

# uMngeni Ecological Infrastructure Partnership

**Dr Sean O'Donoghue (eThekwini Municipality – Coordination Committee Chairperson)**

**Dr Pearl Gola (South African National Biodiversity Institute - Coordinator )**



- uMngeni River Catchment supports the communities, ecology and economy of KZN.
  - Essential services for vulnerable communities
- Economic importance
  - Main water supply of Central KZN
  - Tourism
- Cultural significance
- Recreational activities
  - Midmar Mile
  - Duzi Canoe Marathon



- Highly stressed catchment with high demand to meet water and sanitation requirements of the cities of Durban, Pietermaritzburg and rapidly developing rural areas
- Urgent need to address water quality and quantity challenges in the catchment



- Focus on built infrastructure
  - Construction of dams
  - Inter-basin transfer schemes
- Challenges:
  - Assurance of supply
  - Dam siltation
  - High water treatment costs due to deteriorating water quality
  - Loss of ecosystem services and ecological damage



- Role of ecological infrastructure in supplementing and supporting built infrastructure for water security in the catchment
- Ability of ecological infrastructure to deliver ecosystem services in the region



- uMngeni Ecological Infrastructure Partnership:
- Foster collaboration and coordination of action to promote ecological infrastructure investments to improve water security in the uMngeni catchment
- Founding partners
  - SANBI, eThekweni Municipality, DWA, Umgeni Water
  - MoU between the key role players signed 20<sup>th</sup> Nov 2013
  - Growth in the partnership with additional partners

- To date 20 organisations have signed the MoU...



WATER  
RESEARCH  
COMMISSION



sappi  
Inspired by life



CITY OF CHOICE



UNIVERSITY OF  
KWAZULU-NATAL  
INYUVESI  
YAKWAZULU-NATALI



agriculture  
& environmental affairs  
Department  
Agriculture  
& Environmental Affairs  
PROVINCE OF KWAZULU-NATAL



water affairs  
Department:  
Water Affairs  
REPUBLIC OF SOUTH AFRICA



environmental affairs  
Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

- ... but there are many more interested parties:
  - National Department of Agriculture, Forestry and Fisheries; National Department of Environmental Affairs; National Department of Water and Sanitation; Durban Chamber of Commerce and Industry; Durban University of Technology; Dusi-uMngeni Conservation Trust; Endangered Wildlife Trust; eThekwin Metropolitan Municipality; Impendle Local Municipality; Ingonyama Trust Board KZN Department of Agriculture; KZN Department of Cooperative Governance and Traditional Affairs; KZN Department of Economic Development, Tourism and Environmental Affairs; KZN Nature Conservation Board; KZN Planning Commission; KZN Agricultural Union; Mkhambathini Local Municipality; Mondi Limited; Mpofana Local Municipality; Msinsi Holdings; Msunduzi Innovation and Development Institute; Msunduzi Local Municipality; NCT Forestry Co-operative Limited; Pietermaritzburg Chamber of Business; SAPPI; South African Environmental Observation Network; South African National Biodiversity Institute; Trade and Investment KwaZulu Natal; Trans Caledon Tunnel Authority; Umgeni Water; uMgungundlovu District Municipality; uMngeni Local Municipality; uMshwathi Local Municipality; University of KwaZulu-Natal; Water Research Commission; Wildlands Conservation Trust; Wildlife and Environment Society of South Africa, and World Wide Fund for Nature - South Africa

- Three pilot projects spearheaded by 3 municipalities in the region:
  - Baynespruit Rehabilitation Project – uMsunduzi Municipality
  - Save Midmar Project – uMgungundlovu Municipality
  - Palmiet River Rehabilitation Project – eThekwinini Municipality
- Research projects by UEIP partners:
  - WWF Green Fund – Enhancing EI in the uMngeni through collective private action
  - Investing in EI to enhance water security
  - Demonstration of EI for the benefit of society and the green economy
  - uMngeni Case Study



