



# Wetskills from a client perspective

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 DUTCH WATER  
AUTHORITIES



Groot Salland

UW WATERSCHAP



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## ÉÉN LOKET VOOR INTERNATIONALE SAMENWERKING – VOORGESCHIEDENIS

- Dutch Water Authorities
- Eén gezamenlijk loket bij Unie van Waterschappen
- 9 focuslanden met landen coordinatoren
- Coordinator DRR
- Coordinator Rembrandt Water
- <http://www.dutchwaterauthorities.com>



# Filmpje DWA



# Wetskills en Waterschap Groot Salland

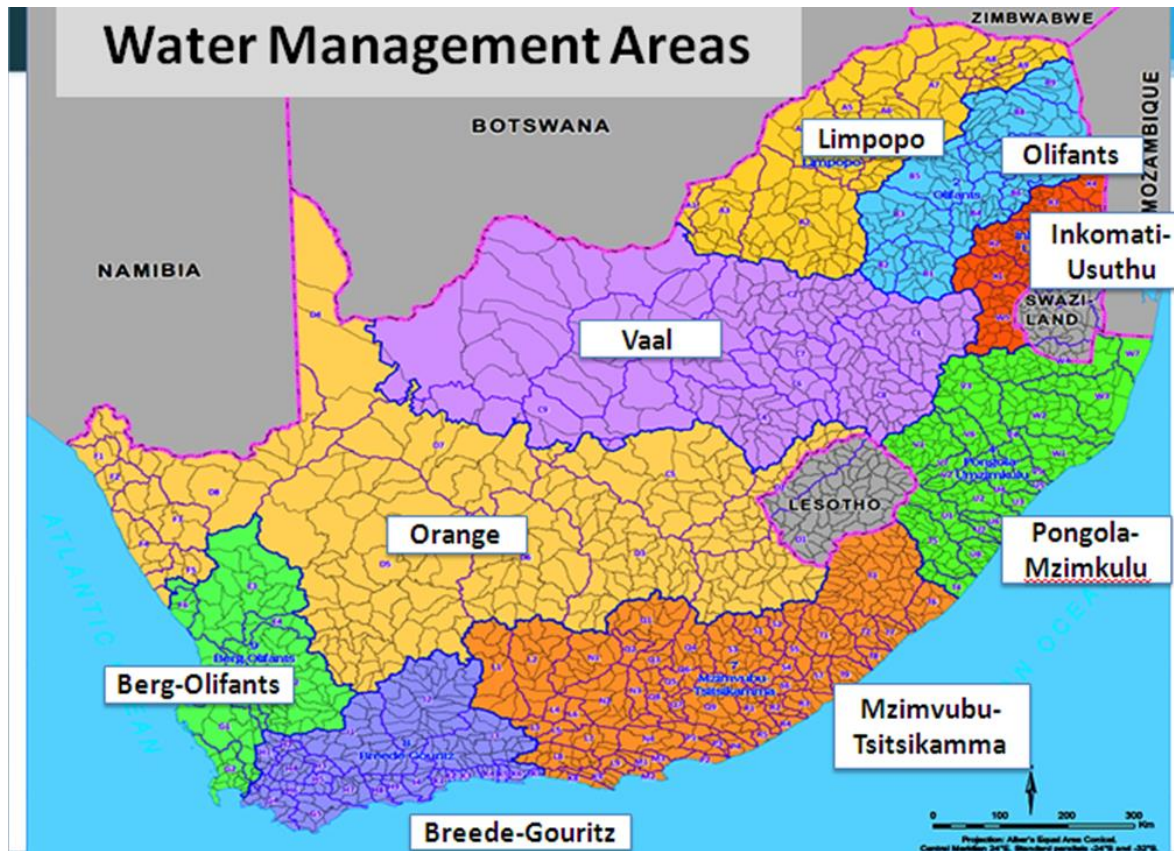
## ***\* Invulling internationaal beleid, WGS al actief in Zuid Afrika***

Voordelen WGS-deelname Wetskills:

- Vehikel voor relatiemanagement en jongerenbeleid;
- Kennisuitwisseling tussen jongeren internationaal;
- Verbinding met opleidingsinstituten;
- Werken in Water sector en bij Waterschap(pen) onder de aandacht brengen bij studenten;
- Innovatieve ideeën voor watervraagstukken uitwerken;
- Ontwikkeling en inspiratie van jonge medewerkers.

