

Cool Surfaces for Building Envelop Energy Efficiency
**Scaled Pro-poor, Self-help Implementing Strategies
Toward an SME Driven Low-carbon Economy**

**DoE COP17 Flagship integrated Energy
Environment Empowerment – Cost
Optimisation (iEEECO™) Roll Out Program
Presentation**

Presented by

EnerKey



CONTENTS



- **Introduction**
- **Post COP17 Report Back After 14 Months**
- **Challenges/Barriers**
- **Proposal/Way Forward**



iEEECO Approach

Technical basis for innovative approach to development for the poor:

Mothusi Guy – Partner (ieeecedlg@gmail.com)

Mission: Implementation handover and roll out:

- **Knowledge and Effective use of Policy**
- **iEEECO Professional Services Network**
- **Experience from 18 Years of Projects on the Ground**
- **Partnership with local municipality and Provinces**

JULY 2012 PARLIAMENT



FLAGSHIP COP 17 STAKEHOLDER ENGAGEMENT DEC 2011



EASTERN CAPE KOUGA MUNICIPALITY RE SEMINAR



NEES AND NEEAP WORKSHOP



PHP DoHS



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WITSAND iEEECO™ BASELINE: **PENT UP DEMAND FOR BASIC SERVICES**



Photos by Susan Cook

WITSAND iEEECO™ BASELINE: FOCUS ON EMBEDDED ENERGY AND OTHER HUMAN SETTLEMENT RELATED SYSTEMS



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Photos by Susan Cook

iEEECO™ BASELINE: Include Negative Externalities: Defective Housing and Energy Systems



Photos by Susan Cook

iEEECO™
Positioning
Focus Area

Agenda 21 Objectives/ Challenges		Healthy and safe working environment	Contribute to poverty alleviation	Promoting energy efficiency	Reducing consumption of high quality drinking water	Selecting materials based on environmental performance
1	Integration of Economic, Social and Environmental Objectives	Highest Priority Focus Area for iEEECO™				Nice to have if available, appropriate, and cost effective
2	Education and Awareness					
3	Capacity Building					
4	Changing Consumption and Production Patterns					
5	Transfer of Environmentally Sound Technologies	HIGHER PRIORITY FOCUS AREA				
6	Fresh Water	HIGHER PRIORITY FOCUS AREA				
7	Energy	HIGHER PRIORITY FOCUS AREA				
8	Transport	LOWER PRIORITY FOCUS AREA				
9	Toxic Chemicals	HIGHEST PRIORITY LOW OCCURANCE				
10	Sustainable Human Settlements	HIGH PRIORITY FOCUS AREA				
11	Making Trade and Environment Mutually Supportive	HIGH PRIORITY FOCUS AREA				
12	Atmosphere	LOWER PRIORITY FOCUS AREA				

Introductions/Acknowledgements

- **Energy sector – (DoE, Portfolio Committee, Eskom IDM, Youth Development)**
- **EnerKey- (UJ Setar Centre, German Partners)**
- **SME Affiliates :**
- **VNA Solutions, Kalahari Solar, WEHBSO, TEPRASM**
- **Educational: FET Colleges, JUTA, SDN**
- **Professional Facilitation and Services teams**
- **Suppliers: RE, IDM, water and environmental savings**
- **SANEDI Collaboration**

Post COP17-Flagship Rollout Report Back since Nov. 2012

1. **Met with Municipal stakeholders in Gauteng, KZN, WC, EC and NC**
2. **Multiple sessions with Eskom, Enerkey, educational and research institutions looking at implementation**
3. **FET colleges and Juta on board for integrated development and rollout**
4. **Funding proposals submitted (DBSA, Eskom, Ithala Bank)** IDT Awarded iEEECO™ retrofit preplanning funding for Alex, Tembisa, Ivory Park
contact Joe Baleka
5. **Product suppliers and manufacturing affiliates vetted**

Others

- 1. Numerous meetings with Gov, Eskom, EnerKey and targeted municipalities around the country**
- 2. FET College collaboration agreements signed**
- 3. COGTA/Royal House of Griqua Nation**
- 4. SME development iEEECO™ Off-Grid Utility**
- 5. Witsand Phase 3**
- 6. Haiti**
- 7. Publication:**
 - 1. A South African Renewable Energy Guide for Local Government**

