



AEON

AFRICA EARTH OBSERVATORY NETWORK
EARTH STEWARDSHIP THROUGH SCIENCE

KAROO SHALE GAS AND AEON EARTH STEWARDSHIP PROJECTS

Presented by

Barry Morkel & Nyaradzo Dhliwayo

at the

NMMU Engagement Colloquium

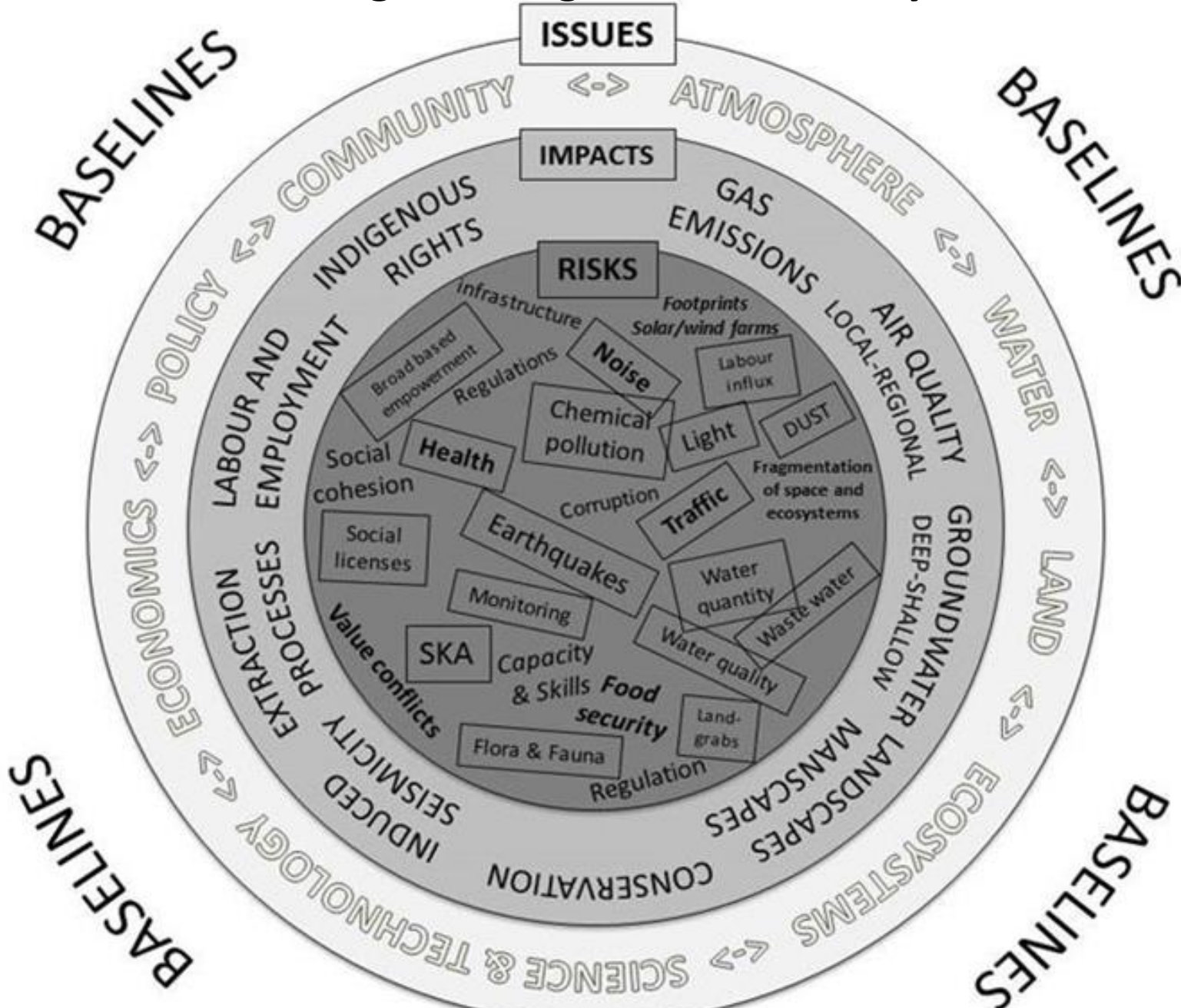
4th November 2015

Conference Centre, NMMU North Campus



**Nelson Mandela
Metropolitan
University**

Rationale for establishing a shale gas baseline study in the Karoo basin