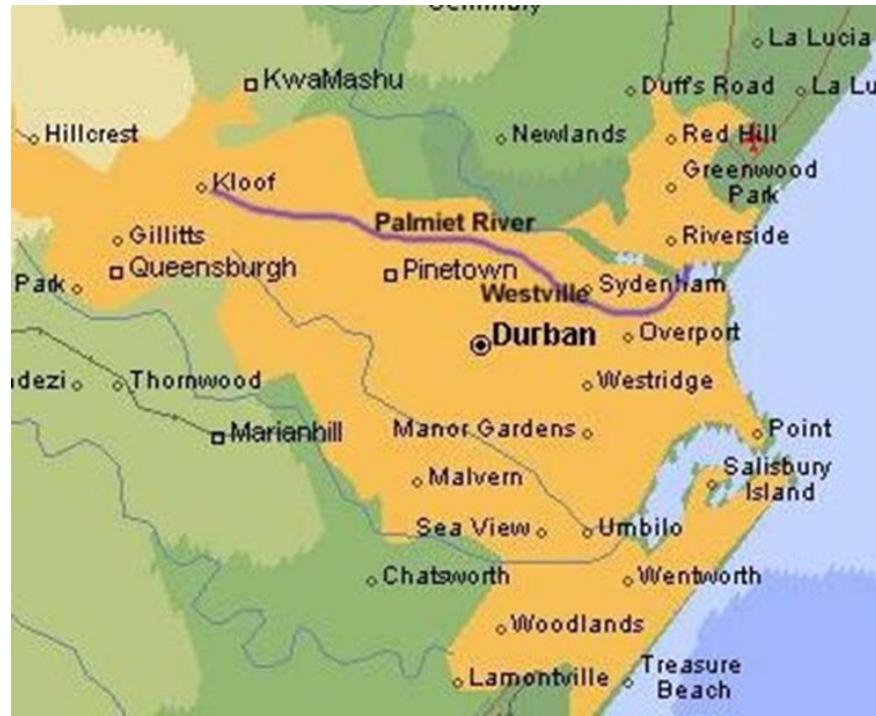
- Other stakeholder action:
  - DUCT: community-based catchment management
  - WESSA: EI training, Biosphere reserve
  - Coordination committee: reporting to catchment management association, alliance for water stewardship, governance
  - WWF-SA: Journey of Water
  - UMDM: Climate Change Adaptation Project
- Restoration, maintenance and rehabilitation of ecological infrastructure plays an important role in addressing the water security issue in the catchment
- In addition to investing in ecological infrastructure the partnership intends to contribute meaningfully to water resource management in the catchment



# THANK YOU



# Palmiet Rehabilitation Project: A research perspective



Catherine Sutherland, Vicky Sim, Sibongile Buthelezi,  
MaDudu Khumalo, Dianne Scott

With Tara Saharan, Bart Brouwer, Nolwazi Ntini

In partnership with Chris Buckley, Elena Friedrichs,  
Thor Stenstrom (DUT students)

Einar Braathen and Trond Vedeld

# A. Research Programmes

## A1. WRC funded Ecological Infrastructure project

- Umgeni Catchment
- Embedded in UEIP
- Research network
- UKZN: BEDS, PRG, Engineering and DUT (Institute for Water and Waste Water Technology)
- Case studies: eThekwini Municipality
  - Palmiet Rehabilitation Project
    - Urban core
  - Mzinyathi (environmental services)
    - Rural periphery
    - Two forms of governance

## A2. SANCOOP CLIMWAYS (NRF- Norwegian Research Partnership)

- Local and multilevel governance of urban climate change as it interfaces with *water resources management*
- Interaction of *local societies* and *urban authorities (state/municipal)* in policy and everyday practice to impacts of *climate and water risks and vulnerabilities*
- Multi-level governance – state: non-state actors
- Political economy/political ecology
- Social mobilization
- Resilient and sustainable cities – especially with regards the social and political dimension

# B. Research Process

B1. Action research: meetings with EWS and EPCPD to identify case studies relevant to eThekwin Municipality