Stakeholder Levels

All Government Spheres

- DoE, SANEDI
- DST Cluster
- DoHS
- Environment

Educational/JUTA/SeTar

Professional Service Providers

Funders

Others

2015 MISSION

1. **SCALE UP, HANDOVER AND ROLLOUT**
2. **INTEGRATED SCALED SME IMPLEMENTATION
(SET ASIDE)**
3. **PROPER VALUATION AND PROMOTION OF THE
LOWER LSM ENERGY DRIVEN MARKET SECTOR**
4. **SPECIAL PURPOSE FUNDING MODEL**
5. **ppp**

VIABLE SME ACCESSABLE MARKET VALUATION

- NEGATIVE ENERGY EXTERNALTY COSTS VALUATION PER CAPITA
- INTERPRETATION OF POLICY DIRECTION INTO SCALEABLE SME MARKETS
 - DOOR-TO-DOOR MARKET (NEES, NEEAP)
 - ESKOM RMR, STANDARD PRODUCT
 - ENHANCED BASIC SERVICES
 - DoHS 0-4 LSM
 - NEW CLIMATE REGIONAL MODEL HUMAN SETTLEMENTS
 - RETROFITS
 - INFORMAL SETTLEMENT/BACKYARD DWELLERS

COP17 DoE iEEECO(TM) Flagship Program Objectives

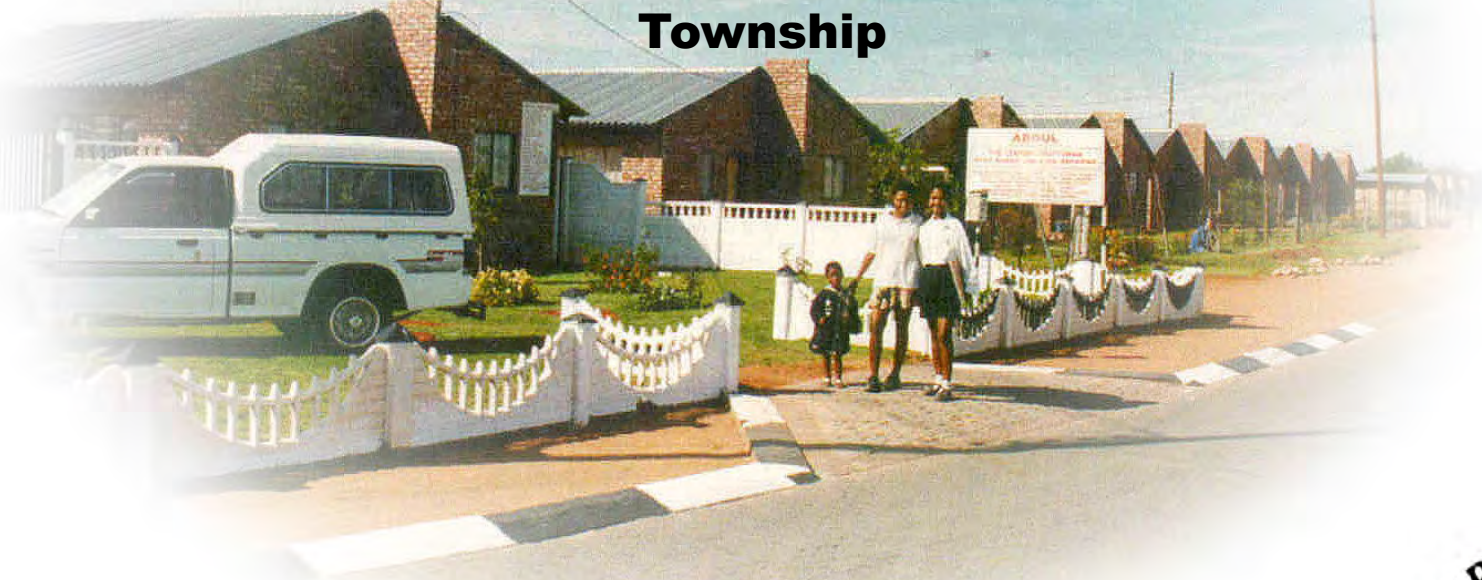
- 1. Greenfield iEEECO™ Human settlement benchmark project in each of 6 climate zones**
- 2. Retrofit upgrade 1 Million of the poorest of the poor nationally and 200K families in Gauteng and KZN**
- 3. Establish Regional Affiliates**
 - 1. KZN, JHB, NC, WC completed**

