

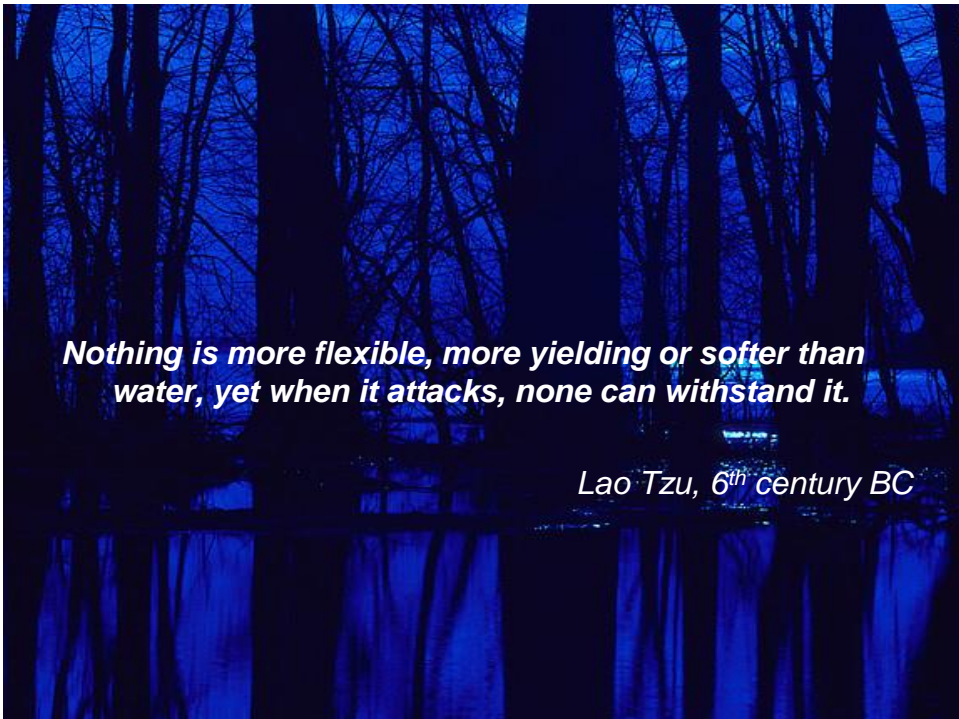


Hydrological variability, transboundary floods and institutional capacity: are we prepared for tomorrow's problems?

Marloes Bakker *Utrecht University*
James Duncan *University of Vermont*
Arno Bouwman *PBL Netherlands Environmental Assessment Agency*

STAR FLOOD

Deltas in times of climate change II
24 September 2014 | session DD 11.1



Nothing is more flexible, more yielding or softer than water, yet when it attacks, none can withstand it.

Lao Tzu, 6th century BC

Water Wars?

"The next war in the Middle East will be fought over water, not politics."

Boutros Boutros Ghali, 1991, 1997, 2005

"Wars of the next century will be over water, not oil."

Ismail Serageldin

"Fierce competition for freshwater may well become a source of conflict and wars in the future."

