

Climate change, water and conflict in the Niger River Basin



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Presentation outline

- Background to the research
- Climate variability and climate change in the Niger basin region
- Research project design
- Description of case studies in Mali and Nigeria
- Summary of findings
- Conclusions

Background to the research (1)

- Concerns that climate change may exacerbate conflict in Africa
- Long history of research on pastoralist-farmer conflict – conflict has been linked to either resource scarcity or abundance
- Research shows that violent conflict over transboundary waters is rare, but tensions between countries influence possibilities for cooperation

Background to the research (2)

- Few studies have looked at influence of climate change on water conflict at local and national scales
- Niger river basin is a good case to examine because of the variability in climate experienced in the Sahel during the last 50 years.

Niger River Basin



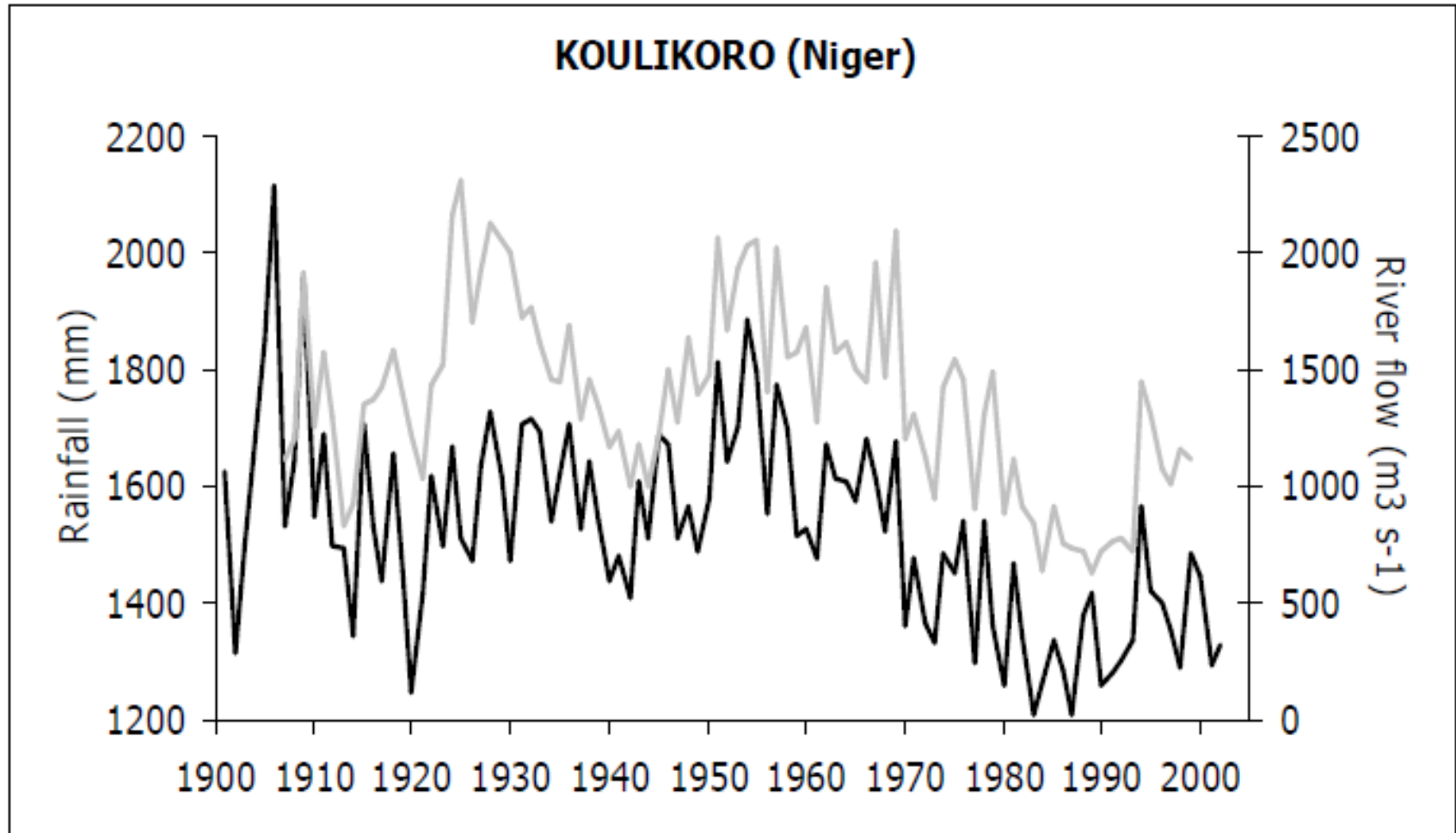
Image: academic.evergreen.edu

**Sélingué
case study**

**Ségou case
study**

**Lokoja case
study**

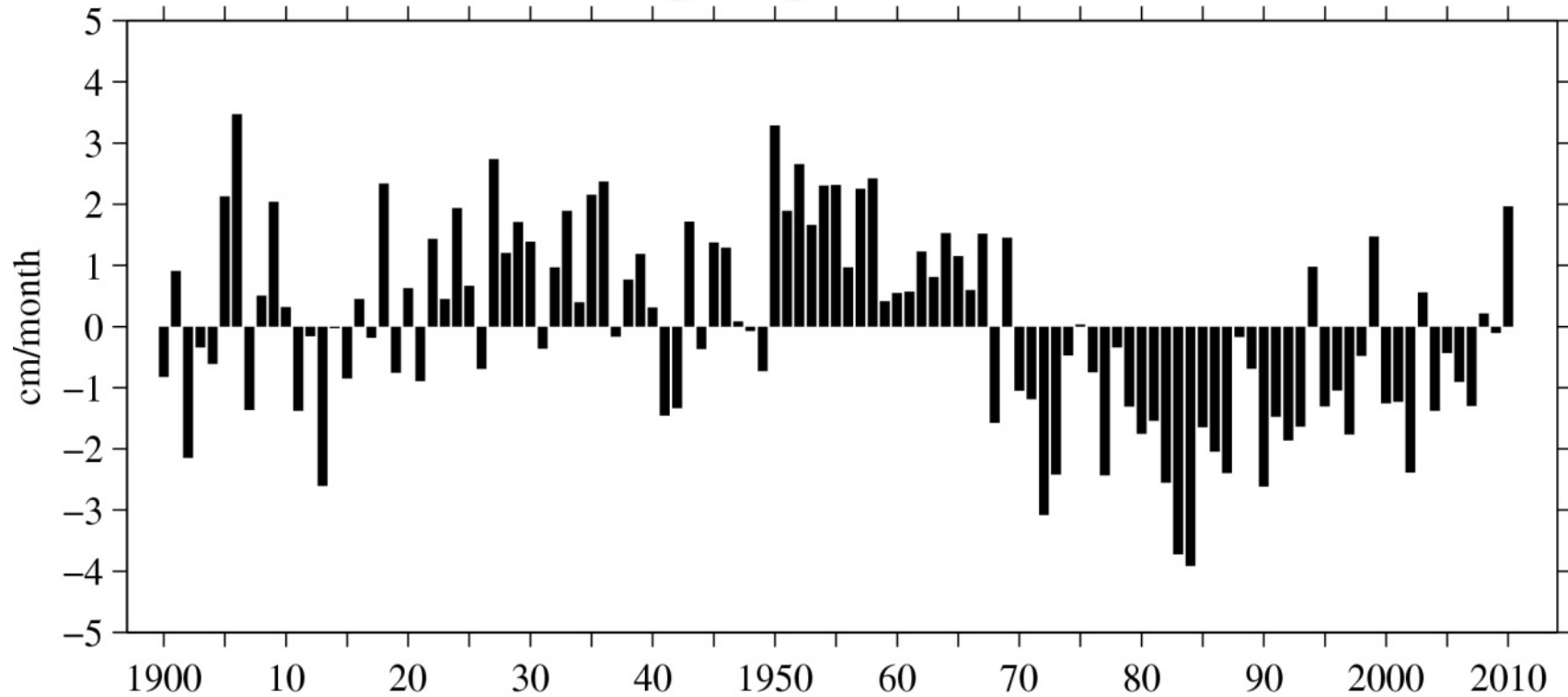
Niger River Flows



Annual Rainfall (black line) and River flow (grey line) at Koulikoro (Mali) ,
Conway et al. 2008

Sahel rainfall

JJASO–mean Sahel precipitation anomalies 1900–2010



Averages over 20–10N, 20W–10E; 1900–2010 climatology
NOAA NCDC Global Historical Climatology Network data

Future climate change projections for the basin

- Increase in temperature of 1.8 to 4.7°C by 2080s
- Change in rainfall during 21st Century is very uncertain: models show increase or decrease.
- Recent observations: wetter in central and eastern Sahel, drier in in western Sahel.
- Some regional climate models show intensification of the monsoon and 'greening' of the Sahel.
- Extreme climate variability likely to remain important
- Changes in seasonal rainfall patterns likely – e.g. later start and shortening of wet season

Questions addressed by the research

- How do climatic and environmental stresses influence water resources and human security in the Niger River Basin?
- Does climate stress on water resources increase the risk of conflict?
- What types of adaptations, conflict resolution and governance mechanisms provide resilience to climate stresses and reduce the risk of conflict?

