



Sustainable Settlements Facility

A response to scaling energy-efficiency measures in low-income housing

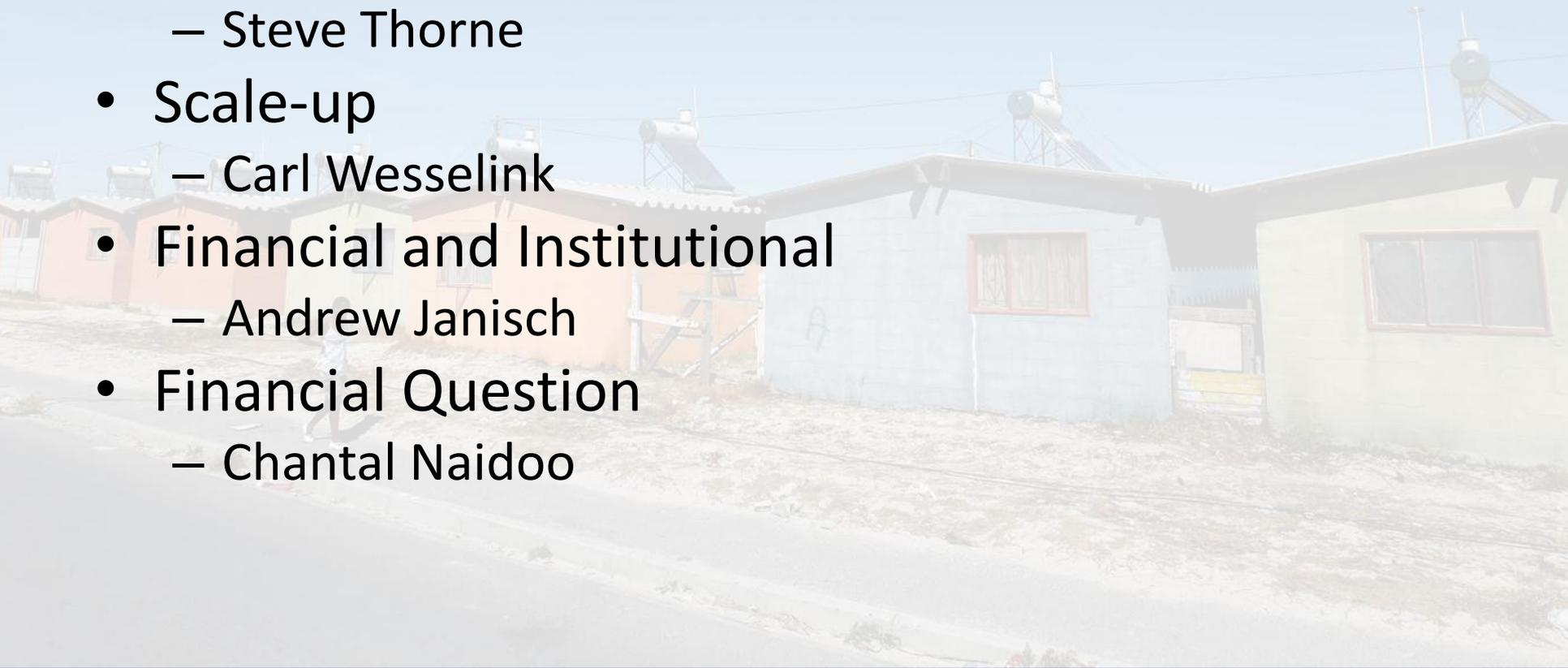


Federal Republic of Germany
The Federal Government



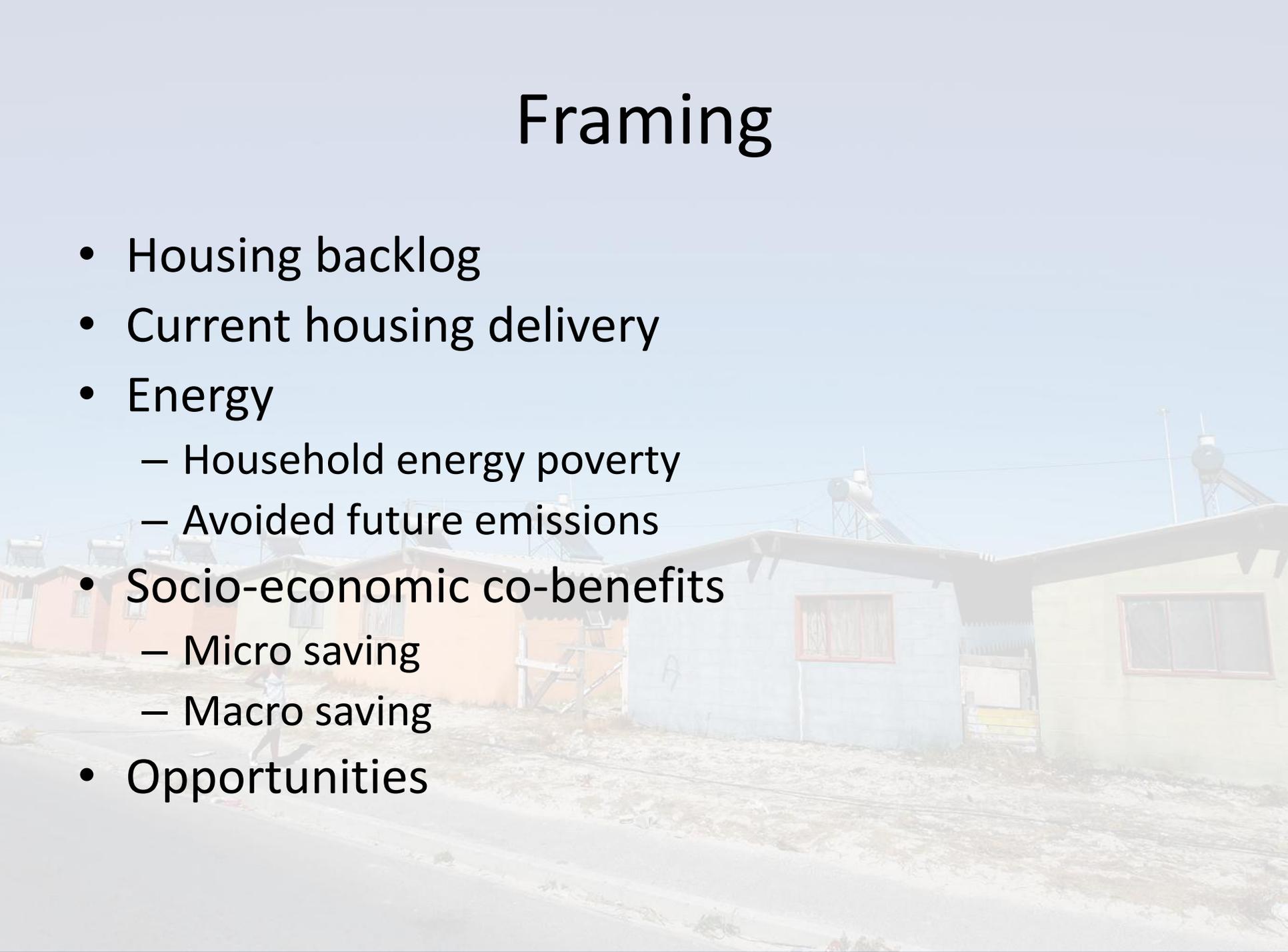
Presentation Format

- Framing
 - Chantal Naidoo
- History and Technical
 - Steve Thorne
- Scale-up
 - Carl Wesselink
- Financial and Institutional
 - Andrew Janisch
- Financial Question
 - Chantal Naidoo