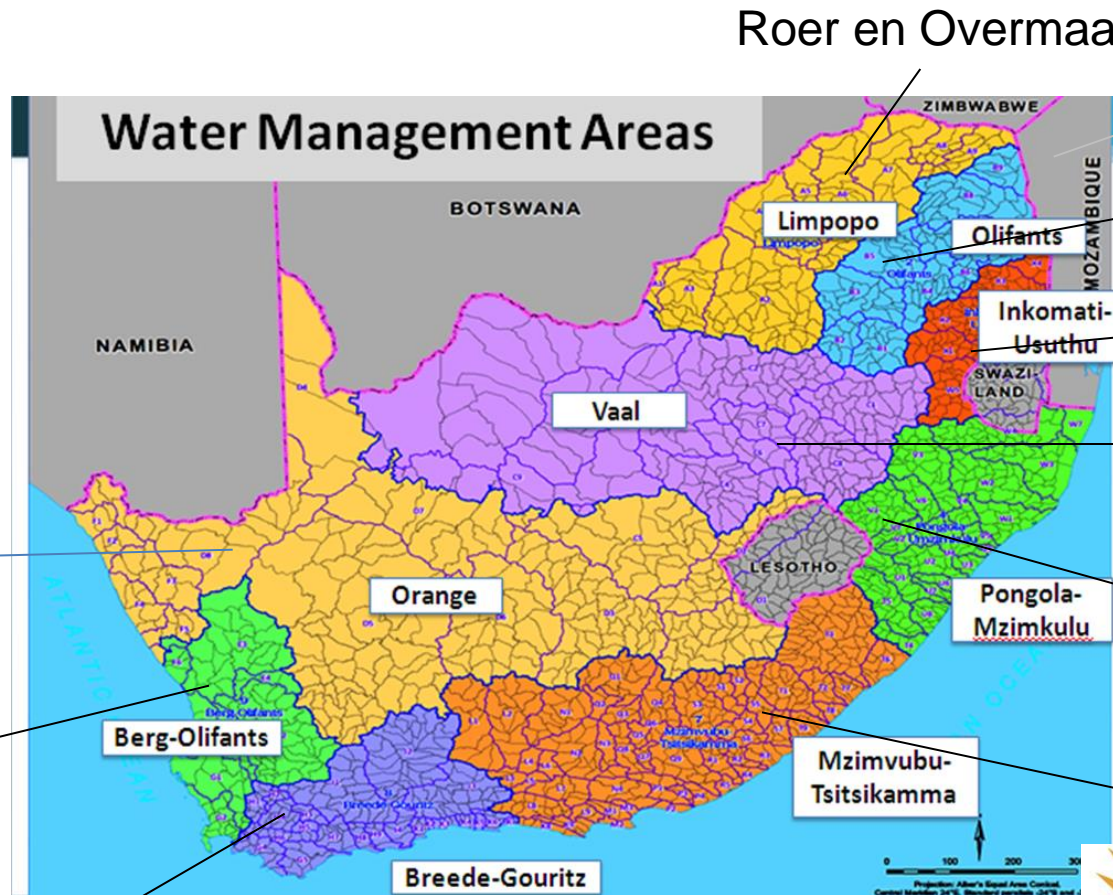
# National Water Act South Africa

## Establishment of CMA's





# Kingfisher: Partnering 9 CMA's and 9+ Dutch Water Authorities



*Fryslân (Mozambique)*

Vechtstromen + Vallei en Veluwe

**Groot Salland**

Aa en Maas+ Brabantse Delta+ Dommel

Hollandse Delta + Rivierenland

Rijnland 2015?

Tbd

Delfland 2015?