- Palmiet Rehabilitation Project
- Mzinyathi

B2. Engage in the governance process

B3. Developing a ‘map of actors’ and identify their dominant discourses

B4. Conduct base line research

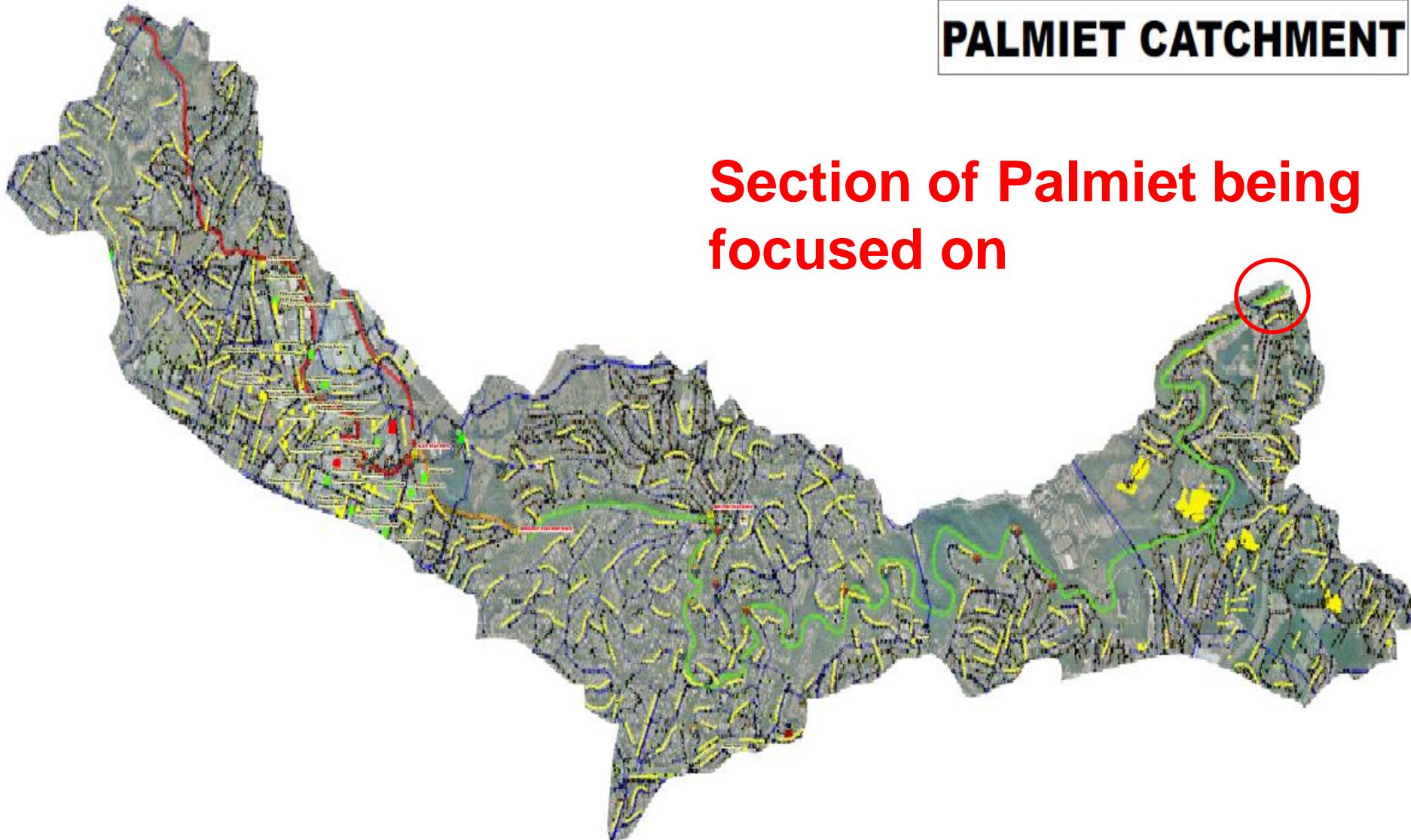
B5. Construct a ‘community of innovation’

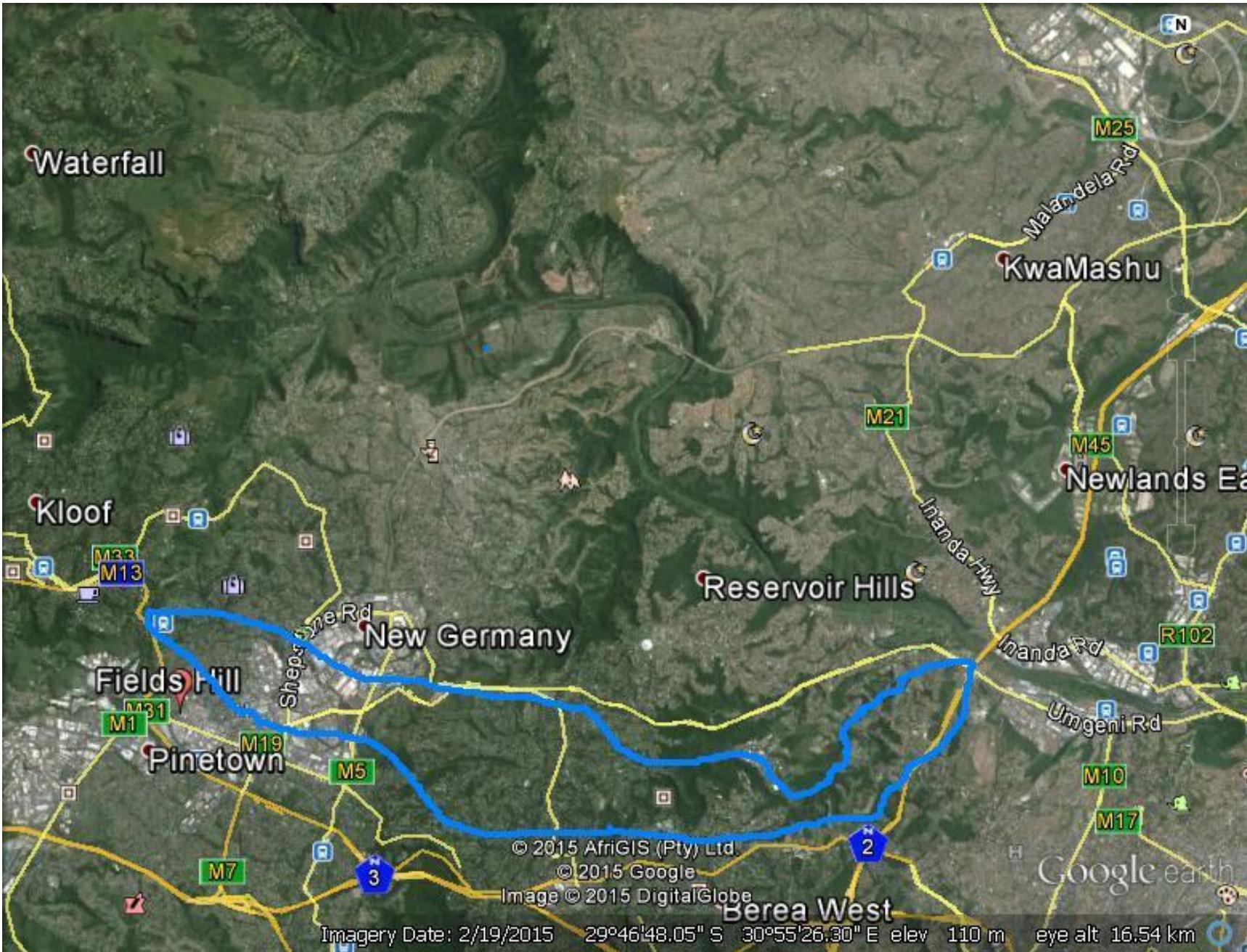
- Multiple actors within and beyond the state

