WHAT CAN URBAN SUSTAINABILITY EXPERIMENTS DO?

WUF9

Side Event at Ninth Session of the World Urban Forum
Kuala Lumpur
13 February 2018

urbanenergytransformations.co.za

smart-eco-cities.org

ESRC ECONOMIC & SOCIAL RESEARCH COUNCIL

国家自然科学基金委员会
NSFC
National Natural Science Foundation of China

NRF | National Research Foundation

Newton Fund

UNIVERSITY OF EXETER

KING'S College LONDON

Beyond the Rhetoric

Power relations: uneven field of experimentation

Who gets to decide what counts as success?

Are people necessarily happy to be experimented on?

Social experiments have a dark historical side

Questions: What Can (and Can't) Urban Sustainability Experiments Do?

- Under what conditions have urban experiments led to transformational change?

- When do 'failures' present opportunities for social learning?

- Should wealthy administrations be approaching innovation differently to less prosperous ones?

- How do we measure the achievements of experiments that are successfully scaled-up or replicated elsewhere?

- Who is being experimented on in the urban laboratory?

- What challenges to transformational change are presented by starting small?

The iShack Project

- *Sustainable business models for off-grid utilities to provide services to urban informal settlements.*
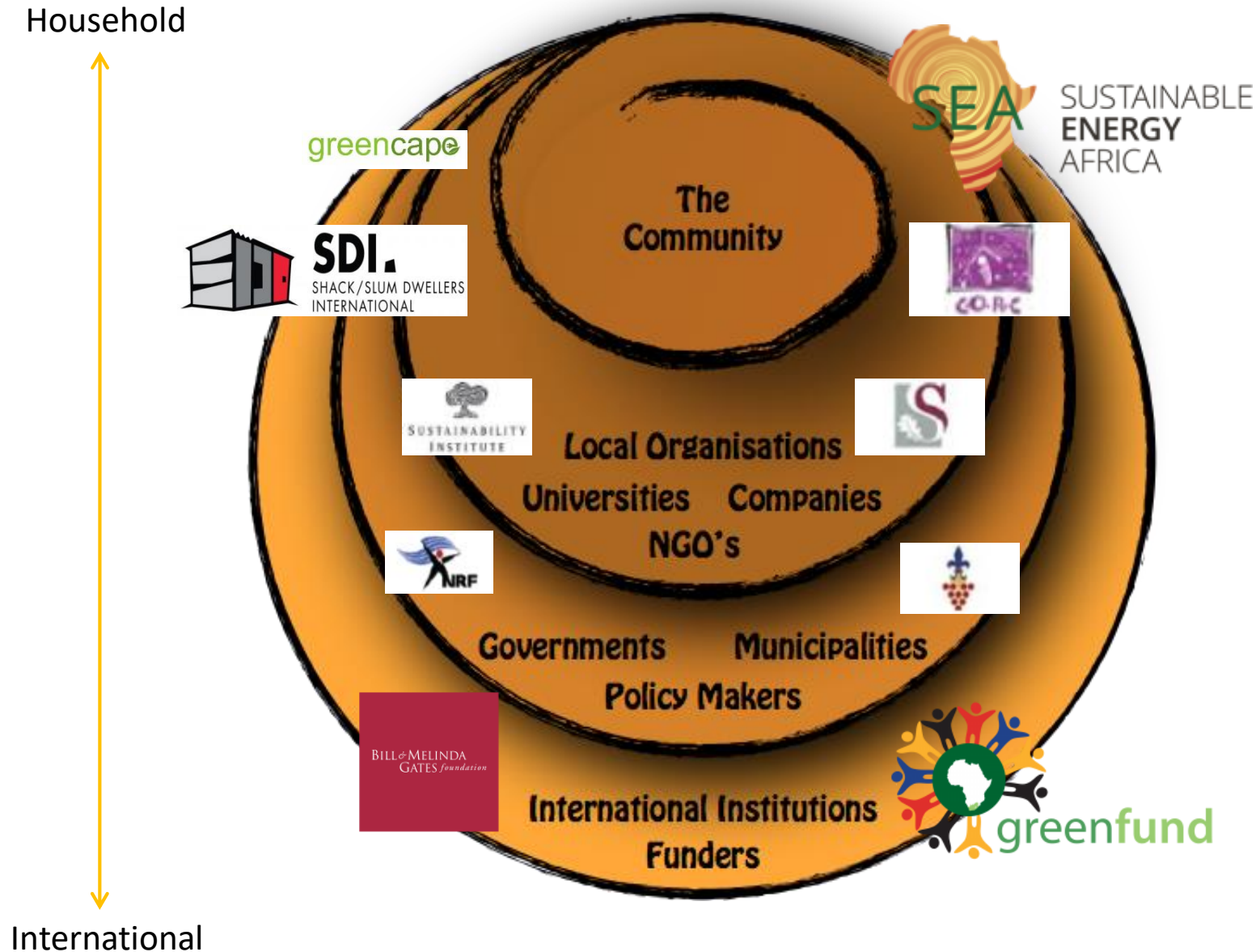
- **David Hees**
- Solar Utility Manager
- Sustainability Institute Innovation Lab