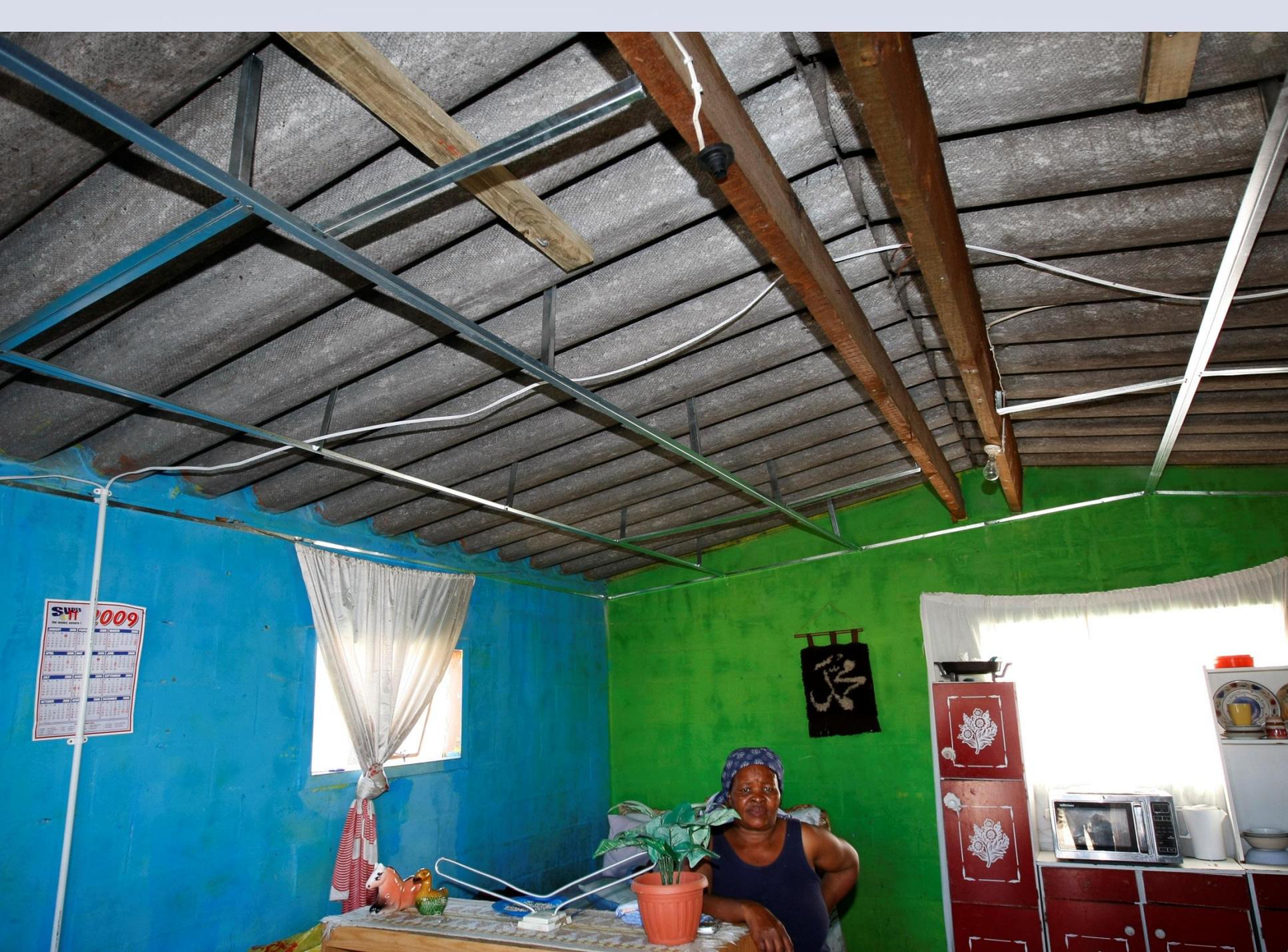
Framing

- Housing backlog
- Current housing delivery
- Energy
 - Household energy poverty
 - Avoided future emissions
- Socio-economic co-benefits
 - Micro saving
 - Macro saving
- Opportunities



THE CHALLENGE





SWP 2009
The monthly calendar for the year 2009, showing months and dates.

A black decorative hanging with white patterns, possibly a piece of fabric or paper.

Red kitchen cabinet with white floral patterns on the doors.

Microwave oven on the kitchen counter.

White kitchen counter with various items including a teapot and plates.



History

- 1980''s
 - Early experimentation
 - DMEA
- 1990''s
 - Energy Policy White Paper (1998)
 - Thermal performance of housing
- 2000's
 - Included in Energy Efficiency Strategy (2003)
 - Energy Efficiency Strategy (2009)
 - Thermal performance standards promulgated (2011)
 - Climate Change Response Strategy White Paper (2011)













Sustainable Settlements Facility

- Vision
 - Clearing house
 - Enables and incentivizes access to financing for clean energy services
- Mission
 - Administers a CDM programme
 - Leverages and manages access to additional upfront financing



