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2ND ANNUAL NATIONAL BIODIVERSITY RESEARCH AND EVIDENCE INDABA

17 August 2017

Investing in ecological infrastructure to improve water security: The integrated catchment management perspective

SO 2: Investments in ecological infrastructure enhance resilience and ensure benefits to society

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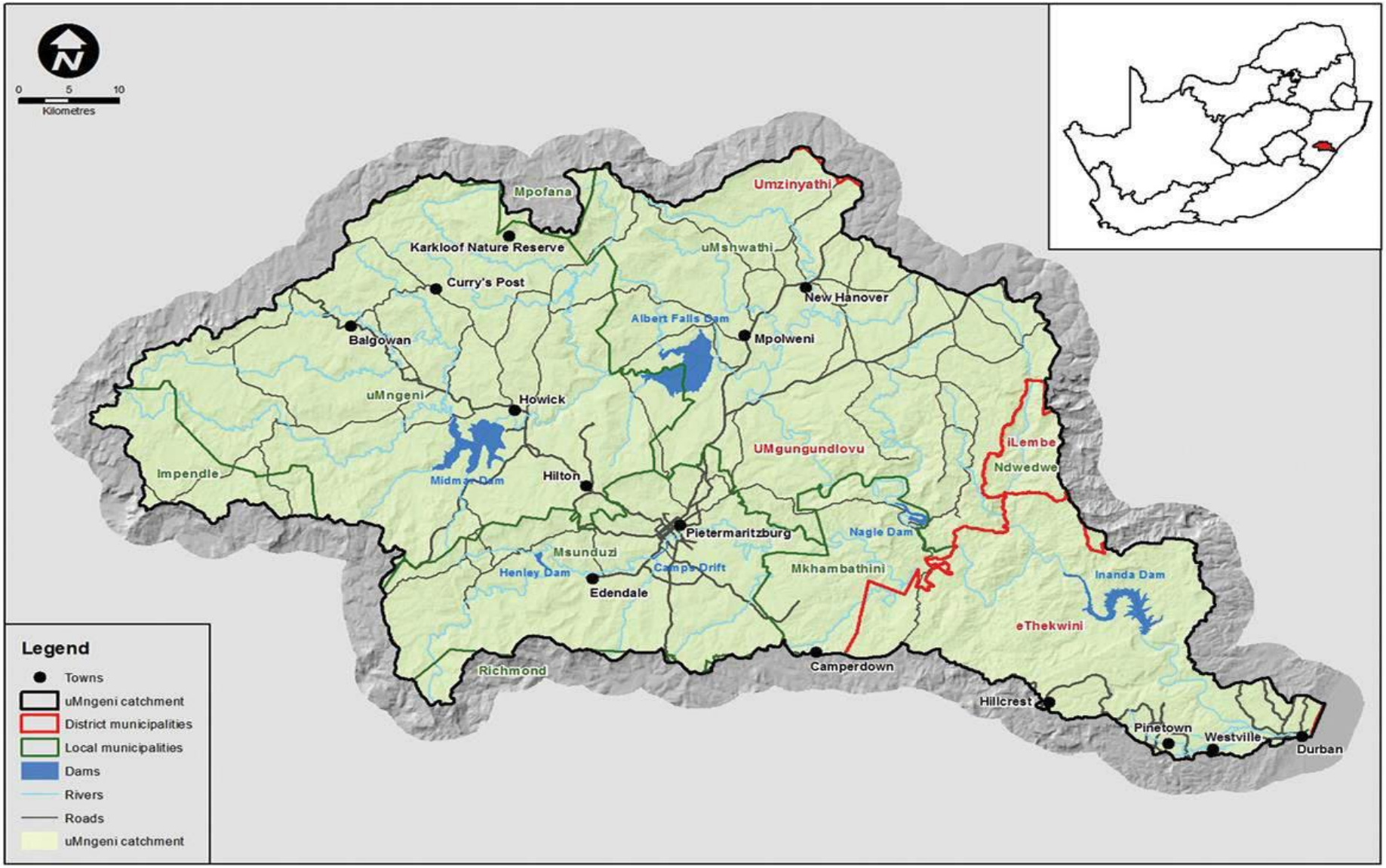
Alignment with Policy

- SDG 6, 12, 13, 15
- NDP: Chapter 1 and 4



Study Area: uMngeni River catchment



uMngeni Ecological Infrastructure Partnership (UEIP)

Rationale

Ecological/ Environmental

The uMngeni Vlei Nature Reserve (958 hectares) is SA's 21st Ramsar site.

