

# Research Rocks

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helping groundwater research to change lives

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Richard Carter

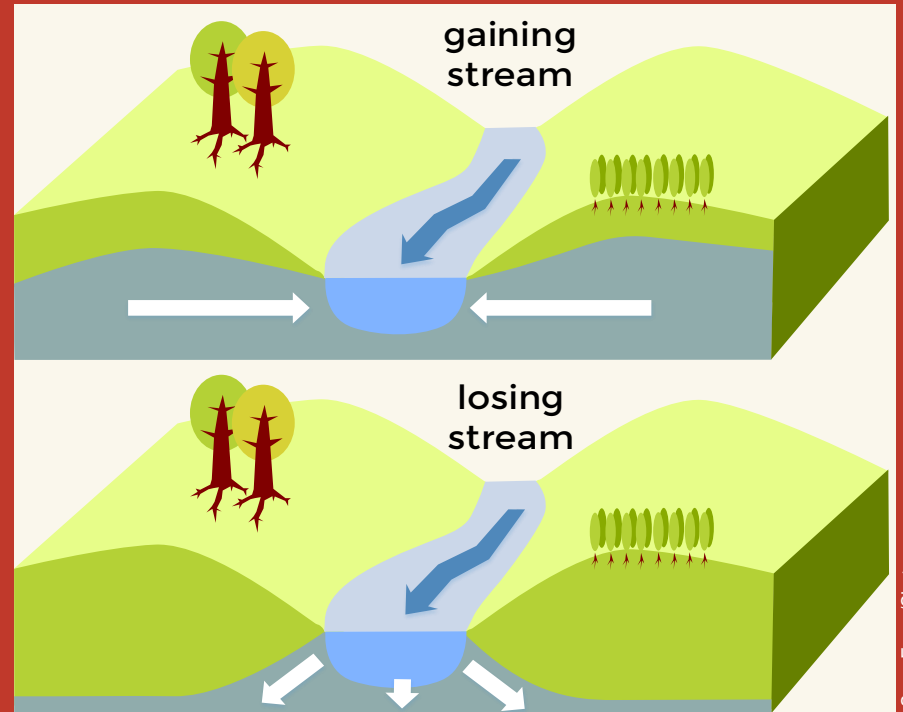
# Overview

- African Groundwater
- The UPGro programme
- Research ► Change
- Next steps
- Research Rocks – but can it change lives?

