A dam by a thousand canals - Modelling Regime Shifts in the Logone (MORSL)

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Drivers and Synergies

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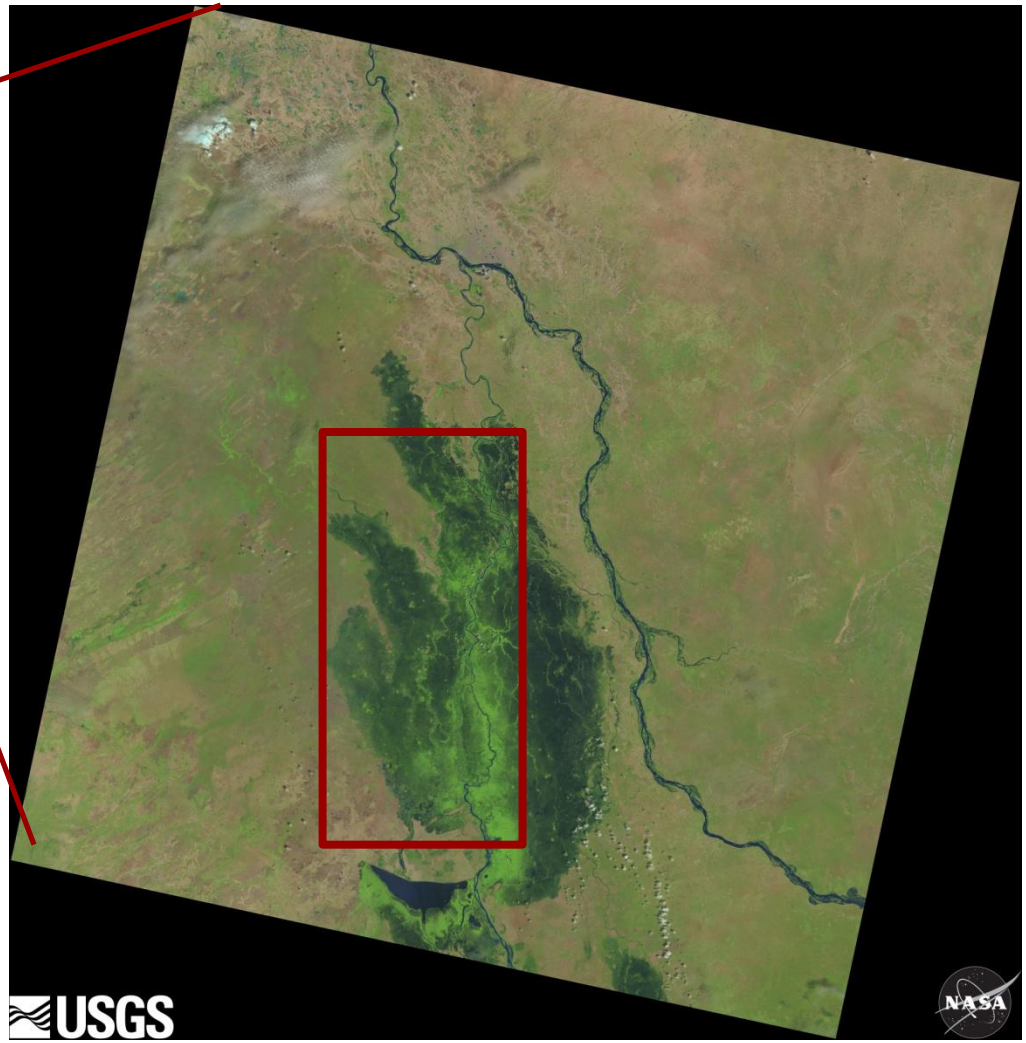
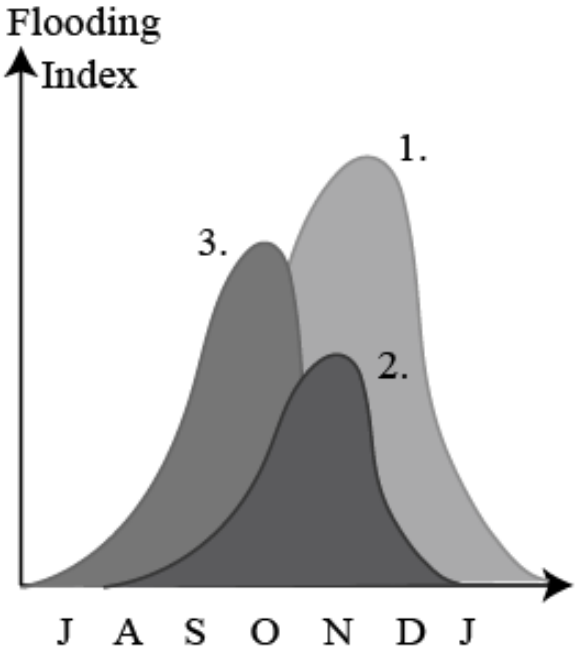
Logone floodplain



