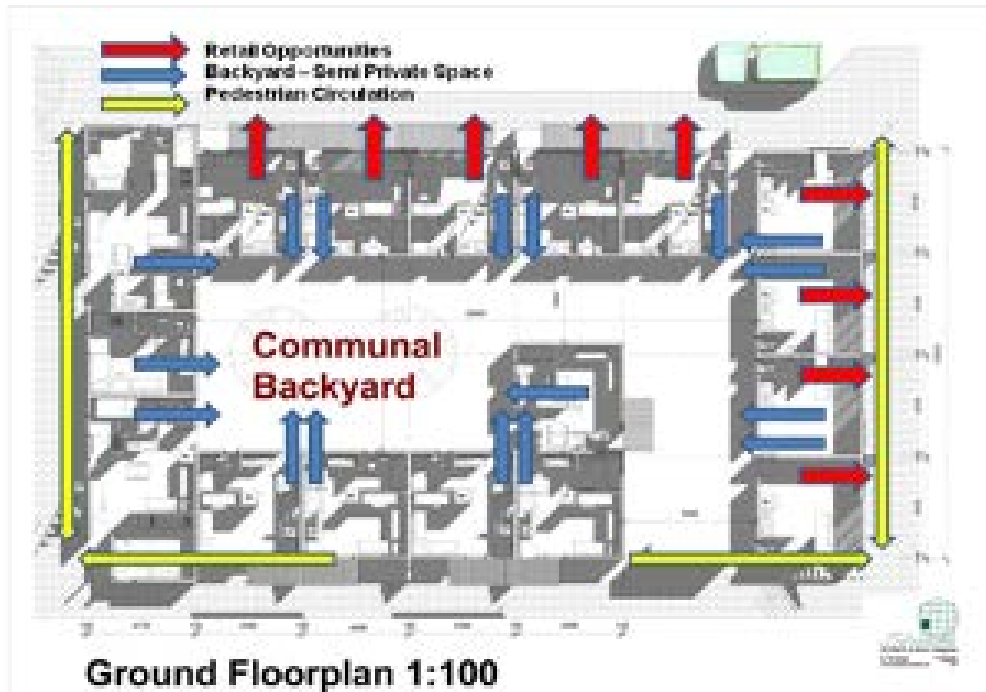
- Loss of habitat

Recent US research about 50 % of the warming since 1950 is due to land use changes - clearing forests for crops and cities

(Georgia Institute of Technology, 2009 & van Wyk, L. 2014. CSIR. Building Resilient Human Settlements in a Climate of Change)

