Building *community resilience* through IWRM in the Inner Niger Delta, Mali

Eddy Wymenga

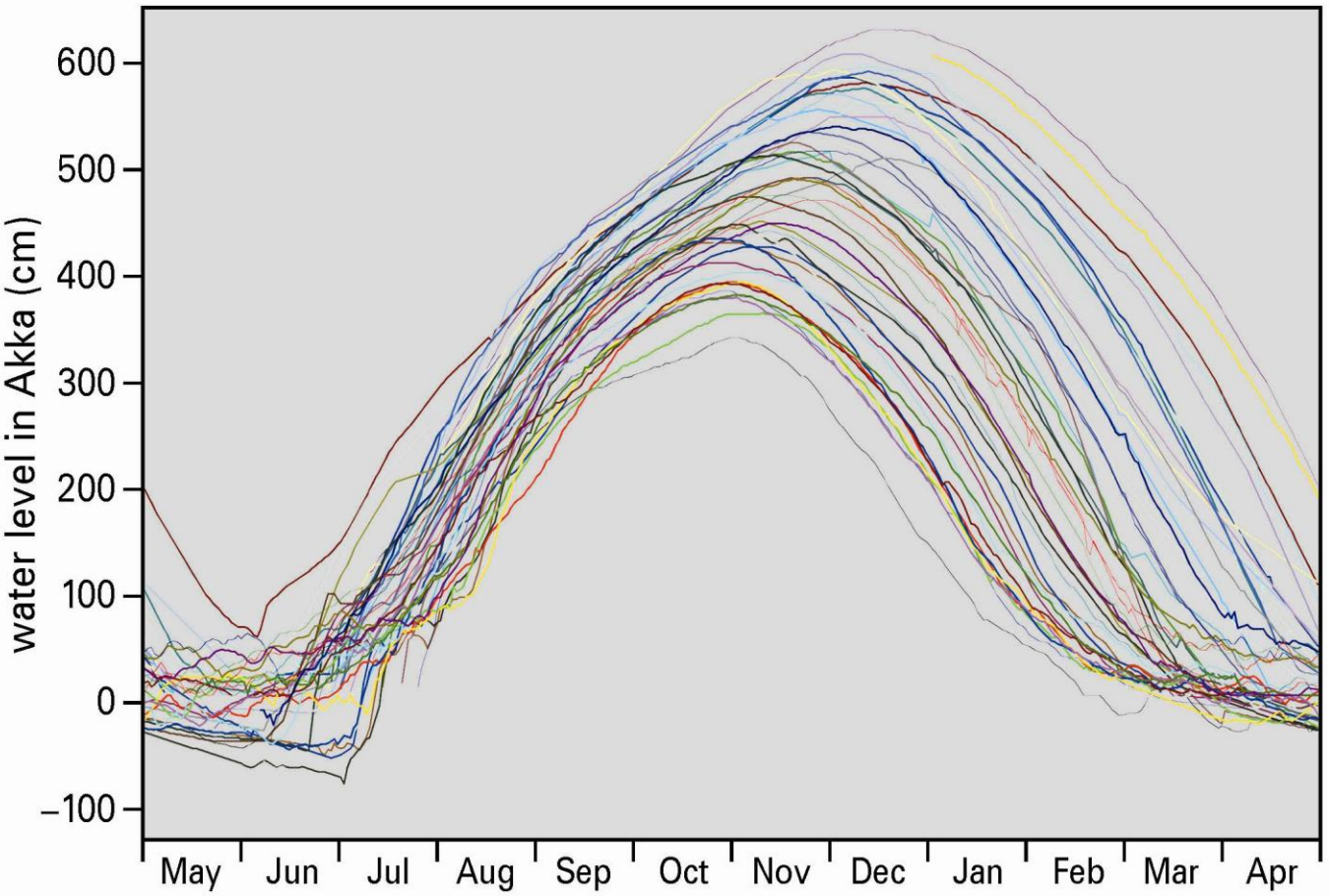
Altenburg & Wymenga ecological consultants
Wetlands International

www.altwym.nl

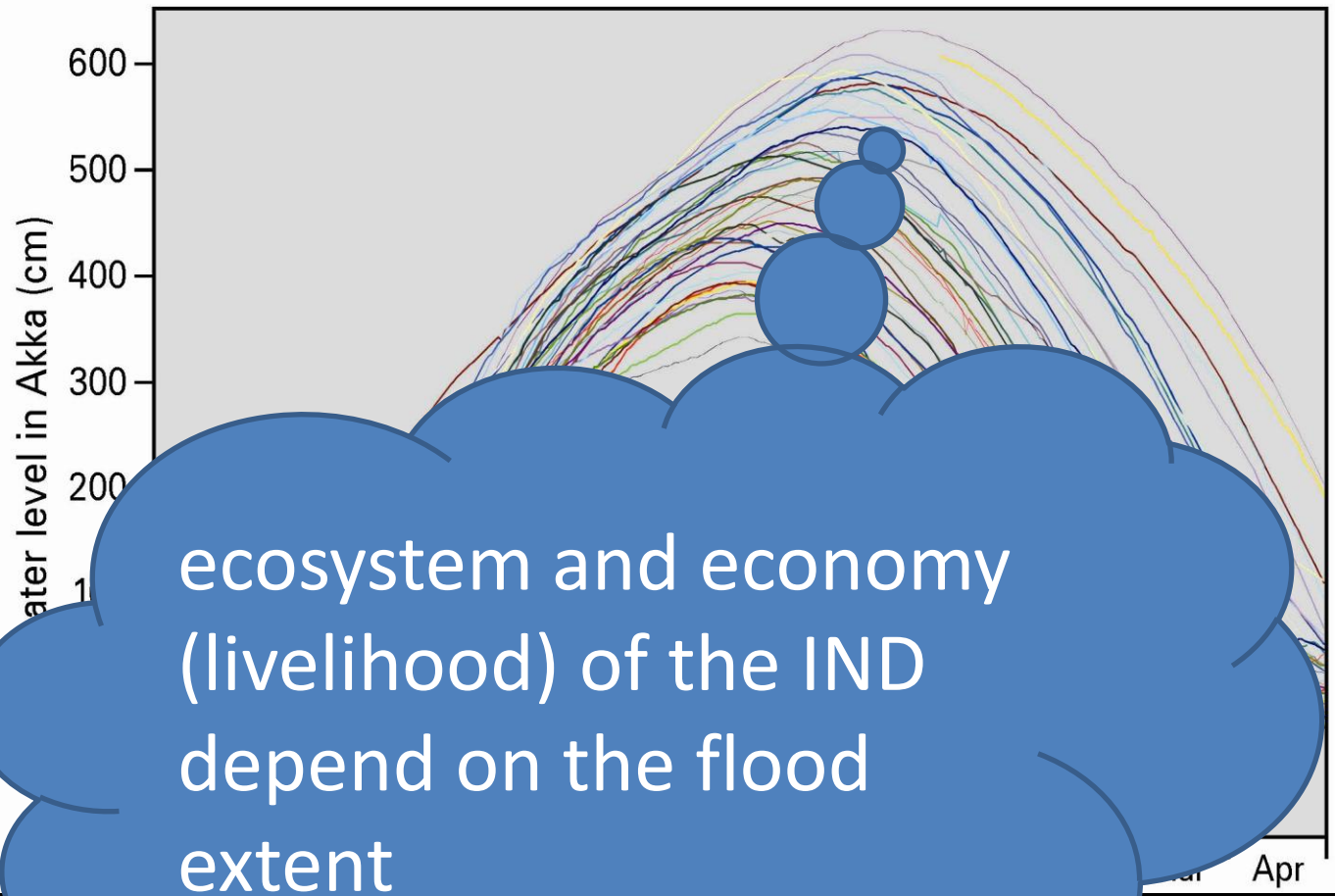

Senegal River
MAURITANIA
SENEGAL
MALI
Inner Niger Delta
Niger River
Bani River
GUINEA-CONAKRY
IVORY COAST
400 km