Social

- Recreational activities:
  - Duzi Canoe Marathon
  - Midmar Mile
  - Comrades Marathon

Economic

Water supply to Durban and Pietermaritzburg which contribute substantially to the provincial economy

Aim of the study

- To guide investments in ecological Infrastructure (EI) in the uMngeni River catchment to support water security

- To advance the inclusion of the concept of EI in decision making and policy development

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

greenfund

DBSA
Development Bank
of Southern Africa

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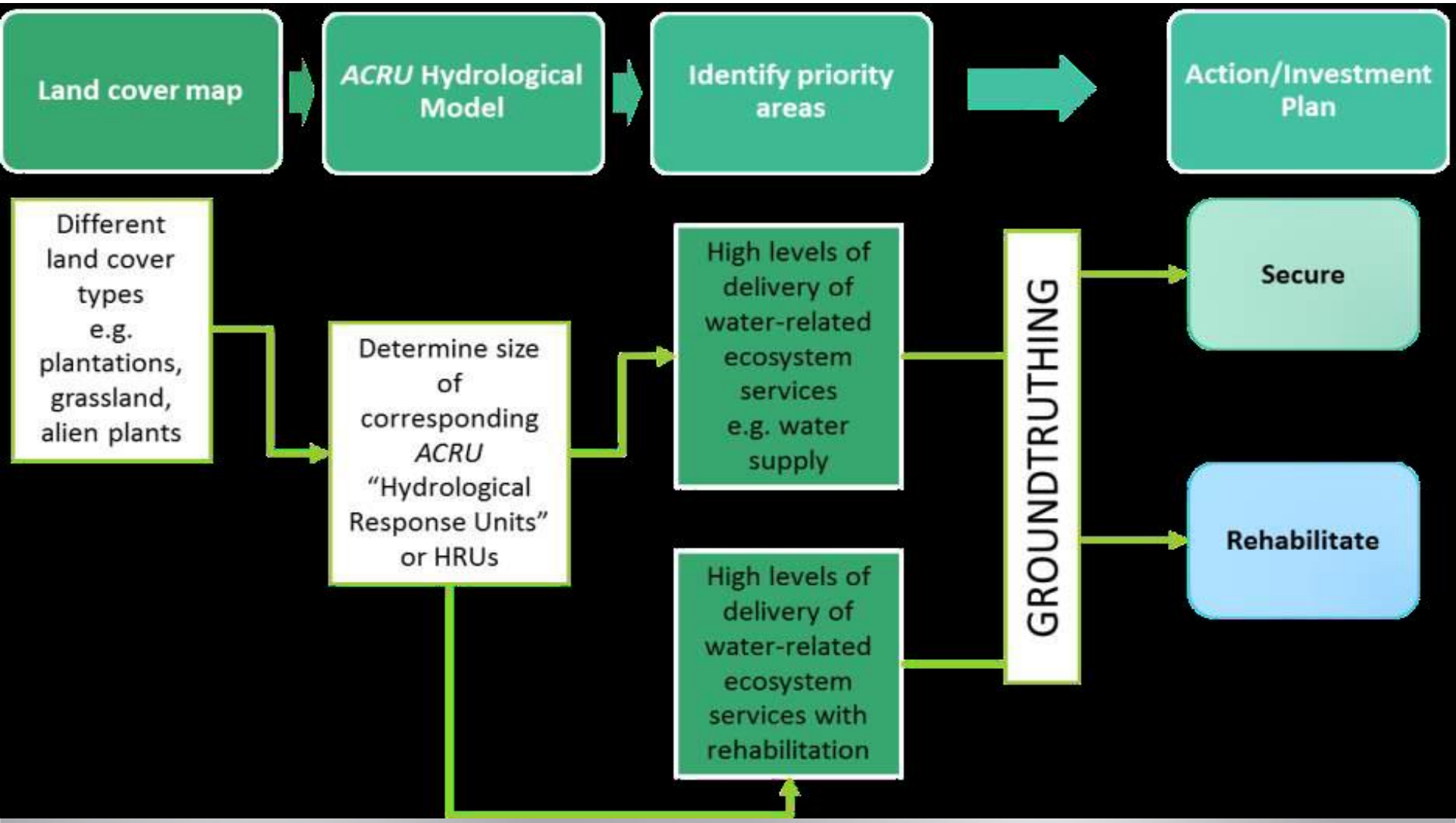
Water-related ecosystem services

- **Water supply**: streamflow
- **Dry-season baseflow**: Maintenance of water supply during the dry-season
- **Erosion control & sediment trapping**: Prevention of mobilisation of sediment from upslope land areas to watercourses
- **Flood attenuation**: Reducing flood peaks and energy associated with flood volumes