Flooding history

1. 1977 (Benech 1982)
2. 1993 (Sighomnou 1997)
3. 2014 (Nasa 2014)



1. Natural (pre 1979)
2. Maga dam (1979 - 1994)
3. Reflooding scheme (1994 –)

Floodplain productivity

- Floodplain productivity is extremely high in the wet season which is contrasted against the conditions during the dry season.

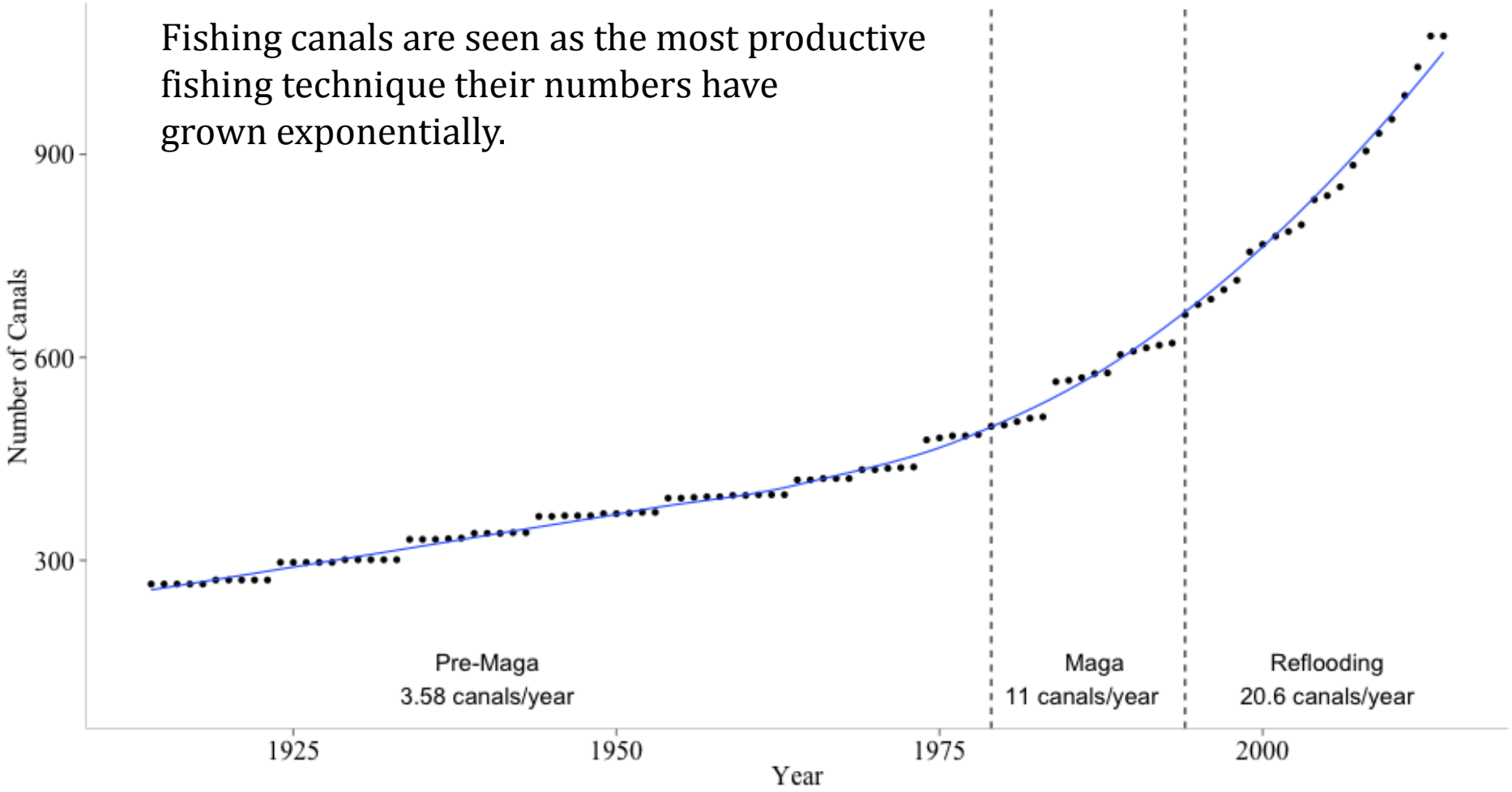
- The periodicity and the large differences between the seasons is an important factor to understand drivers of fisher decisions.