1,5 mln stakeholders in the Inner Niger Delta

Seasonal flood pulse from 0 – 6 m

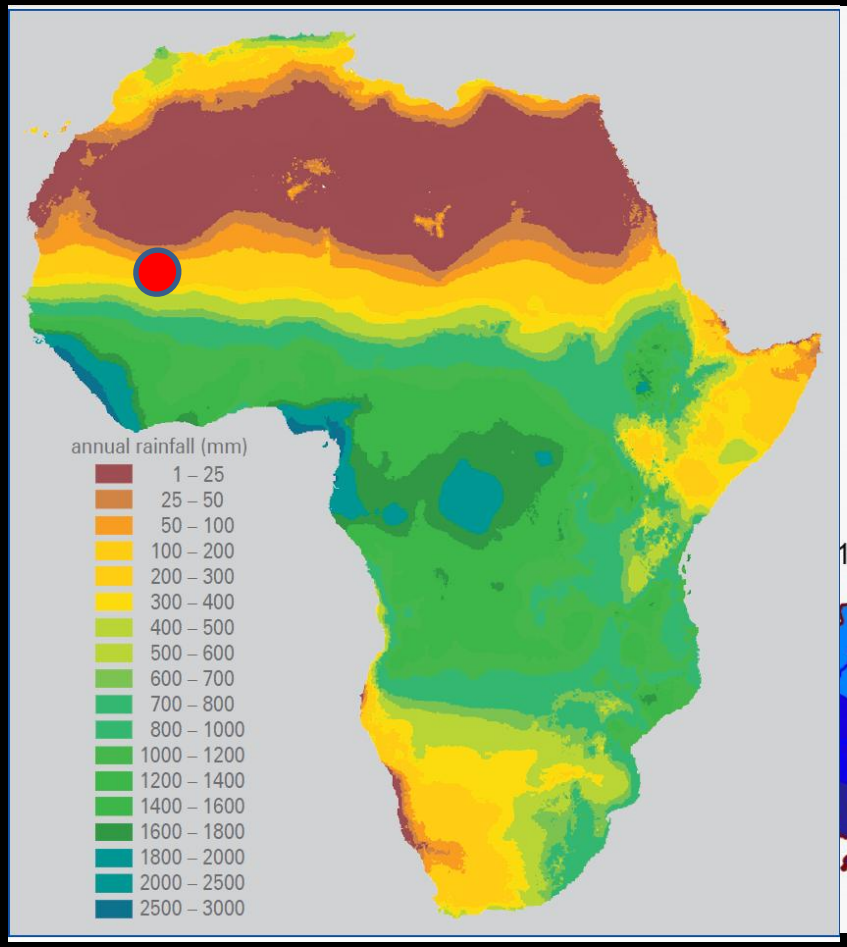


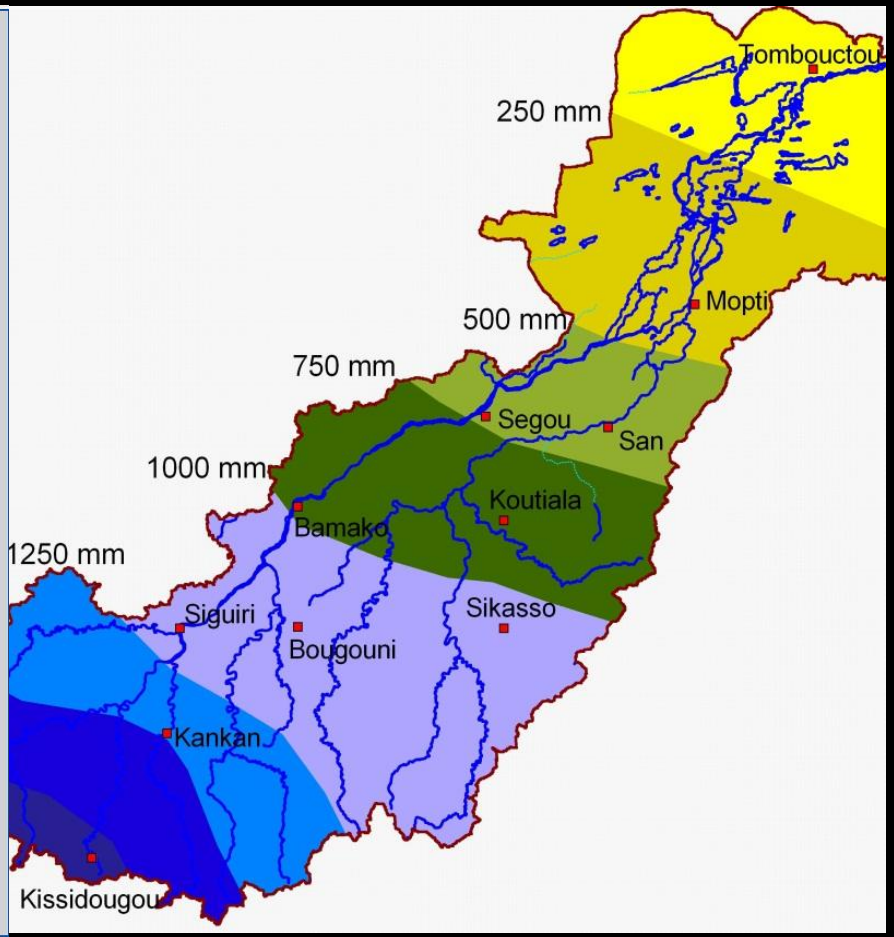
Seasonal flood pulse from 0 – 6 m



ecosystem and economy (livelihood) of the IND depend on the flood extent

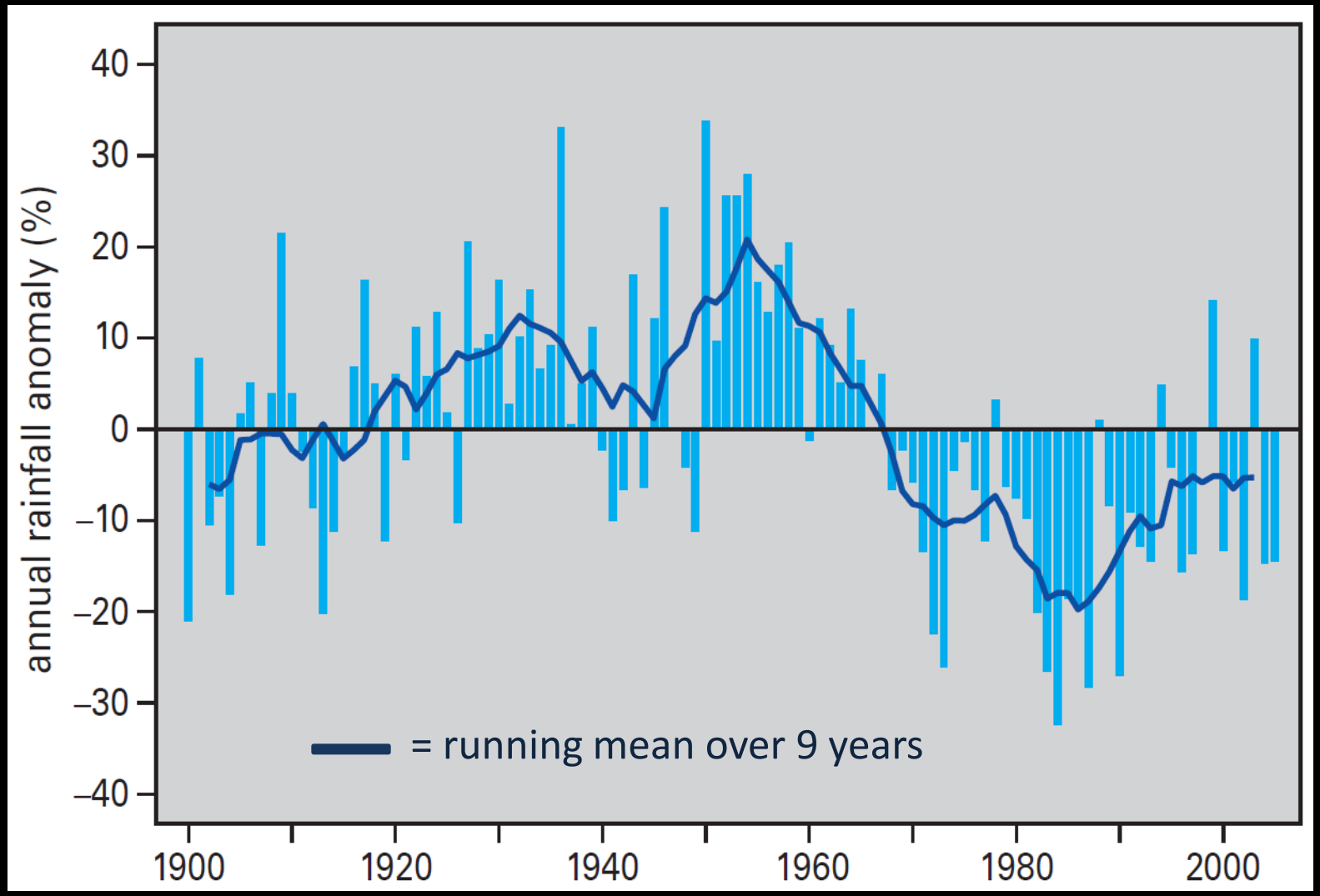
Water: scarce and unpredictable resource in Sahel