## B1 Case study Location: Palmiet Catchment

**PALMIET CATCHMENT**

**Section of Palmiet being  
focused on**





## B2. Engagement in governance process

- Early meetings with EWS, EPCPD, Stormwater and Catchment Management
  - Led by EWS (Speedy, Nithia and Lenesh)
- Ongoing engagement with EWS
  - Technical interventions



# Palmiet Catchment between Quarry Road and M19

# Content

1. Palmiet Catchment
2. Palmiet River
3. Solid Waste
4. Reinstatement of banks with protection
5. Dissipating River Energy
6. Provide separate skips for plastics and waste
7. Providing bins
8. Grey Water
9. Providing Agri Tubes
10. Collection of Grey Water for Community Garden
11. Developing a Community Garden
12. Trash Rack

# Content

13. Stream Water Drain
14. Developing a Play Ground
15. Crèche on Ablution Blocks
16. Construction of walkway
17. Pipe Protection
18. Development of wetlands
19. Weirs
20. Defecation by Residences
21. Rat Infestation
22. Embankment to M19 has been cut
23. Scouring of pipelines
24. Cleaning of Alien Vegetation
25. Way Forward

# Slowing the process down.....

- Engineers are good at technical interventions
  - Climate and water governance challenges require both 'soft' and 'hard' approaches
    - **Governance issues**
  - Need to develop a research framework
    - Identify main actors
    - Discourses
    - Baseline studies
    - Platforms for engagement
    - Interventions, 'technologies' and infrastructure (includes construction of knowledge)
- Leadership/ownership gap
  - EWS: Siobhan Jackson

Global Conventions and Experience

South African Constitution

National Legislation and Policy

Water governance      Climate governance

eThekwini Water  
and Sanitation  
(EWS)