SA Export of iEEECO™ LSM 0-4 Off-Grid Program



Kutlwanong , Kimberley 1995-1998

**COP 3 Kyoto, Japan
No Regrets Project Award
SELF-HELP PHP Programme
Nobengula Street, Galeshewe
Township**



KUTLWANONG CIVIC INTEGRATED HOUSING TRUST
(KCIHT)



UNFCCC COP 17, FLAGSHIP 2010

Nobengula Street, Galeshewe



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WSSD Visitors August 2002

U. of. Wits ECO Village Johannesburg



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Soweto iEEECO™ House 2002



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Eastern Cape



Rural KZN



PEER Africa proposed solar water heater training and pilot site

Cape Town, Atlantis
Witsand iEEECO(TM) Village Portion 4
iEEECO(TM) Units East Side, North Face
09 August 2006

Units already north facing

semidetached

Unit w 1 slare geyser shared between two families



Elandsfontain



Benoni



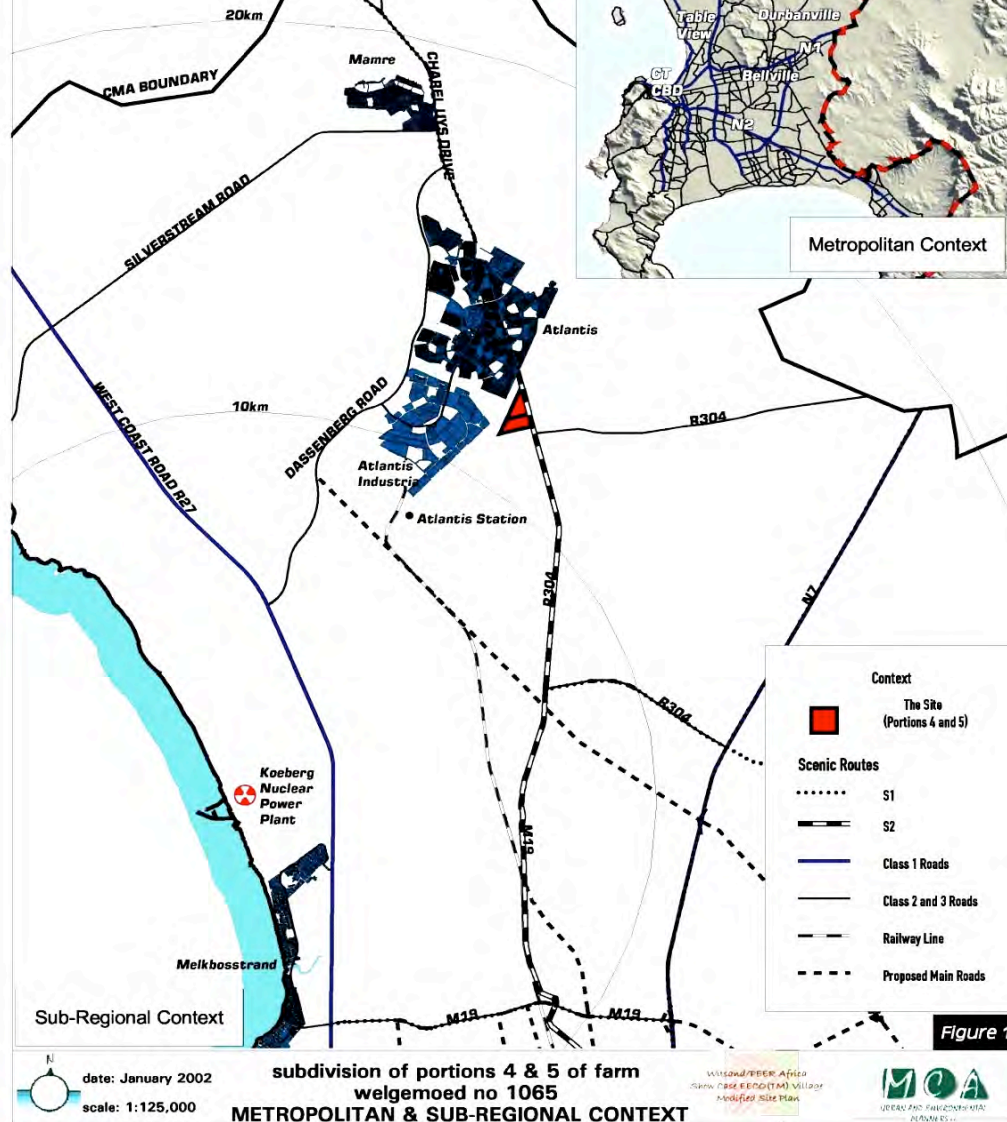