Upgrading of Informal Settlements

- Upgrading Informal Settlement Programme(2009)

- Promotes & provides finance to municipalities for upgrading projects.

- Incremental 'in situ' upgrading of settlements in a phased manner.

- Creates a real challenge for engineers as apposed to 'blank canvas' infrastructure design.

- Leads to waiting period for grid-connection aprox. 8-10yrs for urban settlements.

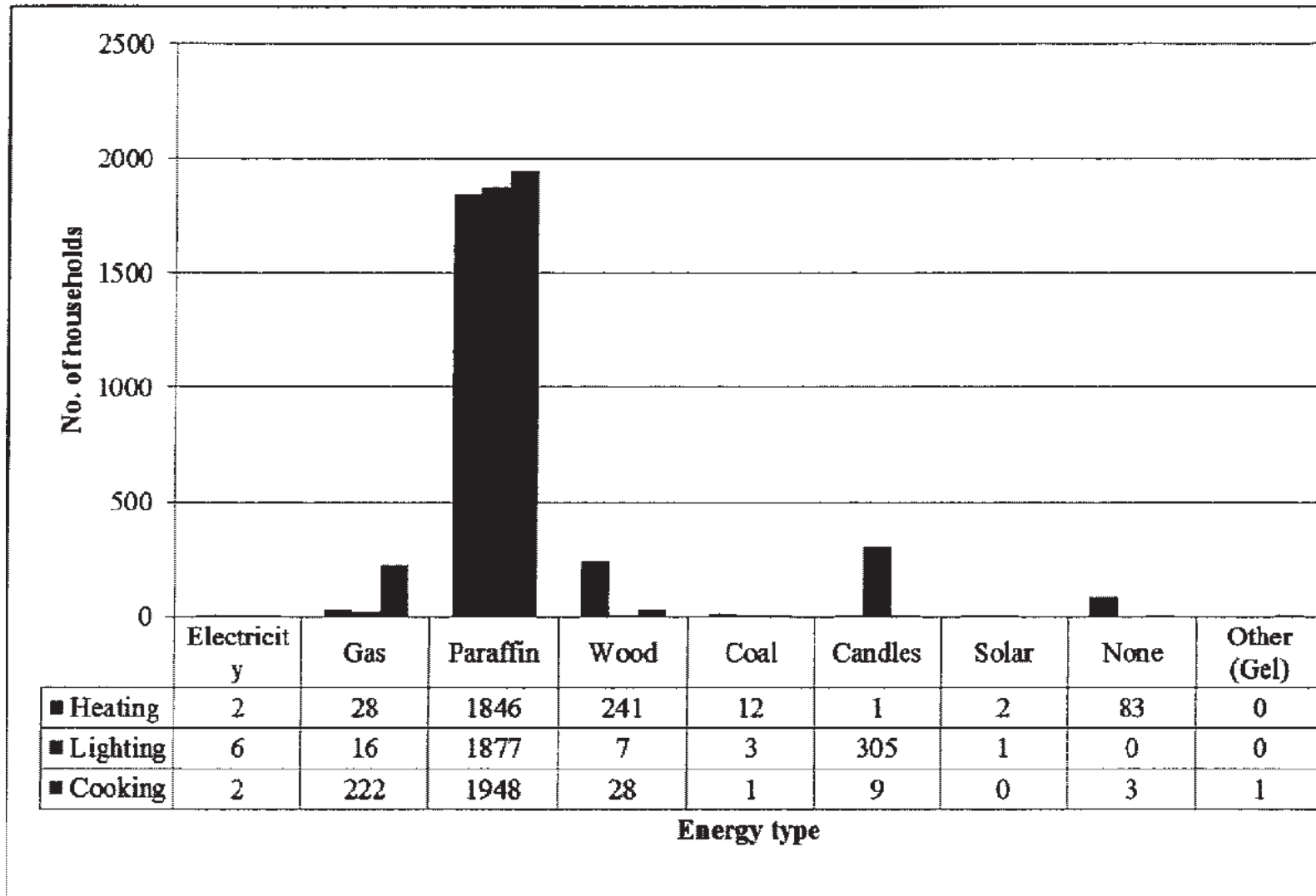# Transdisciplinary Research & Stakeholders