Canals

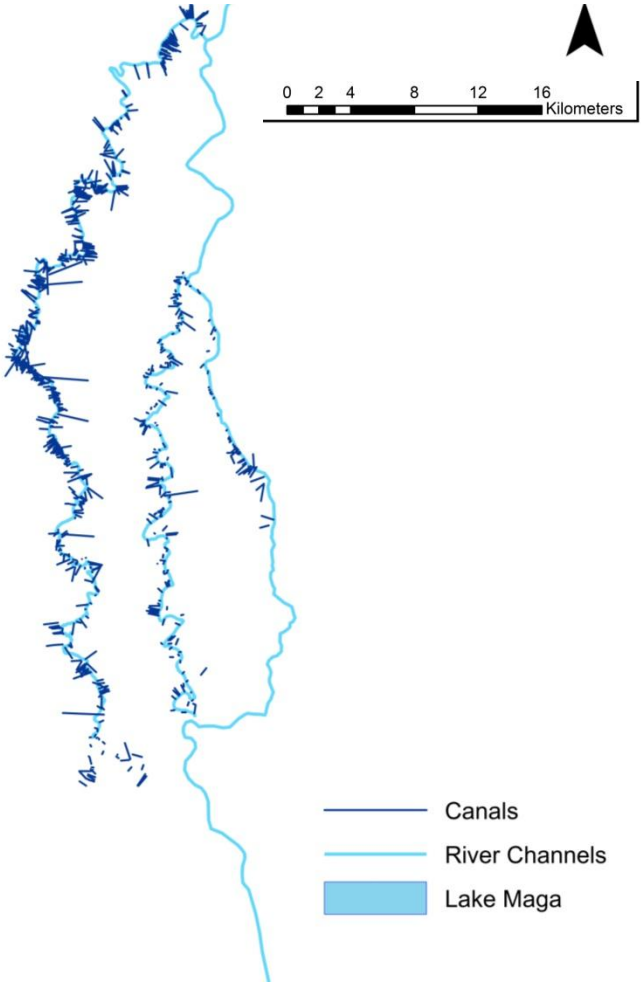
Fishing canals are dug by fishers during the dry season and towards the end of the flood recession, structures at the mouth of the canal trap fish (i) and funnel them into the net (ii).
The technique is highlyeffective and non - specific in the fish they catch. Over 400kg of fish can be caught in a period of 24 hours (iii).

Canal growth

Fishing canals are seen as the most productive fishing technique their numbers have grown exponentially.