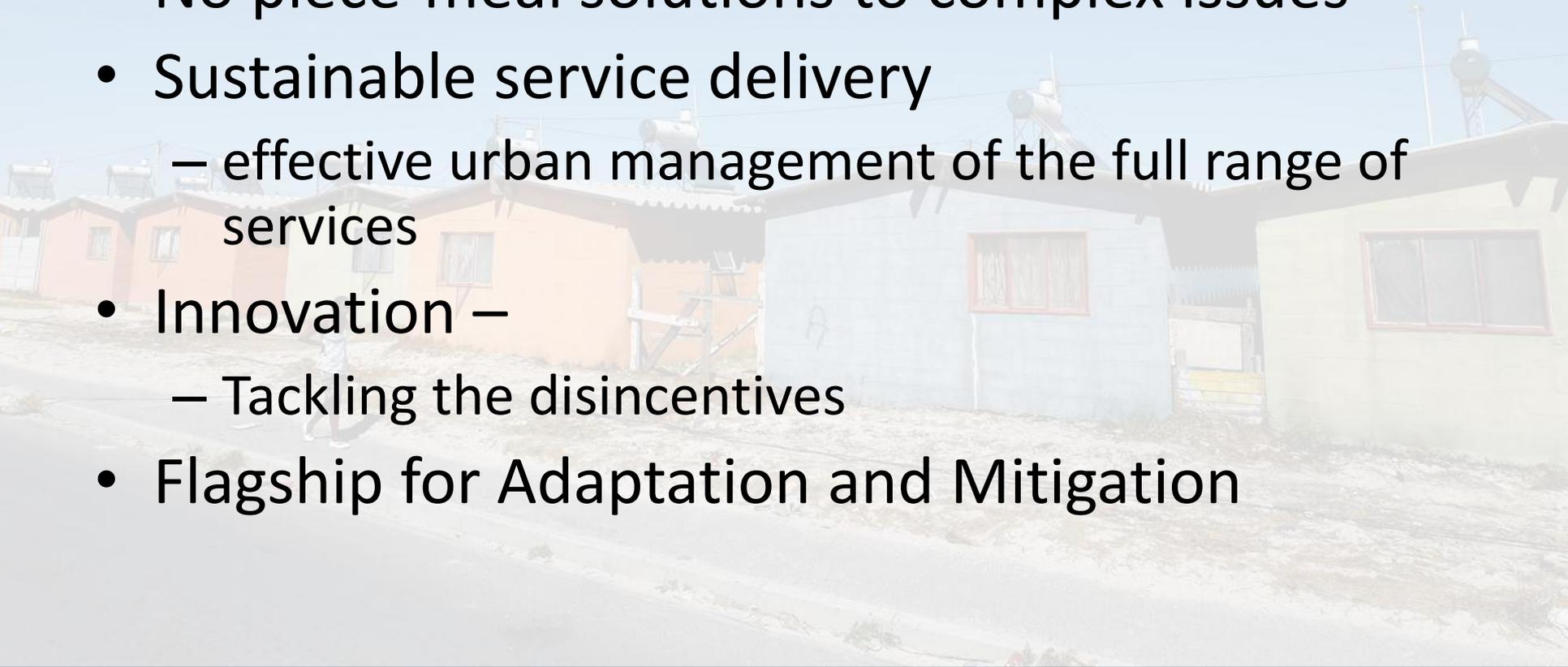
Sustainable Settlements Facility

Progress

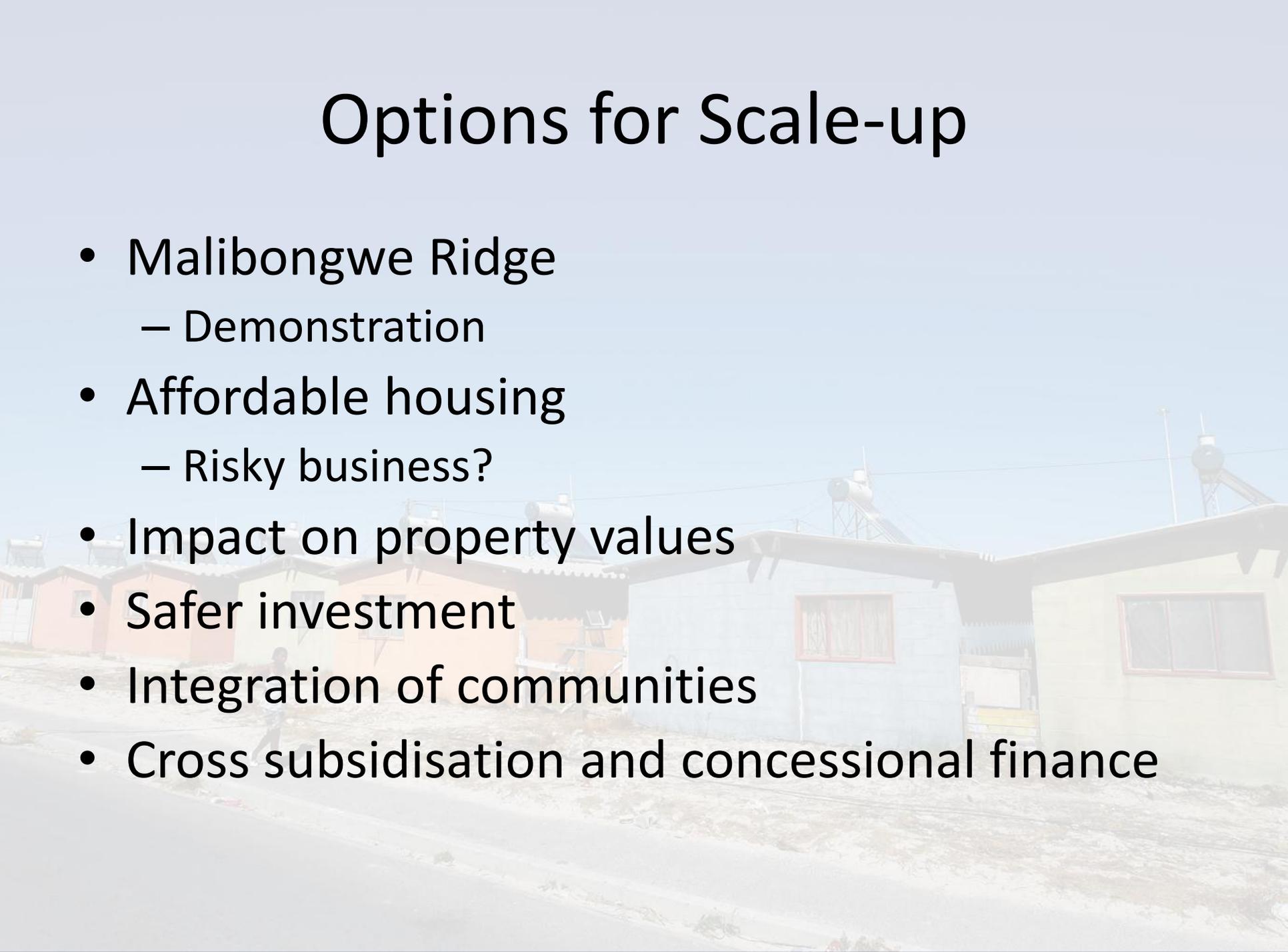
- Kuyasa developed as pilot
- Explore viable financial models for replication at scale
- Programmatic CDM approved
- Drafting group established
- Kuyasa implemented
- Development of business plan
- SWH and thermal efficiency methodology developed
 - CDM Executive Board approves a Suppressed Demand Standard

Options for Scale-up

- No longer a choice but a necessity (partly legislated)
- No piece-meal solutions to complex issues
- Sustainable service delivery
 - effective urban management of the full range of services
- Innovation –
 - Tackling the disincentives
- Flagship for Adaptation and Mitigation