NMMU KAROO SHALE GAS BASELINE STUDY COMPONENTS

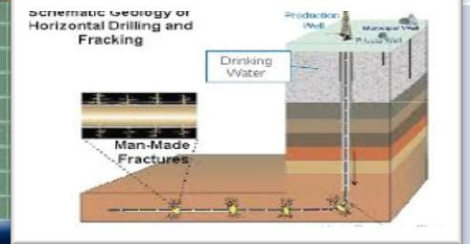
1. Ground-water monitoring and Analysis,



2. Surface and Critical zone changes,



3. Gas flow detection



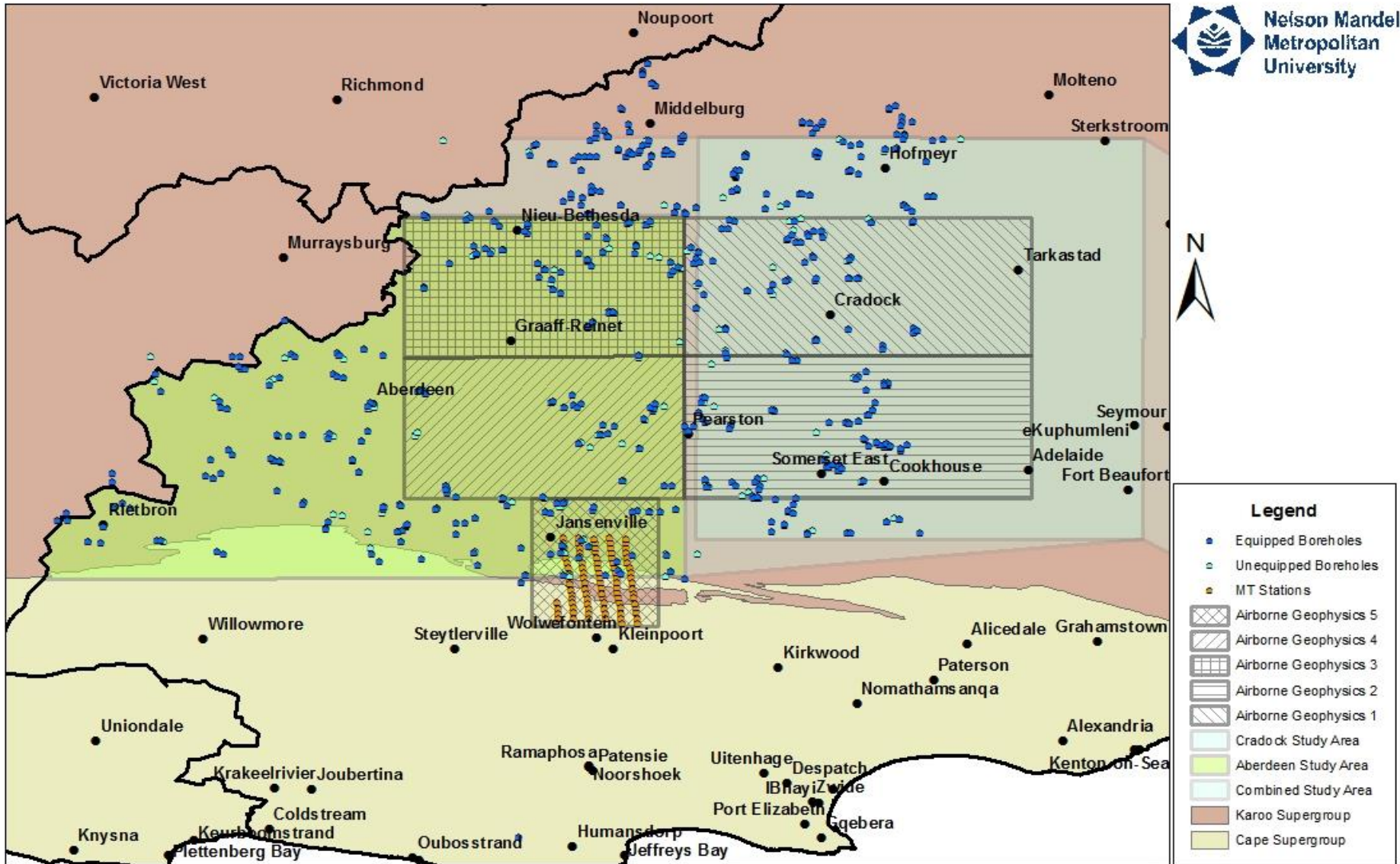
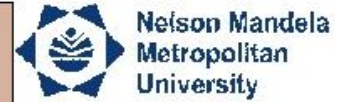
4. Socio-economic and Risk analysis; (civic science, and downstream effects of resources)