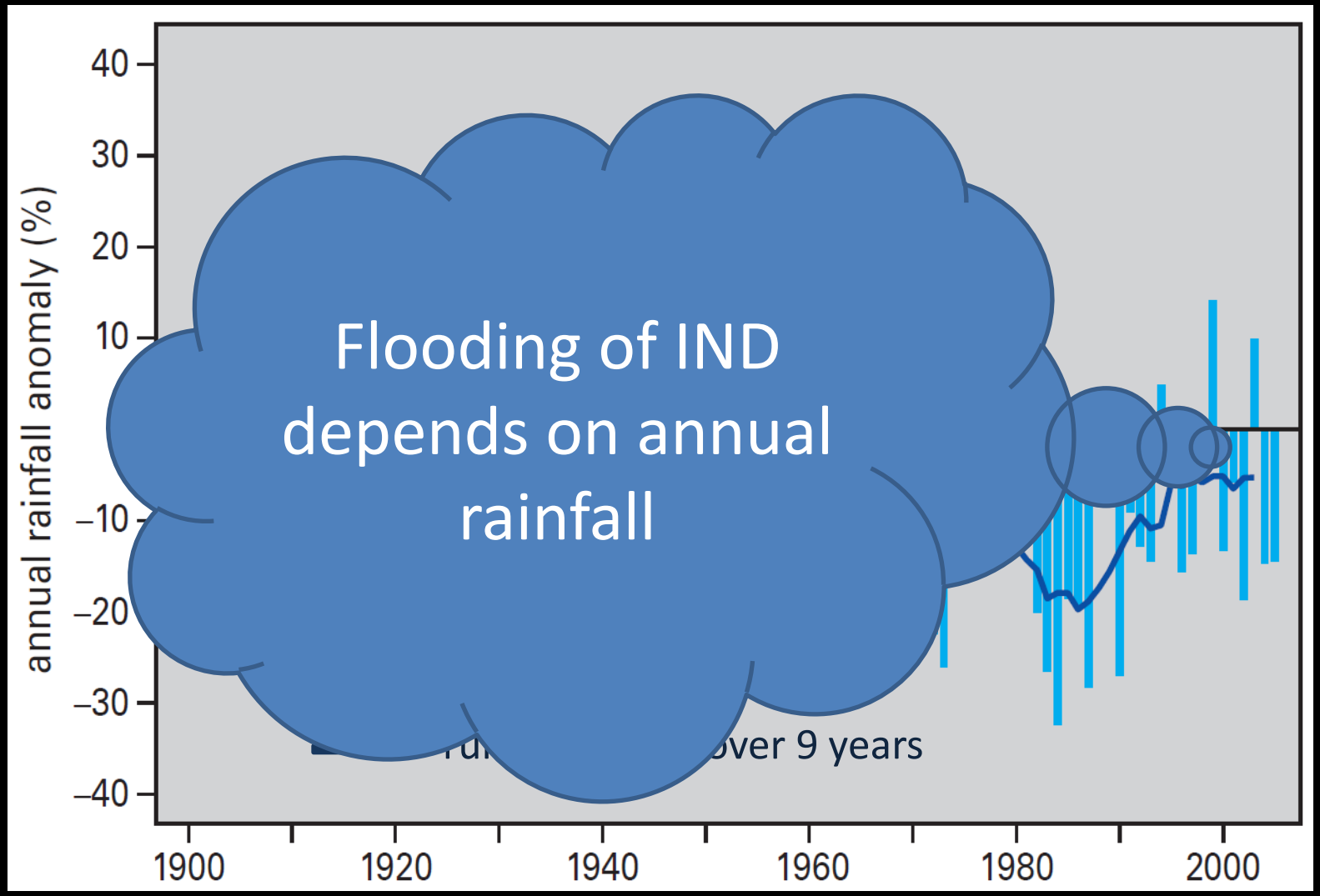
Annual rainfall in the Sahel

(% deviation from long-term mean)