Kofi Annan

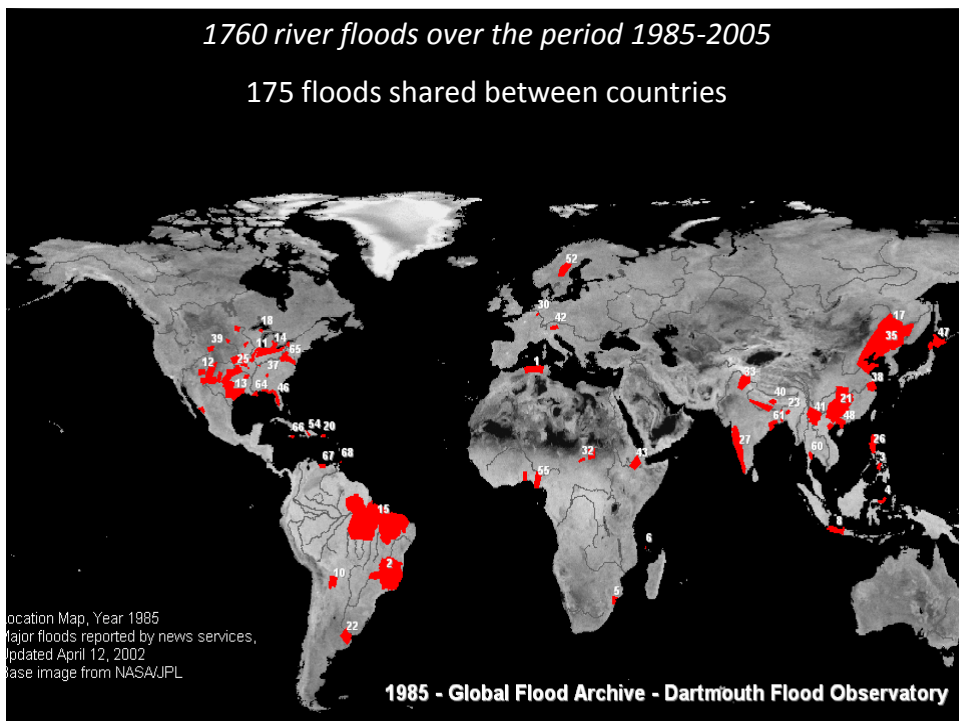
> 275 Shared River Basins



Source: TFDD

Institutional Resiliency

*Transboundary water institutions
are resilient over time, even
between hostile riparians, even as
conflict is waged over other
issues.*

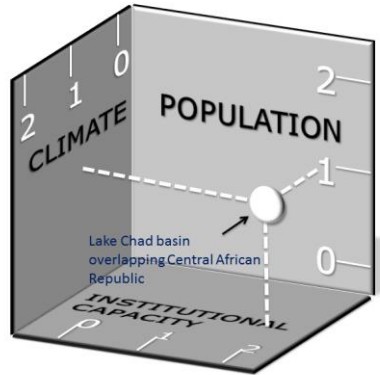
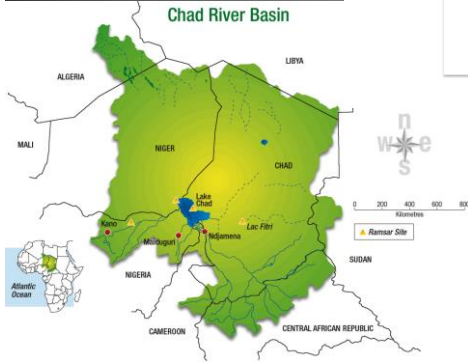
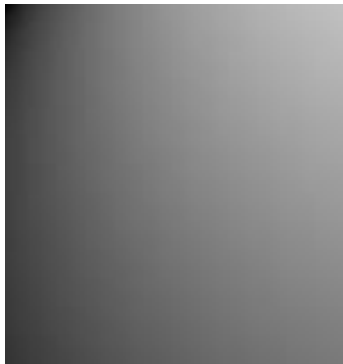
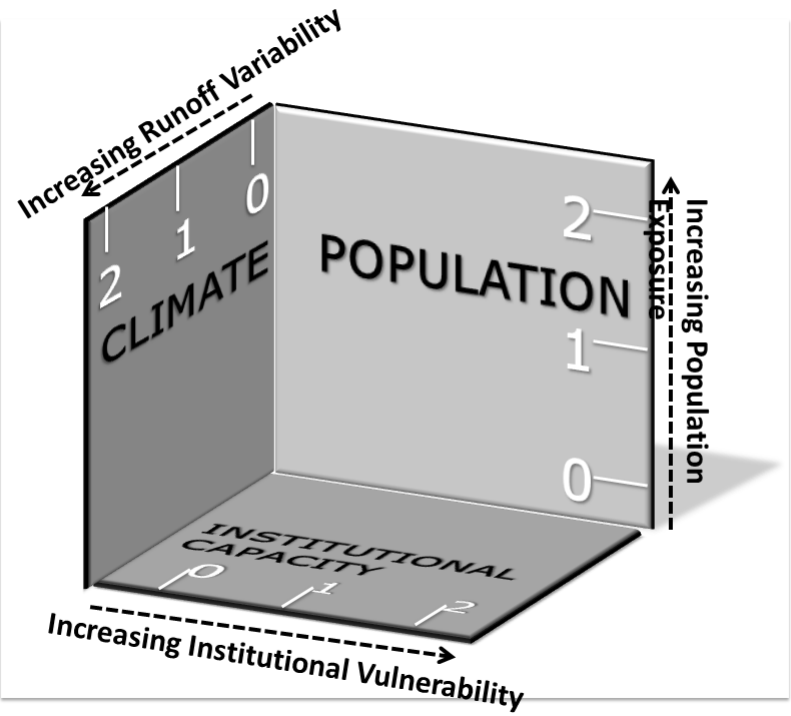


