

12th European Sociological Association Conference, Prag – August 2015

**Urban Planning and Electrification of sub-Saharan African Informal Settlements:
between Recognition and Eradication**

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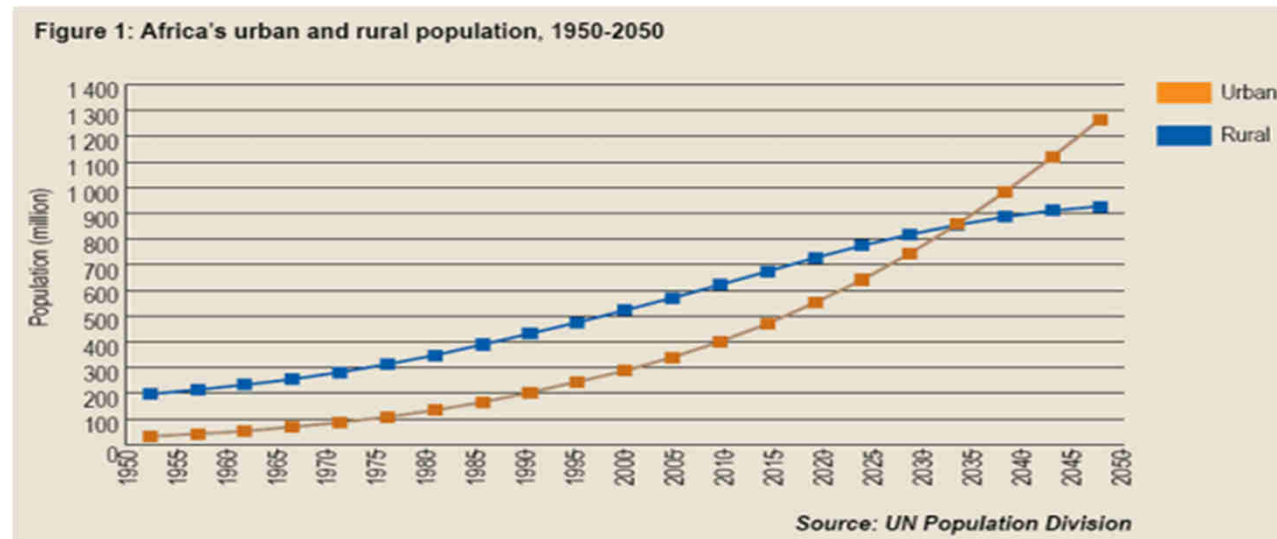
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Uncontrolled urban growth

- Africa is the fastest urbanising continent in the world, and by 2030 its population will be predominantly urban



- Urban populations are set to triple in the next 40 years and informal settlement populations will increase in most countries
- Informal settlements already constitute a major part of African cities: more than two thirds of the urban population of sub-Saharan Africa live in informal settlements

Action of authorities

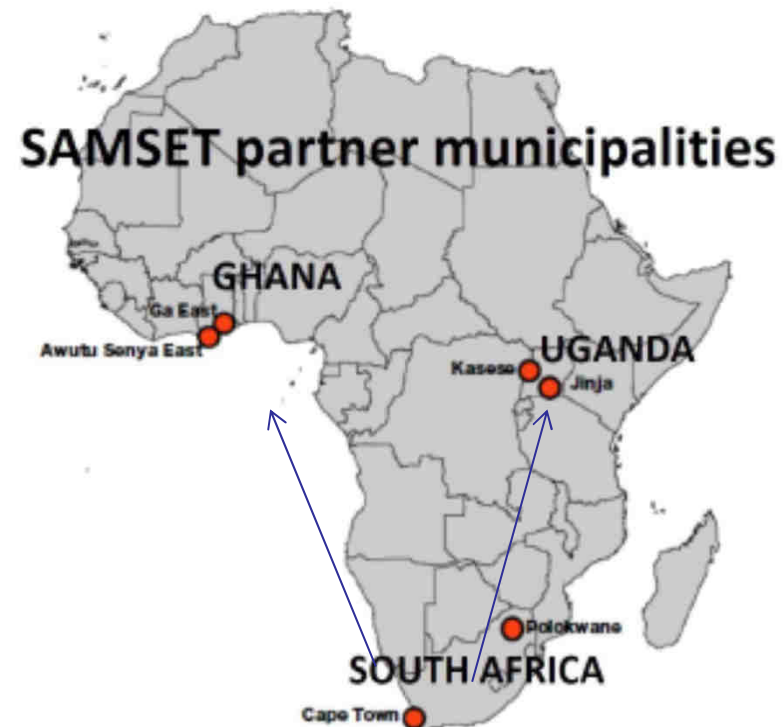
- Often oscillation between:
 - A mix of ignorance / “Laissez-faire” / tolerance
 - Sudden surge of authoritarianism → eviction
- Middle way
 - Upgrading/relocation of informal settlements
 - “An unplanned settlement on land which has not been surveyed or proclaimed as residential, consisting mainly of informal dwellings(shacks)”
 - Implies cooperation/recognition of local communities
 - “The upgrading of informal settlements is high on our agenda because it is not possible to build houses for everyone at the same time... The demand for houses is very high and the resources are limited.” Tokyo Sexwale, Minister of Human Settlements, South Africa, 2011