What do we mean by human security and conflict?

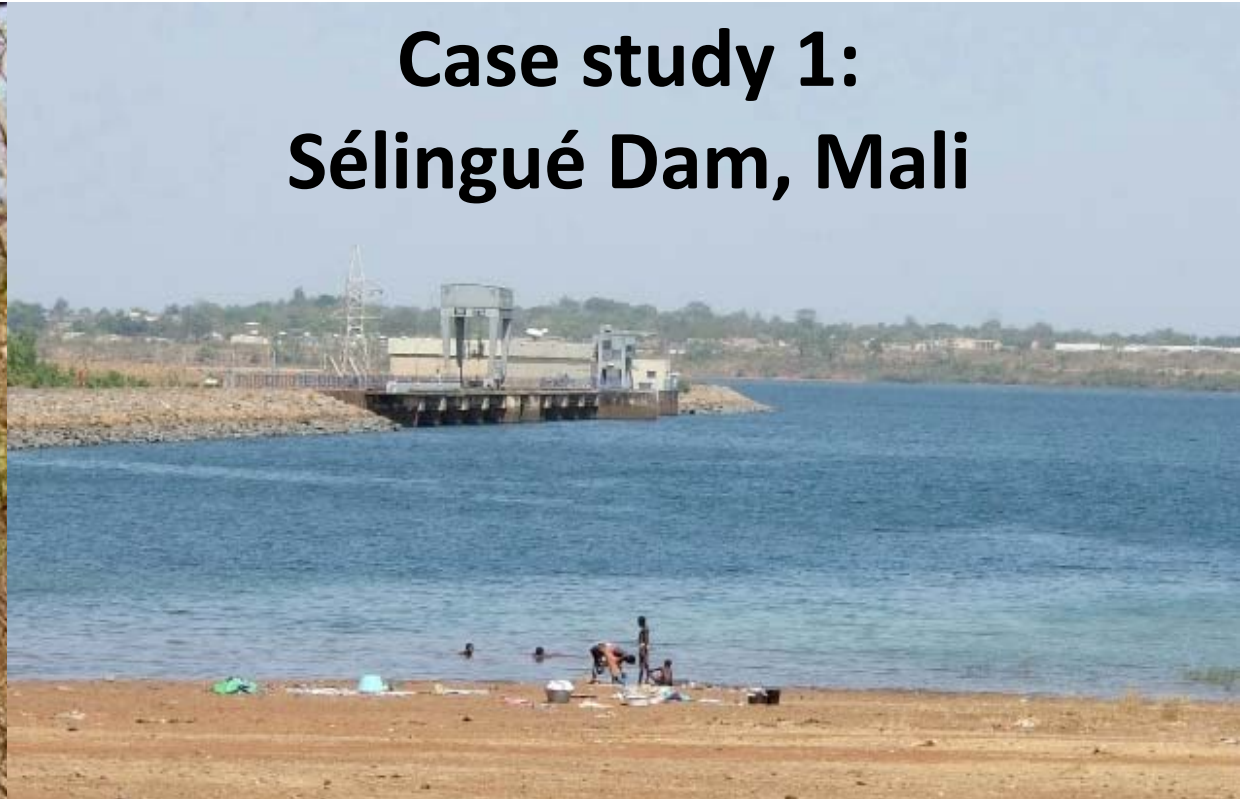
- Human security: protection from chronic threats and sudden, harmful disruptions to daily life.
- Conflict is not just about violence
- Conflict can be latent, manifest, or violent
- Forms of conflict include:
 - Verbal disagreements, formal complaints, disputes, peaceful protest, demonstrations, riots, or violence.
- Conflicts of interest can exist between different stakeholders

Research project design

- Three countries of the river basin: Mali, Niger, Nigeria
- Literature review
- Desk research (Niger) and field research (Mali/Nigeria)
- 3 case studies (2 in Mali, 1 in Nigeria)
- 73 Interviews / focus group discussions
 - National level
 - Local government
 - Villages
 - Gender sensitivity: separate interviews with men and women