ENKANINI - Service Delivery
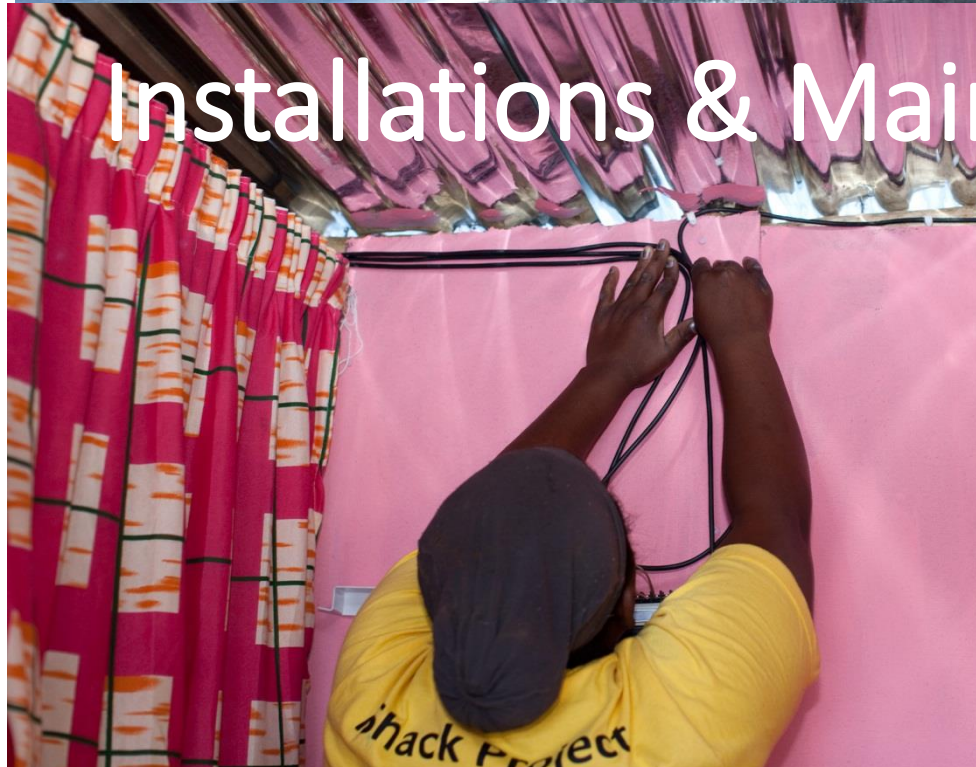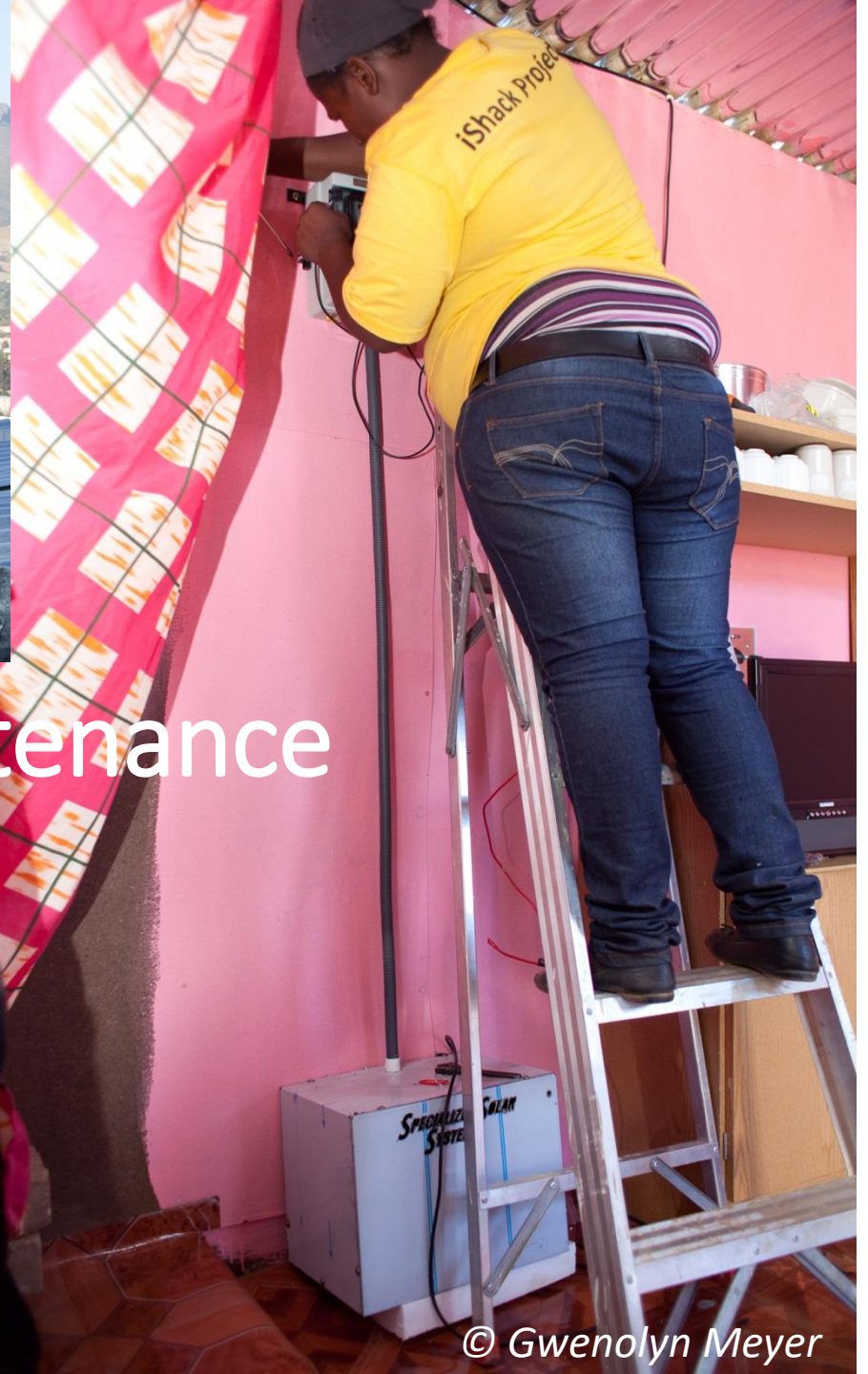
ENKANINI - Fuel types