5. Micro Earthquake Detection and Deep Imaging of the Karoo



Our Study Area & Coverage



Our Approach Led By Social Participation and Citizen Science





Province of the **EASTERN CAPE**

**ECONOMIC DEVELOPMENT,
ENVIRONMENTAL AFFAIRS AND TOURISM**



Our Network...

G F Z

POTSDAM

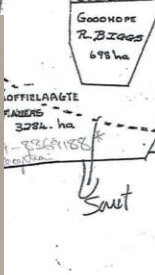
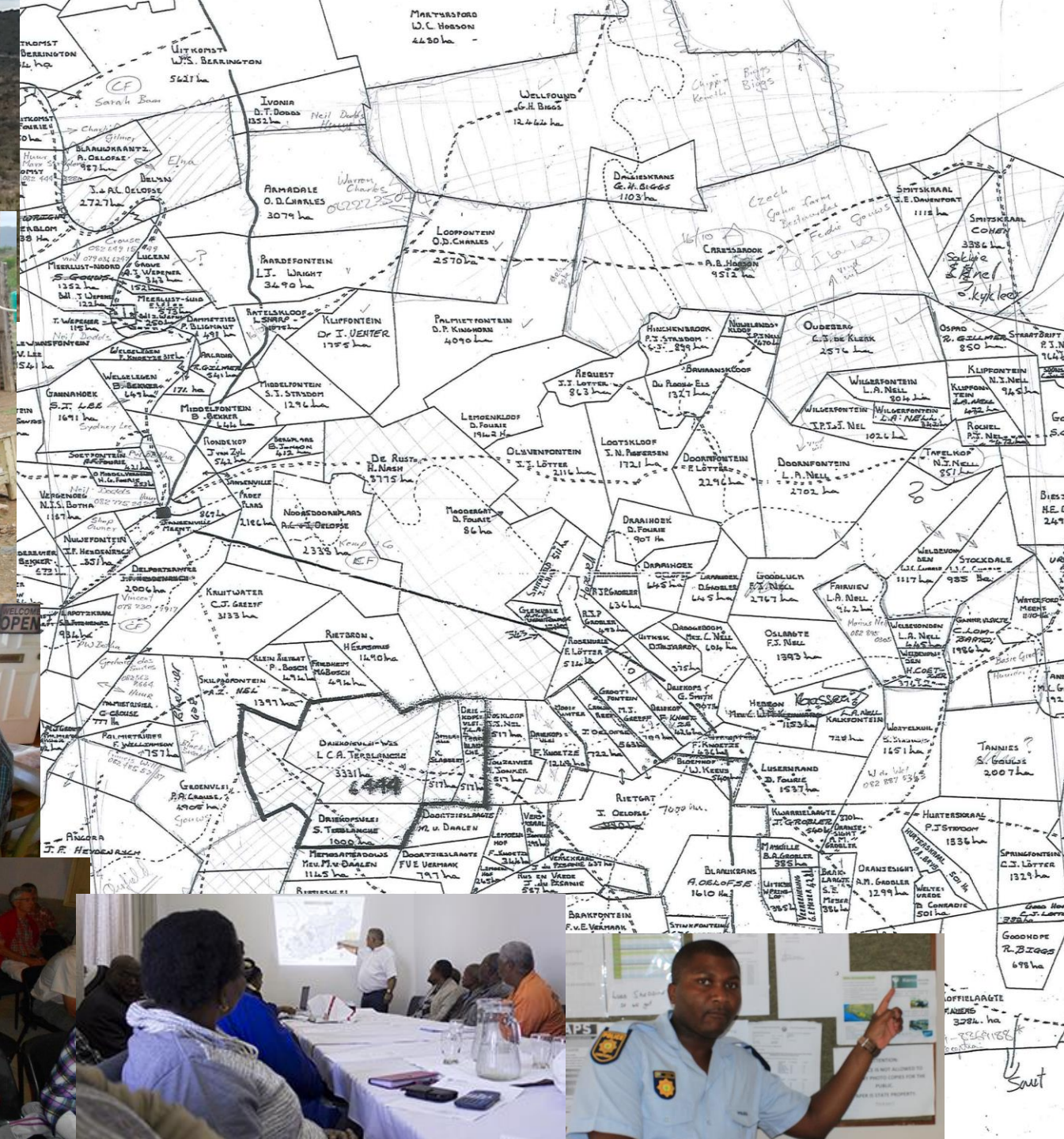