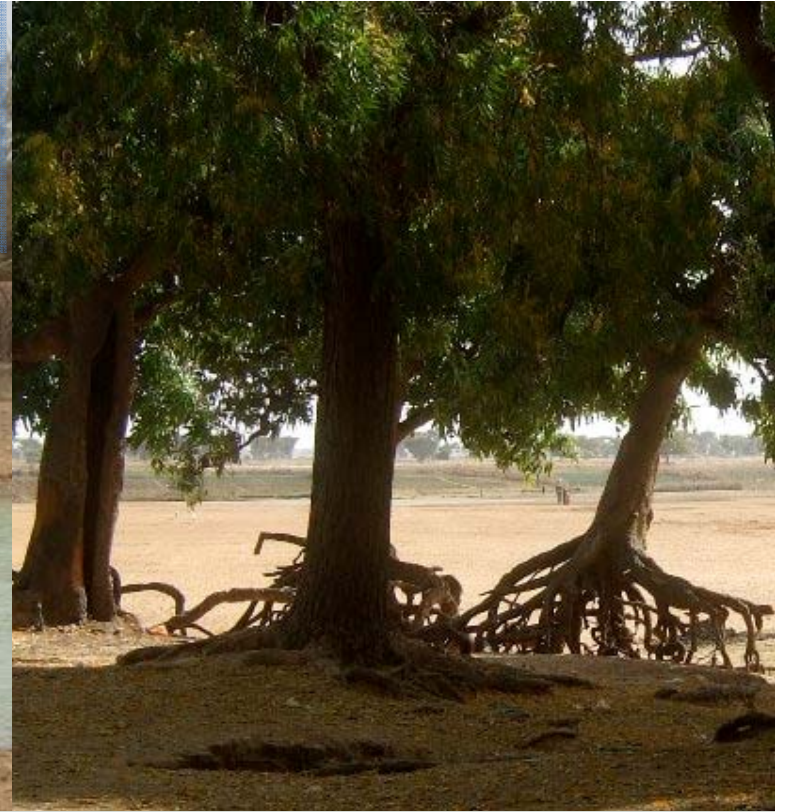
Case study 1: Sélingué Dam, Mali



Sélingué case study

- Communities suffered significant losses from flooding in 2001 and 2010, despite having coping strategies.
- Men and women have different roles in coping with the impacts of flooding and drought.
- Stakeholder committee was set up to advise on dam management: - repeat of 2001 flooding incident has been avoided
- Negotiated and marked cattle corridors - appear to reduce conflict between pastoralists and farmers