Research question

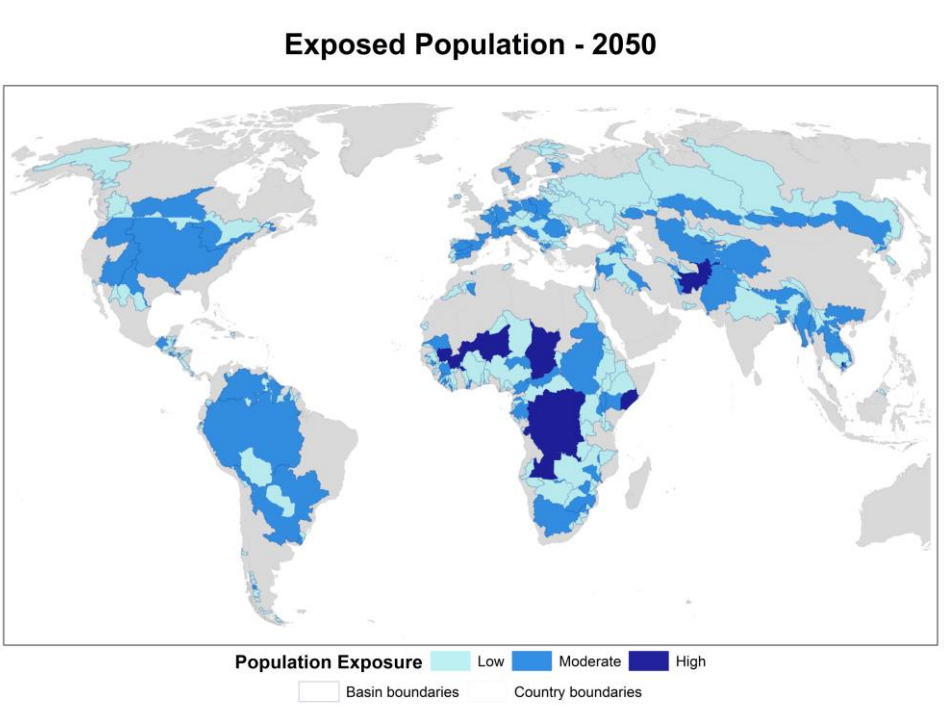


A closer look at the nexus of
transboundary flood events and
social vulnerability