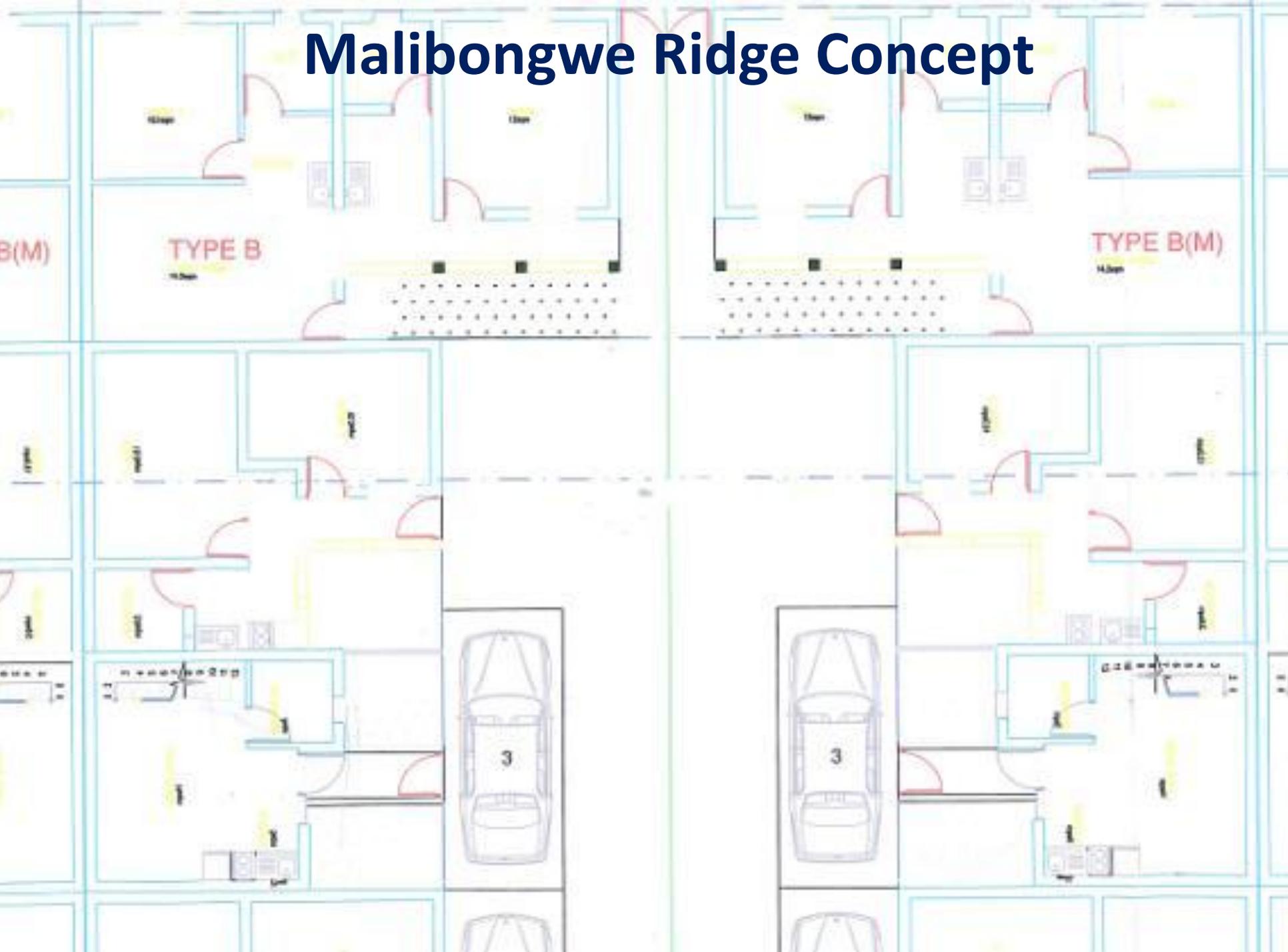
Options for Scale-up

- Malibongwe Ridge
 - Demonstration
 - Affordable housing
 - Risky business?
 - Impact on property values
 - Safer investment
 - Integration of communities
 - Cross subsidisation and concessional finance
- 