	Electricity	Gas	Paraffin	Wood	Coal	Candles	Solar	None	Other (Gel)
■ Heating	2	28	1846	241	12	1	2	83	0
■ Lighting	6	16	1877	7	3	305	1	0	0
■ Cooking	2	222	1948	28	1	9	0	3	1

Energy type

iShack Hub

- Centralized operational base

- Client walk-in service

- Client contracting

- Weekly Training

Installations & Maintenance

© Gwenolyn Meyer

Solar Home System 12V

- 100Wp solar panel

- 100ah SLA battery (steel box)

- DB Box (charge controller & GSM)

- 12V DC & Plugbox

- 3 LEDs (3W)

- 15" Colour TV (24W)

Enterprise Model Evolution

- **Fee for service (Monthly Contract)**- Monthly fee for service that is an ongoing maintenance contract.

- **Pay As You Go (PAYG)** – client buys 'e-time' for a number of days

- **'Free Basic' Solar (Subsidised)** - Entry-level system, client pays deposit but NO monthly fee .

'Free Basic Solar': 3 LEDS + cell charging

300 mm

89 mm

202 mm

Solar Panel Input
Max. Input Voltage 22V

6x DC Outputs
12V 5A

2x USB Outputs
5V 1A

~ 27 min. remainning

iShack Web Platform

Off-Grid urban service delivery:

- Public-Private Partnership organisational structure
- Social Process & Steering committee essential
- Bespoke business models that are replicable and scalable
- Technology agnostic approach
- Incubation period as a case study for other municipalities and communities.
- Potential to fill the 'energy access gap'