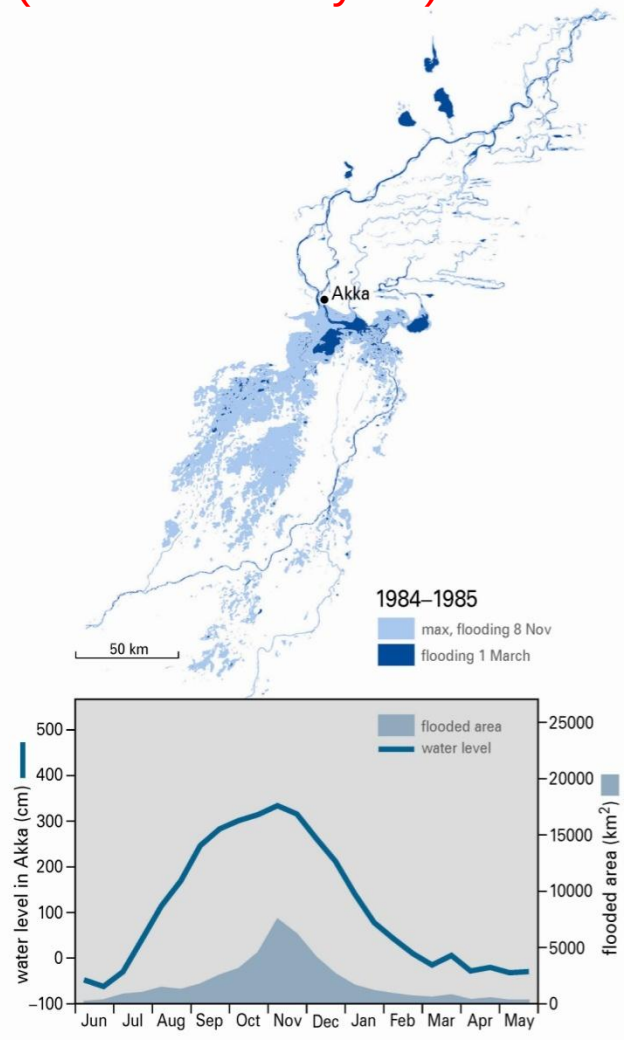


Annual rainfall in the Sahel

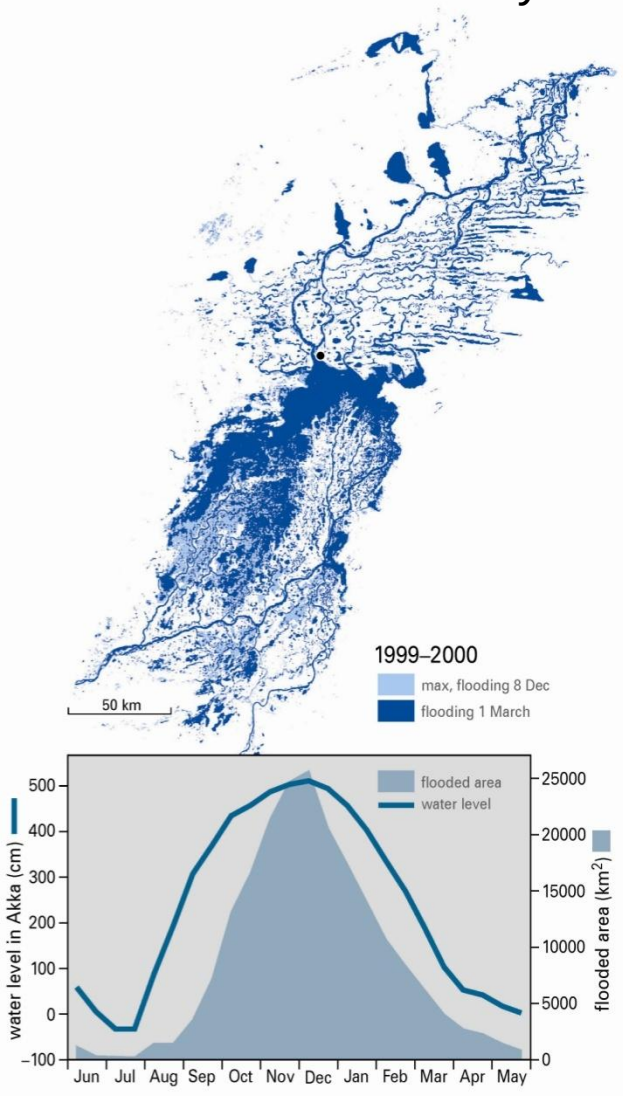
(% deviation from long-term mean)

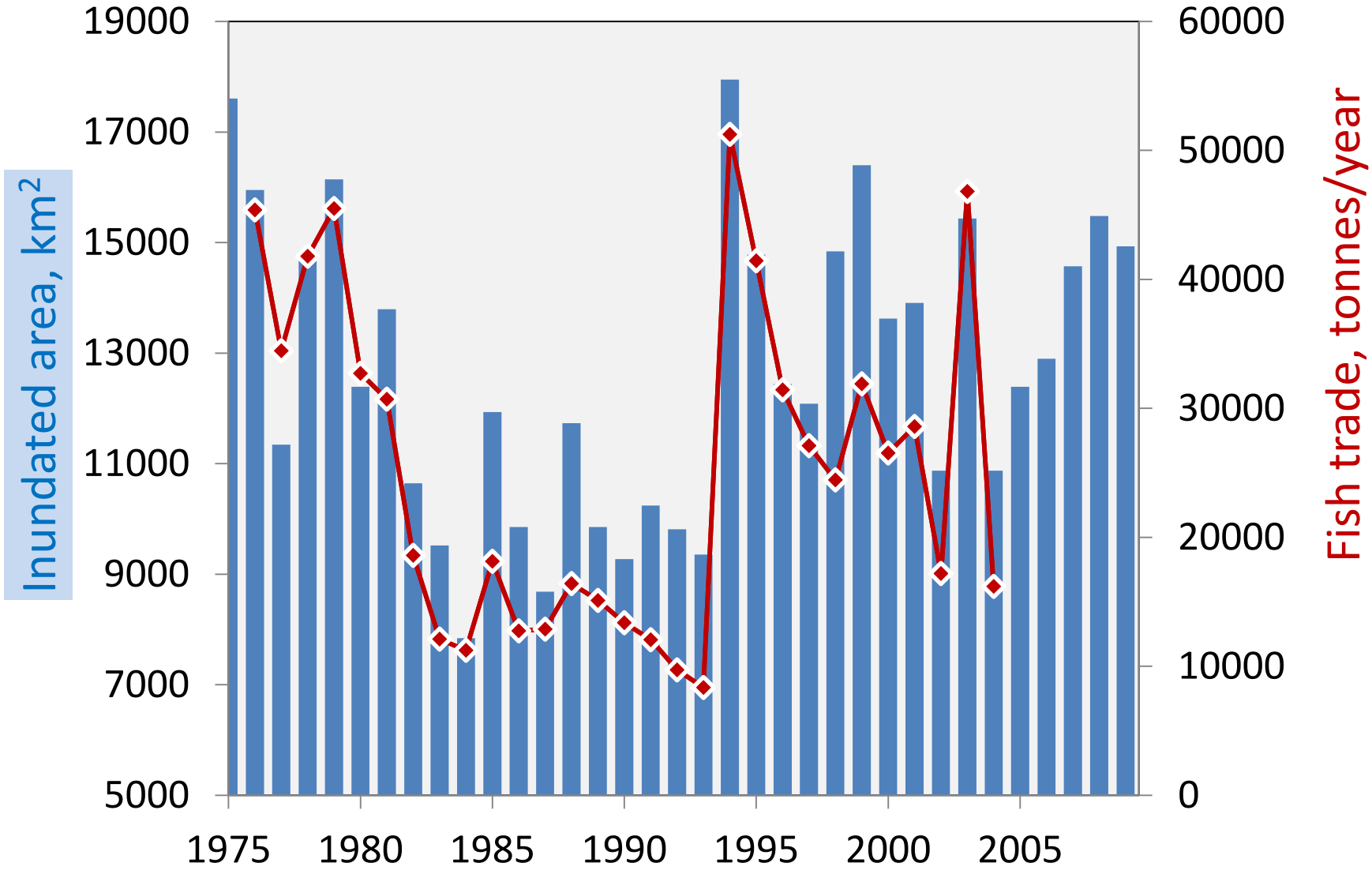


Dry year
(1984 disaster year)



