Water scarcity and its effect on the inhabitants of Xakabantu Informal Settlement in the Western Cape

Analysis of Community Resilience and Drought

The Humlog Challenge: Building Resilient Communities

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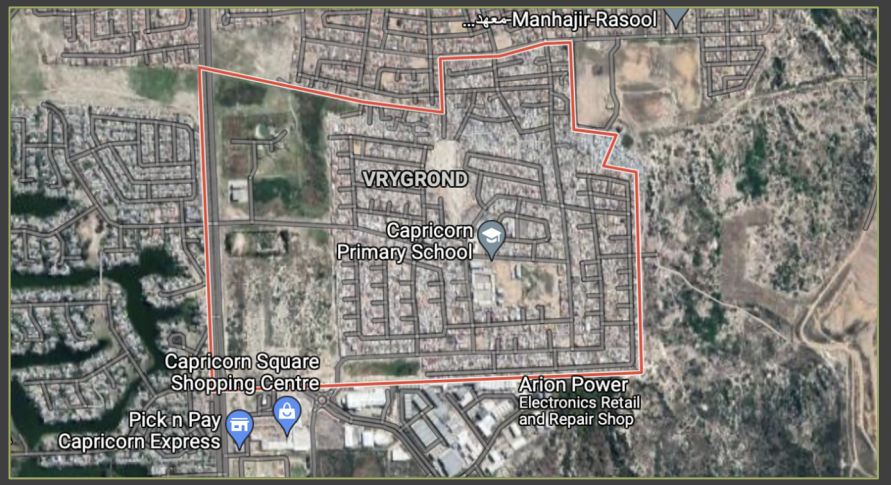
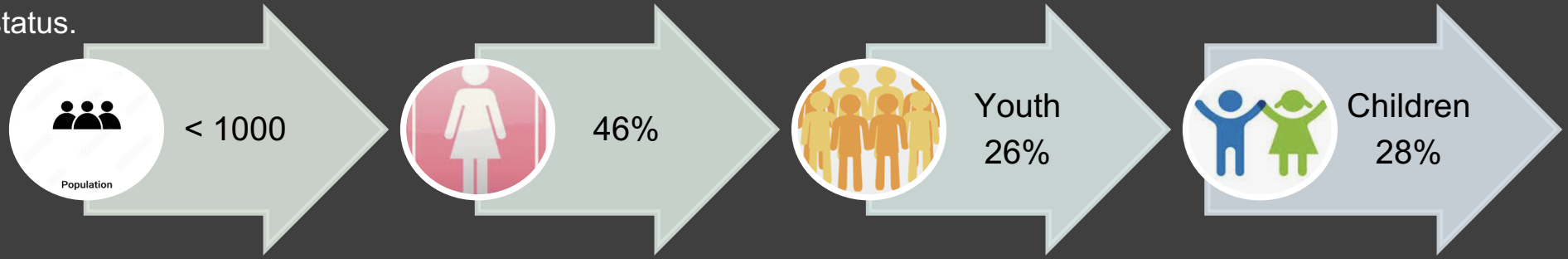
1. Innovative solutions to water scarcity in the Xakabantu Informal Settlement in Cape Town, South Africa.

What is informal settlement :
settlements and areas where housing is not in compliance with current planning and building regulations (unauthorized housing). This are not infrastructure ready

Characteristics of informal settlement:

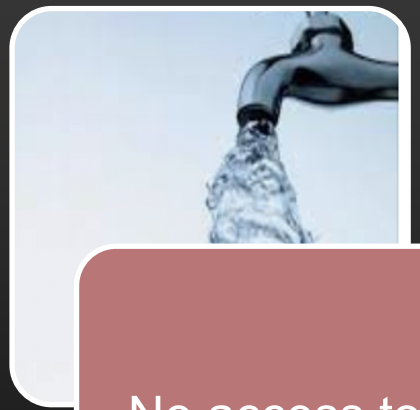
- Inadequate access to safe water and sanitation,
- poor quality of housing, overcrowding and
- Insecure residential status.



