

# Citizen Science in the global south

Lunch seminar

29 June 2023



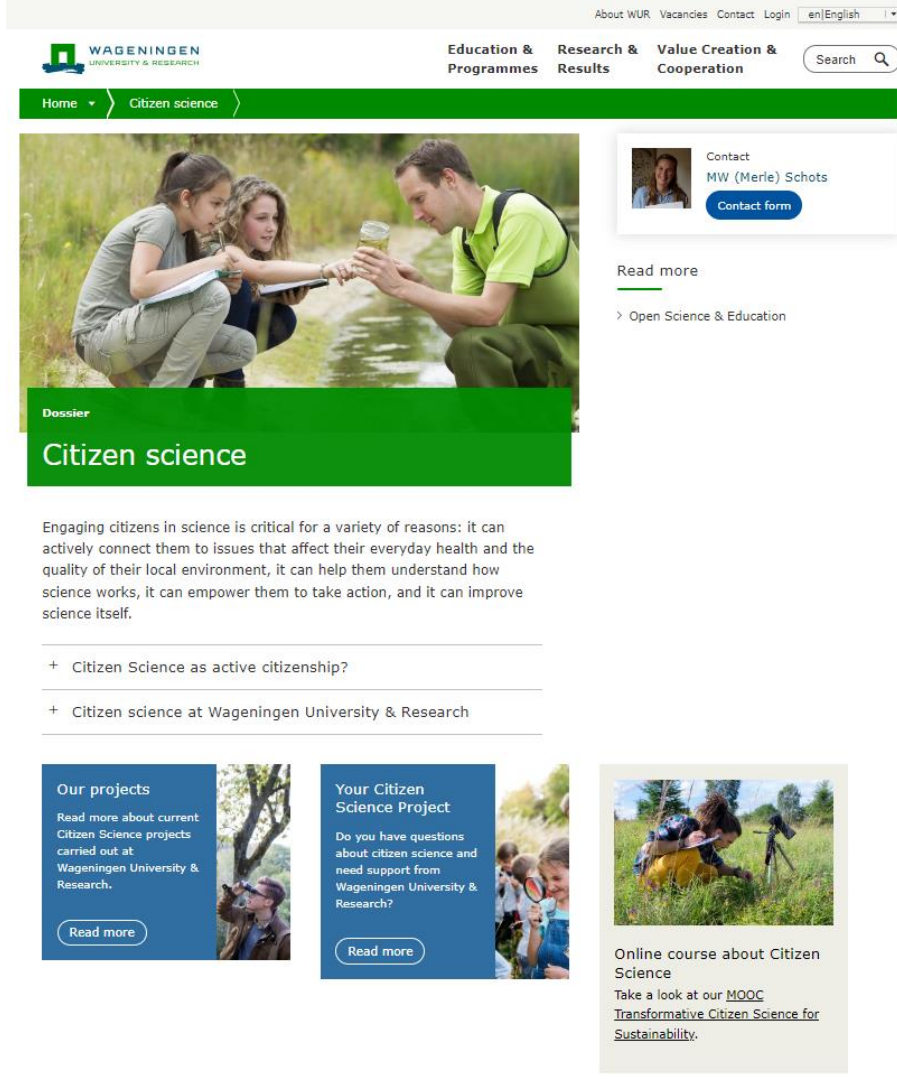
# Agenda

- Citizen Science Hub
- Case studies
  - David Walker
  - Samuel Sutanto
  - Lisa Best
- Differences between Citizen Science in the global south and global north
- Questions & discussion

# Citizen Science Hub

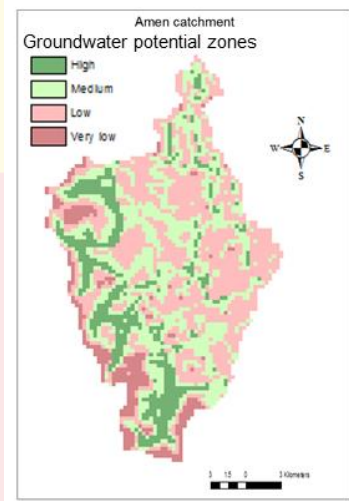
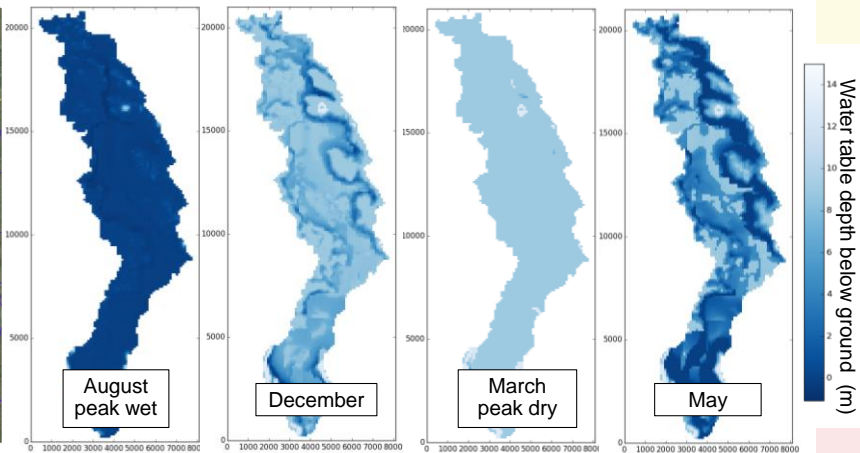
*Aims to gather and connect Citizen Science-knowledge and -people within and around WUR*

- Community
- Portal / project showcase
- MOOC
- Collaboration with Stadslab
  - Connecting citizens and science



The screenshot shows the top navigation bar with links for 'About WUR', 'Vacancies', 'Contact', 'Login', and 'en|English'. The main header includes 'Education & Programmes', 'Research & Results', and 'Value Creation & Cooperation'. A search bar is located in the top right corner. Below the navigation is a green banner with 'Home' and 'Citizen science' links. The main content area features a large image of three people (two women and one man) in a field, looking at a small jar. To the right of this image is a contact card for 'MW (Merle) Schots' with a 'Contact form' button. Below the image is a 'Dossier' section titled 'Citizen science' with a paragraph of text: 'Engaging citizens in science is critical for a variety of reasons: it can actively connect them to issues that affect their everyday health and the quality of their local environment, it can help them understand how science works, it can empower them to take action, and it can improve science itself.' Below this text are two expandable sections: '+ Citizen Science as active citizenship?' and '+ Citizen science at Wageningen University & Research'. At the bottom, there are two blue boxes: 'Our projects' with a 'Read more' button and 'Your Citizen Science Project' with a 'Read more' button. To the right of these boxes is a small image of a person in a field. Below this image is a section for an 'Online course about Citizen Science' with a 'Read more' button and a link to a MOOC: 'Take a look at our MOOC Transformative Citizen Science for Sustainability.'

# David Walker





REACH Improving water security for the poor

Working Paper

**Guideline: Community-based hydroclimate monitoring: planning, establishing and operating**

David Walker, Alemseged Tamiru Halle, John Gowing, Yebagaeshet Legesse, Girma Gebrehawariat, Hailu Hundie, Daniel Berhanu, Geoff Parkin

May 2019



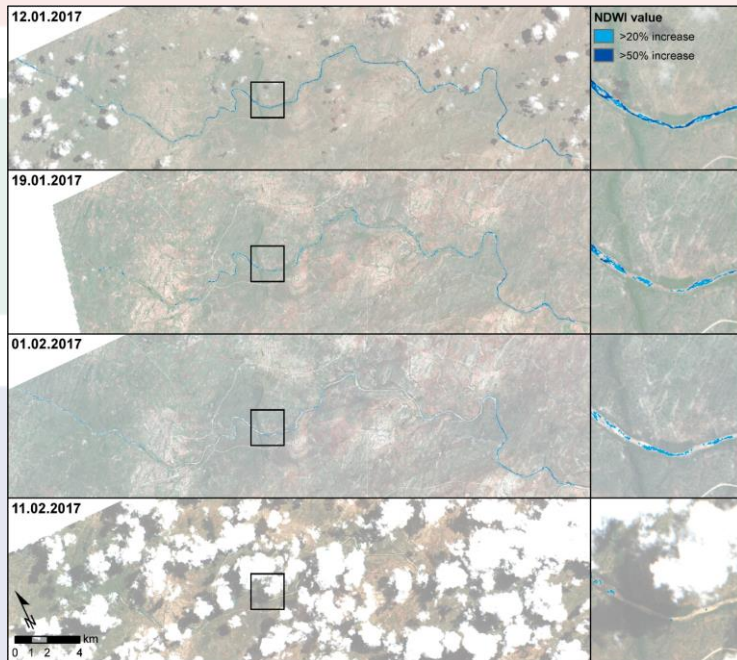
REACH Improving water security for the poor

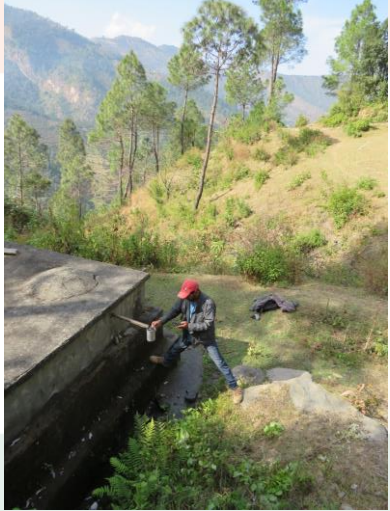
Working Paper

**Guideline: Selection, training and managing para-hydrologists**

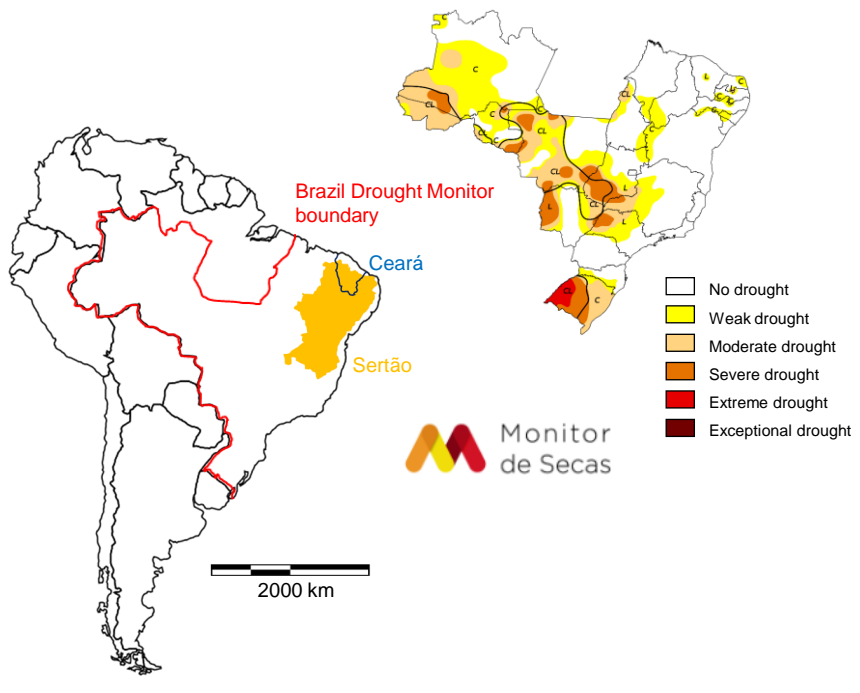
David Walker, Alemseged Tamiru Halle, John Gowing, Nathum Forsythe, Geoff Parkin

June 2019









“The impacts related to drought are those that are causing lack of water in some locations and shortage of food for animals. For water supply, water trucks are being used and wells are being drilled where it is

**FORMULÁRIO – MONITORAMENTO DE SECAS**

Município:	
Mês:	Fevereiro de 2022 (Exemplo)

**SECA**

1. Considerando o quadro de seca no município, comparado com o mês anterior, você diria que:

Houve melhora (1)  
 Houve piora (2)  
 Não houve alteração (3)  
 Não há seca (4)

**CHUVAS OCORRIDAS**

2. Como você avalia as chuvas ocorridas no município de atuação nesse último mês?

a) Quanto à quantidade de chuva observada:

Não choveu (1)  
 Pouca chuva (2)  
 Razoável (3)  
 Muita chuva (4)

b) Quanto à distribuição temporal da chuva nesse mês:

Não choveu (1)  
 Veranico de até 10 dias (2)  
 Veranico entre 10 a 15 dias (3)  
 Houve veranicos acima de 15 dias (4)

c) Quanto à distribuição espacial da chuva nesse mês:

Choveu até 25% (1)  
 Choveu entre 25% e 50% (2)  
 Choveu entre 50% e 75% (3)  
 Choveu acima de 75% (4)

**SOBRE AS CULTURAS**

3. Sobre as culturas de seringueiro feijão, milho e mandioca, como você caracterizaria a situação no município?

Não é época de plantio (1)  
 Está na época, mas o plantio não começou devido à falta de chuva (2)  
 Plantou-se e nenhuma perda foi registrada (3)  
 Plantou-se, mas perdas foram registradas (4)

**ACESSO À ÁGUA**

4. Com relação ao acesso à água no município, assinale:

Não há problema de acesso à água (1)  
 Os níveis estão baixos, mas não há problema de acesso à água (2)  
 Os níveis estão baixos e alguns usos estão sendo afetados (3)  
 Os sistemas hídricos estão em colapso e a falta de água é generalizada (4)

a) Em relação ao volume de água para o consumo HUMANO?

Volume até 25% (1)  
 Volume entre 25% e 50% (2)  
 Volume entre 50% e 75% (3)  
 Volume acima de 75% (4)

b) Em relação ao volume de água para o consumo ANIMAL?

Volume até 25% (1)  
 Volume entre 25% e 50% (2)  
 Volume entre 50% e 75% (3)  
 Volume acima de 75% (4)

c) Em relação ao volume de água para IRRIGAÇÃO?

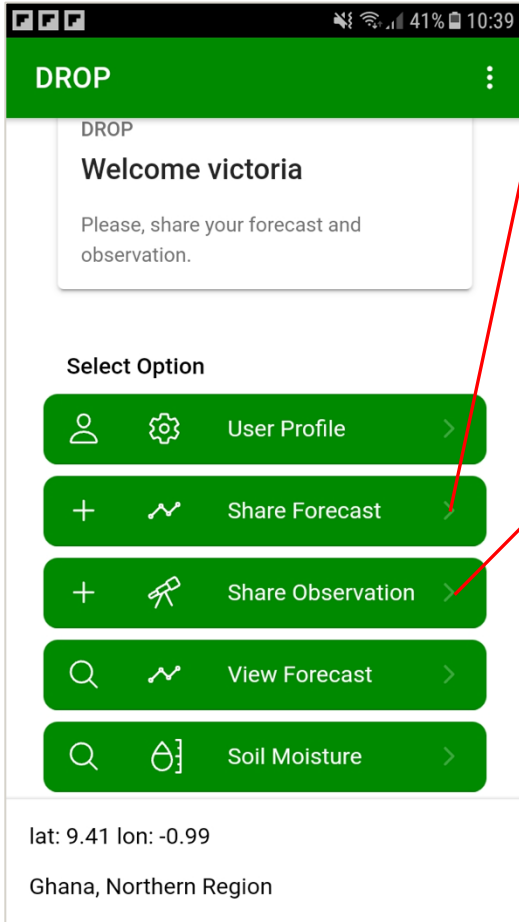
Volume até 25% (1)  
 Volume entre 25% e 50% (2)  
 Volume entre 50% e 75% (3)  
 Volume acima de 75% (4)

**RELATE AQUI OS TIPOS DE PROBLEMAS**

5. Caso deseje, utilize o espaço abaixo para especificar que tipo de problemas de acesso à água no município tem registrado e/ou relate outros impactos relacionados à seca que são observados atualmente na sua região de atuação:

# Samuel Sutanto

# Citizen science in developing CIS for smallholder farmers



## Farmers can share their forecasts

a) Rainfall prediction



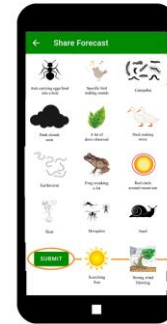
1) Yes rain tomorrow:  
Select **YES**

2) Select expected  
Rain amount:

How much will it rain?  
LOW ☁️ ○ ☁️: <5mm  
MEDIUM ☁️☁️ ○ ☁️☁️: 5-10mm  
HIGH ☁️☁️☁️ ○ ☁️☁️☁️: 10-20mm  
VERY HIGH ☁️☁️☁️☁️ ○ ☁️☁️☁️☁️: >20mm

3) Click **SUBMIT**

b) Indicator selection



1) Select the indicators

2) Click **SUBMIT**

## Farmers can share their observations



Rain gauge



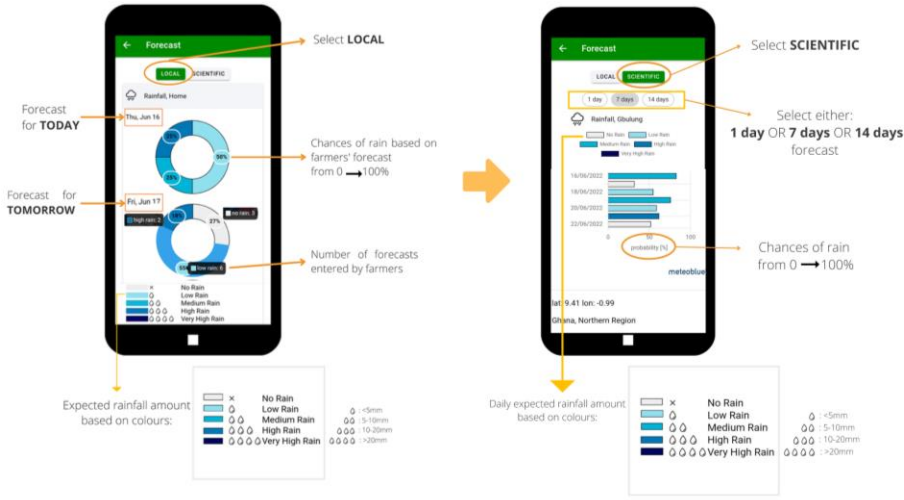
SM sensor



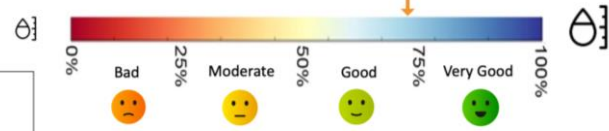
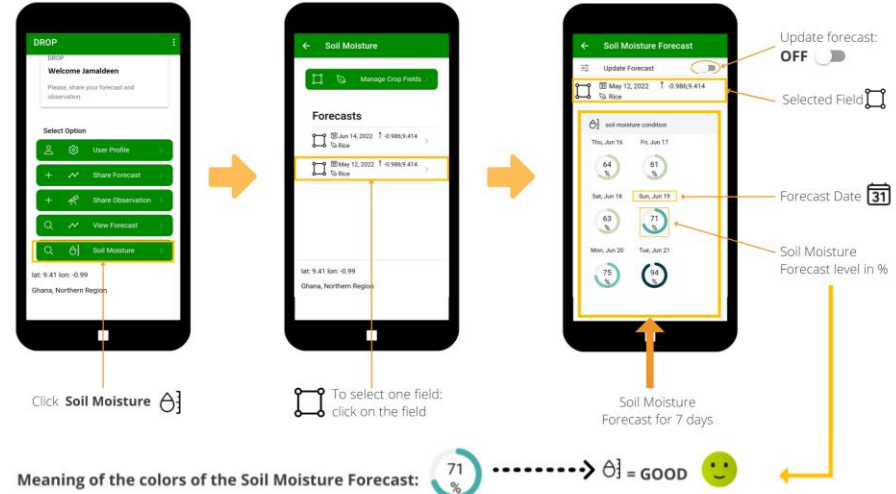
Farmers input the data



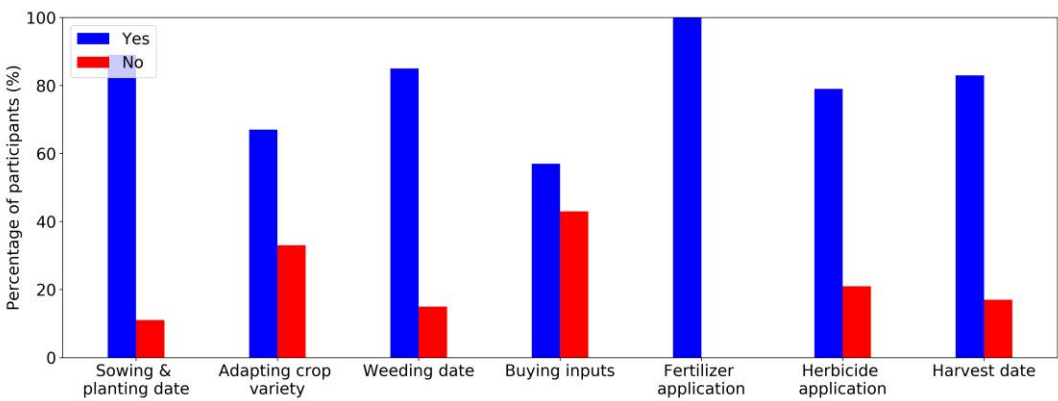
# Rainfall forecast



# SM forecast



*“On one evening, I went quickly to spray because I noticed it would be rainy tomorrow. If I did it tomorrow, rain would wash away the fertilizer”.*



# Lisa Best



# A process of learning and empowerment



## P3DM as a tool and a process

- ◇ Social learning
- ◇ Intergenerational knowledge transfer
- ◇ Communicating and negotiating with policy makers
- ◇ Who owns the data?

More information;

Ramirez et al. (2017), <https://doi.org/10.1016/j.apgeog.2017.03.015>

Tropenbos Suriname, [www.tropenbos.sr](http://www.tropenbos.sr)



*“This is the time to do something on our own [..]. Let us not allow that something like the Brokopondo hydrodam happens to us again, [..]. We need to be better prepared when change arrives [..]”*



*“Is this map going to be recognized by the government? In that way the areas that are important to us can ultimately be protected from activities wherein we have no voice ...”*

# Differences between Citizen Science in the global south and the global north





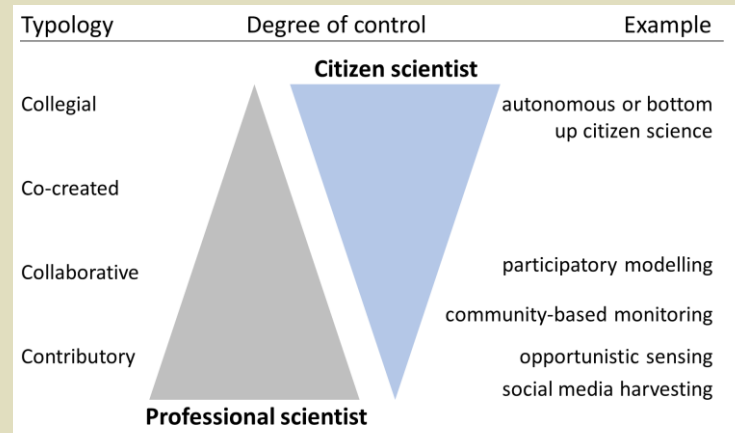
## Citizen science in low/middle income countries: similarities and differences with Global North projects

1. Demographics, recruitment and motivations
2. Project aims and involvement
3. Potential benefits and negative impacts for participants

# Terminology: what is citizen science?

“Scientific activities in which the general public participate to some degree in project design, data collection, analysis and/or dissemination.”

## Citizen science typologies



living lab  
opportunistic sensing  
public participation GIS (PPGIS)  
community science  
crowd science  
participatory modelling  
volunteer sensing  
social media harvesting  
civic science  
participatory sensing

**citizen science**

volunteered geographic information (VGI)  
participatory action research (PAR)  
community-based monitoring  
participatory mapping  
crowdsourcing  
citizen observatory  
post-modern science  
companion modelling  
volunteer thinking  
participatory GIS (PGIS)

serious games  
participatory research

# Participant demographics:

## Global North

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from majority groups  
male  
middle-aged  
wealthy  
well-educated



www.bbc.com



www.secretsofuniverse.in



## Global South

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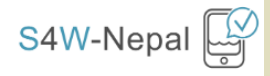