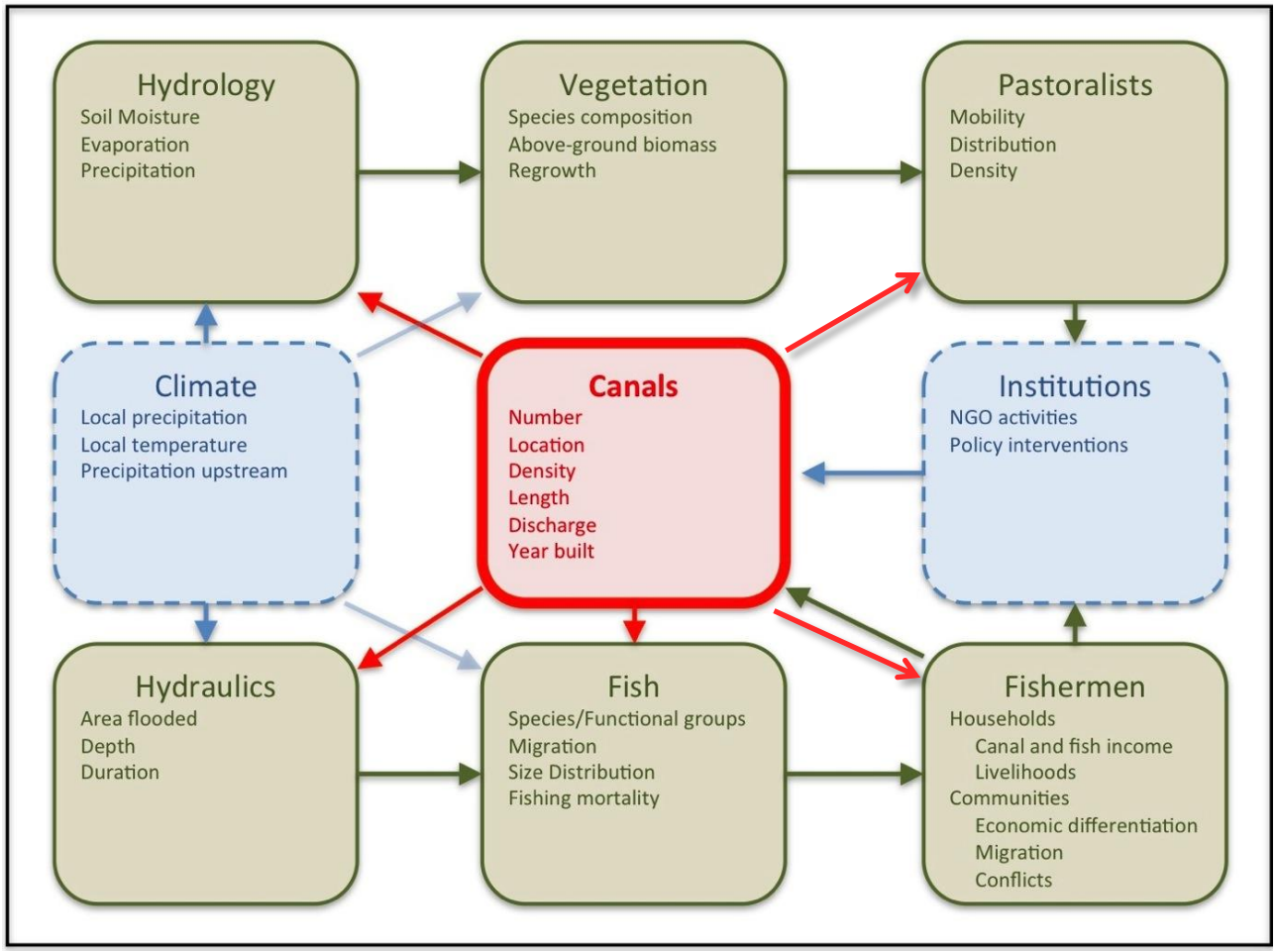
Canal distribution



- Canals are significant features that can span several metres in depth and width and be over a kilometer long.

-Their spatial distribution is not confined to a specific area.

Canal effects



Canals potentially impact all sectors of the Coupled Human and Natural System (CHANs); our project looks at defining these linkages and their associated resulting impacts.

Impacts are cross-sectorial and also potentially compromise fish stocks.