CHRIS HANI
DISTRICT MUNICIPALITY
SUSTAINING GROWTH
THROUGH OUR PEOPLE



Strategic Environmental Assessment for Shale Gas Development





Enriching Research, Teaching and Learning through Engagement





Promoting science through engaging youth on Shale Gas in the Karoo



Establishment of Local Shale Gas Community Round Tables



Hydrogeology & Groundwater Monitoring



Airborne Geophysics – UAV Training



Water Chemistry & Methane Gas Analysis



Deep Geophysics & Magnetotelluric Study



Surface Ecosystems Monitoring



Microcosmic Measurements



Gas Analyzer



Water Analysis System



Isotopic Ecological Analysis System



Research Outputs



Journal Articles and Conference Papers

Student Conference & Scientific Posters

The great shale debate in the Karoo

Over the last year, rumours of vast cheap energy wealth stacked away beneath reached fever pitch. Apparently gas (methane - CH₄) from shale is there for they're said to be rich pickings. The extraction industry believes that we all will fortune if we harvest it soon: indeed, it has been presented as a proverbial win

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PALAEO-ENVIRONMENT, DIAGENESIS AND CHARACTERISTICS OF PERMIAN BLACK SHALES IN THE LOWER KAROO SUPERGROUP FLANKING THE CAPE FOLD BELT NEAR JANSVILLE, EASTERN CAPE, SOUTH AFRICA: IMPLICATIONS FOR THE SHALE GAS POTENTIAL OF THE KAROO BASIN

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Unconventional Gas Conference Program