Supporting African Municipalities in Sustainable Energy Transition (SAMSET)

4 year international research project funded by EPSRC-DECC-DfID
Consortium of seven partners – Principal Investigator at University College London
Action research – aim to establish a knowledge exchange framework
→ 6 African municipalities

Component: Comparative research
with case studies

WP on energy access / electricity in
informal settlements



The role of municipalities in South Africa

- Since the end of the apartheid, South African municipalities have had a unique experience of engaging with local communities in the provision of basic services
 - Nelson Mandela's government implemented the 1994 *Reconstruction and Development Programme*, which consisted of five key programmes; the first of which was “meeting basic needs”
- *1997 Constitution /chapter 2 or “Bill of rights”* that every South African should have ‘access to housing and basic services

Decentralised electricity distribution at a municipal level

- Electricity distribution is a key role of municipalities in South Africa, and has no equivalent in Africa
 - It was not until the 1922 Electricity Act that generation capacity was given to a central utility “ESKOM” although municipalities kept control over distribution
 - Historically, “ESKOM” covered distribution in the black townships and former homelands, while municipalities were responsible for distribution in white areas
- Current national priority given by the South African government to electricity provision → municipalities?

Electricity source of (political) power

- Municipalities in South Africa raise a significant part of their revenue from electricity provision;
 - in many instances, more than a third of the municipality's annual budget come from income generated by reselling electricity generally bought in bulk from ESKOM
- Political parties (like ANC) can use access to electricity and tariff level as a source of influence
 - Free Basic Electricity – first 50 KWh free for the indigent

Why settlements are often kept in the dark?

- Utilities can be reluctant to connect settlements:
 - Illegal buildings
 - To connect is a kind of recognition of illegal construction without property rights
 - Numerous countries do not authorise connections: Thailand...
 - Safety and hazard issues
 - “Shacks” = construction of poor quality; flooded areas
 - Density too high
 - Issue of payment
 - Low purchasing power & non incentive when used to illegal connections
 - Poor cannot buy appliances – so low consumption anyway



*Mameloni, near Pretoria, Source:
www.mameloditrust.org.uk*



Enkanini, Stellenbosch, Source: D. Kerr, UCL, 2014

Nevertheless utilities do have incentives to remove illegal connections

- When communities are not connected legally, they always will connect illegally
- Numerous problems come with illegal connections:
 - safety and fire hazard
 - overload of the network and substations
 - loss of revenues for utilities
 - economic exploitation of the poorest by resellers of electricity
- Cost (economic and in terms of image) of permanent fight against illegal connections

Different approaches around the world

- Grid extension and formal metering
 - Instalment for meters (to spread cost)
 - Brazil,...
 - Pre-paid meters (to give better control of cost & flexibility)
 - Argentina, Nigeria, ...
- Electrification can be part of a general upgrading
 - Formalization of property rights and the provision of basic services
 - Greece, Albania,...
- Electrification can be done by utilities or via NGOs