Wet year



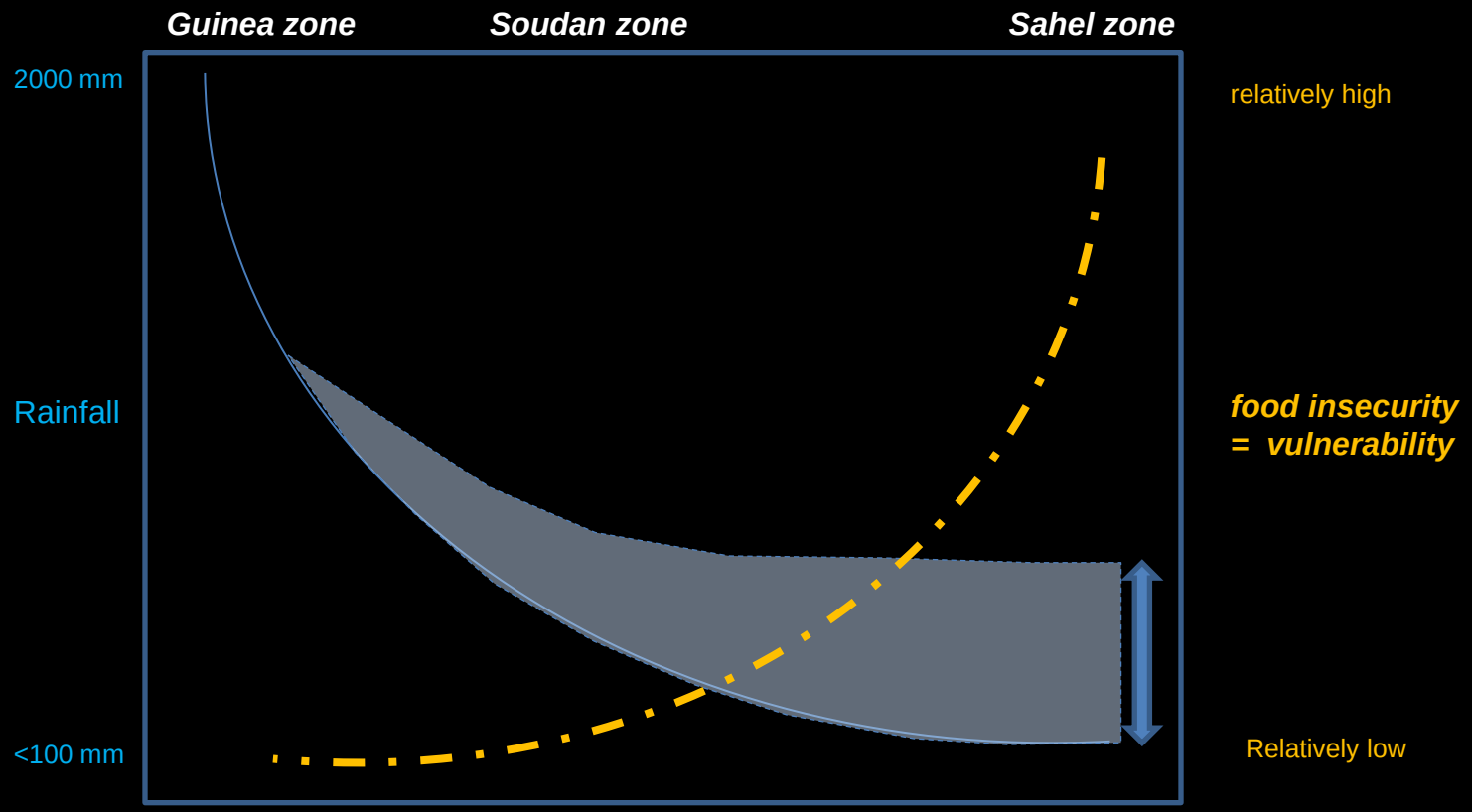

Maximal flood extent (km²) and annual trade of fish (tonnes/year)
Inundated area, km²
Fish trade, tonnes/year
19000
17000
15000
13000
11000
9000
7000
5000
60000
50000
40000
30000
20000
10000
0
1975
1980
1985
1990
1995
2000
2005

- By nature, food security in the Inner Niger Delta is highly uncertain, and thus .....
- Communities are prone to a relatively high disaster risk, in the sense that there is a high risk on food shortage
- By nature, the ecosystem of the Inner Niger Delta is highly resilient: natural resources (NR) quickly recover after droughts
- Traditionally communities were also resilient : through a traditional communal management system they adapted to annual variations in flood levels and NR production

- By nature, food
- ed to

Traditionally moving with the floods: opportunistic and flexible.

DINA law: 'natural resource manager' for regulation the use of NR in time and space at village level (Dioro)



Traditional management system for communal use of natural resources

Times have changed and change!

Great droughts

Beyond traditional resillience capacity

More mouths to feed

>3% per year

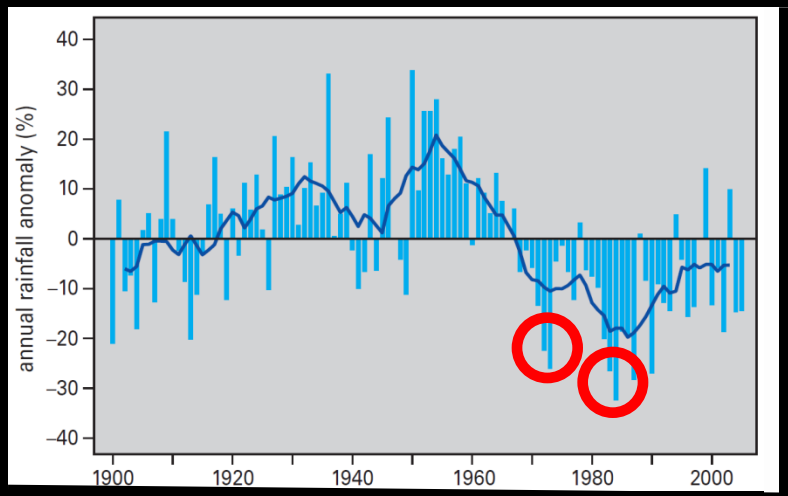
Upstream interventions

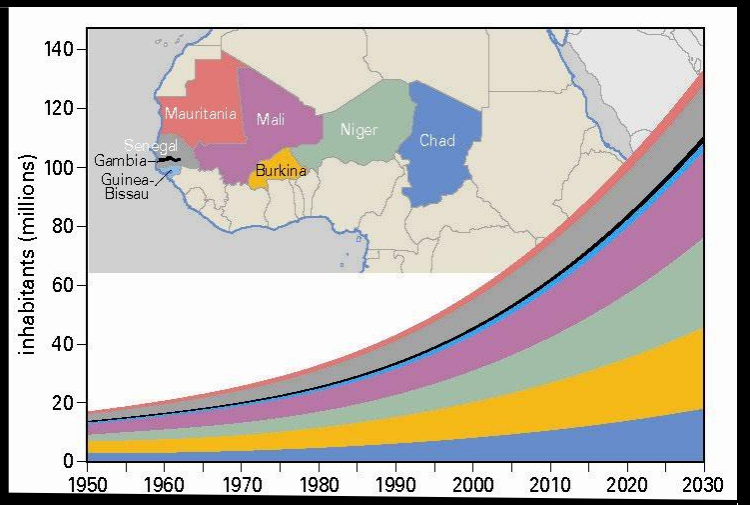
Water storage (hydropower) and water intake (irrigation) reduces flow and flooding

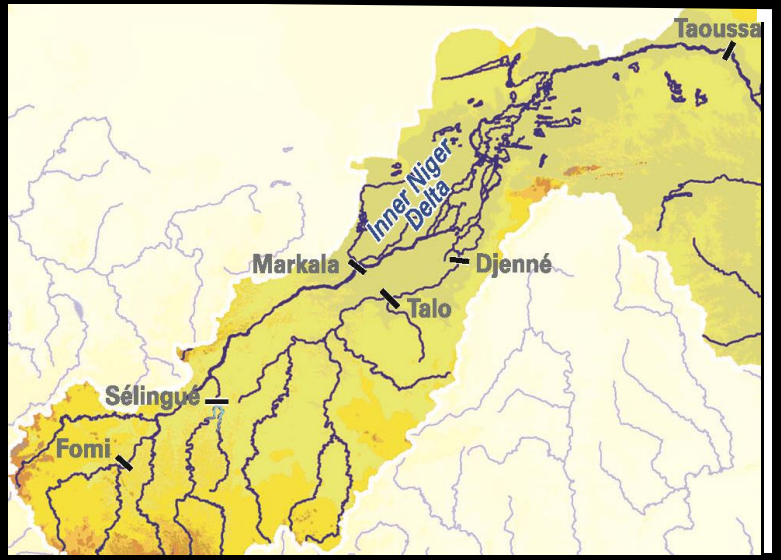
Climate change

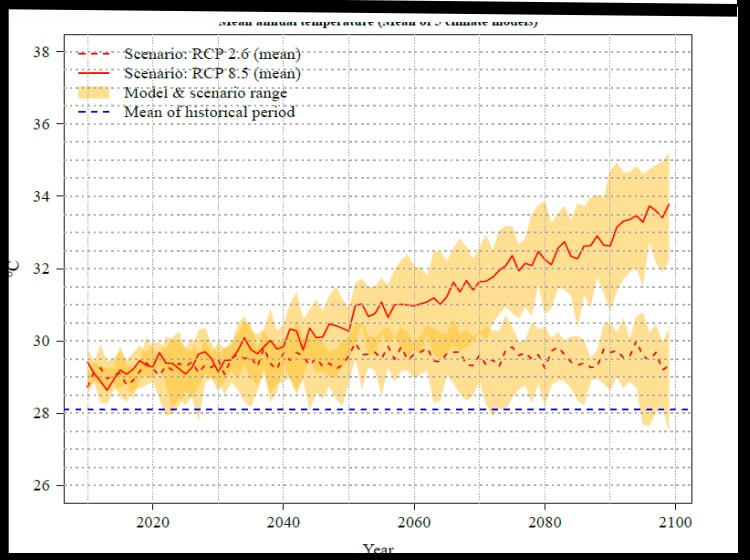
Rising temperature, trend rainfall uncertain, possibly dryer in future

Times have changed and change!