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The development of a South African innovation ecosystem
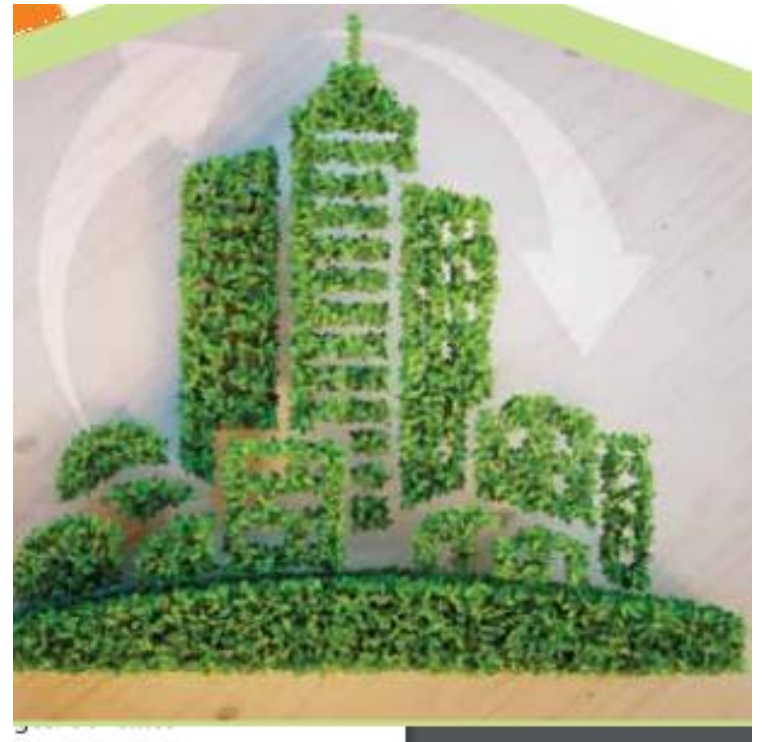## The example of the Nelson Mandela Bay innovation forum

Melissa Kerim-Dikeni,- PhD candidate University of Cape Town

Collaborative hubs bringing together policy makers, business, researchers, service providers, universities, think tanks...

... in order to build and sustain growth that benefits not only organisations but also the life of city's inhabitants

The Nelson Mandela Bay innovation forum

Started in 2010 with 17 organizations

In 2016 : 723 Members

The Propella incubator

"*Propella Business Incubator seeks to grow the critical mass of innovators in the region, and encouraging entrepreneurs to stay in region and contribute to the sub-national economy.*"
Nelson Mandela Bay website

Why is it a success?

Conditions of success

- Leadership

- Mandate

- Partnerships

- focus on the comparative advantage of the region
GIZ, 2015 "Innovation Systems in Metropolitan Regions of Developing Countries: Challenges, Opportunities and Entry Points".

Benefits

- Risk sharing

- Encourage citizen engagement

- Partnerships and horizontal cooperation

- Enhanced service delivery

Challenges

- **Resources**

- **Not perceived as a priority**

- **Time**

- **Culture of innovation at the local level**

THANK YOU

Melissa Kerim-Dikeni

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Corridor Manchester

Dr Robert Cowley
WUF9 Feb 2018

Network of key local actors includes:

Manchester City Council
Transport for Greater Manchester

Manchester's two universities

Two large National Health Service Trusts

Arup, Cisco UK, BT, Siemens
Other small tech cos

Manchester Science Partnerships

Royal Northern College of Music
Whitworth Gallery

Future Everything (digital grass roots org)

Examples of Projects

Triangulum (mobility, energy, ICT systems – for replication)

City Verve (Internet of Things demonstrator and platform)

Intelligent street lighting trials

MadLab (Manchester Digital Laboratory) – NGO status – ongoing workshops

Smart Citizen Manchester (low cost citizen-run sensor network)

i-trees (detailed data on environmental effects of trees)

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smartecocities

www.smart-eco-cities.org

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'Smart City' Experimentation in Ningbo, China

May Tan-Mullins and Ali Cheshmehzangi
The University of Nottingham Ningbo China

World Urban Forum
8-13 February 2018

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

smartecocities

- **Objective:** Understand effects of "Smart" and/or "Eco" positioning of cities

- **Means:** Comparing cases (cities + projects) from China & Europe (UK, NL, FR, GER)

- **Period:** 3 years (April 2015 – April 2018)

- **Funding:** 5 national research funders (ESRC, NWO, ANR, DFG & NSFC)

- **Partners:** University of Nottingham Ningbo China (UNNC), University of Exeter, Westminster, Cardiff, Plymouth, KCL, Utrecht, TUDelft, Toulouse, CNRS, & Freiburg

Smart Eco-Cities?

- "Sustainable development" as the solution
- "Smart Eco-cities" as experimental cities that are positioned as pioneering in digitization and in environmental policies (incl. "low-carbon" etc.)
- A dominating trend in large cities of China, Europe, and North America.
- Typical relationships of Smart/Eco differ regionally.

Chinese sources define smart city in a variety of ways ranging from economic potential of digital technologies and a digital economy, to engineering, planning and urban lifestyle and experience dimensions of smart cities in the age of "internet of things"

16 March 2014, National Urbanisation Plan (2014-2020)

1. Broadband information and communication network,
2. Digitisation of planning and management,
3. Smart infrastructure,
4. Convenient public services,
5. Development of modern industry and finally
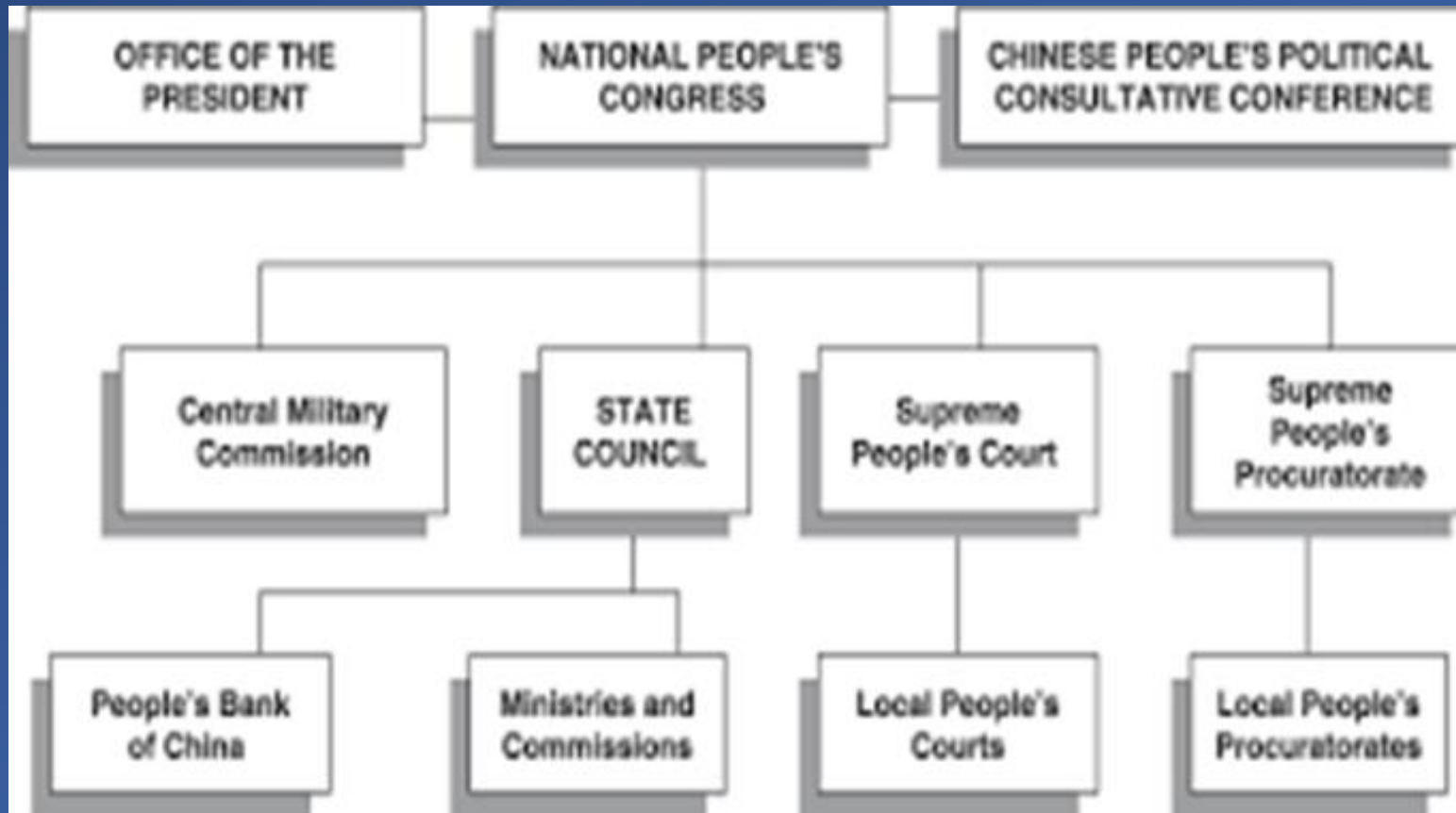6. Meticulous social government.
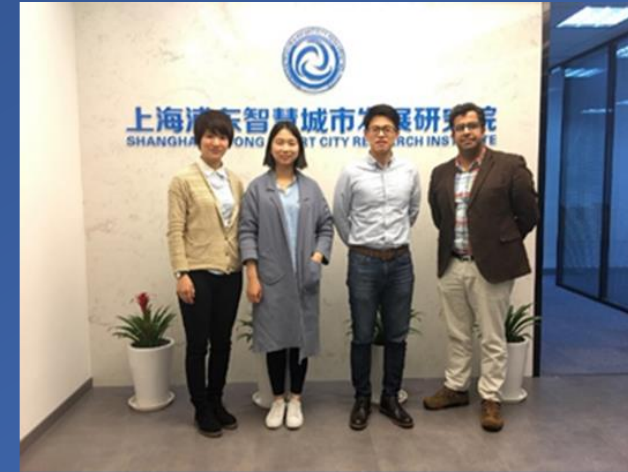
Central Policies

- Actors include: Politburo, State Council, National Development and Reform Council (NDRC), Ministry of Housing and Urban-Rural Development (MOHURD), Ministry of Environmental Protection and Ministry of Finance
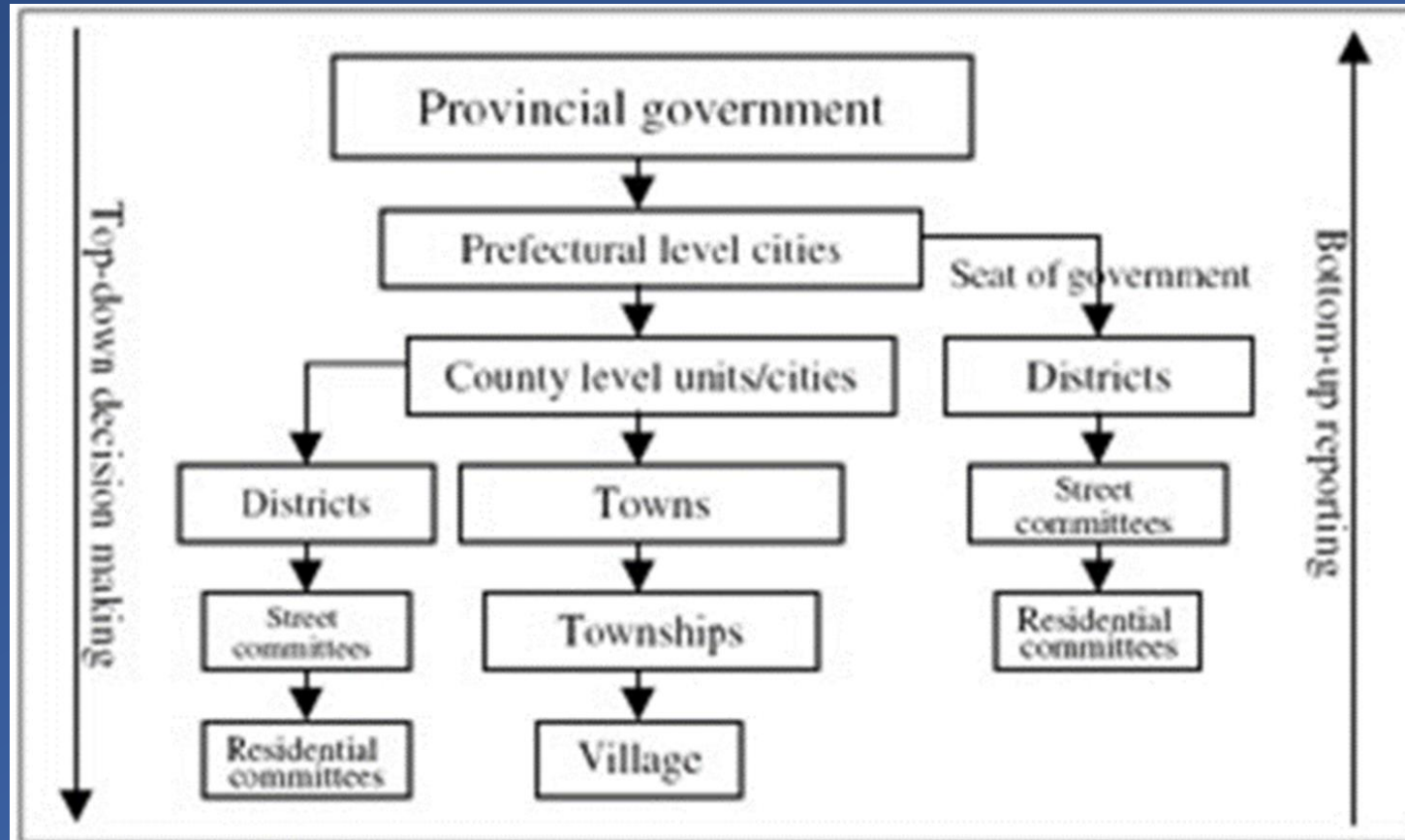
Actors