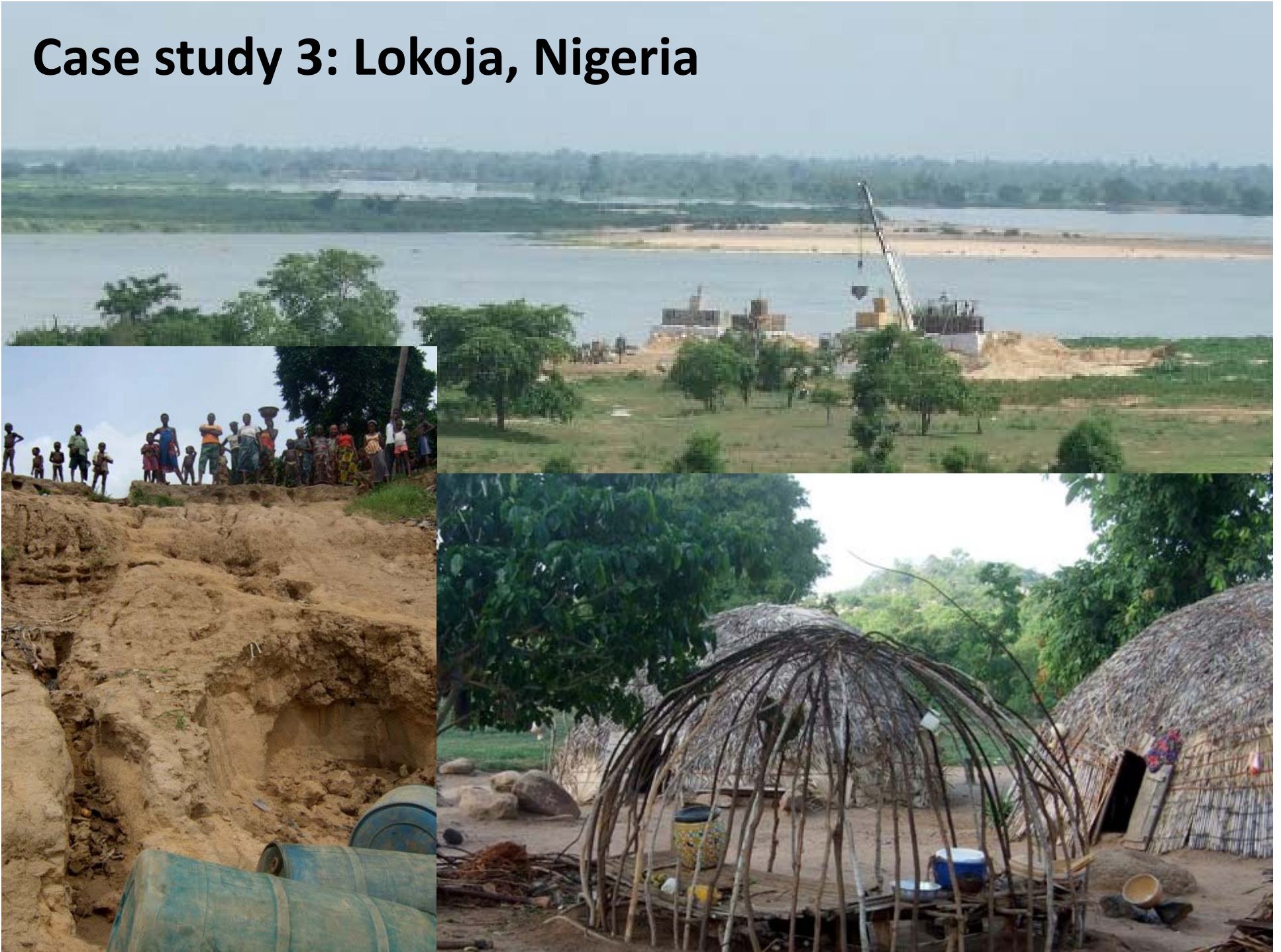
Case study 2: Ségou, Mali



Ségou case study

- Farmers and pastoralists note changes in rainfall seasons and negative impacts on their livelihoods
- Sedimentation of the river is blamed for fish catch reductions, prompting changing livelihoods
- Competition for access to grazing land and water between farmers and pastoralists due to agricultural expansion
- Conflict resolutions strategies are no longer working well
- New irrigated sugarcane project will have a large impact on communities – and is a cause of uncertainty, tensions and concern

Case study 3: Lokoja, Nigeria



Lokoja case study

- Changes in rainfall, extreme rainfall events and flooding had negative impact on livelihoods
- Communities have conflict resolution mechanisms and adaptation strategies but these differ between communities and some are limited by lack of access to resources
- Poor information flow between government and communities can limit responses to stresses
- Communities expectations of government assistance are not being met

Findings on environment-climate stresses

- Extreme events and changes in the seasons cause stress to livelihoods
- There is a gender dimension to impacts on communities due to livelihood roles and social roles.
- Changes in the river and the basin have complex causes and links between degradation and climate are questioned.
- Future climate conditions are highly uncertain

Findings on climate conflict linkages

- Links between climate and conflict are complex and contested
- Climate stresses in combination with other social and political dynamics can lead to latent or manifest conflict
- Frustration and distrust of government due to unmet expectations of emergency response.
- Large scale water resource developments can cause conflicts of interest and distrust between the most vulnerable and the State and exacerbate existing conflicts.

Findings on responses

- Community conflict resolution and coping mechanisms exist but are often insufficient to avoid losses.
- Social networks, changes to livelihoods and conflict resolution mechanisms provide some resilience
- Gender dimensions to responses.
- Early warning and emergency responses are limited
- Information on developments is often incomplete.
- Participatory dam management committees have a role in adaptation to potential increase in flood risk in the future with climate change

Findings on Governance

- Local formal and informal institutions at community level are more trusted than formal state institutions
- Limited effectiveness of early warning and disaster response activities
- Communities vary in their confidence and ability to engage with government
- Poor engagement of state institutions with communities hinders information exchange and program effectiveness

Conclusions

- Extreme events, competition over access to land and water and contested water management may be exacerbated by climate change and have potential for conflict
- Future climate is highly uncertain therefore development and adaptation policies must be flexible to cope with extreme variability: both wetter and drier conditions
- To avoid conflict, adaptation responses must adopt fair processes and outcomes that do not disadvantage the most vulnerable.