Methodology



Key Findings

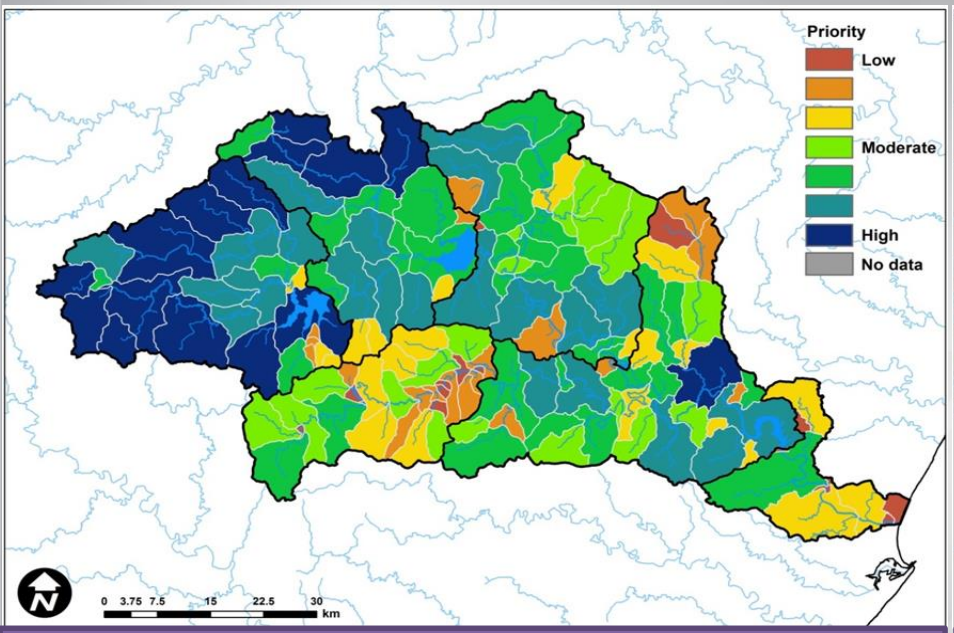


Figure 1: Priority catchments to **maintain natural vegetation** to maintain streamflow, dry season base-flow and sediment retention

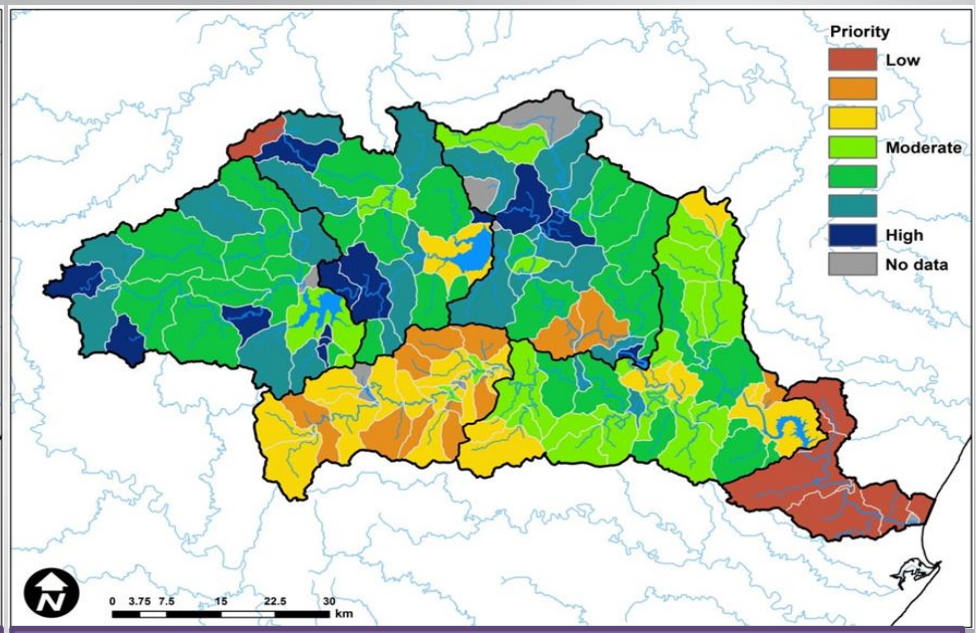


Figure 2: Priority catchments to **rehabilitate degraded vegetation** to improve streamflow, dry season base-flow and sediment retention