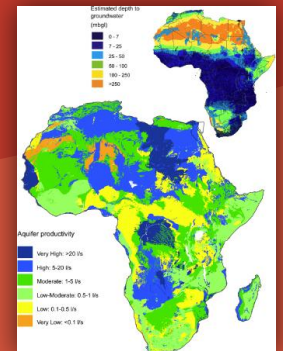


Unlocking the  
Potential of  
Groundwater  
for the poor

# AFRICAN GROUNDWATER

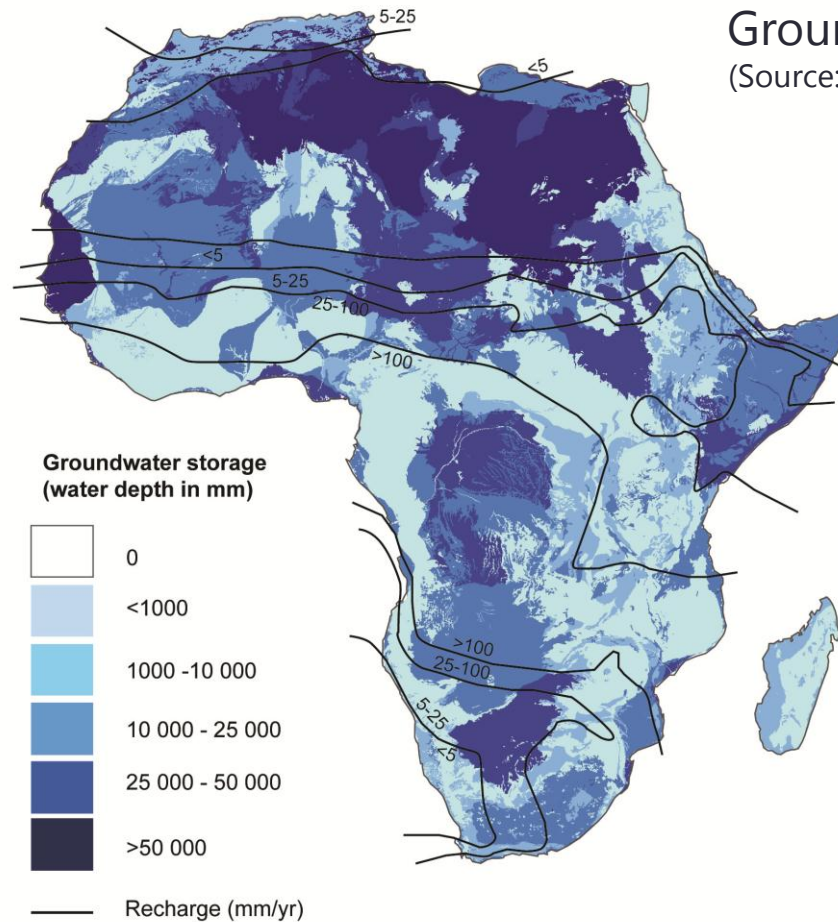


Sean Furey/Skat



# Groundwater – hidden wealth

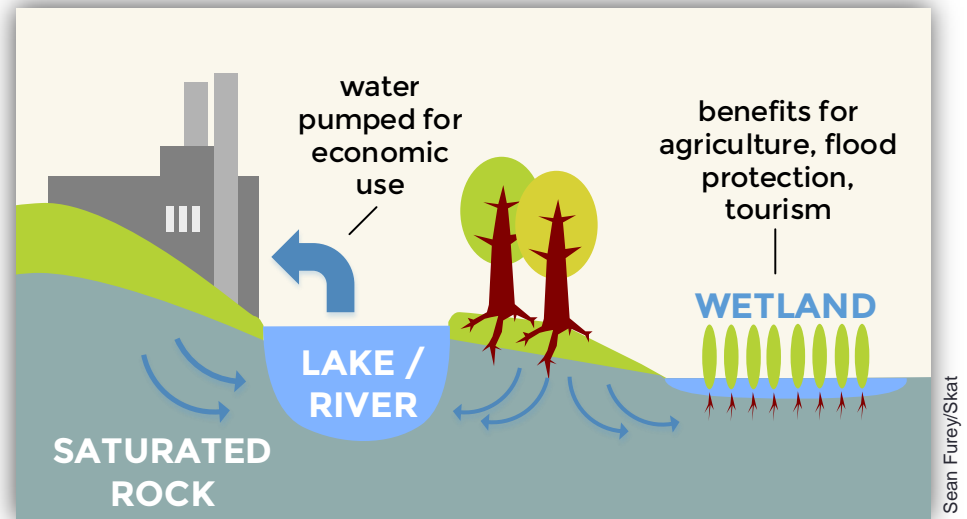
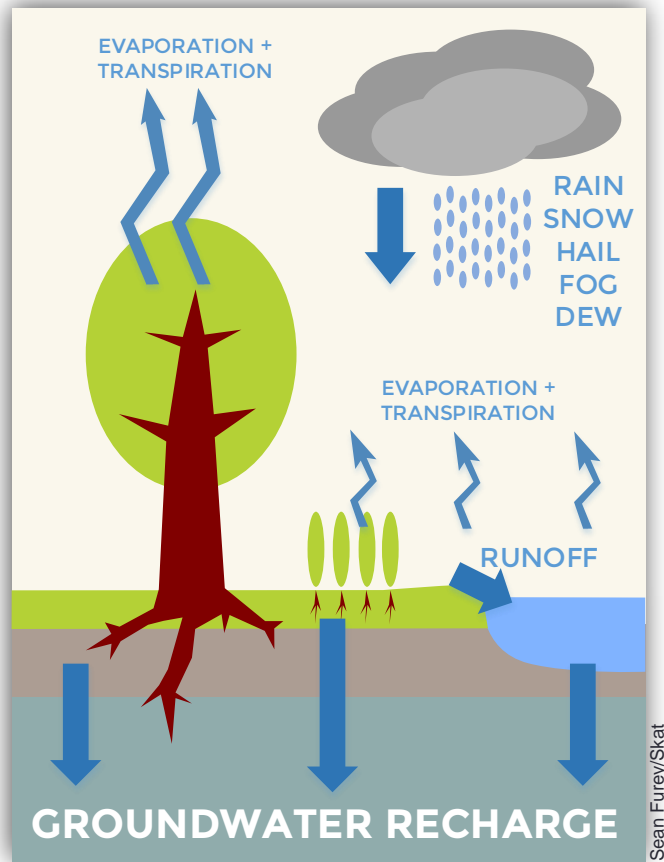
**2012:** first quantitative continent-wide maps of aquifer storage and potential published