AGV/Waternet + Delfland

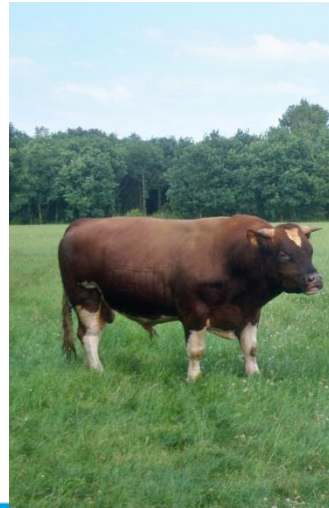
And a pool of experts NL + SA





## Transboundary Water Management Incomati en Vecht.

- Cooperation of 2 international catchments Incomati and Vecht
- Incomati: South Africa, Swaziland and Mozambique
- Vecht: 2 German States and 2 Dutch Water Authorities
  
- REMCO: River and Environment Management Cooperation
  
- To be expanded in project Kingfisher
- Limpopo CMA and Olifants CMA to be included
- Similar initiative for Orange CMA?





## Remote Sensing Cooperation WGS en ICMA

(= using satellite images for observations and measurements  
f.i. Evaporation, Land use, Soil moisture, Rainfall, biomass production)

- SATWATER, WGS together with 5 Dutch Waterschappen
- WATPLAN/RISKOMAN, ICMA and others
- Share knowledge:
- Colleague to colleague (learning from each other) in a network environment
- With knowledge institutes and companies like ITC Twente, Hydrologic en E-leaf
- Finance of “out of pocket” costs by NWB fund
- Hydrologic: Water Control Room for ICMA (Partners for Water)
- Further research in project Satwater with ESA and STOWA







# Deelname Wetskills Zuid Afrika

- WISA 2012: Energizing Africa (turning biogas into energy)
- WISA 2014: Tech2O (design an hydrologic app)
- WISA 2016: .....

# Deelname Wetskills ZA / WISA 2012


## Assignment

*“Energy generation in combination with water conservation and purification (treatment)”.*

## Solution


*Small scale dry digestion*

*Wetskills ZA 2012 filmpje (door één van de deelnemers)*



### ENERGIZING AFRICA...


Dry digestion: turning biomass into energy




Finis van den Bos  
Nequita MacDonald
Kasper Lange  
Lebogang Malatje

#### CHALLENGE

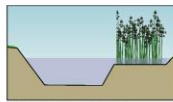
“Develop a product concerning the applicability of energy generation in combination with water conservation and other types of land use like water purification in the Incomati River Basin. In such a way that the product ensures the sustainable utilization of water resources and the involvement of local community.” Waterschap Groot Salland




The study area is the Incomati River Basin in South Africa. There are areas with water shortages, which make use of water retention sites.



Retention sites can become overgrown and up to now we pay to get rid of the biomass in order to increase retention capacities.




Additional benefits besides increasing water retention capacity are natural water purification by using certain reed species and turning the biomass into biogas.




The main focus is at retention areas, but besides these sites there are a lot of invasive plant species being removed.

#### SOLUTION


##### Input biomass



Reeds

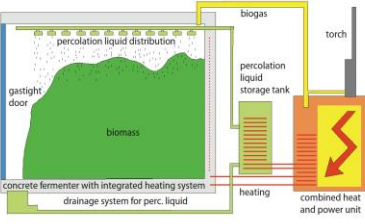


Grasses




Crop residues

##### Dry digester




The biomass is put in an airtight box after which a bacteria solution is percolated over the biomass to produce biogas (CH<sub>4</sub>). The biogas is converted into electricity and heat using a combined heat & power generator (CHP).