Malibongwe Ridge Concept

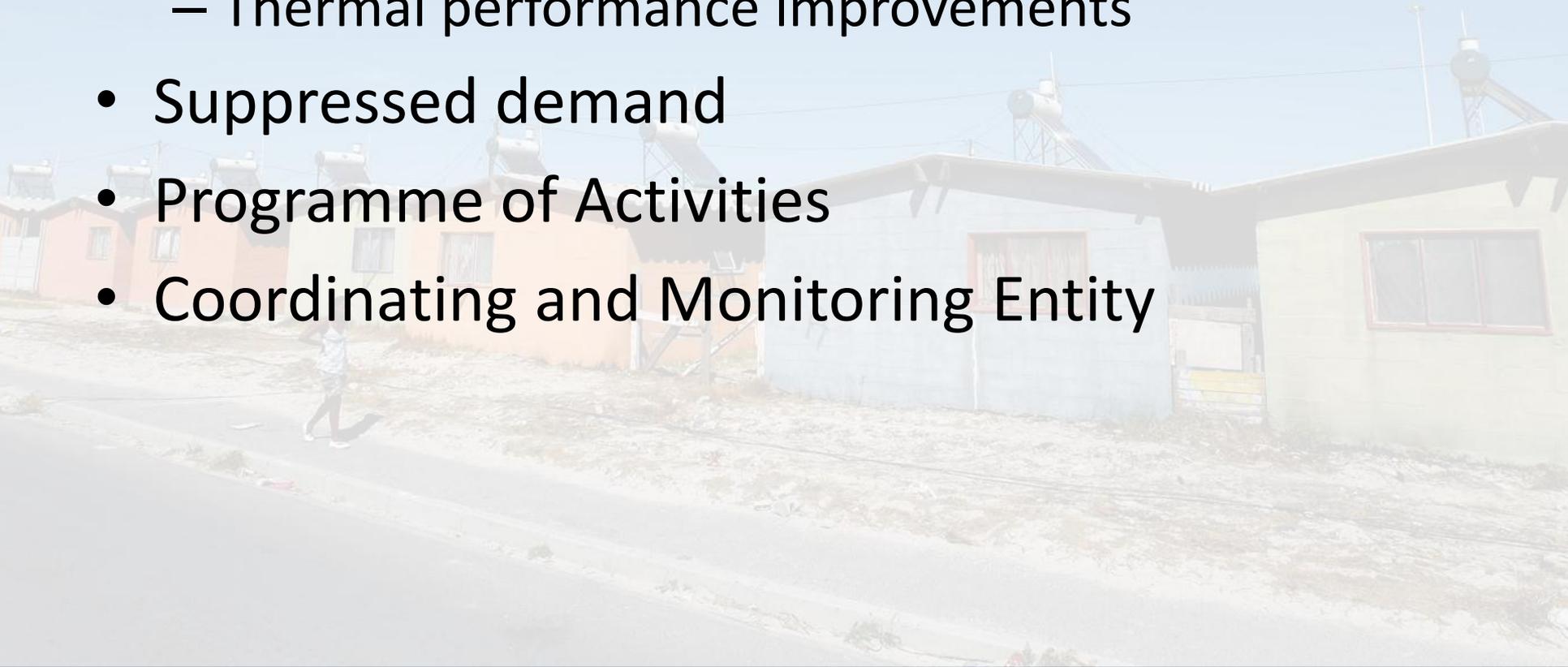


Malibongwe Ridge Concept



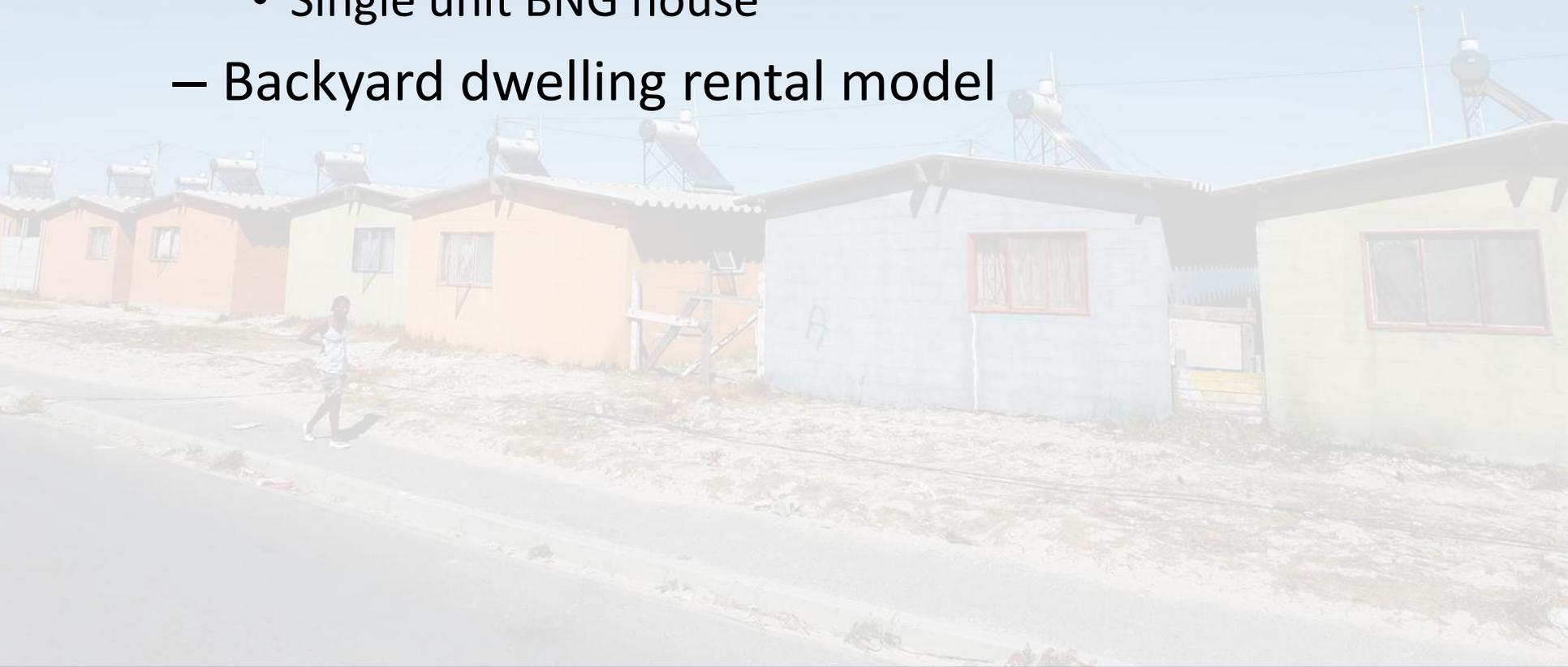
Technical Aspects

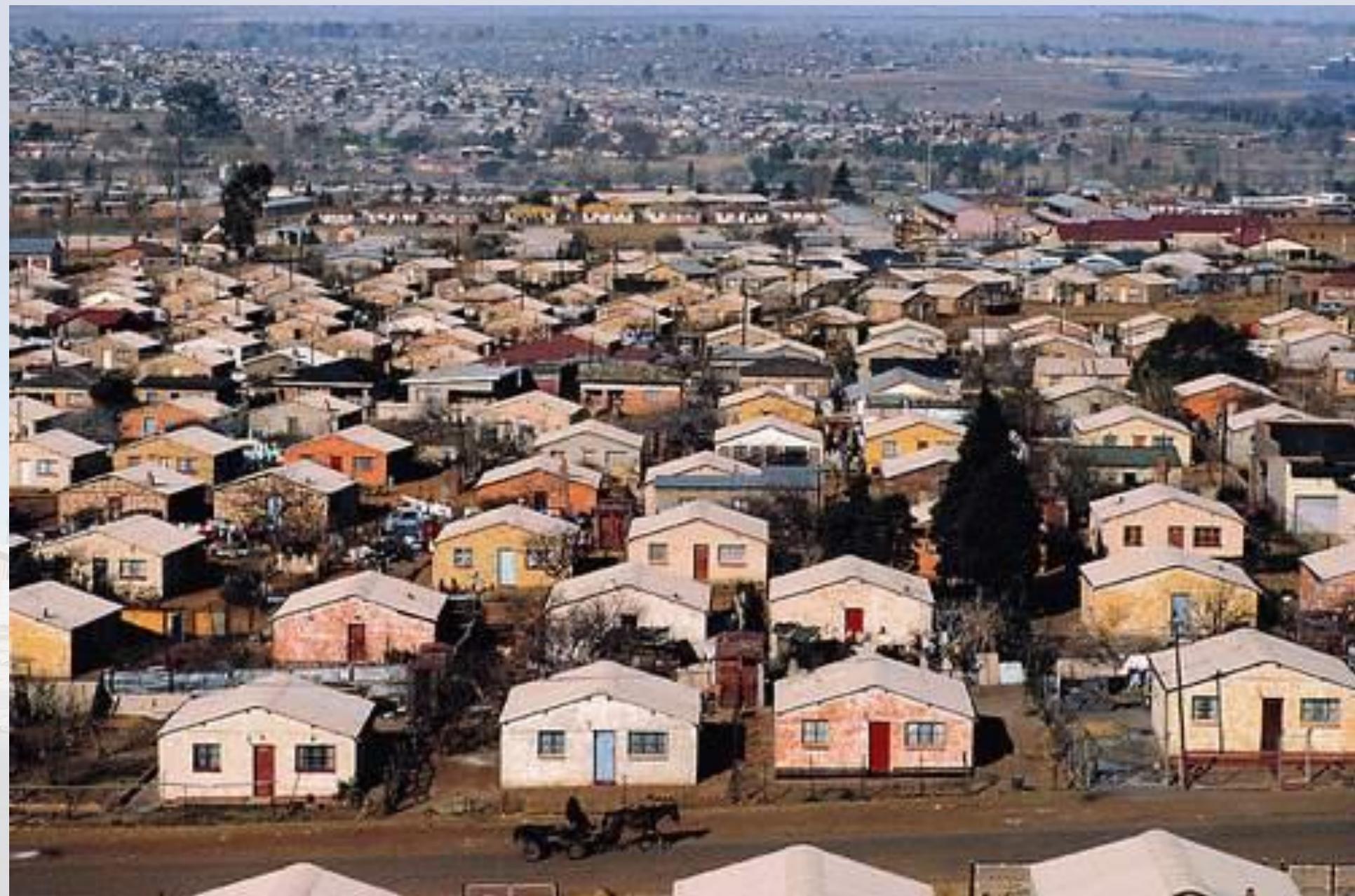
- Methodologies
 - SWH
 - Thermal performance improvements
- Suppressed demand
- Programme of Activities
- Coordinating and Monitoring Entity