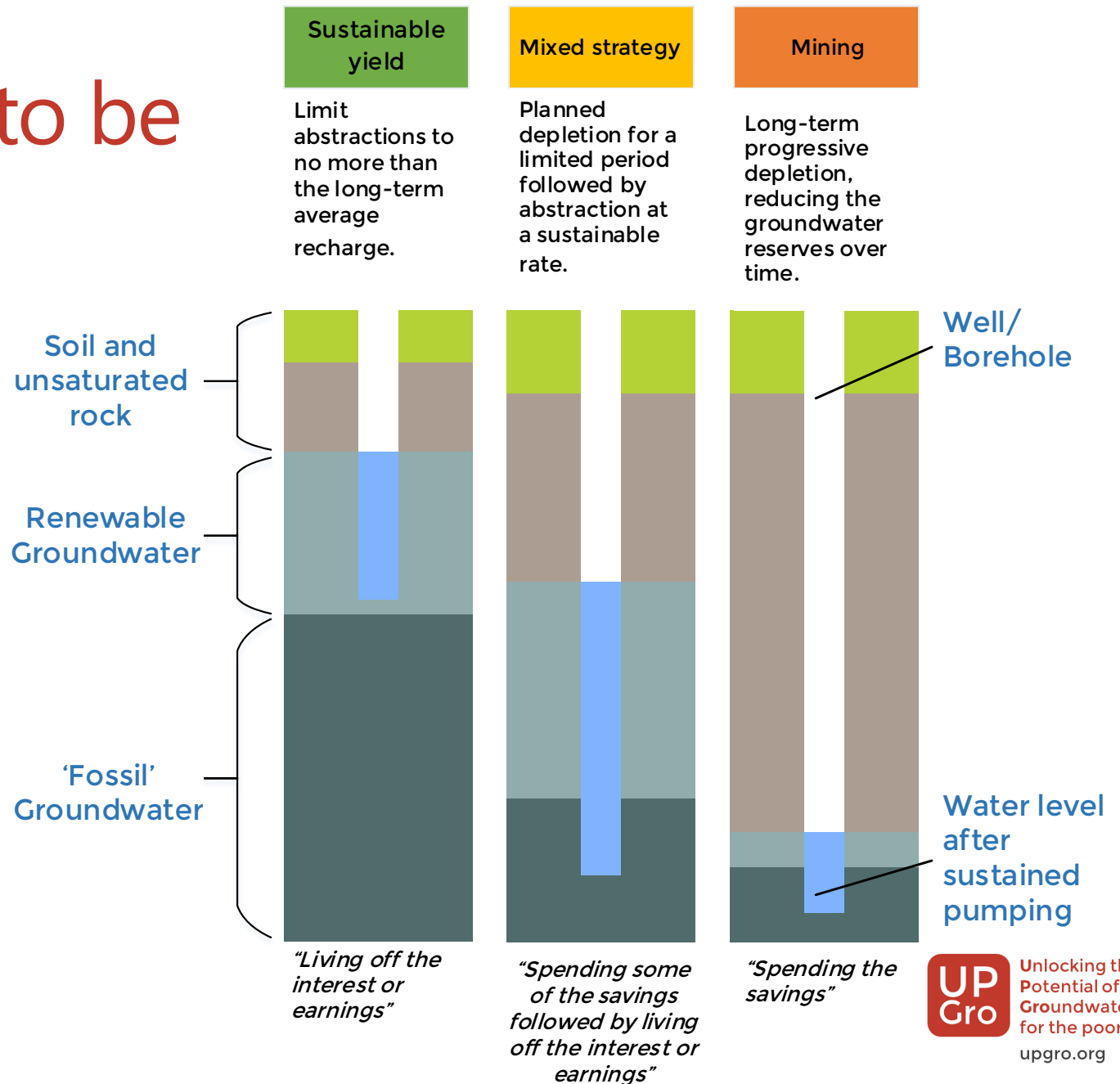
Groundwater storage  
(Source: MacDonald et al, 2012)