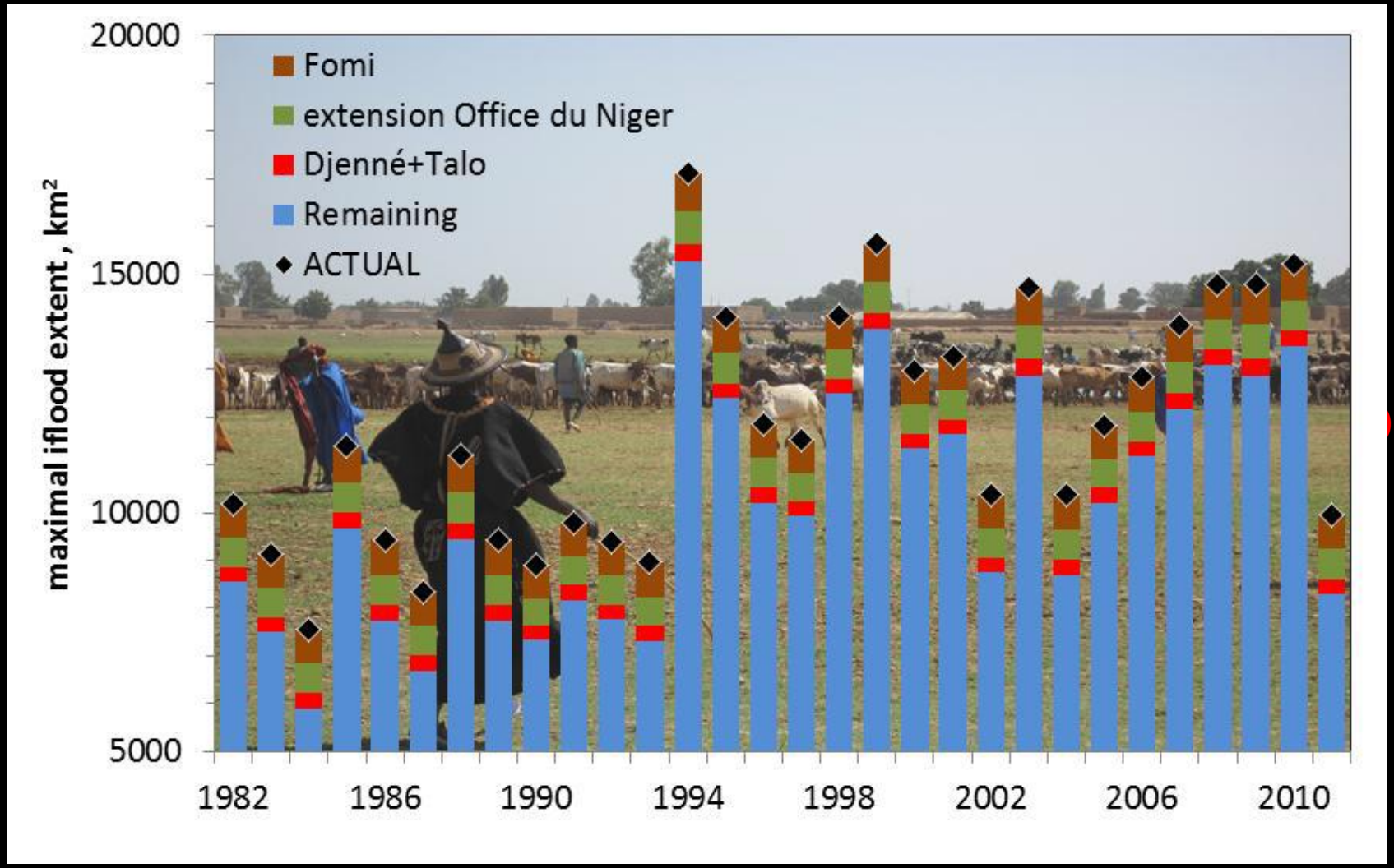
Building resilience through IWRM in Mali

- Vulnerability of communities and ecosystem IND increased considerably, beyond ‘natural variation’

- Focus of interventions of Wetlands International and partners in the past decades:

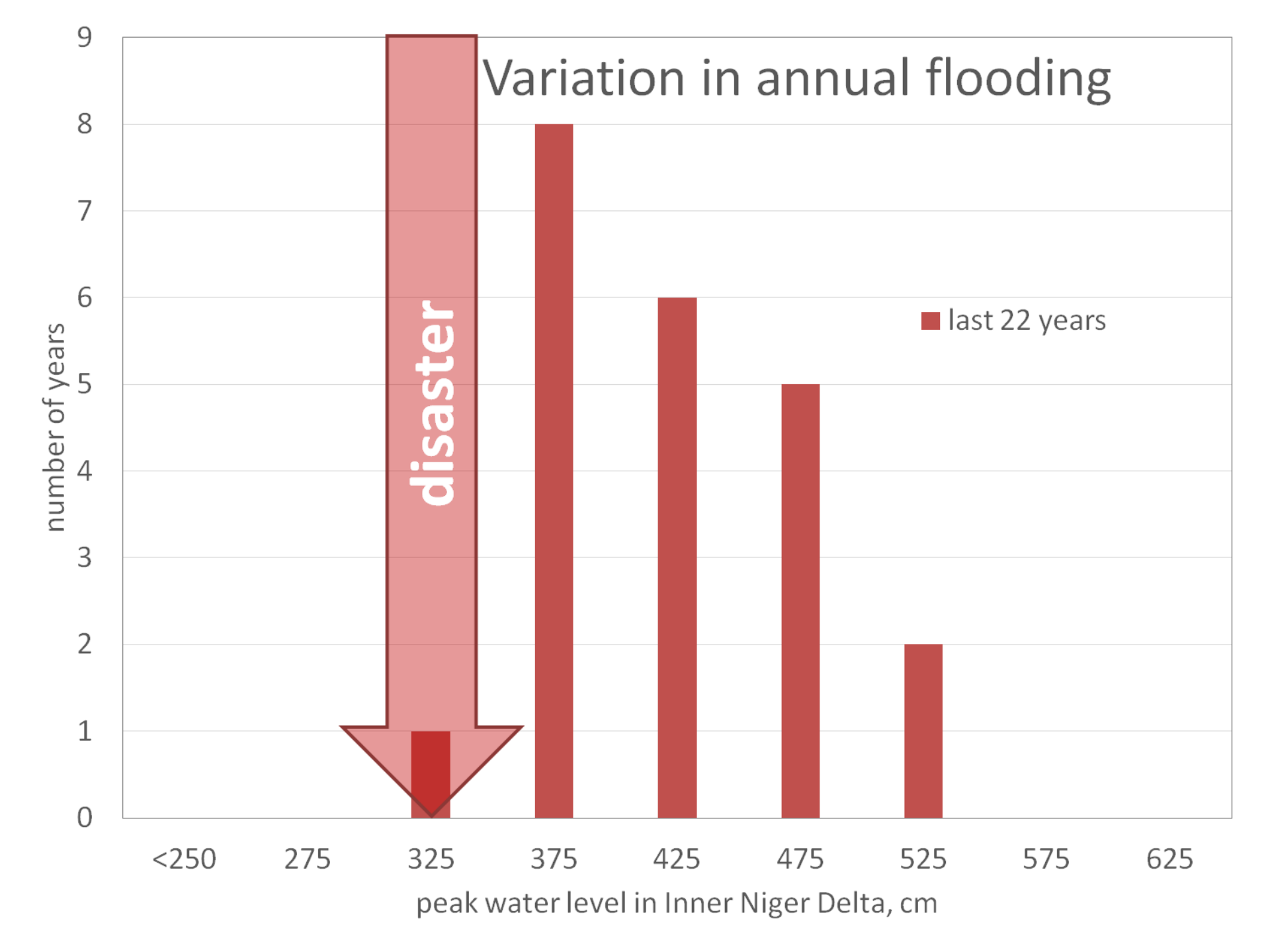
  - ***Long term commitment (starting in 1998)***
  - ***Working on (inter)national, regional and local scales***
  - ***Involving and informing communities IND***
  - ***Acquisition of key data and analysis of:***
  - ***Hydrological upstream – downstream relationships***
  - ***Relation flooding – natural resources – ES – livelihoods***
  - ***Report and present to policy makers & water boards Mali***
  - ***Involving and informing communities IND***