Financial

- Two options going forward
 - Business as usual
 - Single unit BNG house
 - Backyard dwelling rental model





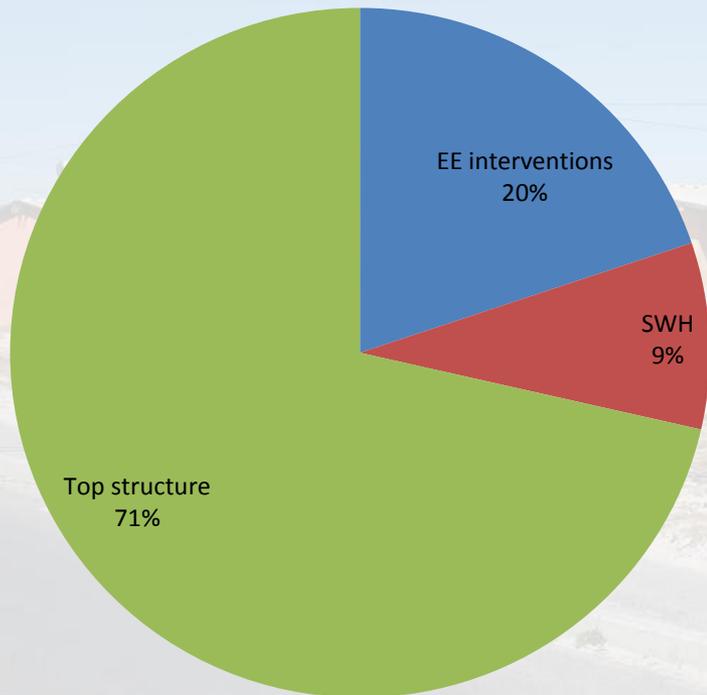
Financial Business as Usual Costing

New building subsidy (top structure): R54,000

	Intervention	Cost/m2	Costs
Roof insulation	Ceiling +160mm isotherm (R value 3.7)	R 190	R 7 608
Wall	Plaster inside and render outside	R 59	R 6 651
Shading	Overhang on North facing windows	R 100	R 0
Fenestration	5% extra window area		R 555
Orientation	Longest section to face north	R 0	R 0
Sub total			R 14 814
SWH (optional)	100l 10yr guarantee		R 6 000
Roof reinforcement for SWH			R 600
Sub total			R 6 600
Total			R 21 414

Financial Business as Usual

With sustainable interventions
Expenses

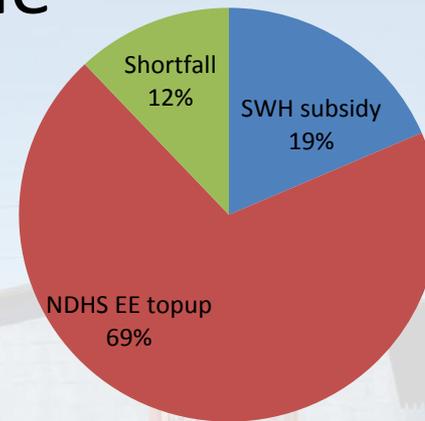
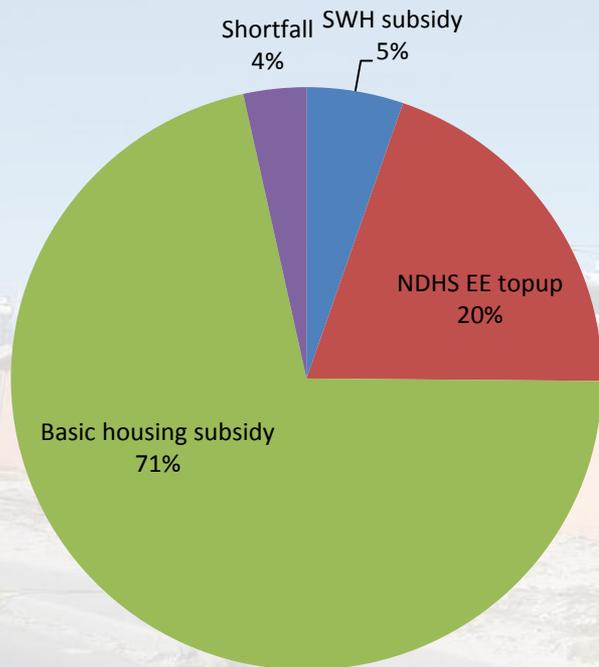


Expenses	
EE interventions	R 15 000
SWH	R 6 600
Top structure	R 54 000
TOTAL	R 75 600

Financial Business as Usual

With sustainable interventions

Income



EE Interventions Only

Income		Source
SWH subsidy	R 4 000	SWH subsidy
NDHS EE topup	R 15 000	NDHS
Basic housing subsidy	R 54 000	NDHS
Shortfall	R 2 600	Climate finance
TOTAL	R 75 600	

Annual Household Savings	
CO2 saved pa (T)	2.18
Electricity savings pa (kWh)	2179
Money saved pa	R 2 012

Financial Business as Usual Climate Finance for Programme

Loan summary for 1st 5 years:

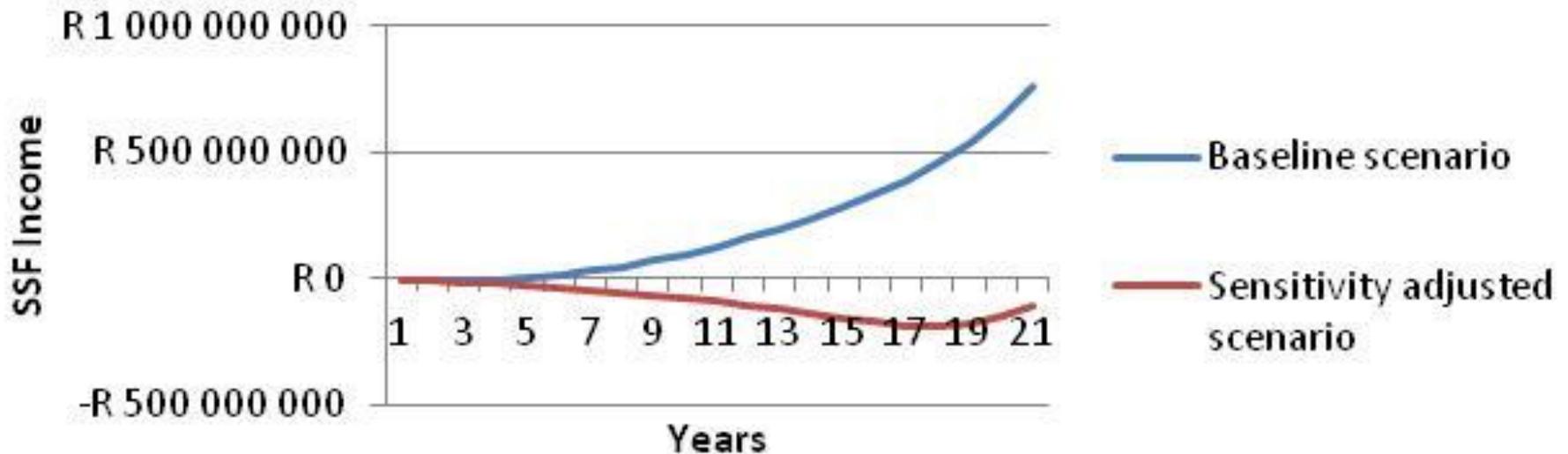
	Year 1	Year 2	Year 3	Year 4	Year 5
No of Houses	8800	18200	36400	73000	73000
Annual	R17 mil	R35 mil	R70 mil	R139 mil	R139 mil
Cumulative	R17 mil	R52 mil	R122 mil	R262 mil	R402 mil