British Geological Survey © NERC 2011. All rights reserved.  
Boundaries of surficial geology of Africa, courtesy of the U.S. Geological Survey.  
Country boundaries sourced from ArcWorld © 1995-2011 ESRI. All rights Reserved  
Modern annual recharge data (Doll and Fielder 2008)

# Complex natural & human processes



# Choices to be made





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# THE UPGro PROGRAMME

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# Welcome to UPGro

- Unlocking the Potential of Groundwater for the Poor (UPGro), is a seven-year international research programme (2013-2020)
- We focus on improving the **evidence base** around **groundwater** availability and management in **sub-Saharan Africa** (SSA) to enable developing countries and partners to use groundwater in a sustainable way in order to **benefit the poor**.



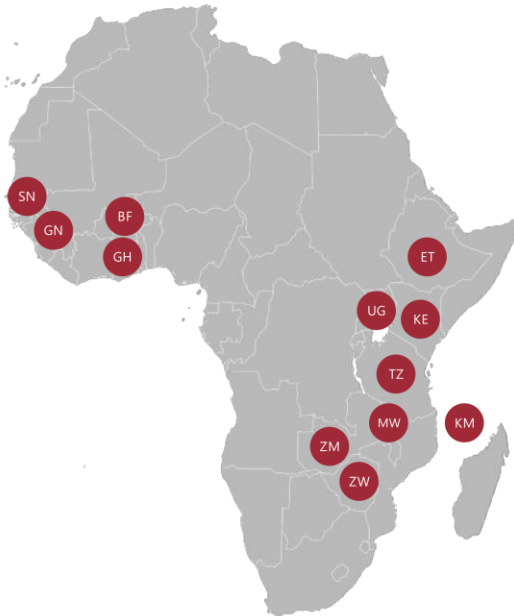
Professor Declan Conway

Grantham Institute on  
Climate Change &  
Environment, LSE

Chair of the Programme  
Executive Board of UPGro



# The Catalysts (2013-2015)



ET  
**Optimizing Road Development for Groundwater Recharge and Retention**

wr inf gov

MW  
ZW  
**Resource limitations to sustainability of groundwater well-points in basement complex regions of sub-Saharan Africa**

wr

KE  
KM  
TZ  
**Towards groundwater security in coastal East Africa**

wr cc

NG  
ZM  
**Mapping groundwater quality degradation beneath growing rural towns in sub-Saharan Africa**

pol urb

GN  
SN  
**Use of remote sensing and terrain modelling to identify suitable zones for manual drilling in Africa and support low cost water supply**