Policy  
Practices  
Interventions

Environmental  
Planning and  
Climate Protection  
Department

Policy  
Practices  
Interventions

Everyday lived worlds of ordinary people

Global Conventions and Experience

South African Constitution

National Legislation and Policy

Climate and water governance interface

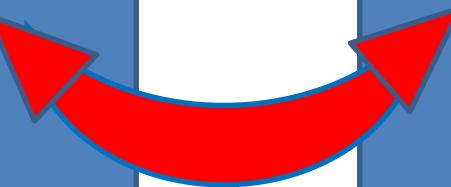
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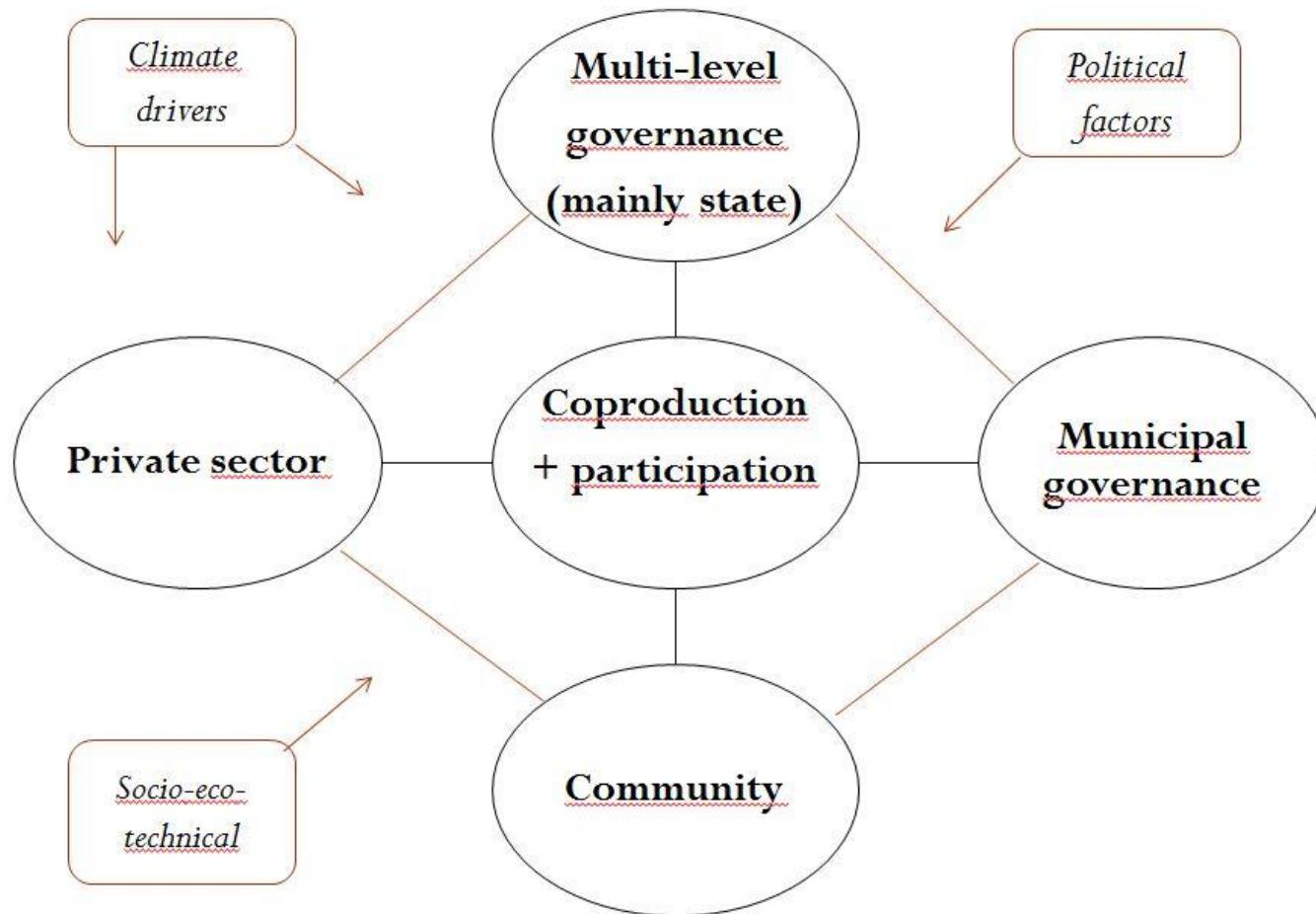
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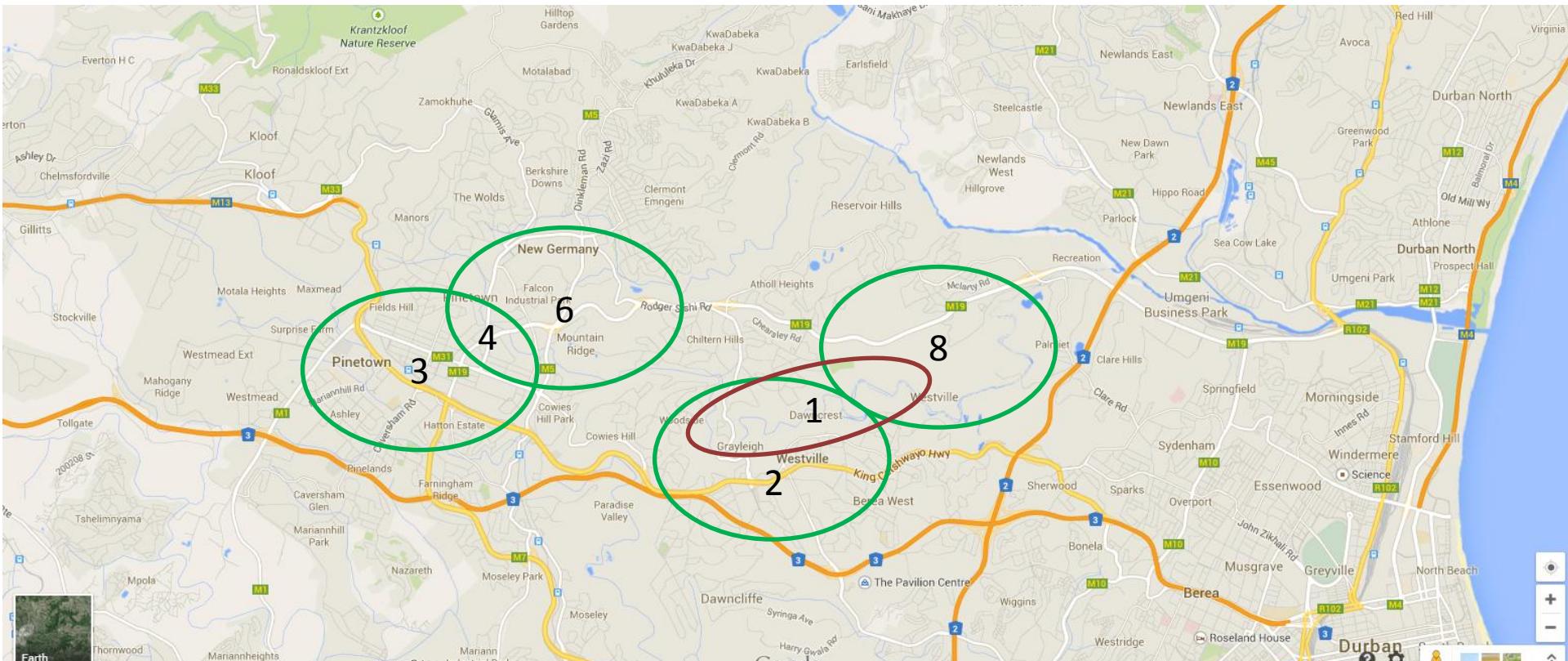
Everyday lived worlds of ordinary people