##### Output



Electricity



Heat



Compost (post-processing)

#### ADVANTAGES

- Replaces conventional energy sources like wood and paraffin
- Direct use of biogas (fuel, cooking, etc.)
- Invasive species could be used to fuel the dry digester
- Applicable to residential and commercial food waste
- Installation is easily adaptable to the surrounding area's
- Low start-up, operation and maintenance costs
- Ideal for a non-continuous supply of biomass
- No pre-treatment of biomass material
- Low heat input, due to optimal temperature of 34°C - 37°C
- One ton of biomass can yield 130-140 m<sup>3</sup> of high quality biogas

#### RECOMMENDATIONS

- Research optimized composition of different plant species in biomass; harvesting age of the biomass and time per batch of biomass to digest
- Obtain a native plant species to purify the water in a retention area and yield high amounts of biogas

Wetskills-South Africa (Cape Town), May 2012 is supported by:




# Deelname Wetskills ZA / WISA 2014

## Assignment

*“Describe and design an Hydrologic App”.*

**Sollution ->**

**Next slide (2 minute Pitch)**



## TECH<sub>2</sub>O

*A hydrological App for the Inkomati Catchment, Southern Africa*  
S. Magaga, L. Makhalemele, J. Menkveid, A. de Nijs, N. Seleki

**Introduction**

Water is essential to society and nature. However, climate is changing. Long periods without rain can ruin crops or affect other functions that rely on fresh water supply. The Inkomati Catchment for example has experienced disasters as a result of hydrological extremes which have led to devastating losses of life, property and livestock which potentially could have been mitigated by improving access to information.

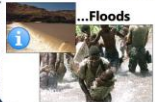
**Why an App?**

**Easy and quick access to combined information for everyone to mitigate the impacts of...**


**App Functionality**

- Locate the user by GPS or fill in the location yourself
- A warning-banner in case of an extreme situation in areas of interest
- The Home page shows immediate real time data of key indicators of the specific location
- Clicking on symbols will provide more information such as forecasts and historical data
- The symbols give a general indication of risks such as floods by the use of colors and numbers
- An extra option to receive a text-message in order to get warnings when there is no internet access
- Central database for users to upload information for a certain location


...Floods



...Drought



...Pollution










No Alert

Advisory  
Be aware

Watch  
Be prepared

Warning  
Take Action

Symbol	Description
 20%	Expected Precipitation in percentages <ul style="list-style-type: none"> <li>• Real time</li> <li>• 7 days forecast</li> </ul>
 20°C	Temperature in Celcius <ul style="list-style-type: none"> <li>• Real time</li> <li>• 7 days forecast</li> </ul>
 10%	Irrigation advisor with soil moisture in percentages <ul style="list-style-type: none"> <li>• Contains relevant information for decision making related to irrigation</li> </ul>
 L <sub>f</sub>	Water level as a color <ul style="list-style-type: none"> <li>• Levels of the closest dams and rivers</li> <li>• The color gives an indication of flood risks</li> </ul>
 Q	Water quality as a color <ul style="list-style-type: none"> <li>• Contaminants and parameters (e.g. E.coli and pH)</li> <li>• The color gives an indication of the overall quality</li> </ul>
	Information sharing <ul style="list-style-type: none"> <li>• Extra feature for the users to share information in a central database for a certain location</li> </ul>