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Greenfield Application

WITSAND/PEER AFRICA
SHOW CASE
EECO(TM) VILLAGE
ATLANTIS, CAPE TOWN



City of Cape Town, Atlantis



WITSAND iEEECO(TM) Village Atlantis, Cape Town



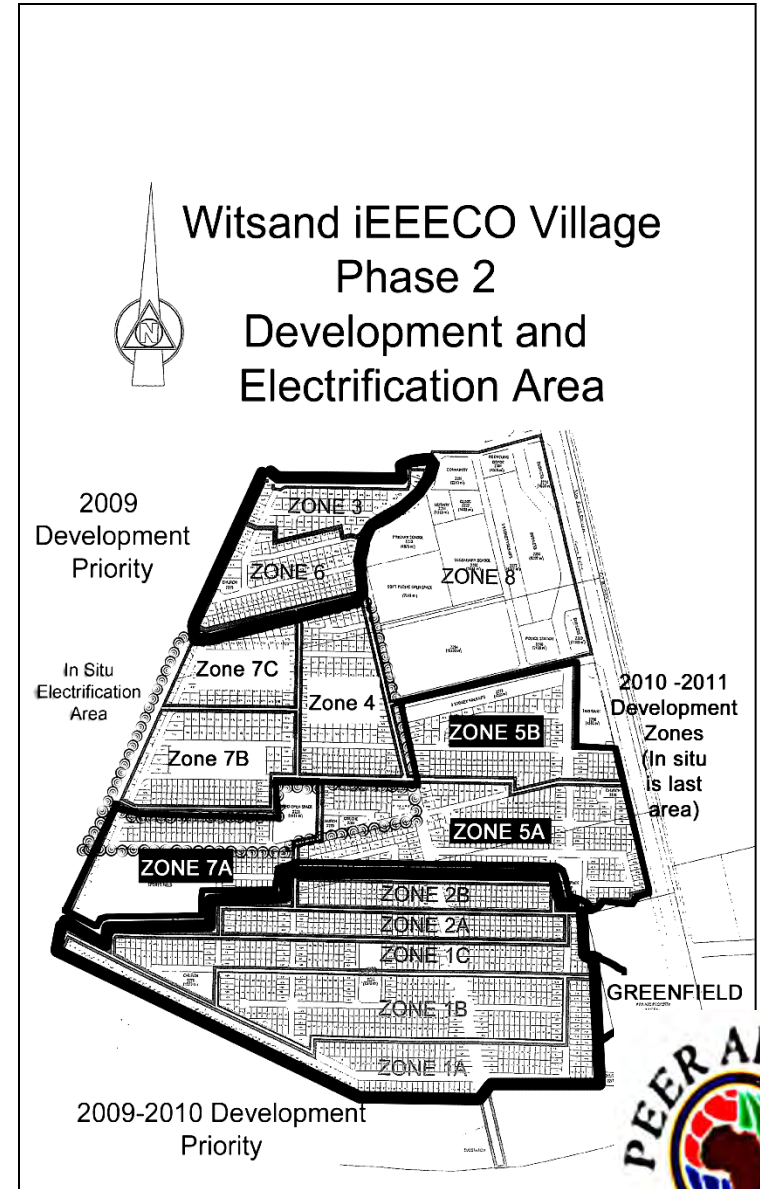
Pointer 33°35'04.09" S 18°30'20.87" E elev 488 ft

Streaming 100%

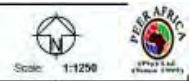
Eye alt 1224 ft

**Witsand iEEECO Project Team
Duke Gumede City PM
M. Guy Lead consultant**





ZONING TABLE			
ERVENR	ZONING	AREA (ha)	%
1 - 301	SINGLE RESIDENTIAL (EXISTING)		
302 - 496	SINGLE RESIDENTIAL (FREE-STANDING)		
497 - 554	SEMI-DETACHED DUPLEXES (SHOW HOUSES)		
555 - 656	SEMI-DETACHED SINGLE STOREY		
657 - 2271	SEMI-DETACHED DUPLEXES		
2272 - 2273	GENERAL RESIDENTIAL		
2274 - 2275	CHURCH		
2280 - 2284	HOSPITAL/EDUCATION		
2285 - 2290	BUSINESS		
2290	TAU BANK		
2291	COMMUNITY FACILITY		
2292	GENIC		
2293 - 2295	OPEN SPACE		
2296 - 2296	HAZARD OPEN SPACE		
2300	POLICE STATION		
2301	FIRE/STATION		
TOTAL			