22-23 September
Sofitel Wentworth, Sydney



Int. SG Book & Conference Pittsburgh 2015

Our Approach Led By Social Participation and Citizen Science



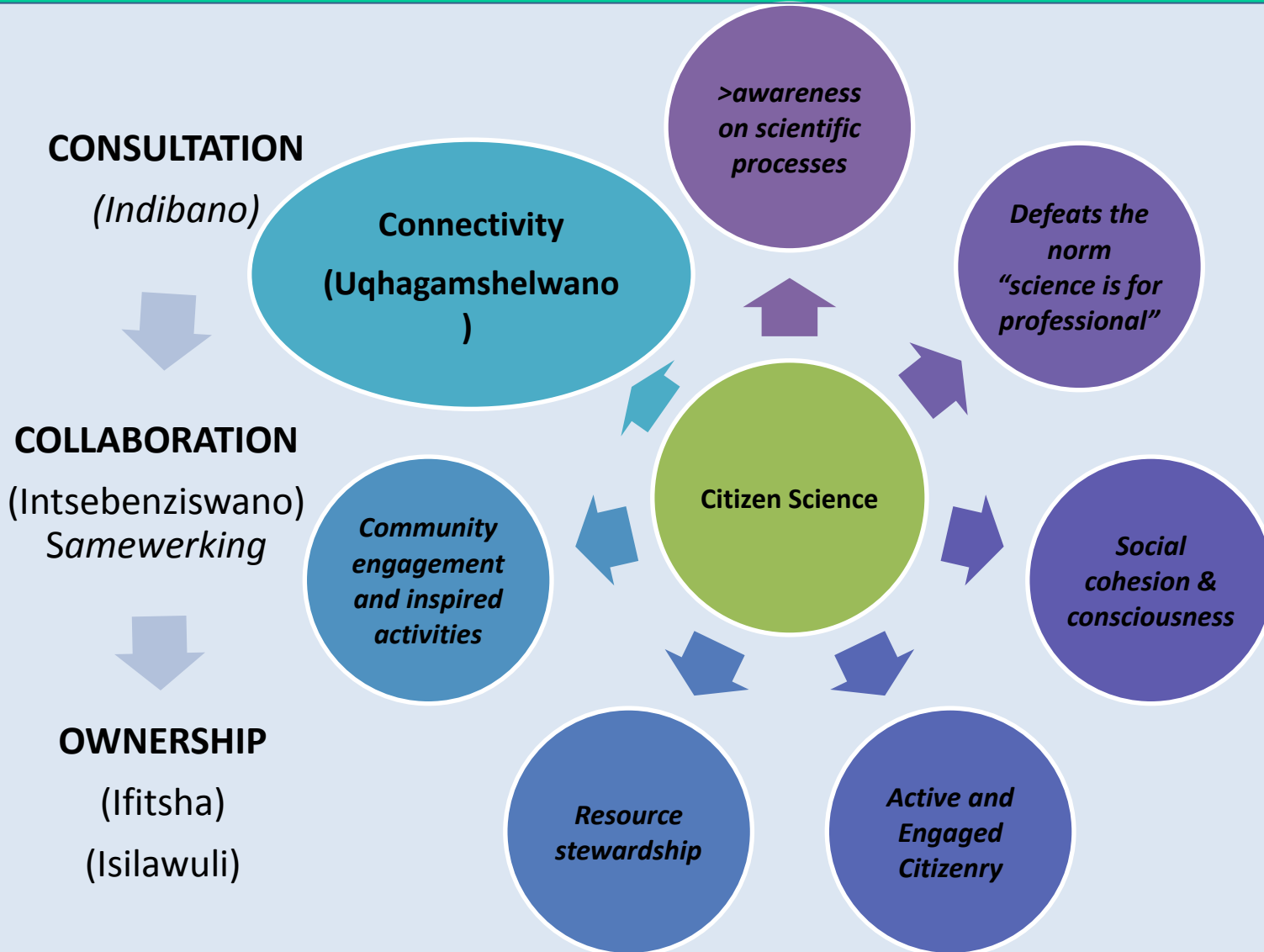
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CITIZEN SCIENCE EQUIPPING PROCESS



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Ongoing Interventions

- Inclusion & participation of community health baseline
- Understanding how to adapt community contributions into scientific data & *vice versa*
- Continuous process of community Buy-in
- Citizen Training, deployment and support
- Create database
- Reporting and Publishing



Thank You! eNkosi! Ndiyabulela! Baie Dankie!



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