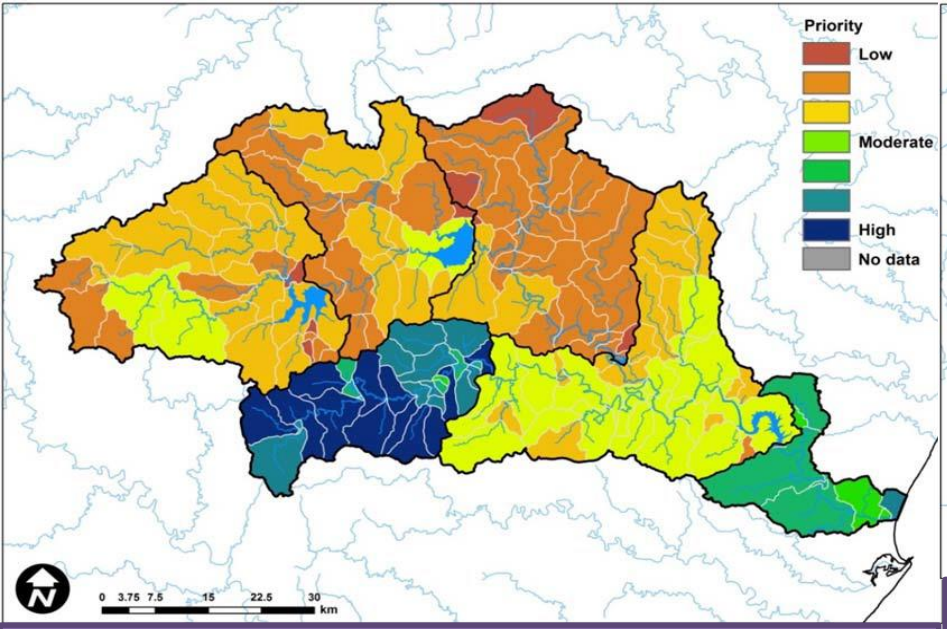


Figure 3: Priority catchments **to enhance flood attenuation and reduce flood risk**

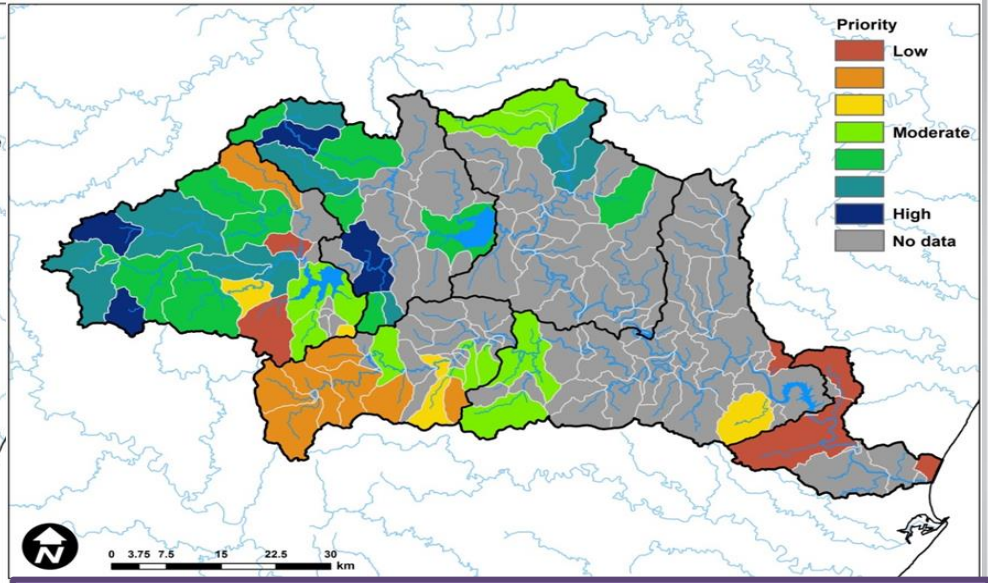


Figure 4: Priority catchments to **remove/rehabilitate wattle infestations** to improve streamflow, dry season base-flow and sediment retention

Over 50 year period:

- reduce sediment loads by 50 million tons (1 million tons/year)
- increase streamflow by 359 million m^3 (7 million m^3/year)
- increase base-flow component by 82 million m^3 (1,6 million m^3/year)
- at total cost (in 2015 Rand) of R 223 million

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Key Policy Messages

- Ecological infrastructure has the ability to supplement and/or sustain built infrastructure investments for water resource management
- Utilizing ecosystems to provide water related services to people also generates other services beyond water security
- Ecological infrastructure becomes particularly useful for delivering water services to people that are not serviced by built infrastructure
- Water reconciliation strategies and large built infrastructure investments should incorporate EI options

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C. Pringle, I. Bredin, J. McCosh, J. Dini, K. Zunckel, G. Jewitt; C. Hughes, G. de Winnaar and M. Mander. 2016 - *An Investment Plan for securing Ecological Infrastructure to enhance water security in the uMngeni River catchment*. Green Fund, Development Bank of Southern Africa, Midrand.