# Urban design & Energy Efficiency

- **COMPACT:** Densification 3 times greater than typical RDP development



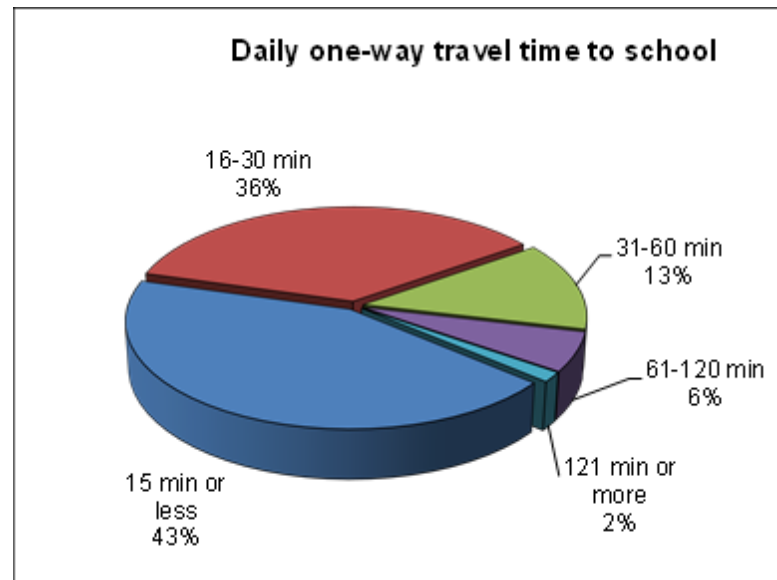
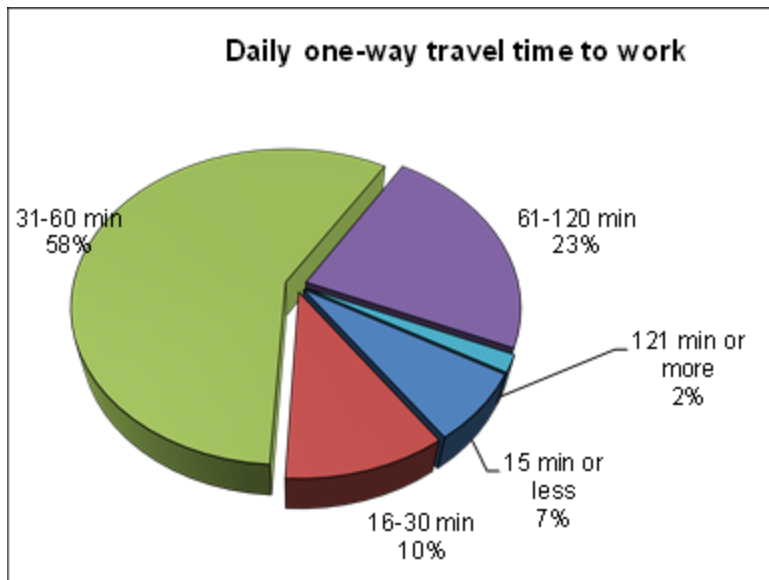
# Key urban design points

- Pedestrianised areas create a safer community
- Replacing roads with pedestrian areas reduces infrastructure costs



# Key urban design points

- Location within the City - excellent access to work, school, health facilities and shops



# Urban Design and Construction Challenges

- Convincing the community to accept an alternative housing design
- Convincing the City of Cape Town that the design would allow for essential services maintenance
- Raised level of technical skills required of contractors



# Municipal Approval of Development & Infrastructure Plans

- Access for municipal & fire vehicles
- CoCT specified a greater depth of water, sewerage & electrical piping to protect house foundations
- CoCT specified installation of an above ground storm-water drainage channel system
- increased the foundation height of each house by 300 mm to accommodate a 1 in 100 year storm



# Installation Costs

- Medium Densification meant:
  - only 4m of services per household vs 10m  
(60% saving )
- Pedestrianised roads in Joe Slovo required less & cheaper material vs roads built for vehicles:
  - reduction in base course thickness & road width
  - cheaper pavers vs road bitumen resulting further  
(65% saving on infrastructure costs)

# Installation costs continued

## Double Storey Housing Unit

- Top structure – R94 000
  - Services under R 6000
- Total - R100 000

## Typical RDP costs per unit

- Top structure R72 000
  - Services R28 000
- Total - R100 000



# 2. ENERGY EFFICIENCY



# SWH Installation + Maintenance

- Longer installation times, higher cost
- Local unskilled labour 33% of installation team
- Local community can perform first line maintenance function



# SWH performance

- Savings of up to 100kWh/month (approx. R100/month)
- Orientation from east through north to west acceptable
- Min temp in Winter 35 degrees - luke warm
- Max temp 58 degrees – hot (tempered)



# Thermal Efficiency & Comfort

- Joe Slovo design up to 6 deg.C cooler in summer and up to 3 deg.C warmer in winter
- Top storey .5 - 1.5 degrees hotter throughout the year – more comfortable in winter and less comfortable in summer



# Efficient lighting

- CFLs – installed in every house
- Likely to be replaced with cheaper incandescents when they blow



# Community Acceptance of SWHs

- High level of acceptance in summer
- ‘Luke warm’ response in winter!
- 98% felt their life had improved with the SWH
- Hot water mostly used for body washing (96%), cleaning (19%) and cooking (12%)





# Final Message

- More sustainable housing delivery supports resilience and is possible within budget
- Overall benefits to residents' quality of life
- Reduced carbon footprint – less electricity and travelling
- Densification increases economic potential for area





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# Pedestrianised public spaces with double storey cluster units





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# Thank you

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