Financial Business as Usual

Need long term low interest finance

Loan for 15 years @ 5% (blue) and @ 10% (red):

SSF Net Financial Flow (New Build)-
Interest rate sensitivity (cum)



Financial Backyard Dwelling Rental Model



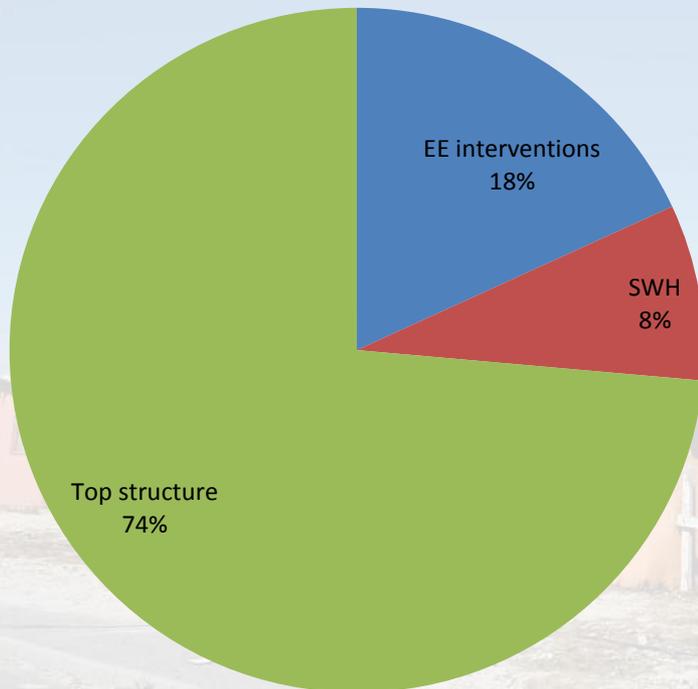
Financial

Backyard Dwelling Rental Model

Costing

	Intervention	Cost/m2	BNG House	Extra units	Total
Roof insulation	Ceiling +160mm isotherm (R value 3.7)	R 190	R 3 973	R 6 840	R 10 813
Wall	Plaster inside and render outside	R 59	R 8 446	R 6 209	R 14 655
Shading	Overhang on North facing windows	R 100	R 0	R 0	R 0
Fenestration	5% extra window area		R 555	R 555	R 1 110
Orientation	Longest section to face north		R 0		R 0
	Sub total		R 12 974	R 13 604	R 26 578
SWH (optional)	100l 10yr guarantee		R 6 000	R 6 000	R 12 000
Roof reinforcement for SWH			R 600	R 600	R 1 200
	Sub total		R 6 600	R 6 600	R 13 200
	Total		R 19 574	R 20 204	R 39 778

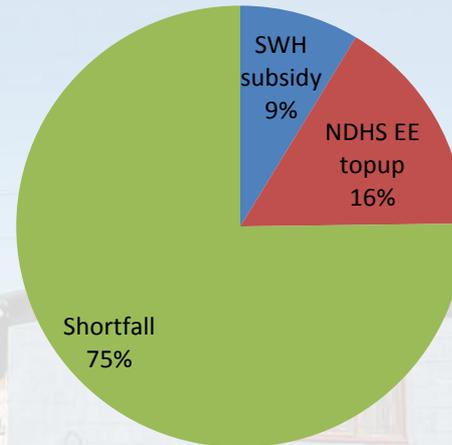
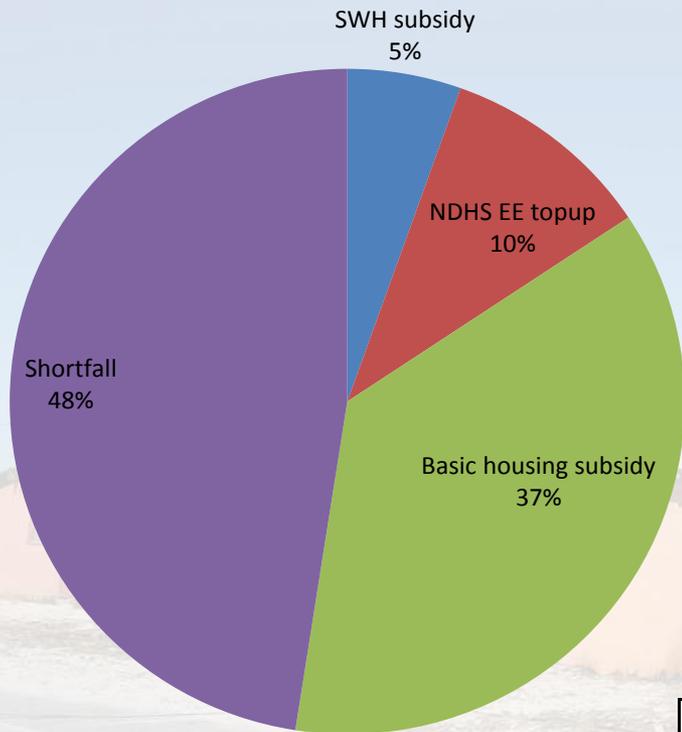
Financial Backyard Dwelling Rental Model Expenses



Expenses	
EE interventions	R 26 578
SWH	R 12 200
Top structure	R 108 000
TOTAL	R 146 778

Financial Backyard Dwelling Rental Model

Income



EE Interventions Only

Income		Source
SWH subsidy	R 8 000	SWH subsidy
NDHS EE topup	R 15 000	NDHS
Basic housing subsidy	R 54 000	NDHS
Shortfall	R 69 778	Climate finance
TOTAL	R 146 778	

Financial Backyard Dwelling Rental Model

Loan summary for 1st 5 years:

	Year 1	Year 2	Year 3	Year 4	Year 5
No of Houses	8800	18200	36400	73000	73000
Annual	R17 mil	R35 mil	R70 mil	R139 mil	R139 mil
Cumulative	R17 mil	R52 mil	R122 mil	R262 mil	R402 mil

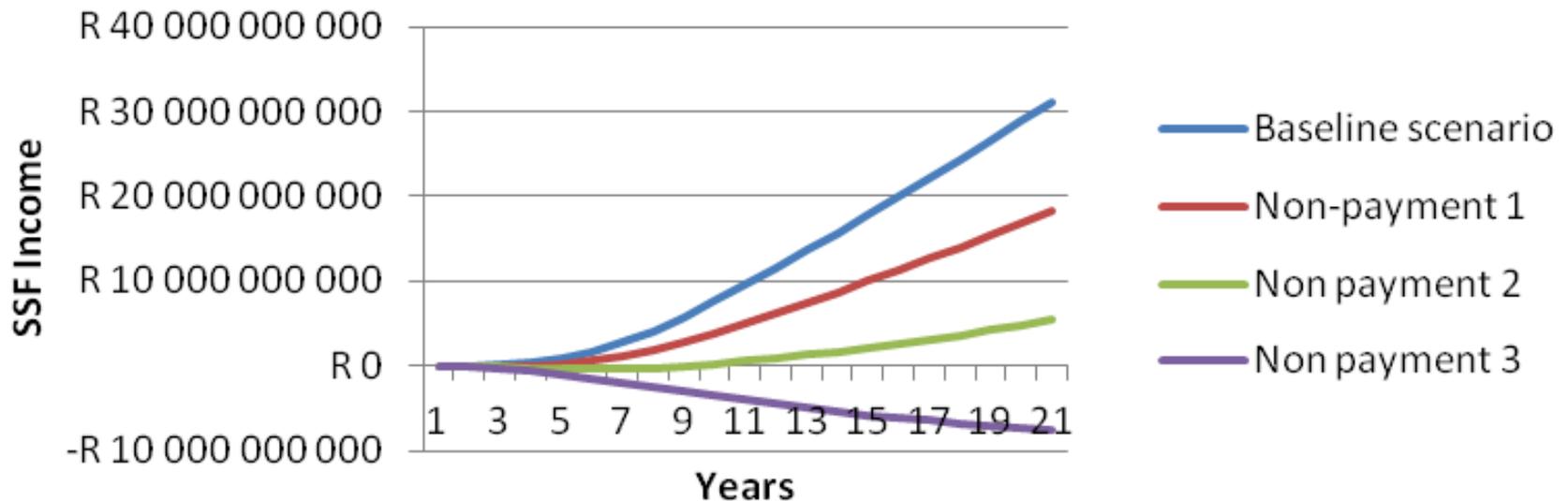
Financial Backyard Dwelling Rental Model

Need long term low interest finance

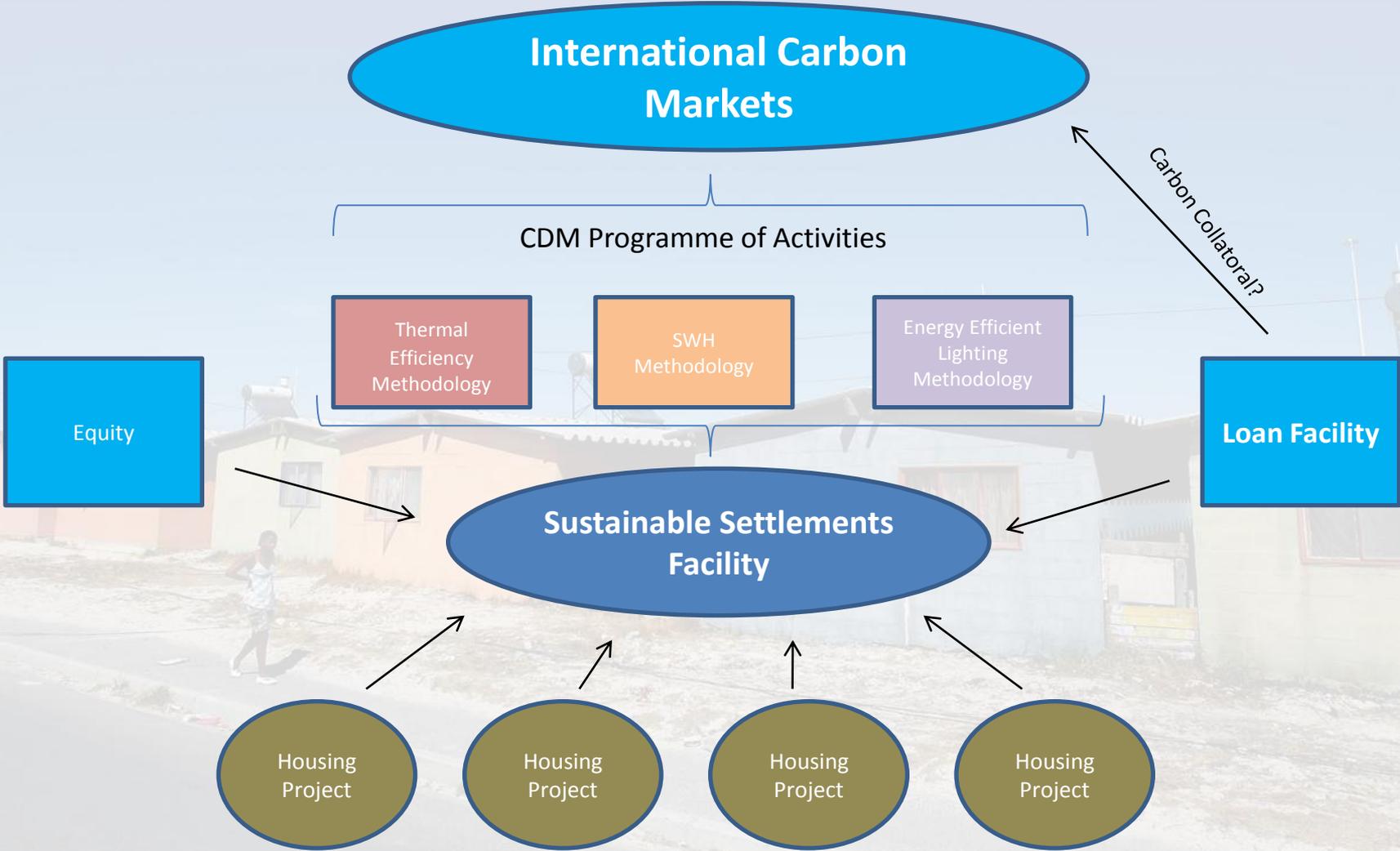
Loan for 8 years @ 5%

blue full repayment, red 10% non payment, green 20% non payment, purple 30% non payment

SSF Net Financial Flow (New Build)-
Non payment sensitivity (cum)



Institutional Sustainable Settlements Facility



Financial Question