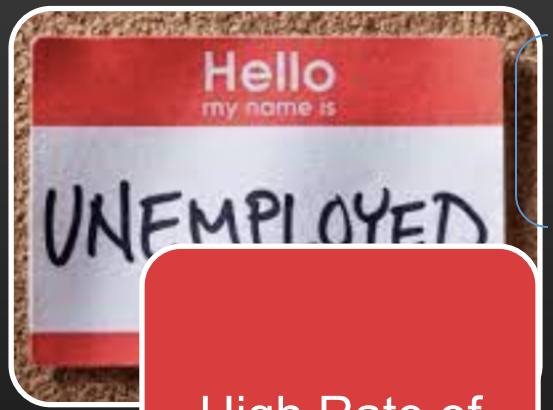


2. Problem Statement

No access to electricity



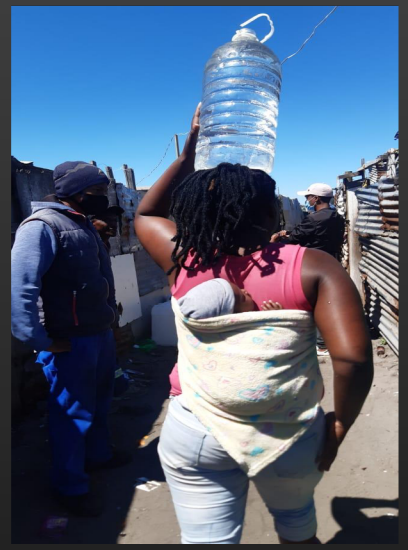
No access to water



High Rate of Unemployment

Lack of access to health care

2.1 Problem outlined



- No municipal intervention to provide water infrastructure
- Community walk long distances to get Access to water
- No toilet facilities in the area and nearby field used in as a toilet
- Long distance from municipal water infrastructure leads to inaccessibility during fire emergency and response
- Inconsistent Access to clean water
- Water infrastructure installed by community member does not provide enough pressure

3. How do we get this issue into Government Policy Agenda.

Universidad de los Andes Colombia

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STAKEHOLDERS

unicef

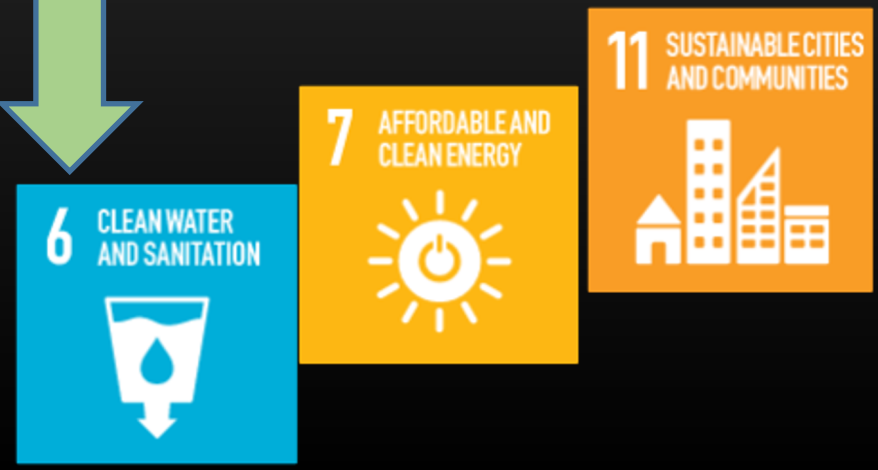
Global Youth Action Network

UN WOMEN
United Nations Entity for Gender Equality and the Empowerment of Women

THE WORLD BANK

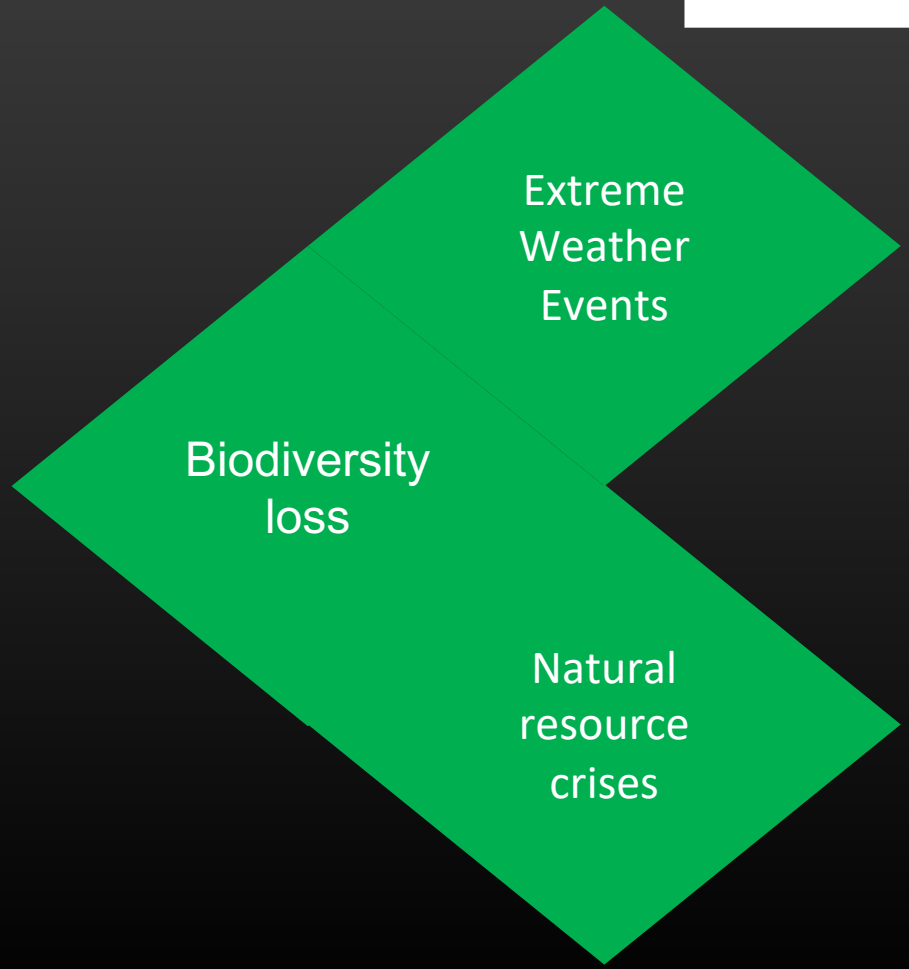
Giving Hope to the Community of Xakabandu