# Multilevel governance



# Private actors interviewed



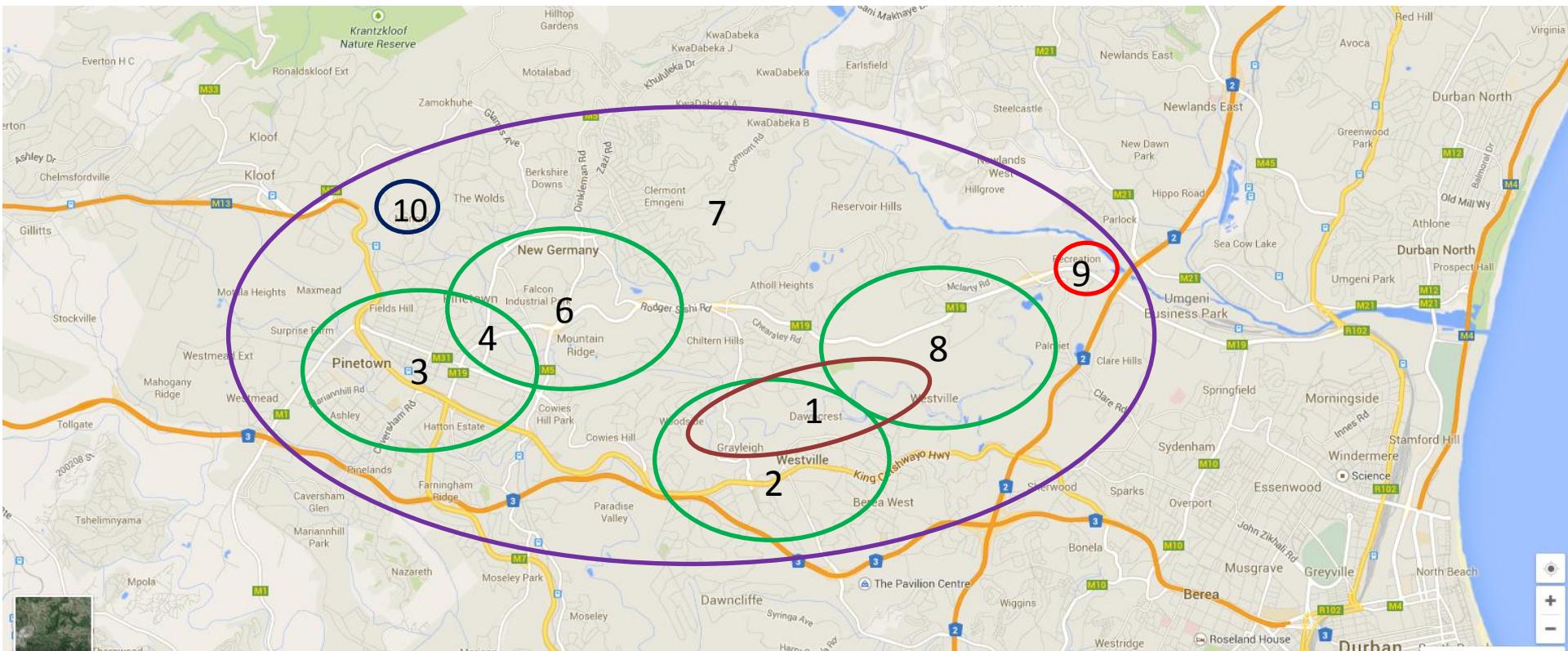
Source: Google Maps

1. Palmiet Nature Reserve
2. Westville Conservancy
3. Pinetown Industrial Conservancy
4. Caruth - industrial property owner/conservationist
5. Conservation KZN (umbrella body of conservancies)

Still to interview:

6. New Germany Conservancy
7. Riverwatch – Palmiet River pollution watchdog
8. University Conservancy

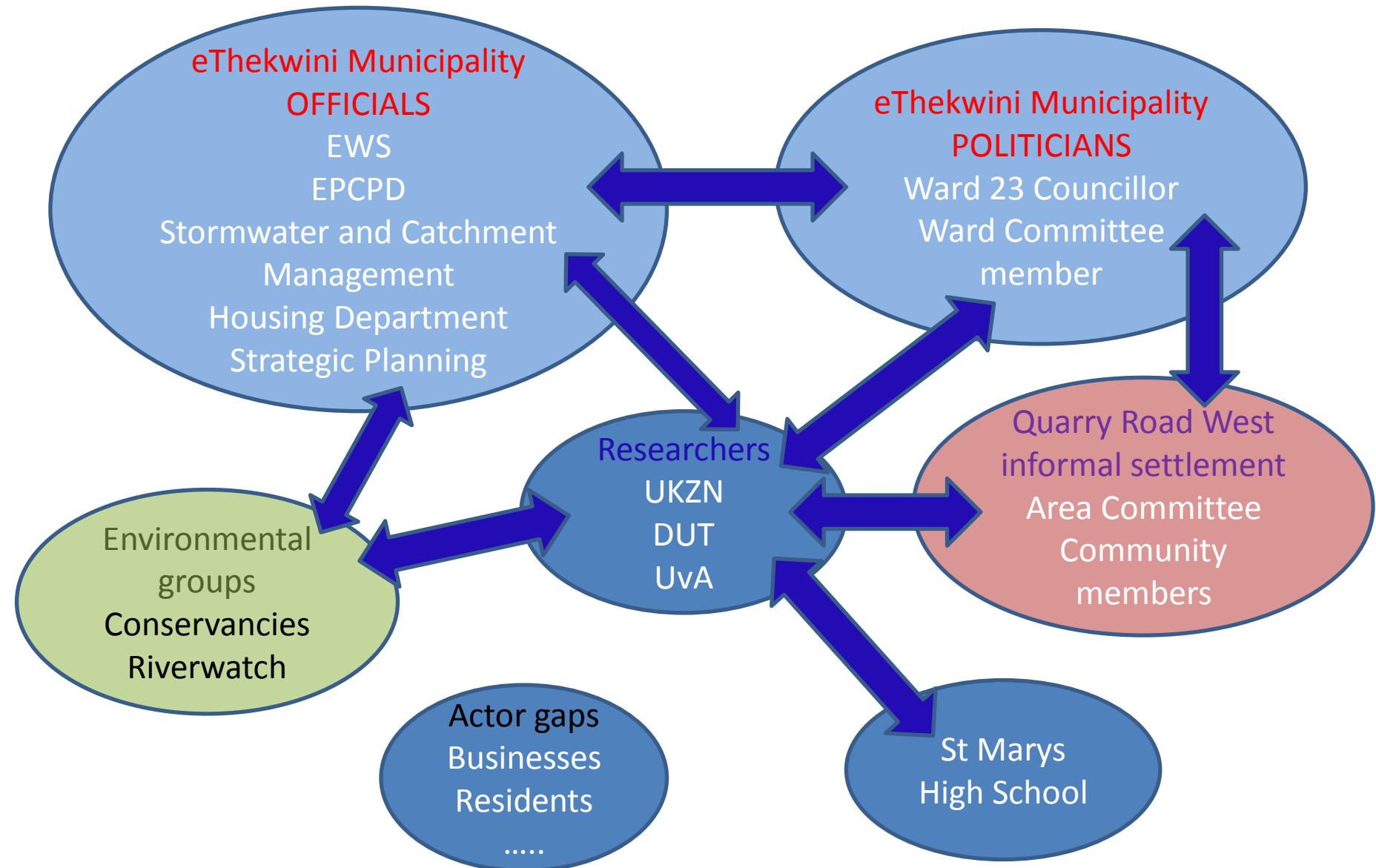
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7. Riverwatch – Palmiet River pollution watchdog
8. University Conservancy (still to be interviewed)
9. Quarry Road West
10. St Marys High School: mini- SASS