Drawn: TM Date: JAN 2009

Drawing: REVIEW OF EXISTING BLOCKS: PORTION 5 & 6 OF PHASE 2

Project: FARM WELGEMOED NO. 1065, ATLANTIS

Client: CITY OF CAPE TOWN

MT LANDUSE & DEVELOPMENT CONSULTANCY
100% QUALITY SERVICE & ENVIRONMENTAL COMMITMENT
 Tel: 021 470 96 00
 Fax: 021 470 96 00
 Email: info@mtlanduse.co.za

Plan No: 1 Project No: D2008



LAND USE TABLE				
LAND USE	LAND USE	TOTAL HA	MAX HA	%
RESIDENTIAL (R)	General Residential (R1)	400	1000	10%
	Medium Density Residential (R2)	100	200	2%
	High Density Residential (R3)	100	200	2%
	Special Residential (R4)	100	200	2%
	Other Residential (R5)	100	200	2%
	Other Residential (R6)	100	200	2%
	Other Residential (R7)	100	200	2%
	Other Residential (R8)	100	200	2%
	Other Residential (R9)	100	200	2%
	Other Residential (R10)	100	200	2%
COMMERCIAL (C)	General Commercial (C1)	100	200	2%
	Medium Density Commercial (C2)	100	200	2%
	High Density Commercial (C3)	100	200	2%
	Special Commercial (C4)	100	200	2%
	Other Commercial (C5)	100	200	2%
	Other Commercial (C6)	100	200	2%
	Other Commercial (C7)	100	200	2%
	Other Commercial (C8)	100	200	2%
	Other Commercial (C9)	100	200	2%
	Other Commercial (C10)	100	200	2%
INDUSTRIAL (I)	General Industrial (I1)	100	200	2%
	Medium Density Industrial (I2)	100	200	2%
	High Density Industrial (I3)	100	200	2%
	Special Industrial (I4)	100	200	2%
	Other Industrial (I5)	100	200	2%
	Other Industrial (I6)	100	200	2%
	Other Industrial (I7)	100	200	2%
	Other Industrial (I8)	100	200	2%
	Other Industrial (I9)	100	200	2%
	Other Industrial (I10)	100	200	2%
RECREATION (R)	General Recreation (R1)	100	200	2%
	Medium Density Recreation (R2)	100	200	2%
	High Density Recreation (R3)	100	200	2%
	Special Recreation (R4)	100	200	2%
	Other Recreation (R5)	100	200	2%
	Other Recreation (R6)	100	200	2%
	Other Recreation (R7)	100	200	2%
	Other Recreation (R8)	100	200	2%
	Other Recreation (R9)	100	200	2%
	Other Recreation (R10)	100	200	2%



Scale: 1:1250

Drawn: TM Date: MARCH 2009

Drawing: REVIEW OF EXISTING BLOCKS: PORTION 1 & 2 OF PHASE 2

Project: FARM BELONGED NO. 161, ATLANTA

Client: CITY OF CAPE TOWN

MPLANNING & DEVELOPMENT CONSULTANCY
 101 ...
 102 ...
 103 ...

Plan No: 6 Project No: 20090

Traffic calming by adding curves etc to slow down traffic. Lock of 3 to 4 cycle points on SR20

To be signalled

To be signalled

NOTES
 For any reason resolution is required.
 All dimensions and areas are approximate and subject to ground conditions. For detailed information refer to the relevant drawings.

To be signalled



Passive solar design
 Automatically saves energy
 House offers high service level

Insulated Ceiling



North facing
 Orientation



Witsand Community Based Micro RE Hybrid Systems iEEECO™ Off Grid Utility



LT2: LT2 Data Logger. Sample Interval Is 30 Mins

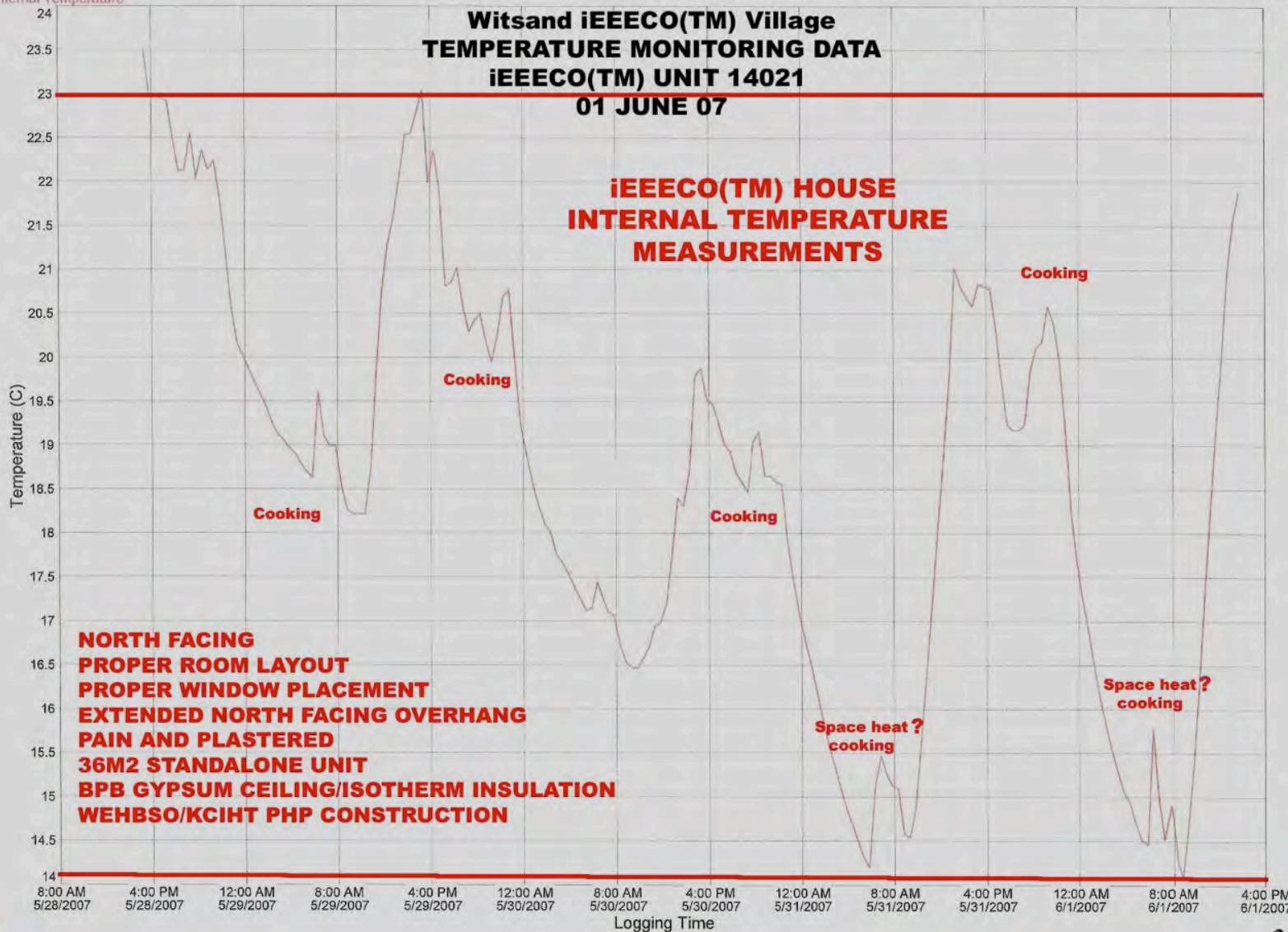
Internal Temper

Internal Temperature

Witsand iEEECO(TM) Village TEMPERATURE MONITORING DATA iEEECO(TM) UNIT 14021 01 JUNE 07

iEEECO(TM) HOUSE INTERNAL TEMPERATURE MEASUREMENTS

**TOTAL
TEMPERATURE
SWING INSIDE
+9 DEGREES**



**NORTH FACING
PROPER ROOM LAYOUT
PROPER WINDOW PLACEMENT
EXTENDED NORTH FACING OVERHANG
PAINT AND PLASTERED
36M2 STANDALONE UNIT
BPB GYPSUM CEILING/ISOTHERM INSULATION
WEHBSO/KCIHT PHP CONSTRUCTION**



2000 * 1 TON CO₂E * 20 YEARS

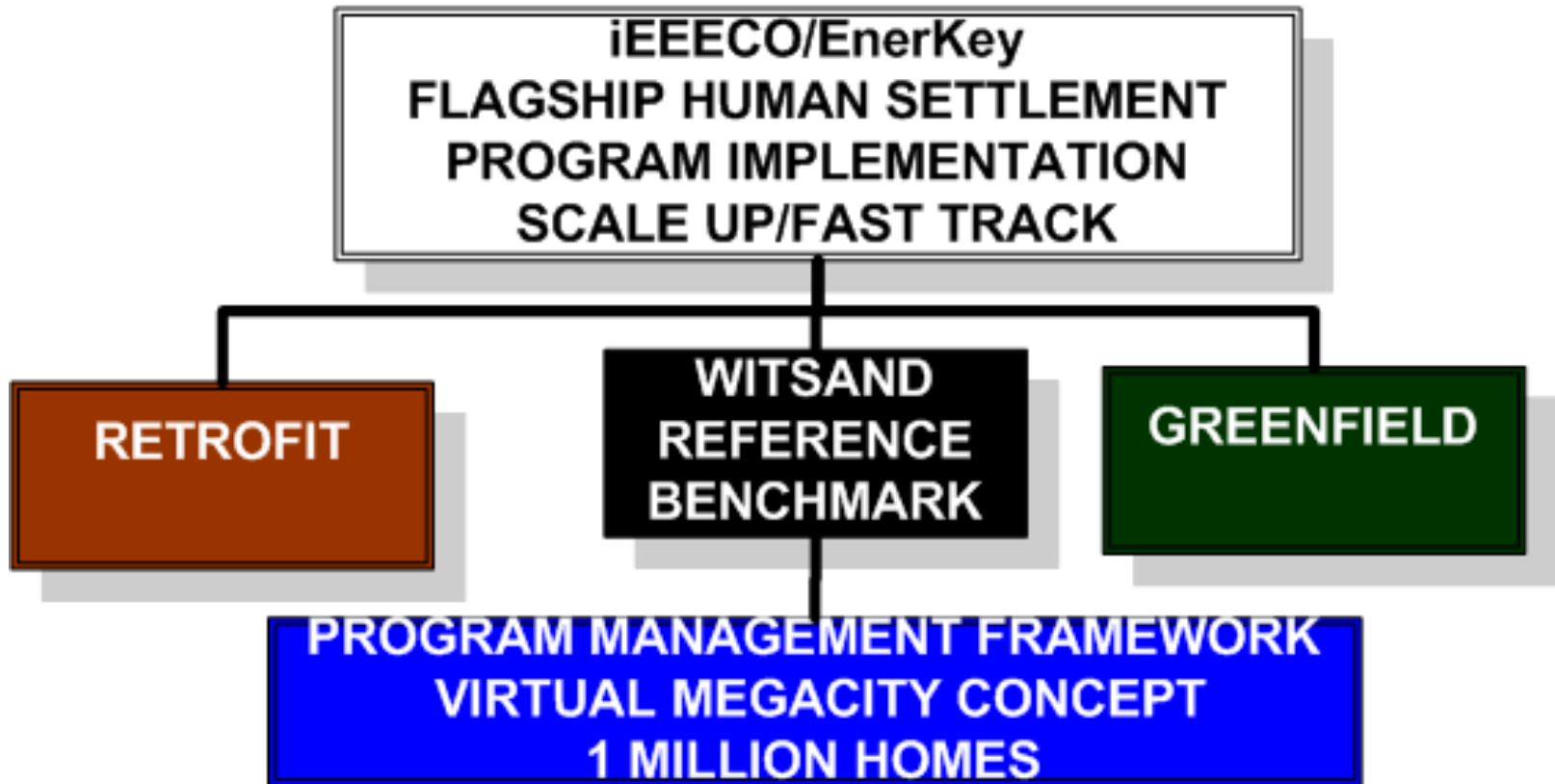
2000 * NEEC FACTOR * 20 YEARS

2000 * 10% LOWER ENERGY OPERATING COSTS * 5 YEARS

300 LOCAL JOBS FOR 5 YEARS



iEEECO Implementation Framework



Need to
Plan for
mistakes



Thank You

D. Mothusi Guy / Thami Eland

Cofounder PEER Africa

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