wr inf

KE  
**Groundwater Risks and Institutional Responses for Poverty Reduction in Rural Africa**

wr gov ag inf min

Africa-wide  
**Groundwater recharge in Africa: identifying critical thresholds**

wr inf

TZ  
**IN-GROUND: Inexpensive monitoring of Groundwater pollution in Urban African Districts**

pol urb

KE  
**Sustaining groundwater safety in peri-urban areas**

pol urb

ET  
**Improving access to safe drinking water: prospection for low-fluoride sources**

pol wr gov

KE  
**Assessing Risks of Investment in Groundwater Resources in Sub-Saharan Africa (ARIGA)**

wr gov

ET  
ZA  
GH  
**Adaptive management of groundwater resources for small-scale irrigation in sub-Saharan Africa (AMGRAF)**

wr ag gov

UG  
**A hidden crisis? Strengthening the evidence base on the sustainability of rural groundwater services**

ws inf

BF  
GH  
**Building understanding of climate variability into planning of groundwater supplies from low storage aquifers in Africa (BRAVE)**

wr cc

ET  
TZ  
GH  
**Groundwater Futures in Sub-Saharan Africa (GroFutures)**

wr ag inf gov cc

## RESEARCH THEMES

ag agriculture

gov water governance & risk

min mining

urb urban groundwater

cc climate change

inf infrastructure planning and performance

pol groundwater quality and pollution

wr water resources and aquifer properties

Awarded a Consortium Grant to continue work (2015-2019)

# The Consortium Projects (2015-19)



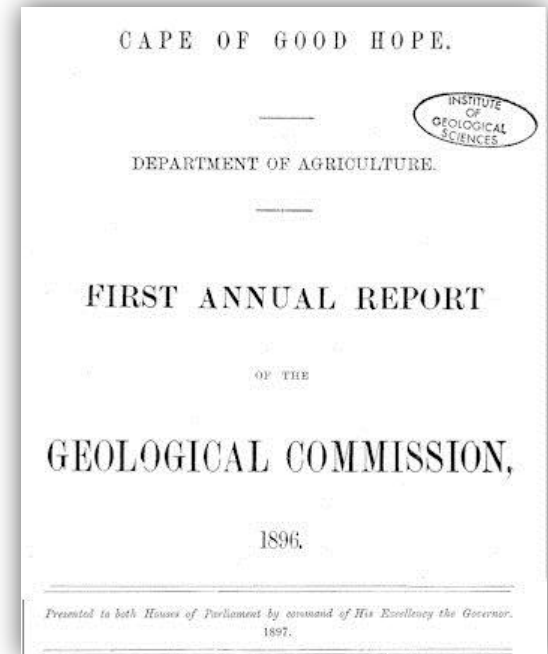
 *Grofutures*



Working in **Benin, Burkina Faso, Ethiopia, Ghana, Kenya, Malawi, Niger, Nigeria, South Africa, Tanzania, Uganda**

# The Africa Groundwater Atlas and Literature Archive

- The most comprehensive catalogue yet available of groundwater literature for Africa.
- more than 3000 of the indexed documents link to either the full text document or an online abstract.
- Atlas will have country-by-country overviews of groundwater and geology



[www.bgs.ac.uk/africagroundwateratlas](http://www.bgs.ac.uk/africagroundwateratlas)

# So what?



Kerstin Danert/Skat



Unlocking the  
Potential of  
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for the poor