High flood risk in South-Mozambique

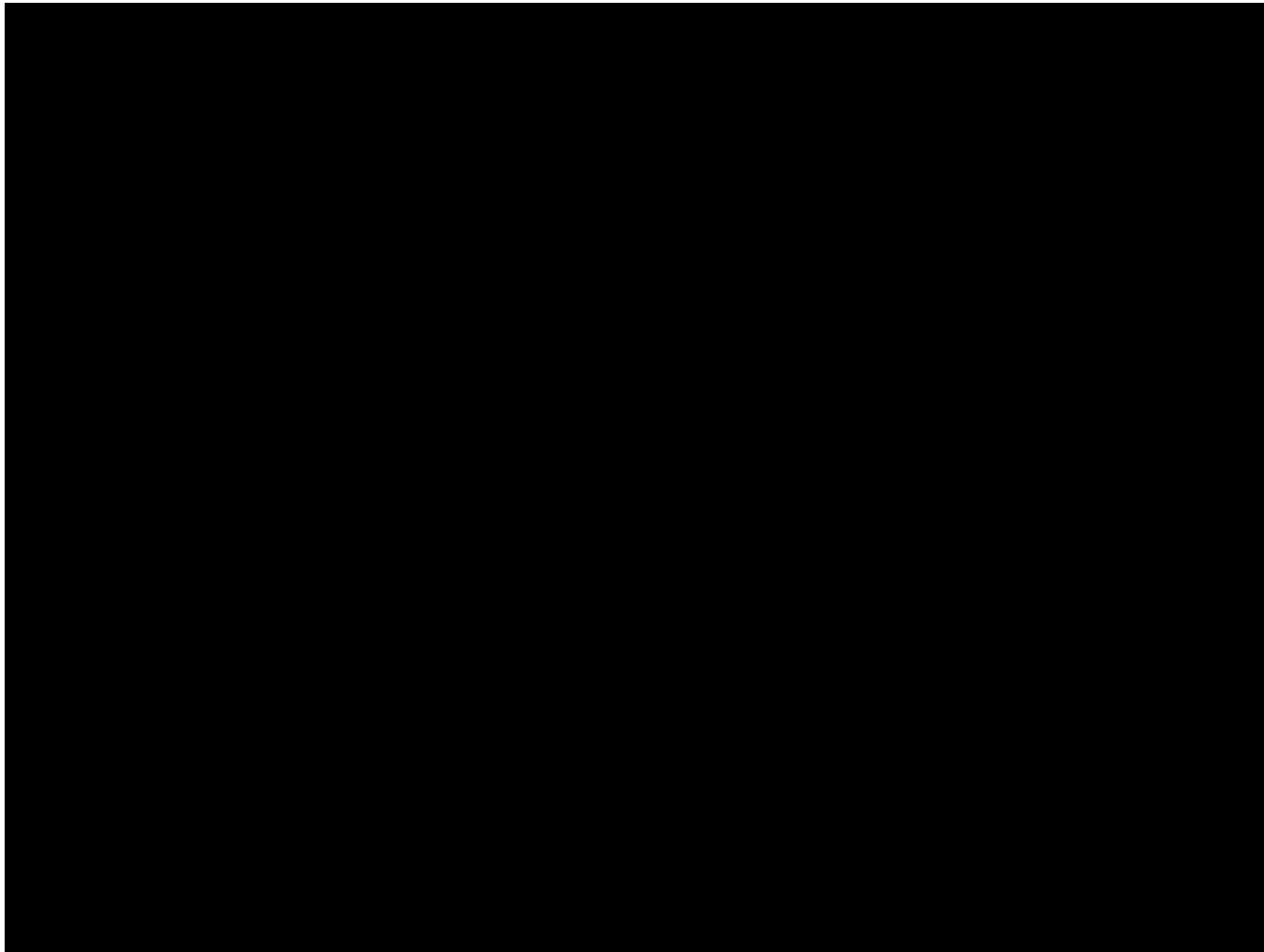
**Conclusion**

With improved access to understandable information at the fingertips we foresee the following benefits:

- Better communication between different parties
- Saving lives in cases of floods
- Prevention of polluted water usage
- Minimizing financial loss as a result of crop damage
- Minimizing property loss
- Save water in times of shortages



# Pitch TECH20





# Tips voor (nieuwe) case owners

- Duidelijke verbinding met interne doelen organisatie;
- Maak een study case vanuit de organisatie zelf -> welk (internationaal) vraagstuk verdient (meer) aandacht in de organisatie?
- Maak zowel junioren als senioren in de organisatie onderdeel van het proces (bridging the generation gap);
- Geef een goede terugkoppeling van het geen het heeft opgeleverd



# Wetskills en WGS: enriching & fun!



## WGS / Wetskills Agenda:

- IWW Amsterdam november 2015 -> [www.wgs.nl/grip](http://www.wgs.nl/grip)
- WISA Zuid Afrika mei 2016 -> <http://www.wisa2016.org.za/>

Info Wetskills: [www.wetskills.com](http://www.wetskills.com)

Info WGS: [www.wgs.nl](http://www.wgs.nl)