

IoT and No-Poverty

Dr. Louis Coetzee

CSIR Meraka

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African Context

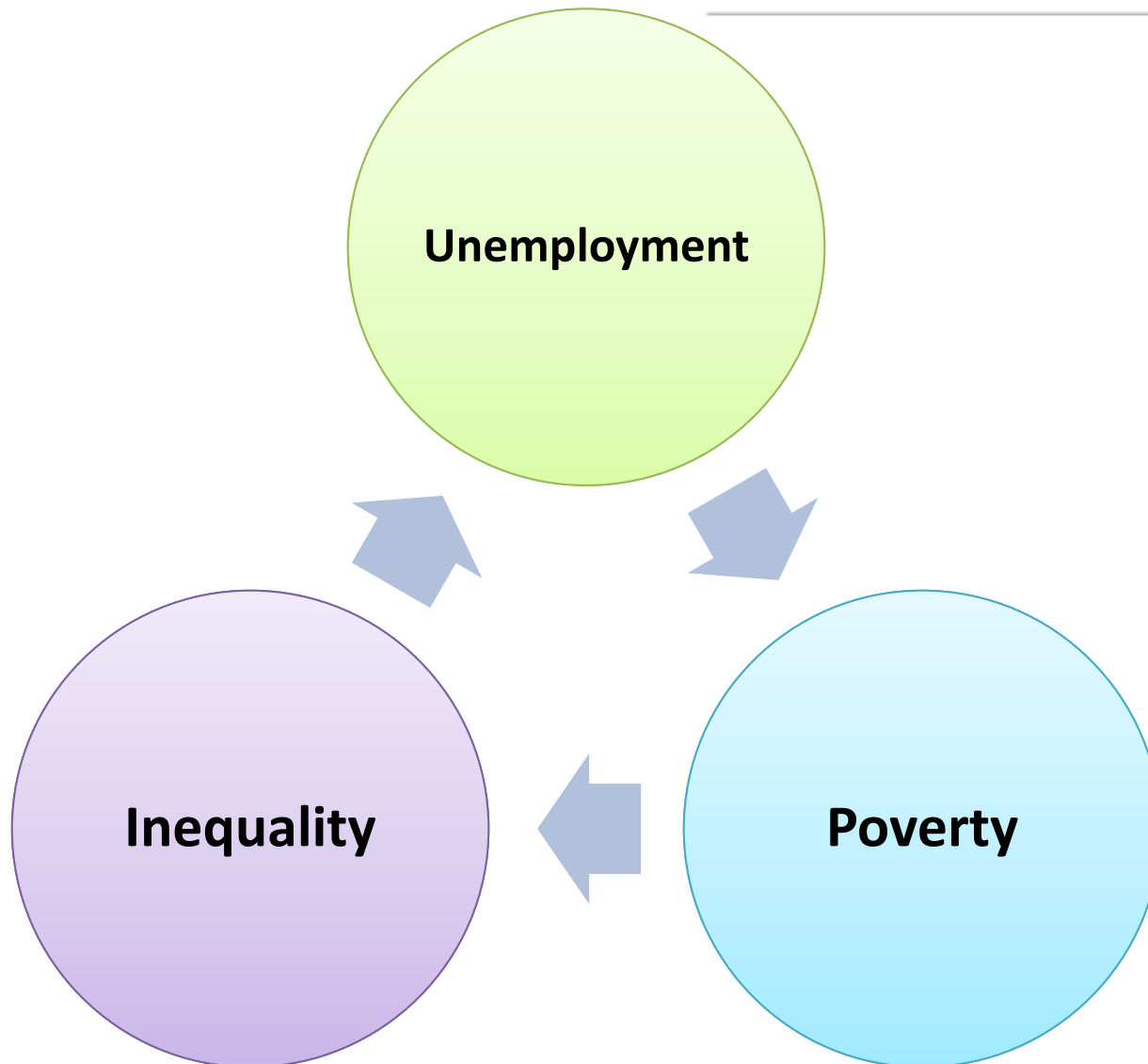
- **Data unreliable**
- Highest level of inequality in the world
 - GINI: 0.56
- 43% of poor people in 2012 (330 million)
- Low literacy
- Poor schooling
- Increased conflict

“Beegle, Kathleen; Christiaensen, Luc; Dabalen, Andrew; Gaddis, Isis. 2016. Poverty in a Rising Africa.

Washington, DC: World Bank. © World Bank.

<https://openknowledge.worldbank.org/handle/10986/22575> License: CC BY 3.0 IGO.”

South Africa: Triple Challenge



The South African Numbers

- South African population: **55** million
- **45,5%** of the population is poor (**23** million)
- **20,2%** of the population living in extreme poverty (**10** million)
- **66%** of population is under 35 years
 - **50%** unemployed
- **GINI: 0.65**

*Poverty Trends in South Africa

An examination of absolute poverty between 2006 and 2011 (Statistics South Africa)

The Housing Challenge

- Apartheid-era spatial engineering legacy
- People forced to live on the outskirts of the cities
 - 6500 square kilometres (City of Tshwane)
- Employment far from houses
 - Spend money on very expensive transport
 - Or live in **informal settlements**



Informal settlements

- People are vulnerable ...
 - Low rate of employment
 - Limited opportunity for education
- Limited basic services
 - **Water**
 - Waste
 - Electricity
- Risks
 - Fossil fuel for space heating and food preparation
 - **Fire**, Pollution
 - Flash floods
 - Transport (taxi industry – unregulated and unsafe)

Interventions

- **Fire Detection** (Start up in Cape Town)
- Smart **Water** (Science Council Research Project)

Fire Detection: Lumkani*

- Informal settlements
 - Fossil fuels used for heating and cooking
- Fire early-warning system
- SMS alerting to community
- GPS location distribution to emergency response



LUMKANI
PROTECTING AGAINST FIRES

*<http://lumkani.com/>

Smart Water

- South Africa is water scarce
- Infrastructure is aging
- High frequency of leaks
- Difficult to detect leaks
- Smart Water – hydraulic models from sensed water flow
- Alerting for maintenance



Opportunities

- Accurate data is required
 - **Evidence based decision making**
- Optimised transport means
- Optimised waste collection
- Optimised energy generation (solar, micro-grids)

Thank you



Louis Coetzee (louis.coetzee@csir.co.za)