# RESEARCH ► CHANGE

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# Knowledge Broker

Knowledge  
exchange by  
research teams



Unlocking the  
Potential of  
Groundwater  
for the Poor



REACH

Improving water  
security for the poor

**8,000+ individual members,  
from 149 countries**

**Executive Committee:**  
UNICEF, SDC, AfDB, IRC,  
The World Bank/WSP,  
WaterAid, World Vision

**Collaborations:**  
Professionalising water well  
drilling  
(UNICEF-Skat-WaterAid)

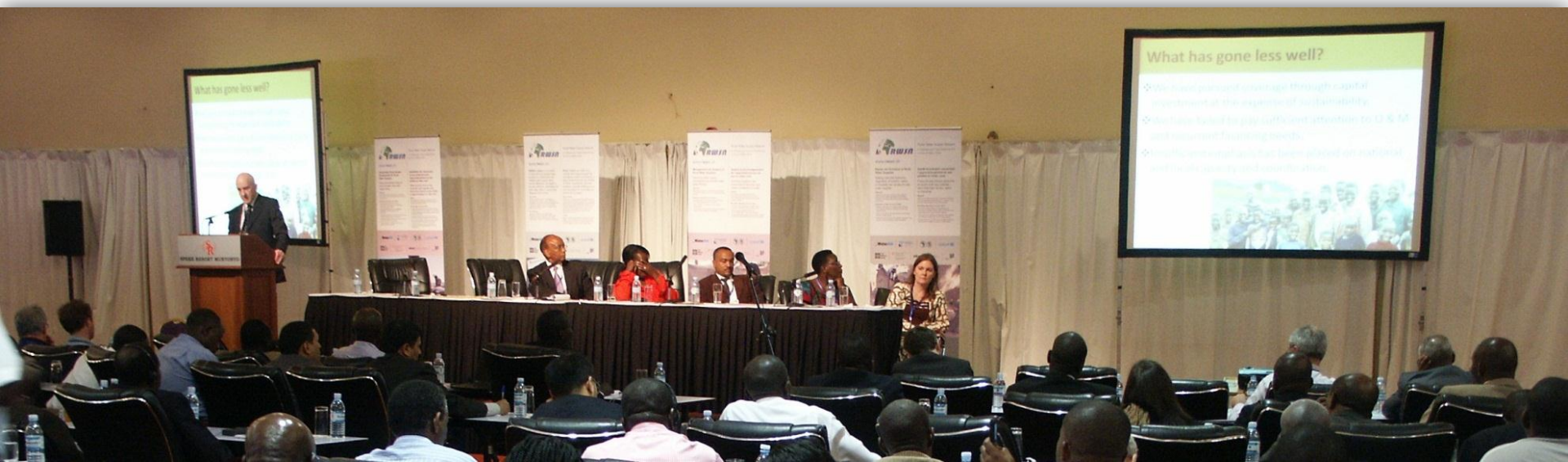
**Member engagement:**  
Webinars, training,  
e-discussions, events, peer-  
reviewed publications

**Events:** Stockholm Water  
Week, IAH Congress, WEDC  
Conferences

**Partner Networks:** SWA,  
African GW Network, IAH

# 7<sup>th</sup> RWSN Forum: Water for Everyone

29 Nov – 2 Dec 2016  
Abidjan, Côte d'Ivoire



# But...

- RWSN was a good start...  
...but only for rural water supply.
- Interdisciplinary science:  
How do we engage with social sciences?



# ... and why should decision-makers care about groundwater?

- **Infrastructure projects:** roads, water, urban extension
- **Economic & social policy:** agriculture, small-holder farmers, urban healthcare



# Next steps

- Stimulate discussion with African decision-makers and media and **listen**.
- Support research teams to **match up** the evidence they can supply, with the questions being asked.
- **Learn** from you on how best to do these.



# Research Rocks – but can it change lives?

- Improving projects and policies is vital...
- ... lasting change takes time ...
- ... but there are some quick wins



Richard Carter



Richard Carter



**skat** Swiss Resource Centre and  
Consultancies for Development

**skat**\_

UPGro Knowledge Broker:  
Skat Foundation, Vadianstrasse 42, CH-9000, St Gallen, Switzerland  
in association with the Rural Water Supply Network (RWSN)

UPGro is funded by:

