



# Threats to and opportunities for traditional production landscapes in African wetlands







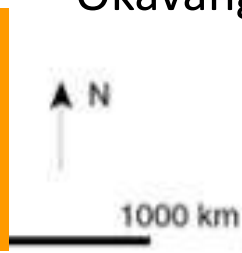
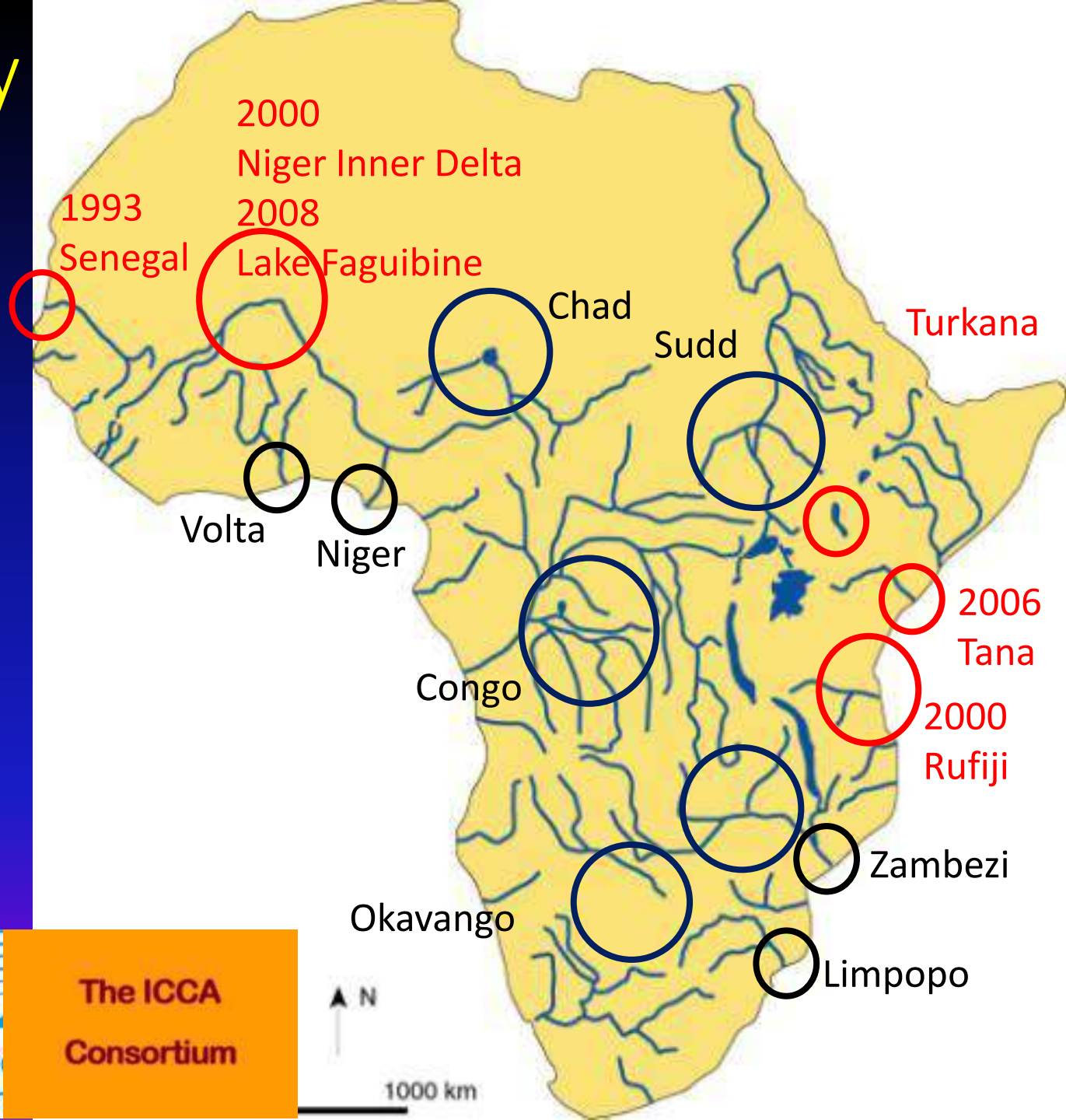
Communities, Plants, Invertebrates, Water, Mammals,  
Conservation, Carbon, Frogs, Birds, Fish



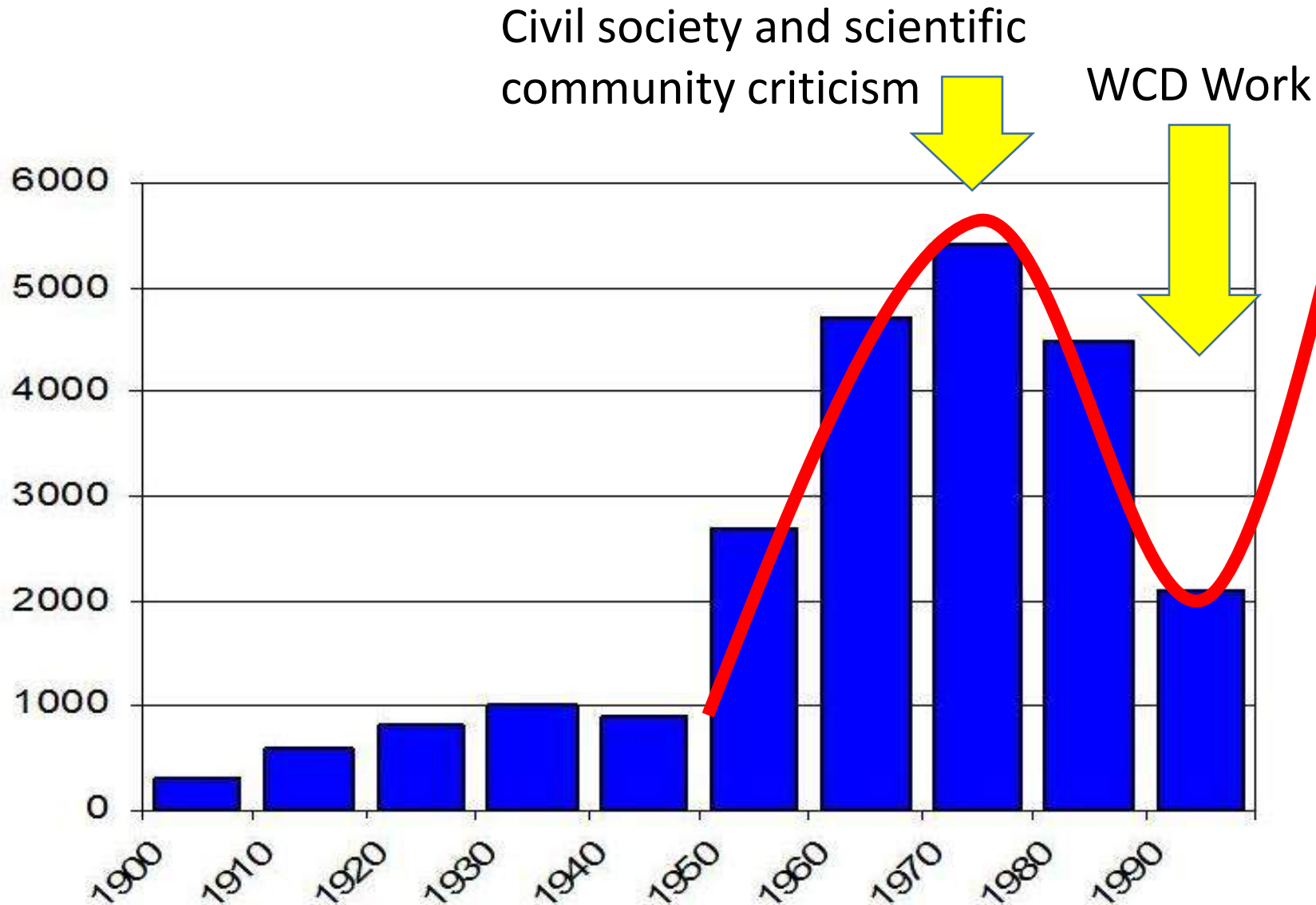


# Kenya Wetlands Biodiversity Research Team

- Multi-disciplinary, multi-institutional and multinational consortium of scientists to produce reliable scientific knowledge on biodiversity, ecosystem services and human well-being of vulnerable groups
- Co-construct & share knowledge with local stakeholders, build capacity, empower
- Avail knowledge in appropriate formats to policy- and decision-makers



Number of dams built per decade (source ICOLD 1998)  
without China (>20,000 since 1950)



# The EPIDEMIC

- For downstream SEPLs it is essential to promote and obtain managed flood releases for all new dams
- New funders and builders: China, Brazil, oil nations ignore the WCD



# Farming Systems and Food Security in Sub-Saharan Africa

Priorities for science and policy under global change



## If you didn't write it down it didn't happen

### African floodplains, coasts, estuaries, deltas & lakeshores

Hamerlynck, O., Nyingi, D.W., Paul, J.-L. & Duvail, S. *in press*.  
The fish-based farming system: maintaining ecosystem  
health and flexible livelihood portfolios. In Dixon *et al.* (Eds)  
2016. African farming systems and food security: Priorities  
for science and policy.  
Earthscan.



Australian Government  
Australian Centre for  
International Agricultural Research



United Nations  
Economic Commission for Africa



WORLD BANK GROUP



Food and Agriculture Organization  
of the United Nations



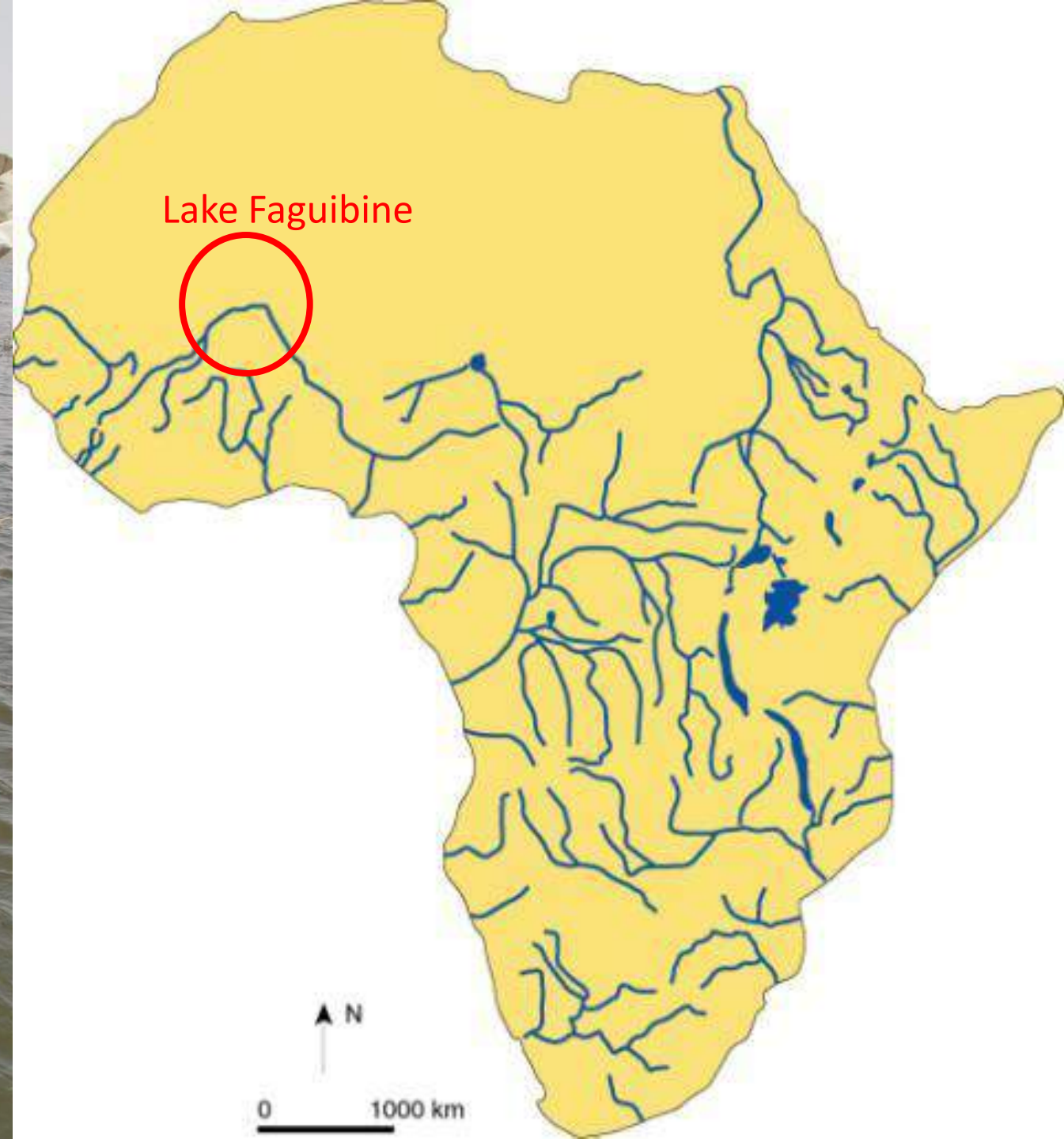
USAID  
FROM THE AMERICAN PEOPLE



NEPAD  
TRANSFORMING AFRICA



Photocredit: Sidi Aly Moulaye Zeine





# “Lake” Faguibine, edge of the Sahara

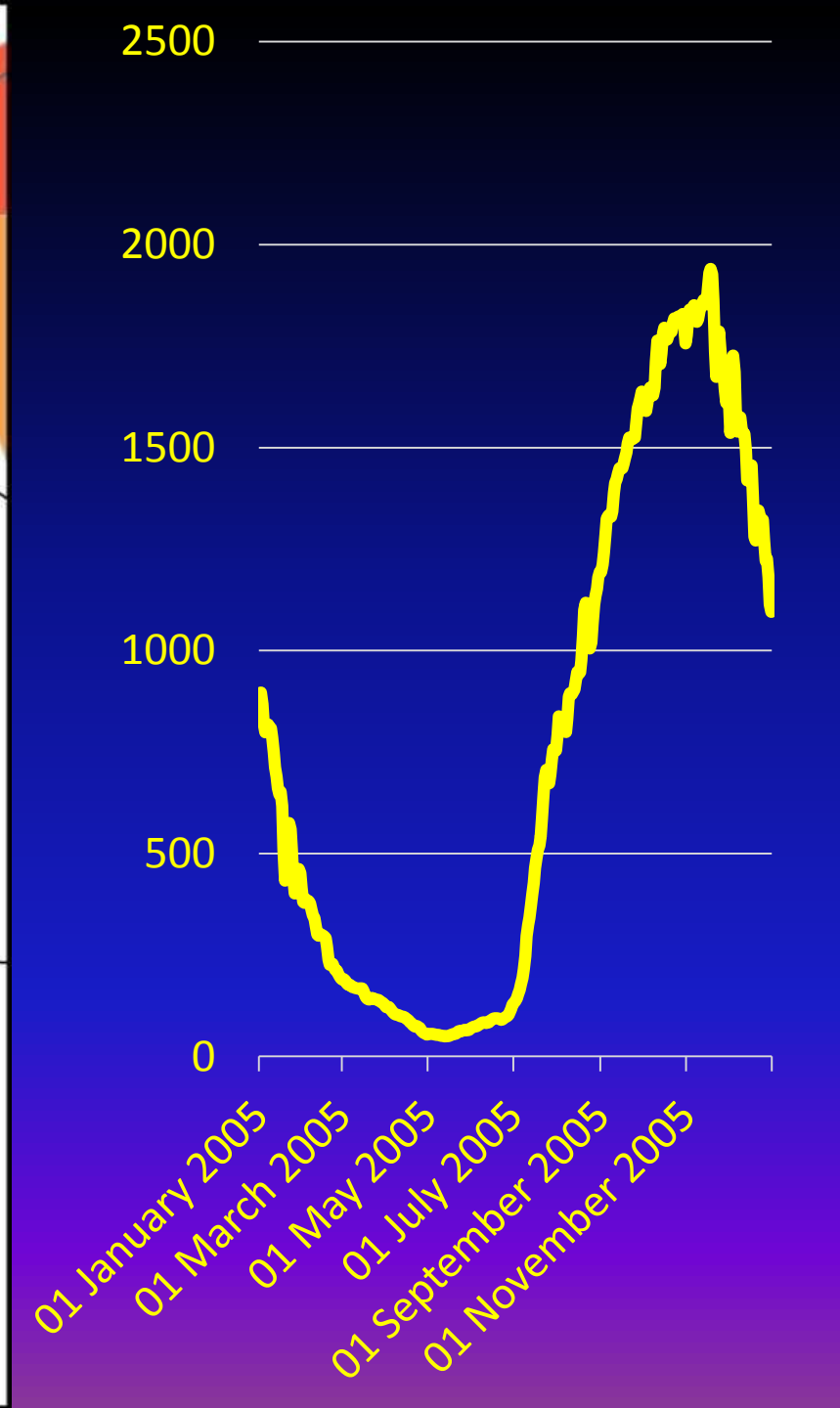
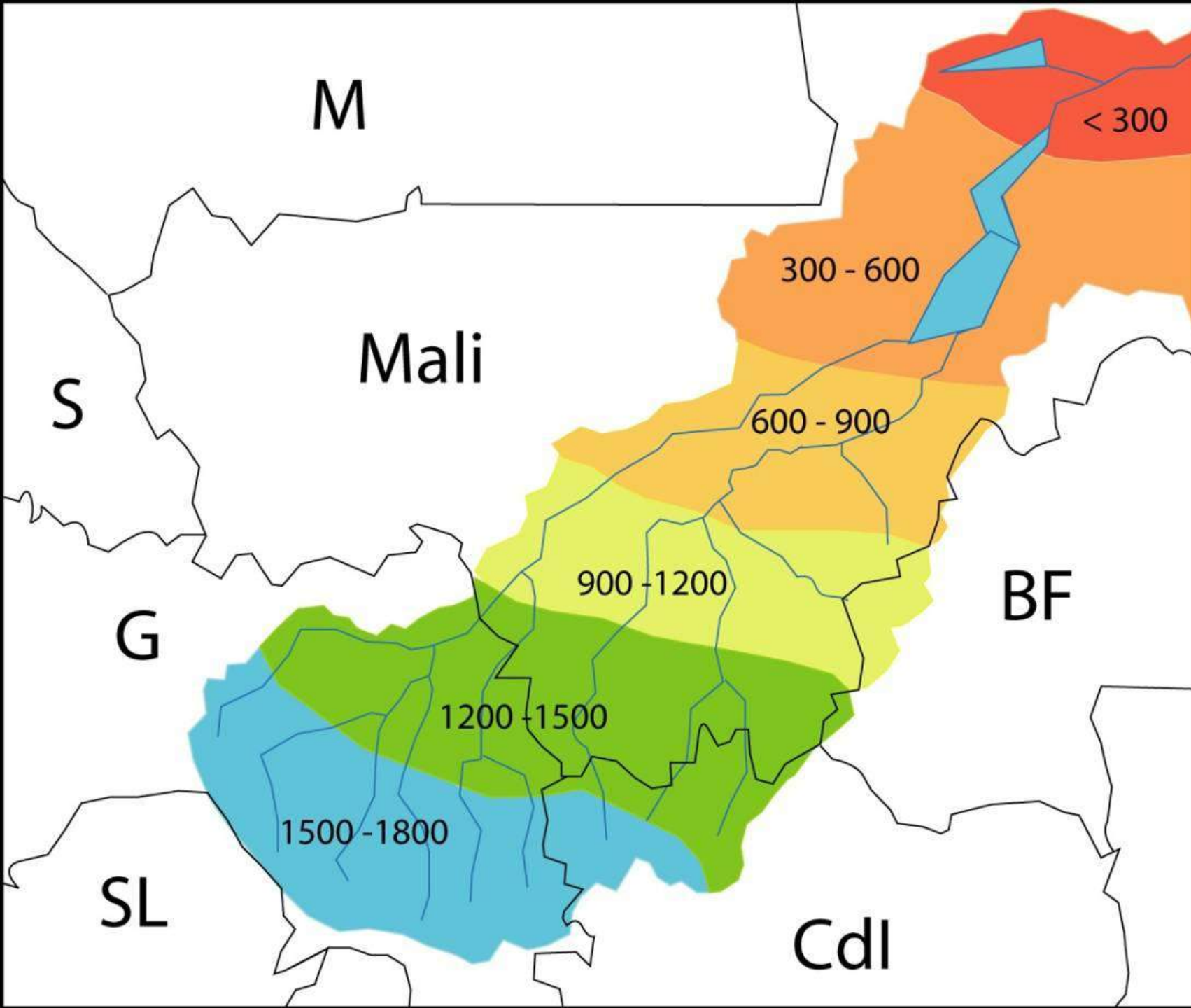


Annual Rainfall 200 mm  
Siem Reap 1300 mm

Source: UNEP  
AFRICA Atlas of our  
changing environment









# Agricultural inputs: seeds & labour

February





# Agricultural outputs: 800 \$/ha flooded

August



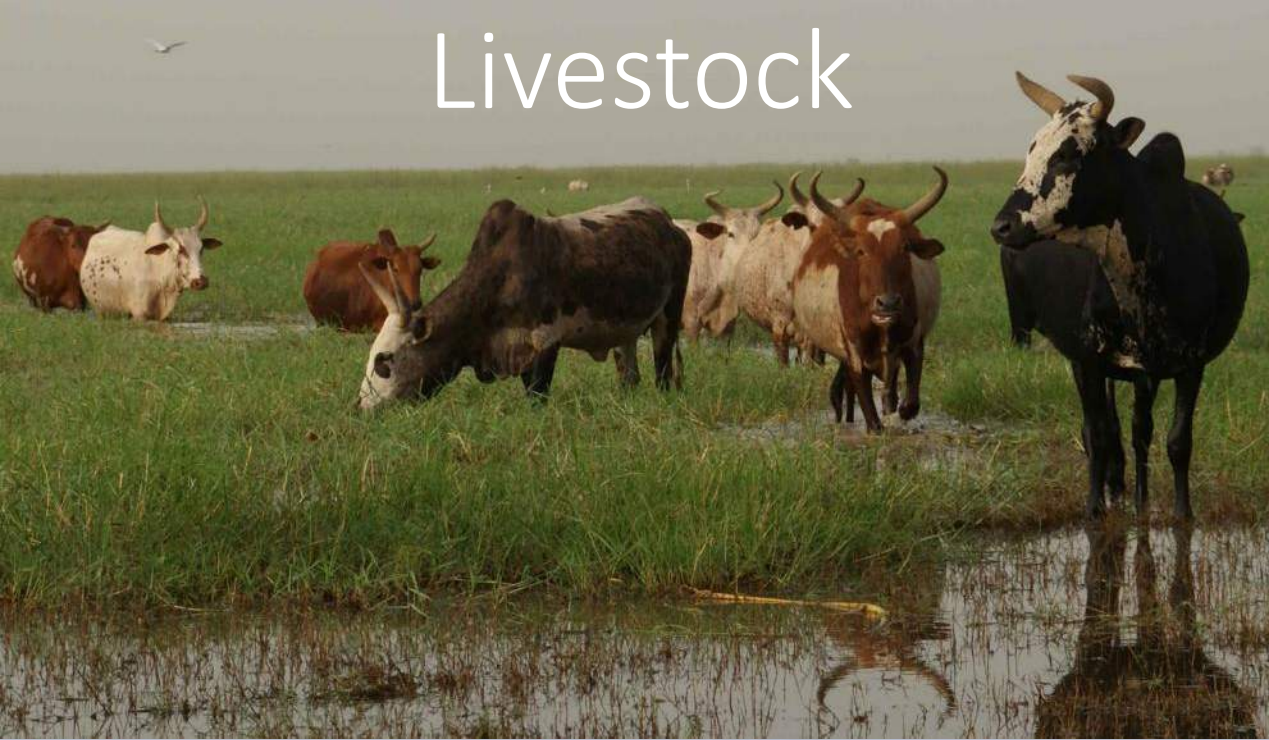


Fisheries: 20 \$/ha flooded





Livestock



Carbon



Groundwater



Fodder





# Traditional Governance Systems





Flooded surface area (ha)

Maintaining the channel: 1 M\$/yr post investment,  
net benefit (in the pocket of the poor) 10 M\$/yr

20000

15000

10000

5000

0

1200

1400

1600

1800

2000

2200

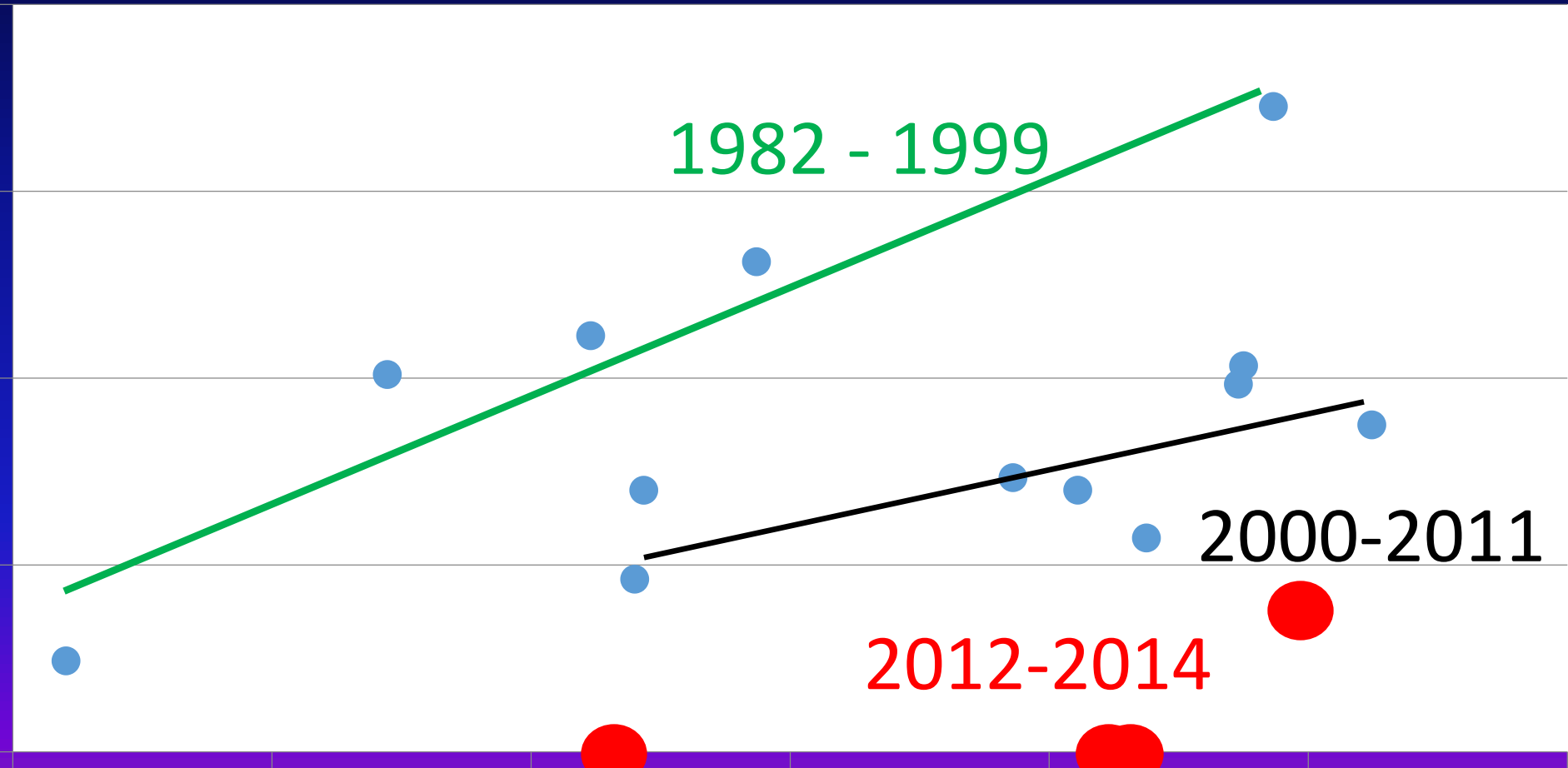
2400

1982 - 1999

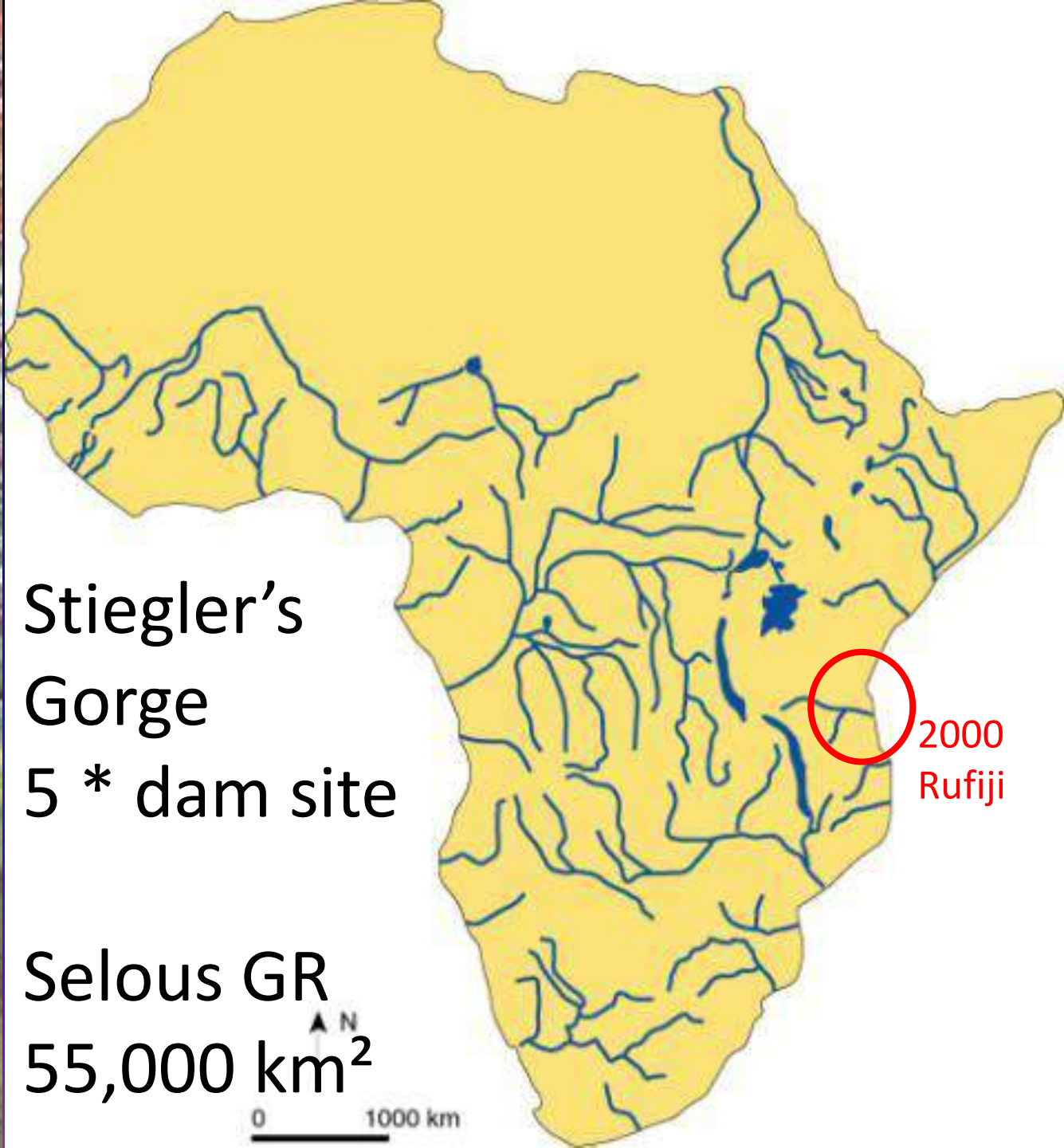
2000-2011

2012-2014

Flood peak  
(cumecs)







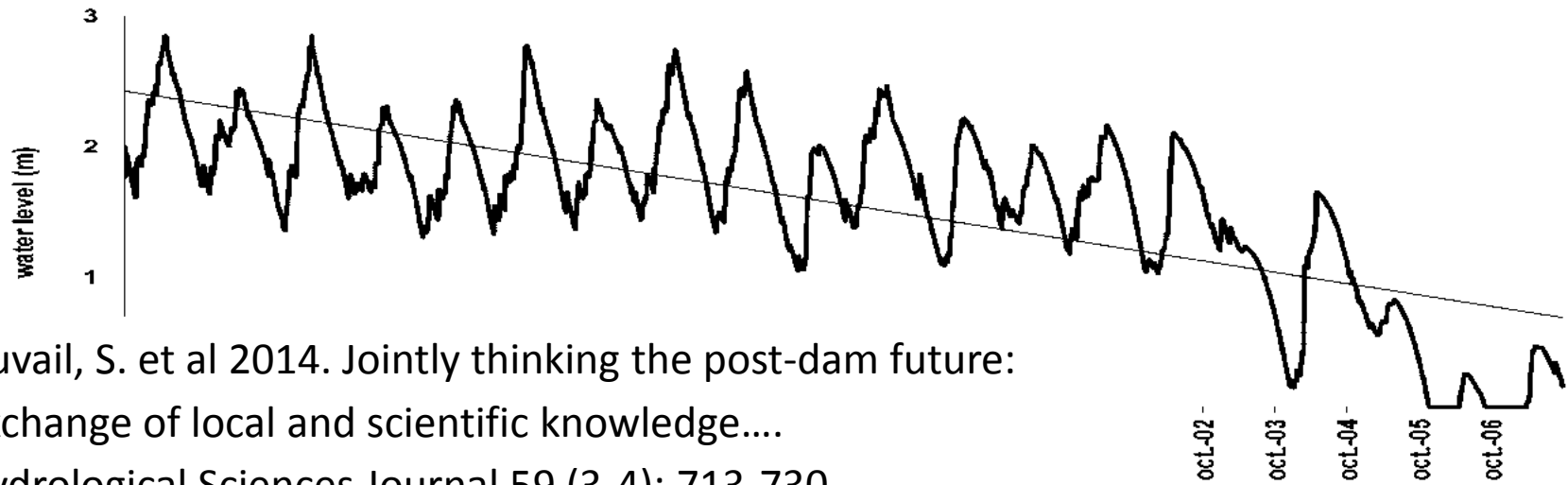
Stiegler's  
Gorge  
5 \* dam site

Selous GR  
55,000 km<sup>2</sup>

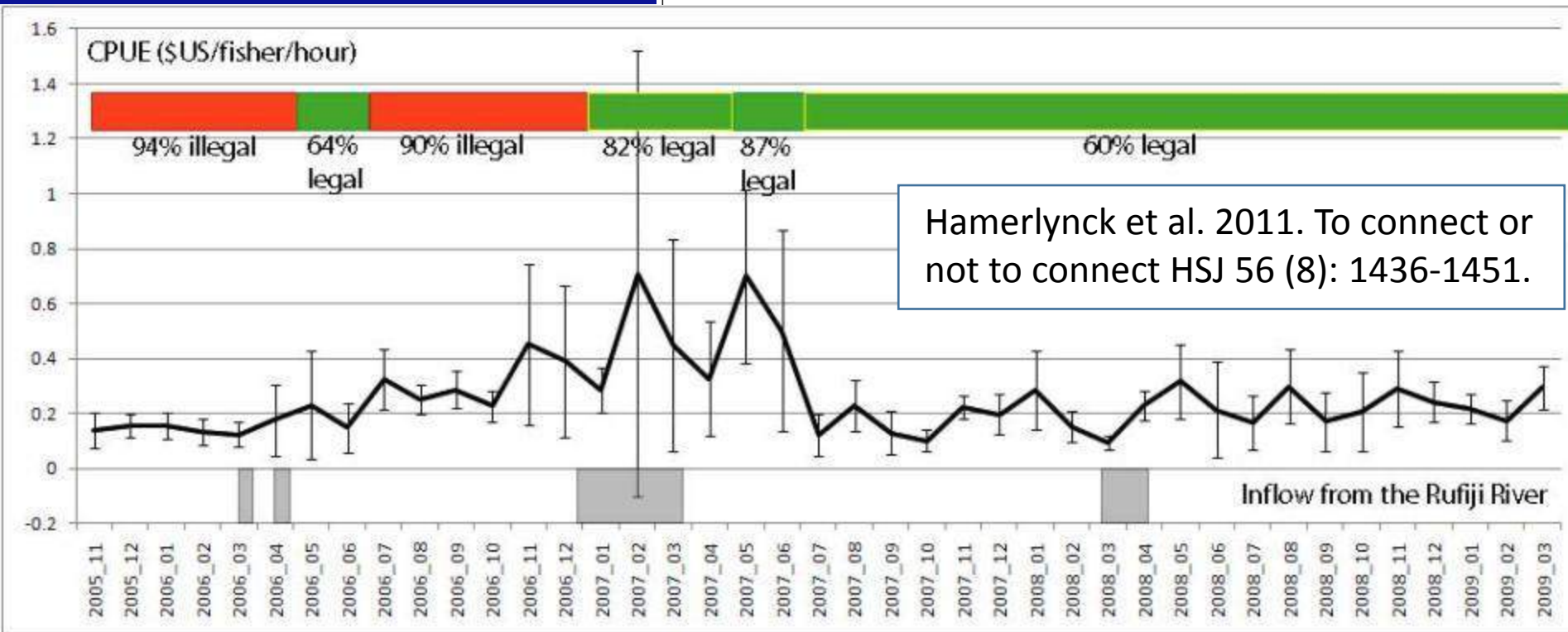
2000  
Rufiji



# Stiegler's Gorge Dam means most of our lakes will dry out



Duvail, S. et al 2014. Jointly thinking the post-dam future: exchange of local and scientific knowledge....  
Hydrological Sciences Journal 59 (3-4): 713-730.



Hamerlynck et al. 2011. To connect or not to connect HSI 56 (8): 1436-1451.

Stiegler's Gorge Dam means that even the ones that do not dry out will lose their fisheries



# Feedback Workshops: They Know

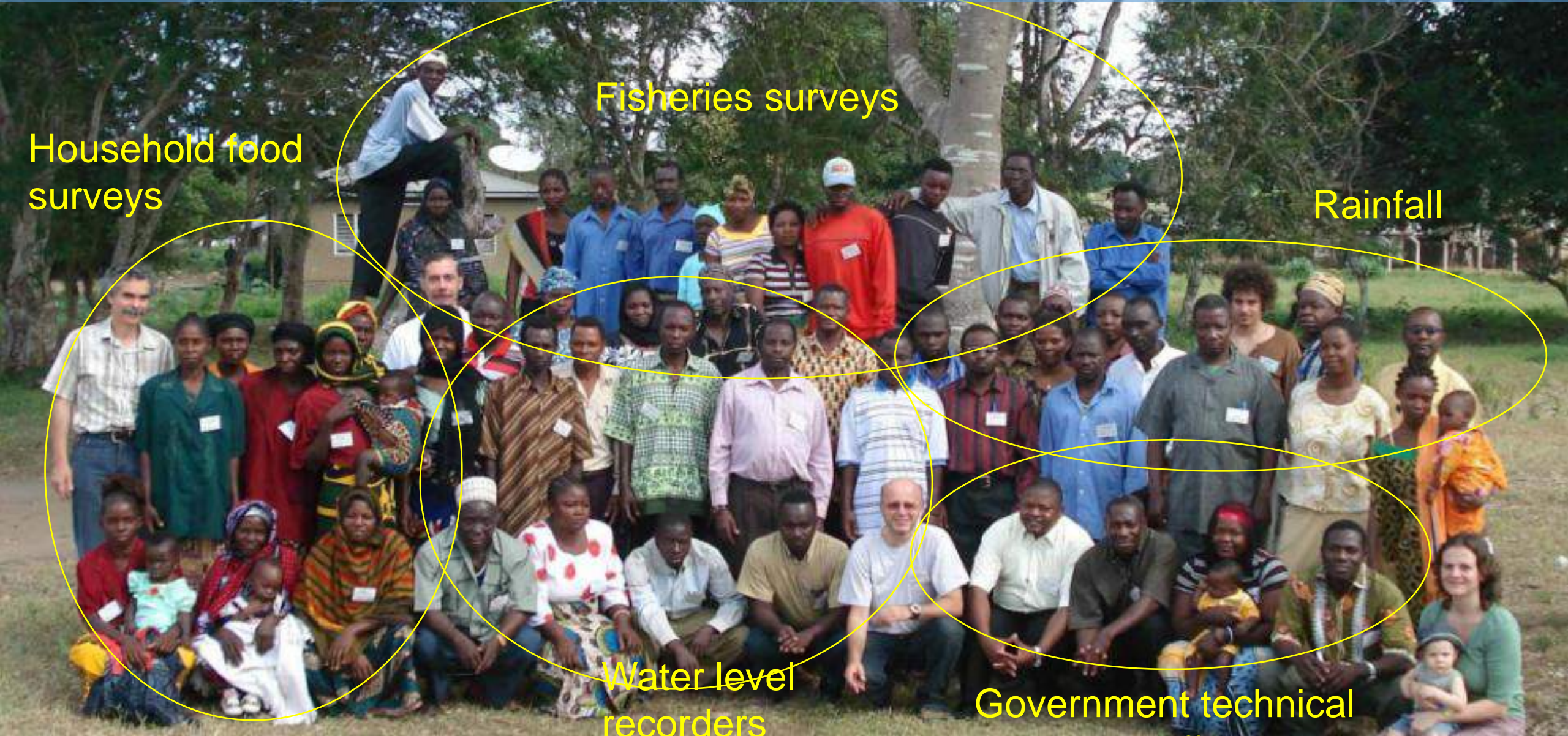
Household food surveys

Fisheries surveys

Rainfall

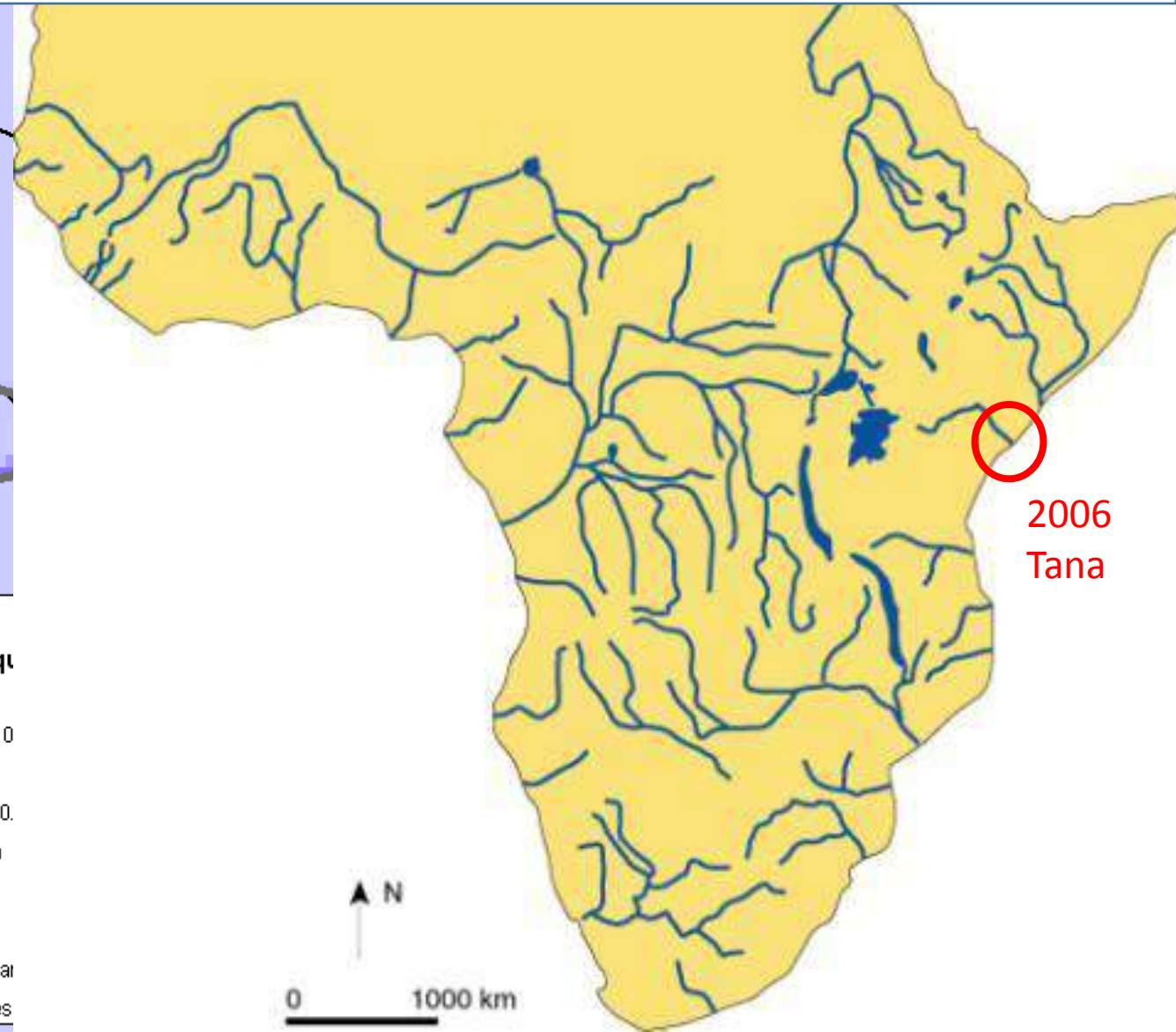
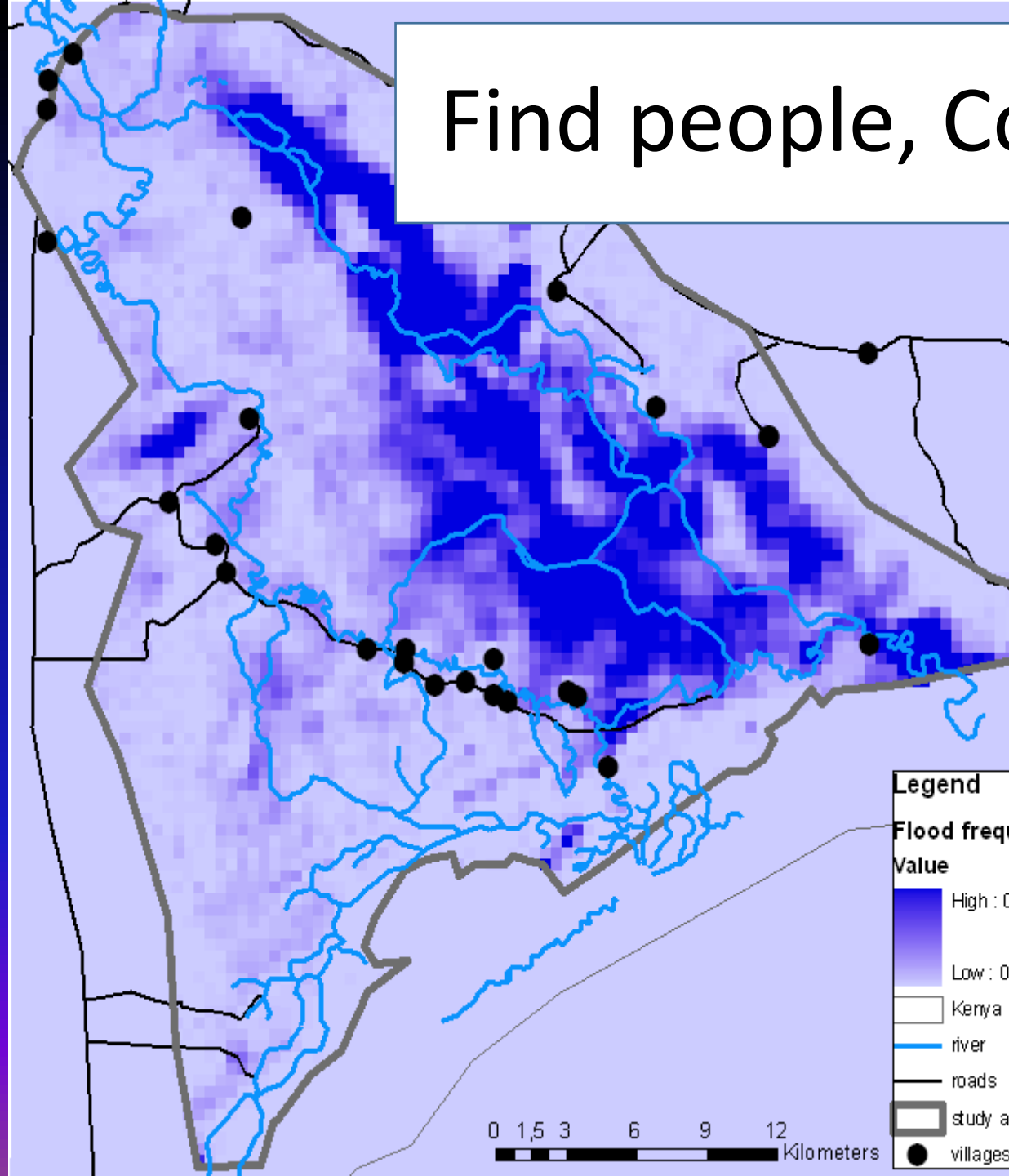
Water level recorders

Government technical





# Find people, Collect data, Think together





# High Grand Falls

Storage x4  
400,000 ha  
irrigation

EIA: No need for flood releases: floods  
in the delta from local seasonal rivers

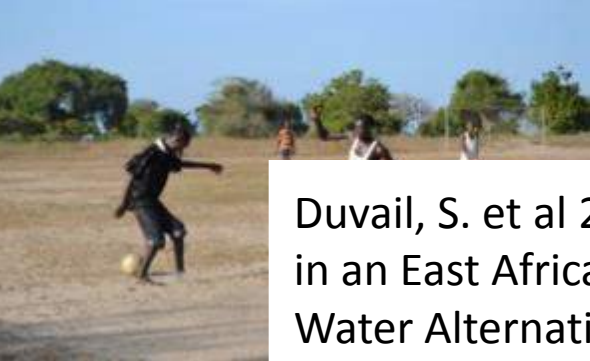
First 5 dams  
1970s-1980s:  
flood peak -20%







Exhibition  
Debates  
Social media  
Popular press  
Events WWD



Scientific papers

Duvail, S. et al 2012. Land and water 'grabbing' in an East African coastal wetland. Water Alternatives 5(2): 322-343.





# Armed conflict in 2012-2013

## Pre-electoral context

## Population Census 2009

- 1/3 Pokomo
- 1/3 Orma + 1/3 Wardei

Exceptionally low rains  
and weak flood: cattle stayed



**MASSACRE** | Rival ethnic groups have a long history of clashes over access to water and fertile lands of the Tana Delta

## Blood and tears as 48 villagers killed

State accused of laxity and reluctance to stop attacks after four people were killed and more than 100 houses razed last week

BY NATION TEAM  
newsdesk@nation.com

**F**orty-eight people, including 11 children, were massacred yesterday morning in a fight over water and pasture in Tana River County.

It is what is believed to be a revenge attack, the Orma residents of Kiketa village, Tarasa division, deep in the swamps of the Tana delta were set upon by raiders thought to be from the Pokomo.

The attack is believed to be in revenge for another one a week ago at a village called Kau in Kileleshwa, some 10 kilometres from Kiketa, in which suspected Orma herdsmen killed three Pokomo villagers, injured six others, killed livestock and burnt homes.

The two ethnic groups have a long history of conflict over access to the waters of River Tana and the fertile lands of the delta.

Yesterday's raid, in the early

Garsen MP Deason Mungatani accused the government of laxity and "reluctance to act" to stop the attacks. He denounced an immediate ministerial statement.

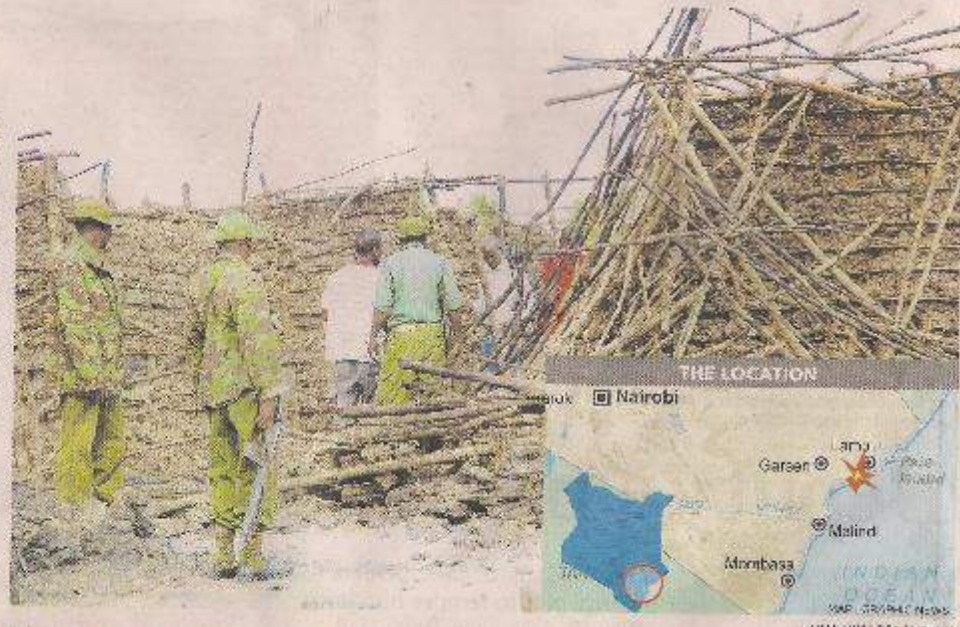
Whereas preventing conflict in the inaccessible swampland might be difficult, government officials did not seem to have fresh ideas on how to approach the clashes. And the suspected Orma herdsmen believed to have been responsible for the Kau killings have not been arrested.

"We cannot take a whole community to jail. Is it possible?" asked Coast provincial commissioner Samuel Kibele.

### Conducting patrols

Coast deputy police boss Robert Kitor said around the dead were 31 women, 11 children and six men.

Police are now on the ground in strength — a contingent of 200 officers from the Administration Police, regular police and the General Service Unit



## Militias for political supremacy

## Over 200 people killed, mainly women and children



# Tana Peace Dialogue

Communities, ministries, parastatals, civil society, NGOs, donors



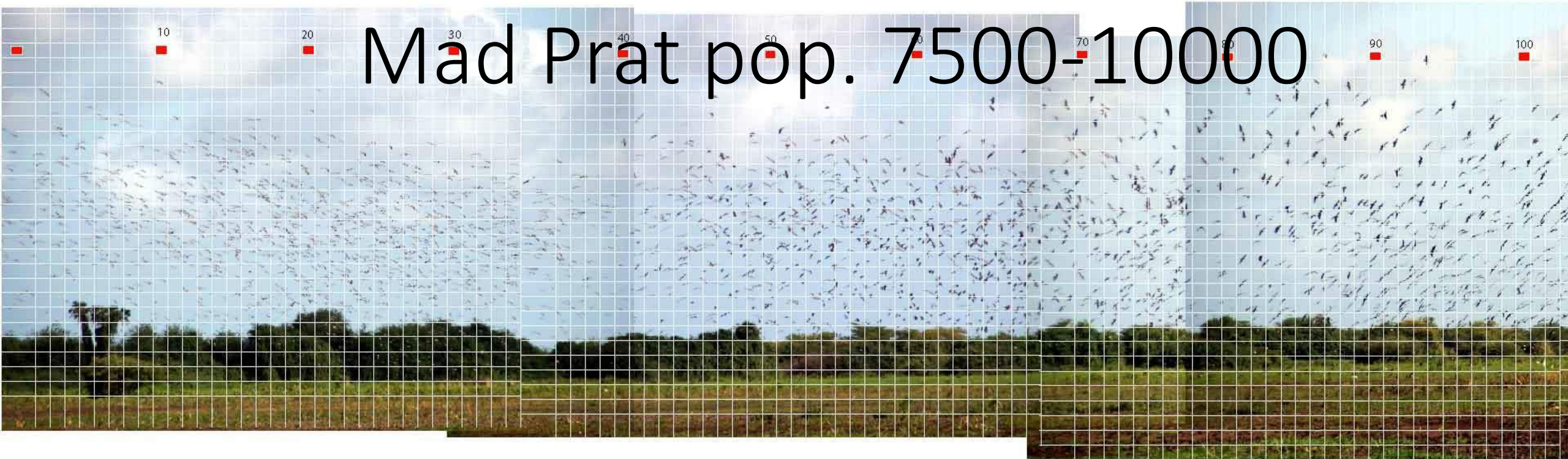
Presentations on water, land,  
wetland management planning,  
governance,  
Sharing power

[http://youtu.be/MRxZkO5\\_bmo](http://youtu.be/MRxZkO5_bmo)





Mad Prat pop. 7500-10000





# Tana River Red Colobus <1200



Onkolde Forest  
*Oxystigma msoo* (End.)

TDIP failed irrigation  
scheme embankment





The Ocean is  
Coming

# Afrideltas Conference

Contemporary Evolution of African Floodplains and Deltas

Dar es Salaam, Tanzania

27-30 May 2014