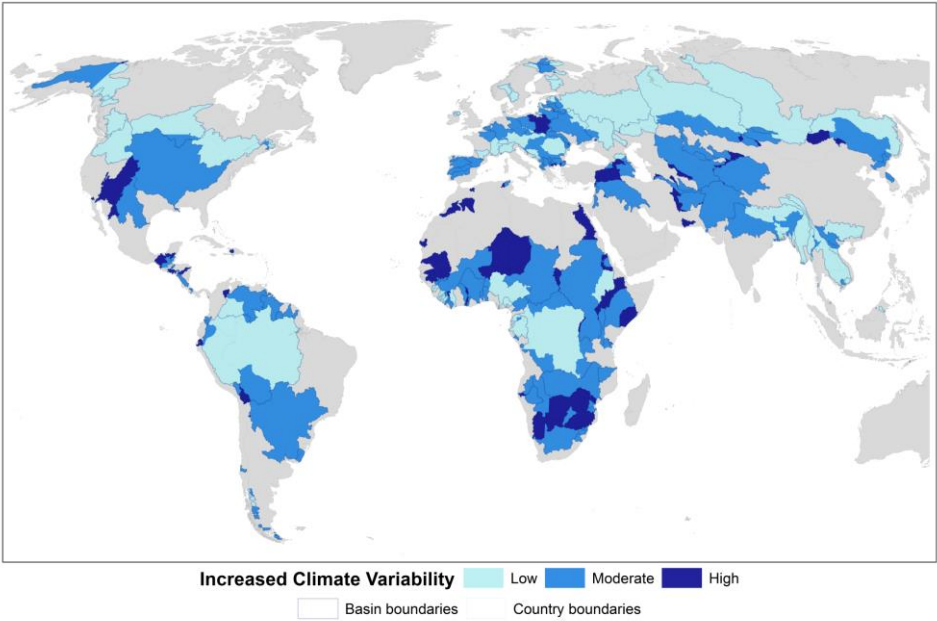
Methodology



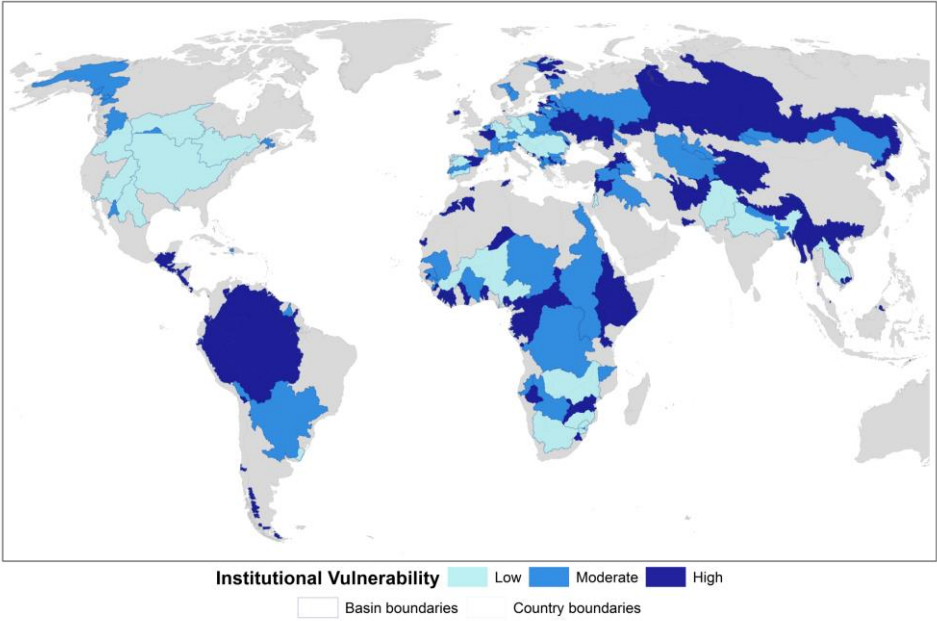
Some *first* results: maps!