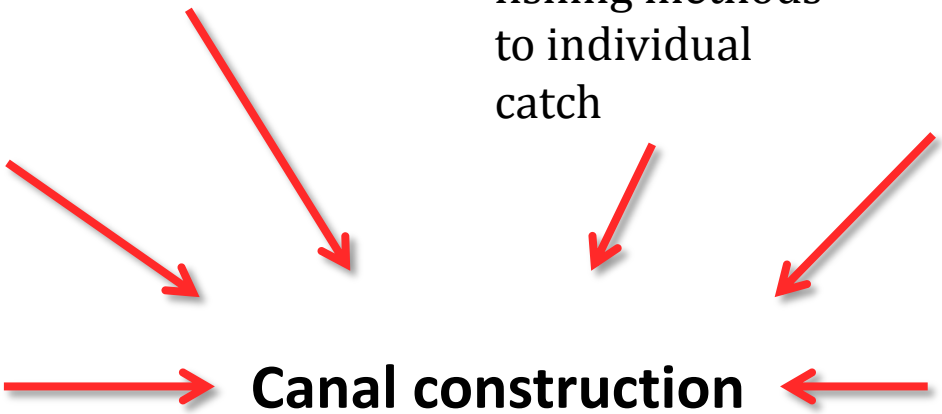
Drivers

Environment
- Disparity in seasonal productivity means that fishers look to maximise wet season harvest

Growth
- Increase in population numbers

Resource demand
- Movement away from non-communal fishing methods to individual catch

Social status
- Canals are seen as a premium commodity and canal owners can support a larger family



Canal construction

Lack of alternatives
- Canal catch is the greatest per capita technique

'Social contagion'
- People want canals because they can see their productivity

Synergies

Mitigate canal impacts

Physical environment
- Modify current practices that maintain high productivity but minimise floodwater drainage (e.g. alternative drainage regimes)

Synergies with pastoralists
- Identify potential synergies between allochthonous inputs from pastoralists (i.e. cattle dung) and fish production

Maga dam water release
- Work with Maga dam management to create a flow regime within the river channel network that reduces canal impacts on floodplain drainage

Information dissemination
- Utilise the same network that spread canals as the premium fishing technique to implement any synergestic or impact mitigation ideas.

A rapidly changing context

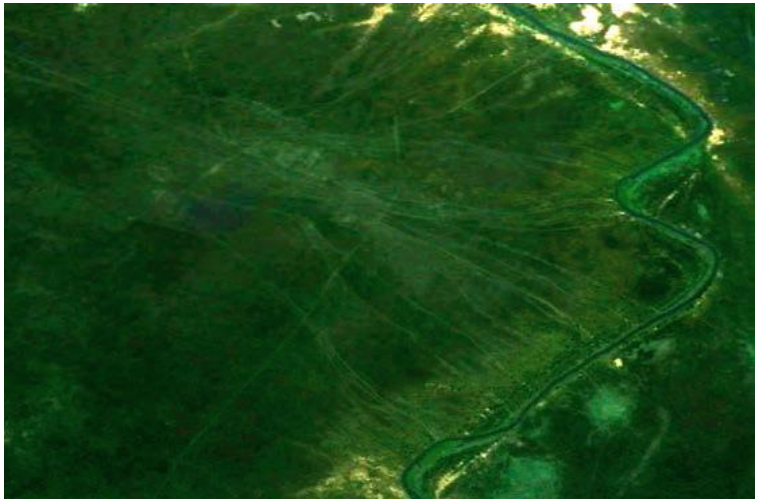
- Environmental change
  - Shrinking Lake Chad
  - Climate change
  - Logone flood management along the Chadian bank
- Economic change
  - Oil exploration on the floodplain
- Social change
  - Social instability (i.e. Boko Haram) affecting economic and social drivers for local communities

Canals = dam?

One large disturbance or …

Maga Dam

an accumulation of small changes



A thousand canals

Pictures Google Earth

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2014 Profile Picture Winner
Anthropology and Environment Society
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