# B3. Developing a map of actors



# B4. Palmiet actors (discourses,baseline data)

- **Conservancies/Palmiet Nature Reserve**
  - Biodiversity conservation
  - Indigenous planting – predominantly beautification of public spaces, highway medians and verges
  - Eradication of alien invasives
  - Litter removal
  - Environmental education
  - Reporting pollution and related issues to Municipality
- **Riverwatch**
  - River pollution watchdog – reporting river pollution incidents to eThekwin Water & Sanitation via What's App group of approx. 100 members along river

## Pollution spoils Palmiet River once again

THE Palmiet River was once again polluted on Thursday last week. The water turned yellowish and there was foam on the surface, with a strange smell coming from the river.

Residents around Ambleside Lane in Cowies Hill said the the colour of the river started changing at noon on Thursday.

Lee D'Este from the Palmiet River Watch said, "A sewer blockage was found behind Escom Road and was attended to. The river is still not clear.

*'The poor Palmiet River does not get a chance to recover because of the frequent sewer pollution events'*

- D'Este,  
Palmiet River Watch

"Many people are unaware that 'industrial trade effluent' from industrial areas discharges, along with domestic sewage, directly into the river whenever sewer pipeline blockages and sewer pump station failures occur.

"The poor Palmiet River does not get a chance to recover because of the frequent sewer pollution events," said D'Este.

Ednick Msweli, eThekweni Municipality's head of water and sanitation, said the problem has not yet been traced, and the investigation is ongoing.

"The last report was that the Blair Road pump station went down, possibly as a result of load shedding.

"There is also a problem in Cherry Road in Pinetown, which has not yet been traced to a source," he said.



The water department is still trying to trace the cause of Palmiet River pollution.

# Quarry Road West



N

M19

Quarry Rd

Ofaherty Rd

Spencer Rd

Varsity Dr

Google earth

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Image © 2015 DigitalGlobe

2001

Quarry Lakeview

Imagery Date: 2/19/2015

29°48'14.78" S

30°58'05.20" E

elev  
19 m

eye alt  
485 m

## B4. Palmiet actors (discourses, baseline data)

- **Quarry Road West Informal settlement**
  - Building relationships with the community and the councillor
  - Baseline study
  - Established in 1974
  - Four sections: Number of shacks
    - Mamsutu: 444
    - MCondo I: 400
    - MCondo II: 500
    - Mampondweni: +/- 300
  - Resisted relocation to Parkgate (2004): LOCATION is critical
  - Settlement grew rapidly in 2009/2010/2012
  - 3 water points, 3 CABS
  - Highly organised community
    - Branch Executive Committee of ANC and Area Committee, Ward Committee Member (Ward 23)

Name	Joyce	Fikile	Ntombi
Status	Ward Committee member	Area Committee member	Deputy for Chairperson of the Area Committee
Age	52		
Reason for migration	Looking for job opportunities. Her older sister was staying here when she came.	Came to Quarry Road. Came here looking for job opportunities and did not know Joyce before migrating. Her sister was living in the settlement.	For studying fashion design. Her brother was staying in Quarry Road and she joined him.
Year of migration	1999	May, 1998	2004
Original place of residence	Eastern Cape	Eastern Cape, Bizana	Eastern cape, another part of Bizana
Shack type	Own	Own	Own

*F. Please tell us about the relationship between the river and the settlement, how do people use the river, what benefits does the river bring, what problems does the river bring, how are these problems addressed, what do you think could be done to improve things between the river and the people in Quarry Road West?*

The river moves our rubbish away.

It is too dirty so I don't have a relationship with it.

If our river was clean, we would bath in it.

My wish is that it needs to be clean.

Children get rashes and sores from the water. Also mosquitoes.

Joyce – when I moved to the settlement in 1999 the river was in a good state. We washed in the river and used it for drinking water. The white people put in a white pipe then which caused the river to expand. Then the river got wider and wider. The river used to be a stream (umhlambo).

If the river was in a good state we could use it to swim, wash, gossip next to the river (the river takes the gossip away) and for fishing.

## B4. Palmiet actors (discourses,baseline data)

- **eThekwini Municipality**
  - EWS
  - EPCPD
  - Housing Department
  - Strategic Planning Department
  - Councillor: Ward 23
  - Ward committee member

# B4. Palmiet actors (discourses,baseline data )

- Engagement between **network of researchers**
  - UKZN, DUT, UEIP
- Mini-Sass and involvement of local schools
  - St Mary's DSG (WESSA)