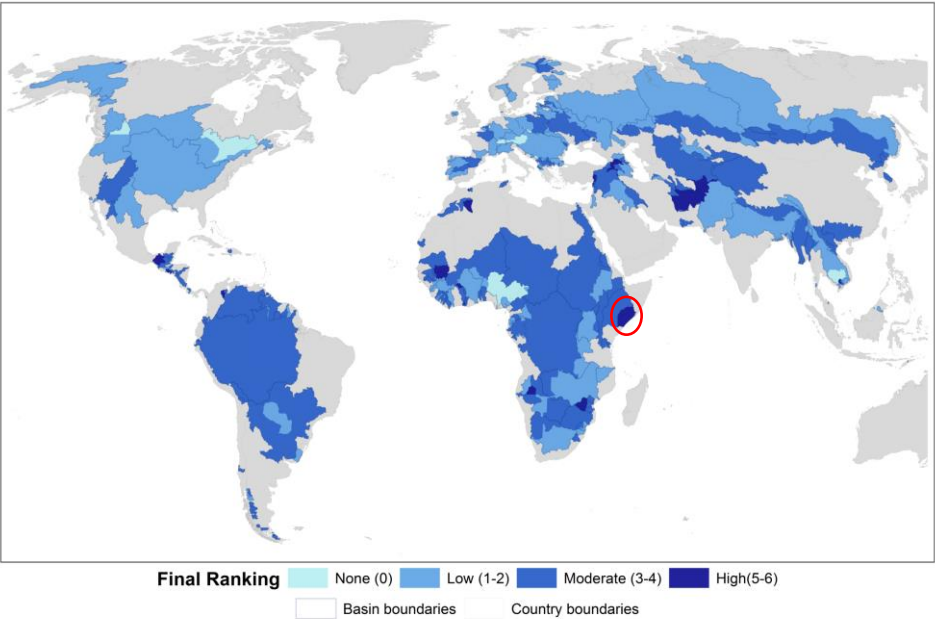
Increased Climate Variability - 2050



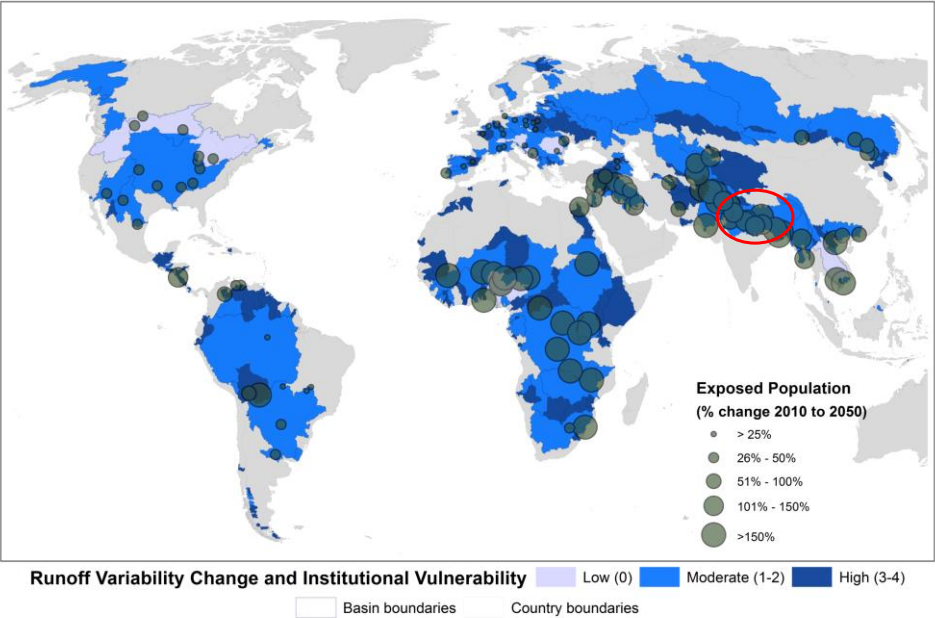
Present Institutional Vulnerability to Transboundary Flooding



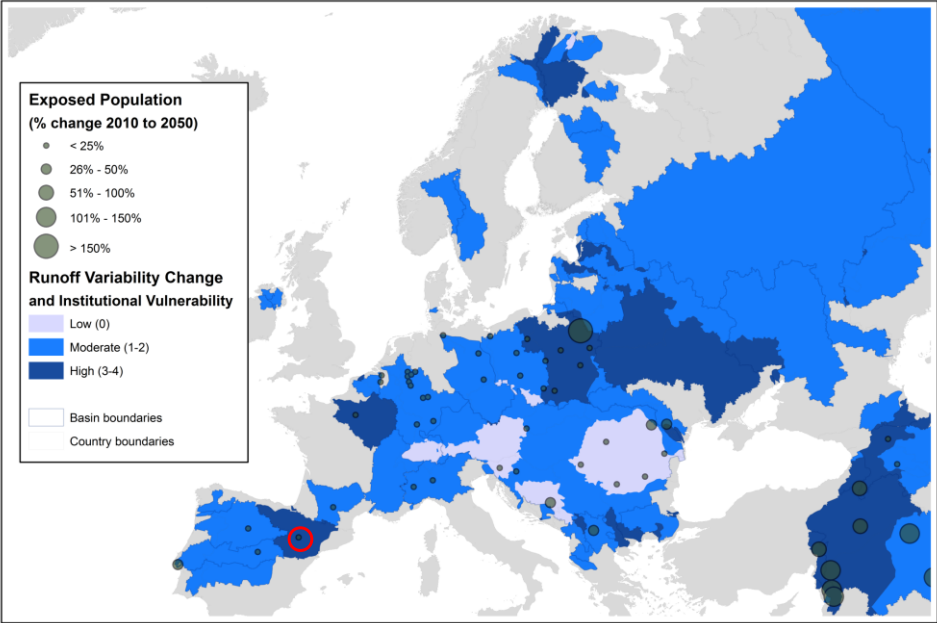
Final combination of Institutional Vulnerability, Increased Climate Variability and Population Exposure



Increase in Exposed Population for Cities with Populations Over 500,000; Basins Stratified by Hydrological and Institutional Risks



Increase in Exposed Population for Cities with Populations Over 250,000; Basins Stratified by Hydrological and Institutional Risks



Discussion

Where to look further

- Conflating coastal vs riverine
- Lot of treaties, but still vulnerable
- Intersection of treaties, events of conflict and cooperation
- Upstream and downstream dynamics
- Quantitative vs qualitative

Final thoughts

Conclusions

- Knowledge gap a little bit smaller
- What is risk now and in the future:

One step closer to understanding
where capacity-building for greater
resilience to change is critical

Water and Cooperation

“Water ignores all separations and boundaries save for those of the watershed itself. As such it offers a vehicle to bring those who share it together. Since it touches all we do and experience, water creates a language through which we may discuss our common future.”

- Aaron Wolf, 2008



Thank you.

Marloes Bakker
m.h.n.bakker@uu.nl