# Motivations:

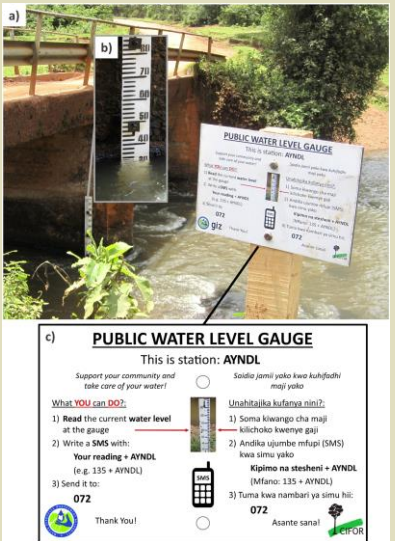
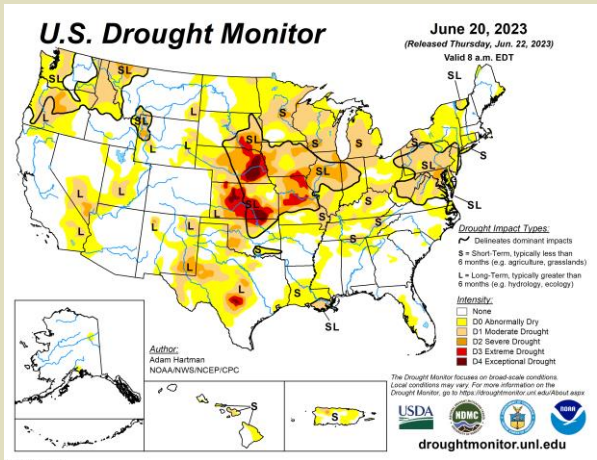
## Intrinsic

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# Motivations:

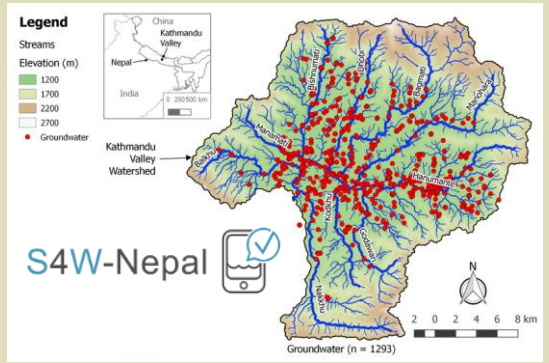
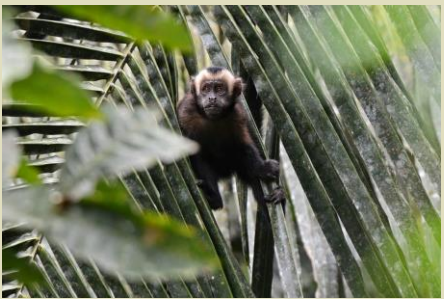
## Extrinsic



Weeser, B., Kroese, J. S., Jacobs, S. R., Njue, N., Kemboi, Z., Ran, A., Rufino, M. C., & Breuer, L. (2018). Citizen science pioneers in Kenya: A crowdsourced approach for hydrological monitoring. *Science of the Total Environment*, 631, 1590-1599.



Zemadim, B., McCartney, M., Langan, S., & Sharma, B. (2013). A participatory approach for hydro-meteorological monitoring in the Blue Nile River Basin of Ethiopia. Colombo, Sri Lanka: International Water Management Institute (IWMI Research Report 155).



State/Province: Colorado  
County: Chaffee

Date: 6/23/2023

How dry or wet is it (historically)?  
How much precipitation do you have with conditions there?  
How many times in the past have you seen it like this?  
How localized or widespread are the conditions you are reporting?  
How are crop conditions at this time?  
Flowering Status:  
Harvest Status:  
Crop production:  
How are range conditions at this time?  
Livestock production:  
Public health impact:  
Household impact:  
Other business or industry impact:  
Description and/or capture information:

# Project aims:

[www.wur.nl/en/show/citizen-science-projects.htm](http://www.wur.nl/en/show/citizen-science-projects.htm)

# Effort of involvement:



# Global South



[www.iapad.org](http://www.iapad.org)

## Project design:

- Is the citizen science programme beneficial to both the organisers and participants?
- Are there any potential negative impacts and can they be avoided?

## Motivations:

- What are the participants motivations and can they be nurtured?

## Ongoing assessment:

- Repeat of the previous three queries. Does the programme need to be adjusted?



# Questions or remarks?

## What's next?

- Engage with the Open Science Community: [openscience-wageningen.com](https://openscience-wageningen.com)
- Become a member of the intranet group: Citizen Science
- Share your Citizen Science projects with [merle.schots@wur.nl](mailto:merle.schots@wur.nl)
- Share your ideas or requests for the Citizen Science Hub or a next event