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

Other governemental departments

Ninbo Academy of Smart City Development

Expert consultation group

Smart office

Smart City Construction Leading Group (Ningbo municipality)
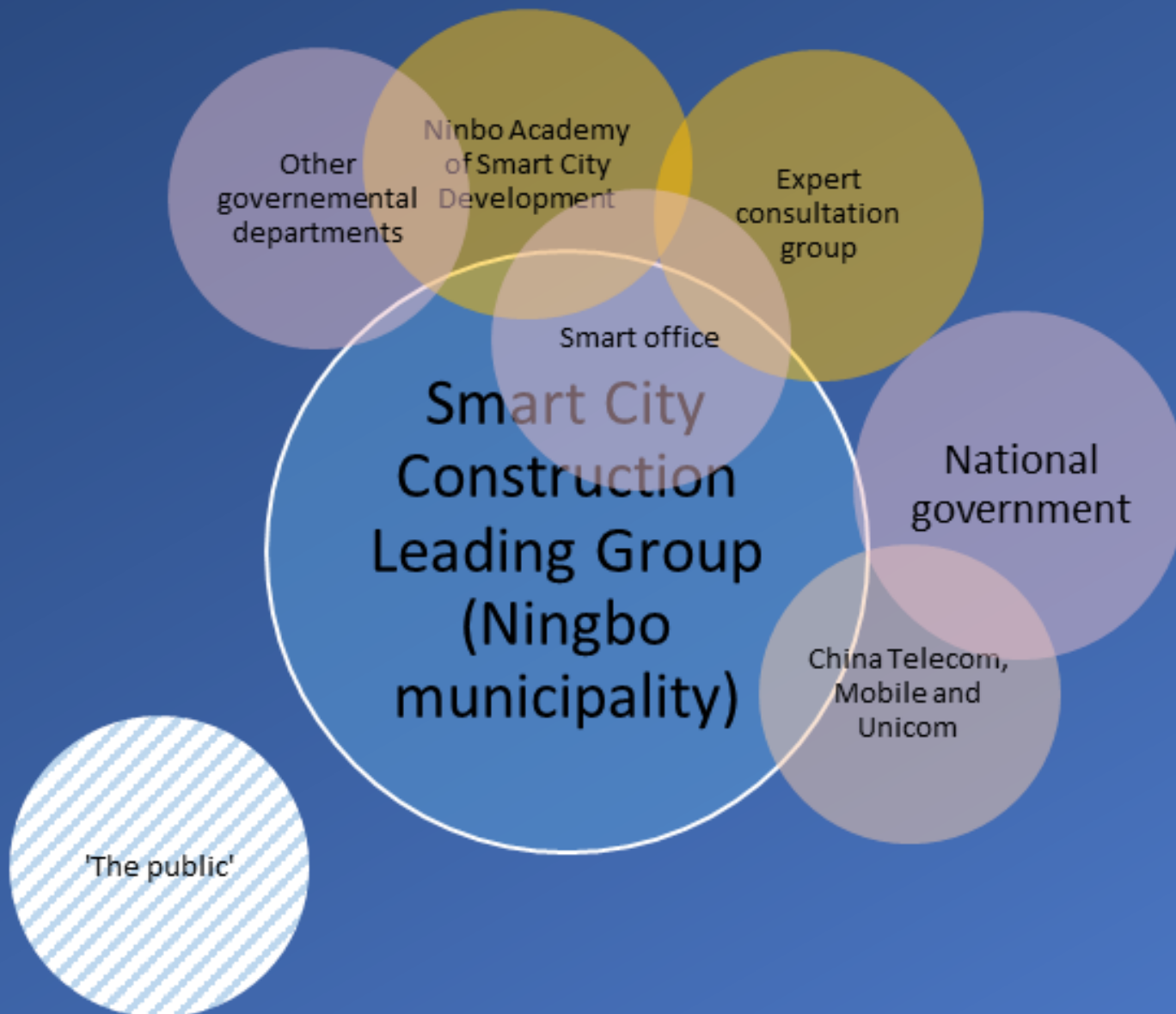
National government

China Telecom, Mobile and Unicom

'The public'

Experiments: Entrepreneurial Governance

- Wide array of state actors (business, communities)
- Different levels and decentralisation
- Sustainability of leadership and vision
- Economic performance indicators
- Selectively promote certain initiatives
- Vague policies- allowance for local interpretations

Any questions?

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