

How can we use open data to improve water management in Northern Cape cities and towns?

Enter: challenge.responsivecities.org.za | Deadline: 21 October 2016

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Opportunity: Top 3 entries for the Northern Cape will win cash award between R1,000 and R10,000, and will be eligible for national award of R50,000.

Maturity: Concepts, prototypes and near commercial proposals.

Eligibility: Startups, designers, journalists, small enterprises, researchers and individuals based in South Africa looking to implement a solution in Sol Plaatje or Dawid Kruiper Municipalities.

Challenge Question

How can we use open data to improve the management of public water services in Northern Cape cities and towns with a focus on Kimberley (in Sol Plaatje municipality), Upington (in Dawid Kruiper municipality - previously //Khara Hais and Mier) and nearby villages/ farming communities. Priorities include enhancing:

- Planning of water infrastructure and services to meet local residential, agricultural and industrial needs;
- Municipal water conservation and demand management;
- Monitoring, verification and scheduling of maintenance on public water infrastructure; and
- Information sharing with all stakeholders.

Process

- Meetup is taking place on 17th Sept 2016 at Upington, Northern Cape. More information here: <http://hackathon.ncdev.co.za>.
- Submit initial proposal online by 21 October
- Finalist workshop 7-13 November
- Winners announced by 25 November

Data Links

Core data set(s) and documents:

- **DWS Water Services** <https://www.dwa.gov.za/wsks/Default.aspx>
 - Example: “Theme: Access to Basic Services” in Northern Cape
- **DWS Surface Water** dams, rivers, rainfall flow rates <https://www.dwaf.gov.za/Hydrology/>
 - Example: “Verified Data” for Orange River at Upington: <https://www.dwa.gov.za/Hydrology/HyDataSets.aspx?Station=D7H005>

- Example: “**State of Dams**” in Northern Cape:
<https://www.dwa.gov.za/hydrology/Weekly/ProvinceWeek.aspx?region=NC>
- **DWS Reconciliation Strategy**
<https://www.dwa.gov.za/Projects/Orange%20Recon/documents.aspx>
 - Example: **Urban Water Demand Management** incl. //Khara Hais
<https://www.dwa.gov.za/Projects/Orange%20Recon/Docs/final/5%20Urban%20Water%20Conservation%20and%20Water%20Demand%20Management.pdf>
 - Example: **Irrigation Demand** incl. Lower Orange
<https://www.dwa.gov.za/Projects/Orange%20Recon/Docs/final/6%20Irrigation%20Demand%20and%20Water%20ConservationWater%20Demand%20Management3.pdf>
- **Municipal Water Services Reports and Plans**
 - Example: //Khara Hais **Water Services Development Plan** – Infrastructure Profile (page 43-59) <http://kharahais.gov.za/wp-content/uploads/2016/06/Water-Services-Development-Plan.pdf>
 - Example: //Khara Hais **IDP 2016/17 Water Services Targets** (page 50)
<http://kharahais.gov.za/wp-content/uploads/2015/03/Binder-FIN-145pgs.pdf>
 - Example: **Sol Plaatje draft plan for bulk water infrastructure** (2007)
<http://www.solplaatje.org.za/downloads/LED/Annexure%20C%20-%20Growth%20and%20Trends%20Scenario.pdf>
 - Example: **Sol Plaatje IDP 2015/16 Water Capex and Targets** (page 24-26)
http://www.solplaatje.org.za/downloads/idp/IDP/IDP%20Review/Review%202016_2017/Final%20IDP%20Review%201516.pdf
 - Example: **Sol Plaatje Water Loss Study** (2003)
http://pdf.usaid.gov/pdf_docs/Pnadh370.pdf
- **DWS Spatial and Land Information** <https://www.dwa.gov.za/SLIM/default.aspx>

Possible related data set(s) and tools:

- **General population, household and services** statistics for municipalities:
 - <https://wazimap.co.za>
 - http://www.statssa.gov.za/?page_id=993&id=sol-plaatje-municipality
 - http://www.statssa.gov.za/?page_id=993&id=khara-hais-municipality
 - http://www.statssa.gov.za/?page_id=993&id=mier-municipality

Background

The Northern Cape is the most sparsely populated province in South Africa and characterised by large arid to semi-arid areas. Whilst average rainfall is low, the Orange River does wind through the province, past Upington, and is the main source of irrigation for agriculture operations in the region.

The population of the Northern Cape is concentrated in two major cities or towns:

- Kimberley:
 - Located in the Sol Plaatje Municipality.
 - The wider urban area has a population of more than 200,000.
 - The economic focus of the city has shifted away from mining towards tourism.

- The city's water is pumped from the Vaal River (a tributary for the Orange River) about 15km north of the city.
- Most of the city's effluent is treated at the Homevale Waste Water Treatment Works, which diverts treated effluent into the Kamfers Dam amongst others.
- Upington:
 - Located in the Dawid Kruiper Municipality, resulting from a 2016 merger between //Khara Hais and Mier Municipalities.
 - The main town has a population of more than 50,000, with a number of villages and farms within a 60km radius.
 - The primary source of water for the town is the Orange River, and is mainly serviced by the Abraham 'Holbors' September Water Treatment Plant.

Key challenges with water management in these areas include ensuring households have access to appropriate water and sanitation services, reducing per-capita consumption of water through more effective demand side management, and addressing water losses in the water treatment and reticulation system.

In order to address water challenges, these municipalities are calling for innovative, sustainable and financially viable solutions that use open data, to improve the management of water services including planning/ maintenance of infrastructure but also demand-side interventions that can change user behaviour.

TO RESPOND TO THIS CHALLENGE, PLEASE ENTER ONLINE

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