SUSTAINABLE DEVELOPMENT GOALS



4. Global Water Risks and Vulnerabilites

- By 2025, there is likely to be, on aggregate, a 13% increase in water consumption (Rosegrant et al, 2003)
- More than 2.8 billion people in 48 countries will face water stress or scarcity conditions by 2025 (UNEP, 2002)
- In low- and middle-income countries, 38% of health care facilities lack improved water source, 19% do not have improved sanitation and 35% lack water and soap for handwashing (Living Water International, 2020)



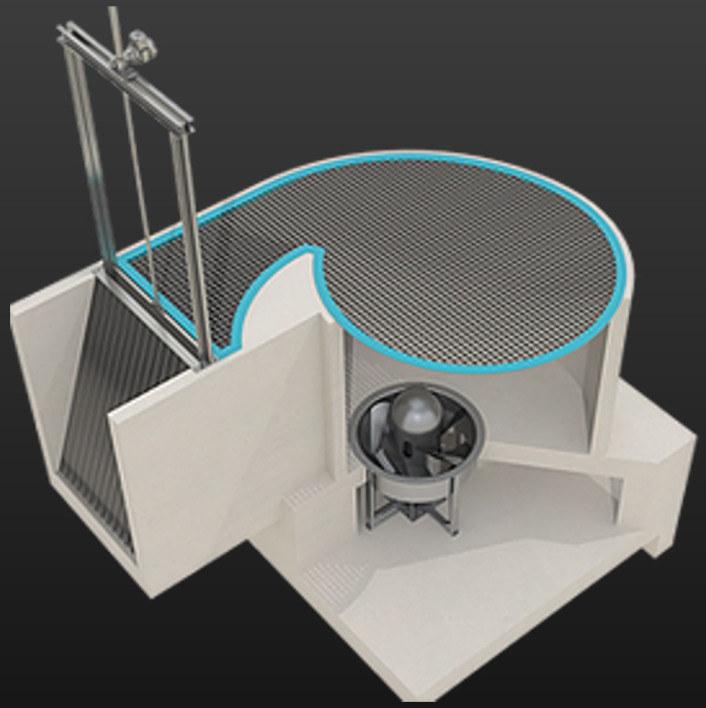
5. Xakabantu Context

5.Proof of Research

In order for me to have enough water for bathing and cooking I have to wake at 03:00am in order to travel to the only working tap in the community. It often takes me over an hour to fill my bucket. If I do not wake up this early, we will not have enuogh wáter for the day.
Recently a child burned in a sheck becuase we use flammable liquids

Meet Thandiwe a Young Xhosa Female leader from Xakabuntu Informal Settlement.," I do this becuase I want to make a difference in my community " we hope that government and other stakeholders will come to our rescue fromour current situation this will restore the dignity of our people"

6. Solution and implementation…. cont



6.Solution and implementation

2 Potential Solution Phases
Phase 1: No governmental support (Short-Medium Term)
Phase 2: Governmental support in form of mainly access and permits (Medium-Long Term)

Components

- 2 50000L Water Tanks with a 2-3m Height difference
- Solar Panels (15-20MW)
- Micro Water Turbine (20MW)

Benefits

1. Water access 24 hours 7 days a week
2. Reduced water vulnerability (1 Week supply)
3. Sustainable electricity access (Solar/Hydro)
4. Increased available free time

7.Feasibility of solution

Sustainable

Affordable — **Long term (10+years)**

Expected costs

Component	Quantity	Phase 1	Phase 2
Water Tanks	2	$ 7.000	$ -
Solar Panels	15-20MW	$ 2.000	$ 1.000
Water Turbine	1 (20MW)	$ 6.000	$ 3.000
Connection to municipalities water system	1	$ -	$ 10.000
Water truck resupply	40-45 times a year	$ -	$ 5.000
Total cost	$ 34.000	$ 15.000	$ 19.000

Cost per community member: 34 USD

Water Utilization and Collection

1. 24/7 Groundwater collection → 20000L/day
2. Rainwater Collection → 15000-20000 L/year

- 1 Week of water supply in case of drought

Power generation and consumption
Solar → 20 MW
Hydro → 20 MW
Expected consumption: 20-30 MW/day

Thanks for your attention

8. References

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