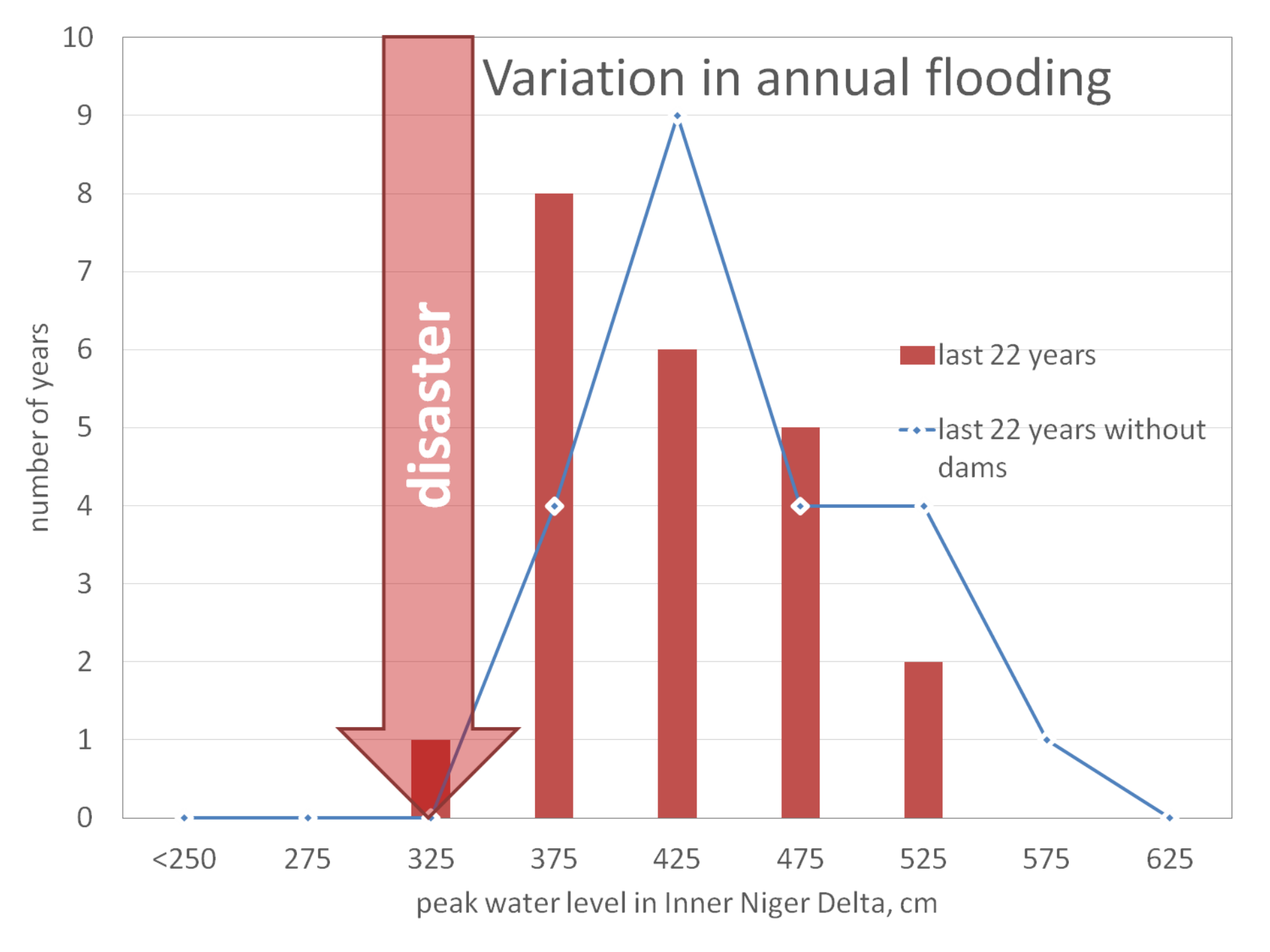
I. (Inter)national scale: Focus on IWRM

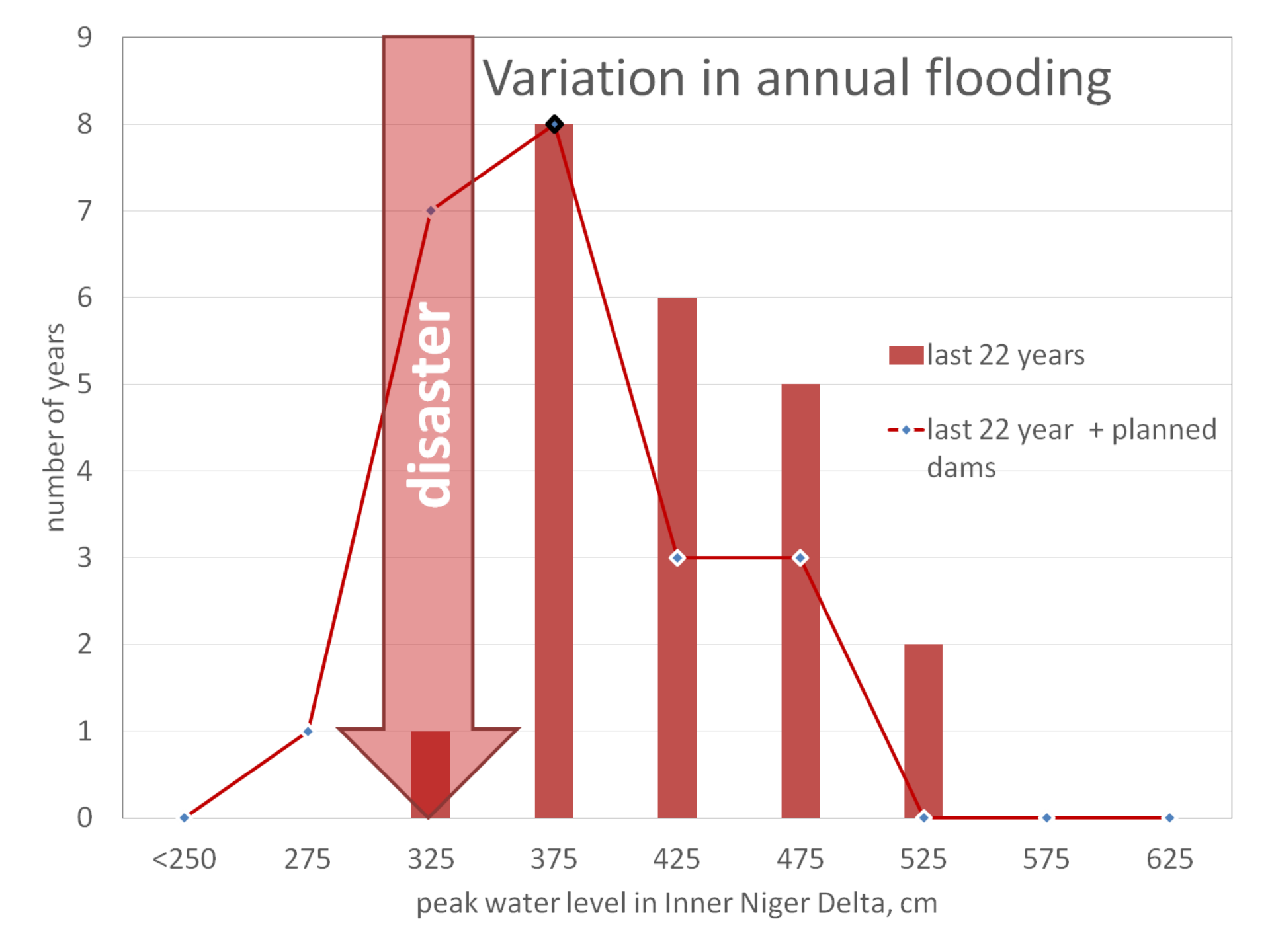


Put forward clear science-based messages to all stakeholders and participation in IWRM-process in Mali:

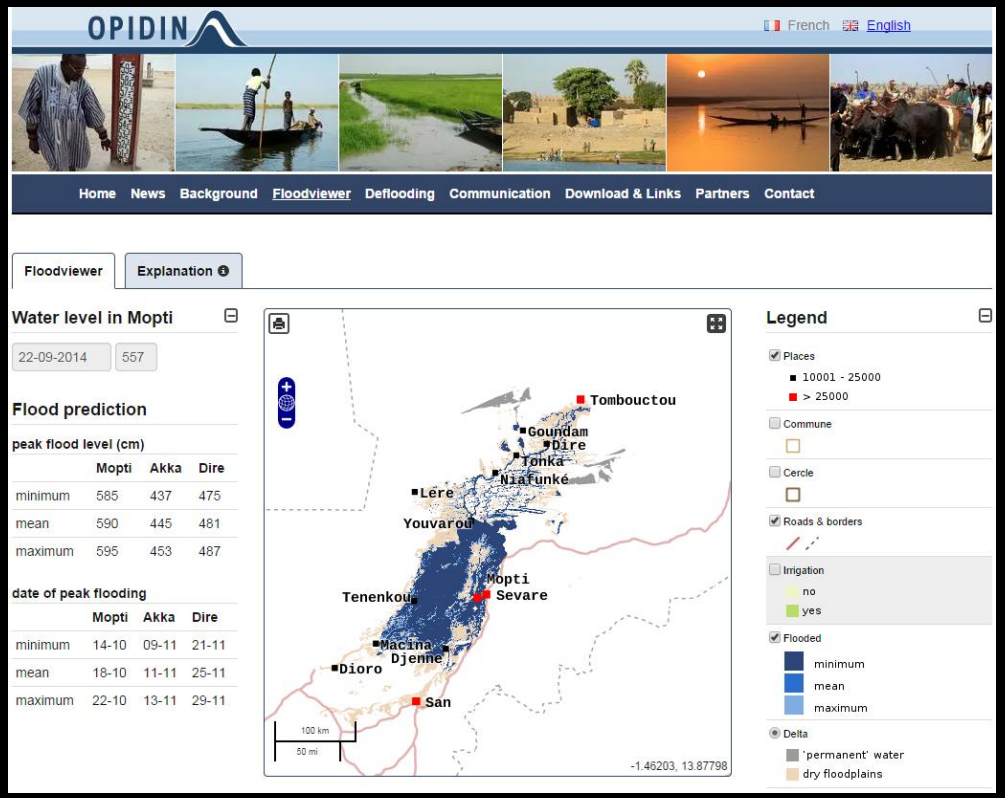
- Upstream interventions reduce the floodplain in dry years with +32% and even more with climate change.
- Result: a near loss of the Inner Niger Delta including its significant ecosystem services to the national economy
- Hidden costs often not included in the evaluation of investments in new infrastructures: significant downstream fish production, cattle raising and rice production
- Efforts targeted on maintaining a minimal flow to sustain a vital and flood-dependent ecosystem and economy in IND


Variation in annual flooding
disaster
last 22 years
number of years
0
1
2
3
4
5
6
7
8
9
<250
275
325
375
425
475
525
575
625
peak water level in Inner Niger Delta, cm


Variation in annual flooding
disaster
number of years
peak water level in Inner Niger Delta, cm
last 22 years
last 22 years without dams
0
1
2
3
4
5
6
7
8
9
10
<250
275
325
375
425
475
525
575
625


Variation in annual flooding
disaster
number of years
0
1
2
3
4
5
6
7
8
9
last 22 years
last 22 year + planned dams
<250
275
325
375
425
475
525
575
625
peak water level in Inner Niger Delta, cm

II. IND scale : informed decisions with OPIDIN



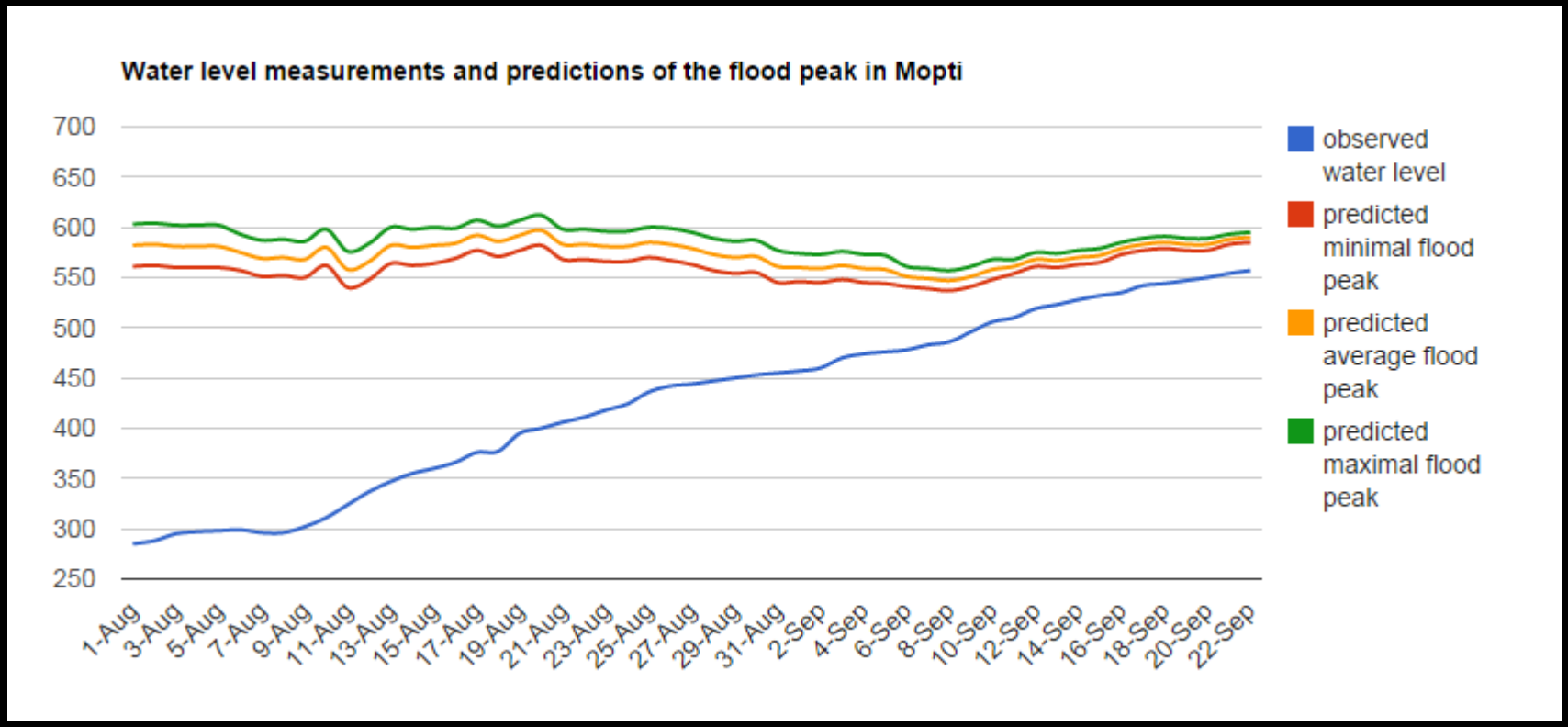
Early warning
Flood forecast, 2,5 months in advance, which enables communities to anticipate their economic activities

- news bulletins on radio
-Inundation atlas (local language)
- Training of using OPIDIN

www.opidin.org

Outil de prédiction des inondations dans le Delta Intérieur du Niger

II. IND scale : informed decisions with OPIDIN



www.opidin.org

III. Local scale : opportunities on village level

Flood forest restoration

Contingency plans on village level

Rain gauges in villages

introduction drought resistant maize

III. Local scale : opportunities on village level

Sand dune fixation

Bio- rights and PES: micro-credits for habitat restoration and

Building community resilience in the IND

- Long term commitment: build trust!
- Involve and inform communities from the start
- Acquisition of key data for reliable analysis and synthesis: facts & figures are telling!
- Act on all relevant scales and across sectors
- More focus on actual implementation!

Thanks for your attention!

e.wymenga@altwym.nl / www.altwym.nl