Categorization of informal settlements

Table1: Categories of informal settlements

| Category | Condition/Status | Response |
|--------------------|--|---|
| Category 1: | On suitable land (complies with the set criteria and is likely to go through in situ upgrading) | Will be subsidized for electrification. |
| Category 2: | Settlements that do not need immediate relocation and will therefore go through the process of regularization which is pre-formalization (putting basic services with plans to relocate in future) | Will be subsidized if the settlement will not be relocated in the next 3 years. |
| Category 3: | On unsuitable land (do not comply with the set criteria, areas such as on dolomite land, in toxic areas, or in a dangerous area) and need relocation | Settlements that have been there for a reasonable amount of time will be considered on a case by case upon application by the Department. |

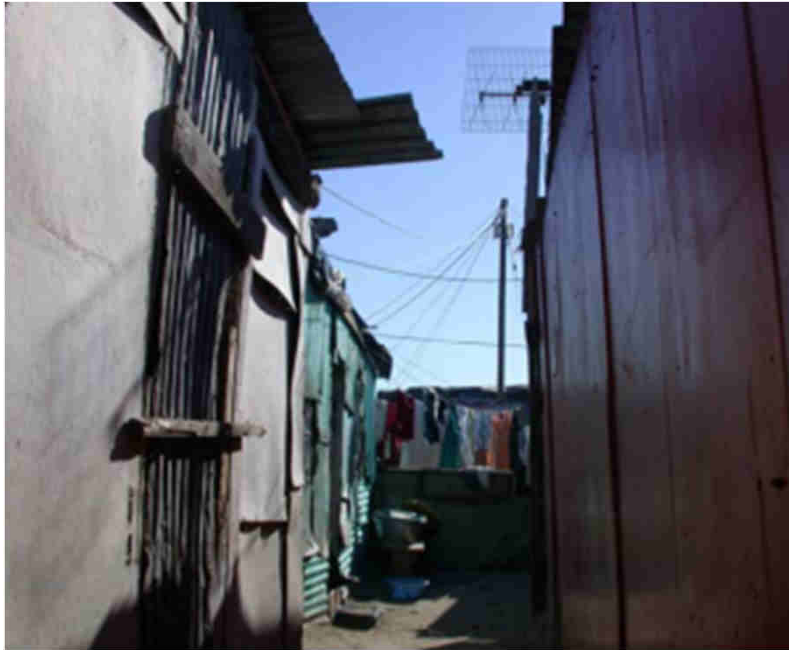
Source: Policy Guidelines for the Electrification of Unproclaimed Areas, DoE South Africa, 2011

Socio-technical choices in South Africa

- Two primary approaches when considering the electrification of informal settlements:
 - a blanket electrification approach, where all households in the target area are electrified
 - or a selective electrification approach, where households are connected only once they've paid a connection fee
- Blanket approach = best economic & social justice
 - Utilities do not have to come again
 - Engage with a community as a whole not individuals

Re-invention of electrification

- New technical norms
 - Use of over-ground “may-pole” of 9 m high
 - Use of insulated conductor
 - Use of ready-board
 - Pre-payment
- New world / mind set for engineers
 - Flexibility / “old school” engineers
 - Permanent dialog with communities
 - Community Liaison Officers
 - Contract with the community



*South African informal settlement.
Image: Melusile Ndlovu, SEA*



South African urban landscape – electrification with maypole 9 m high. Source: SEA

Preliminary conclusions

- South Africa a very unique context (post-apartheid)
 - Number of lessons for other African countries
 - “Political will” ? Actually political struggle
- Electrification = social process
 - History of electrification – not spontaneous / accumulated knowledge
 - Constructed socially market peri-urban consumers / Time-consuming
- Different perspectives
 - Political sociology/politics of electrification
 - Organised communities connected while other not
 - shifting relationships between customary, informal and formal land tenure systems / property rights
 - Ethnic relations / ethno-methodology
 - White engineers / black communities
 - How technicians interact with local leaders

Thank you!



SAMSET website: <http://samsetproject.net/>
SAMSET blog: <https://samsetproject.wordpress.com/>
SAMSET twitter account: <https://twitter.com/samsetproject>