Linking floods, ecosystem services and user strategies to explore scenarios for the future of the Tana Delta, Kenya

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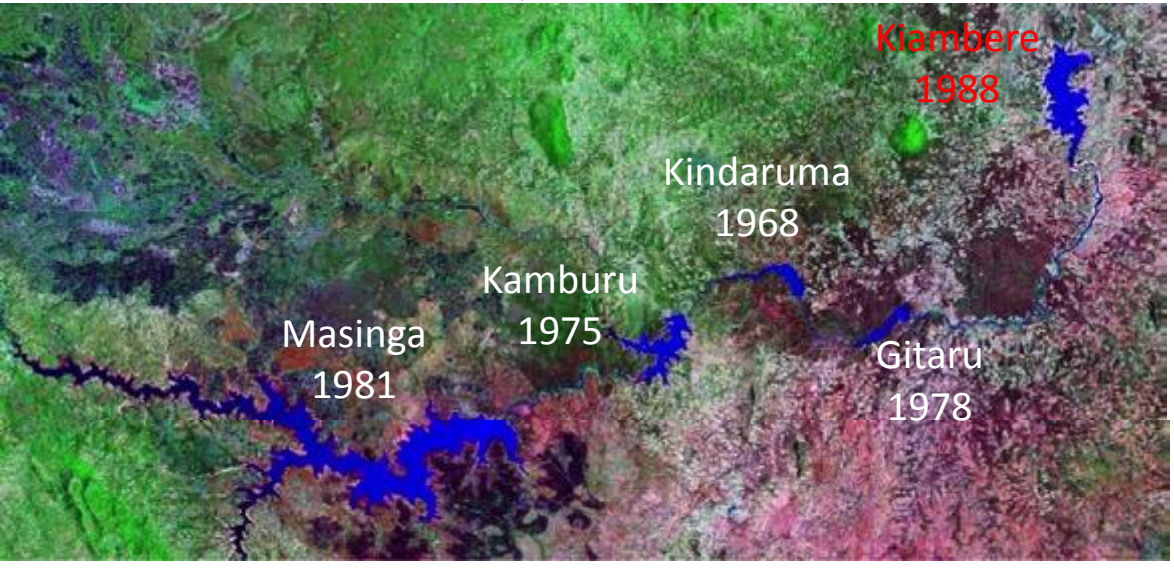
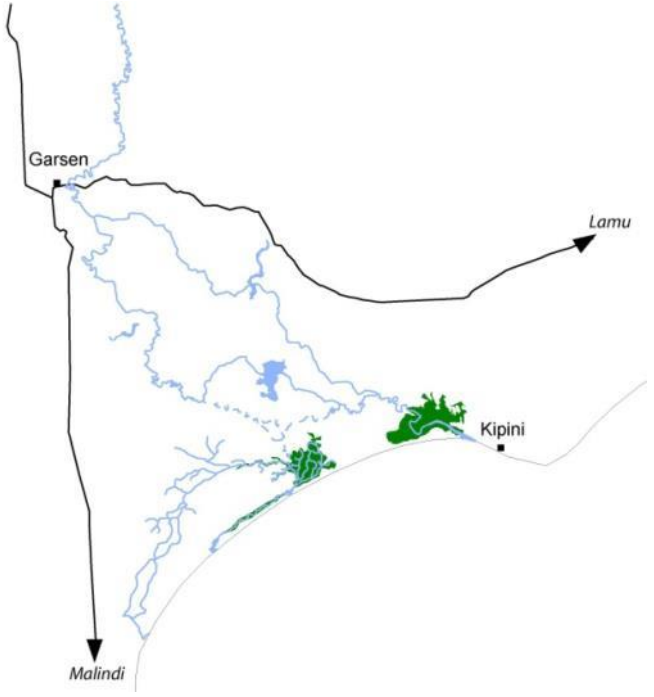
NATIONAL MUSEUMS OF KENYA

Tana River Basin

- main river in Kenya but small: only 100 m^3/s at Garsen
- 5 hydropower dams built in the 1970s and 1980s provide 50% of Kenya's power
- dams halved average flooded surface area (the engine in the system) while the Delta population has doubled to 200,000
- new 2 G$US dam, capable of storing 2 yrs of flow, is planned at High Grand Falls





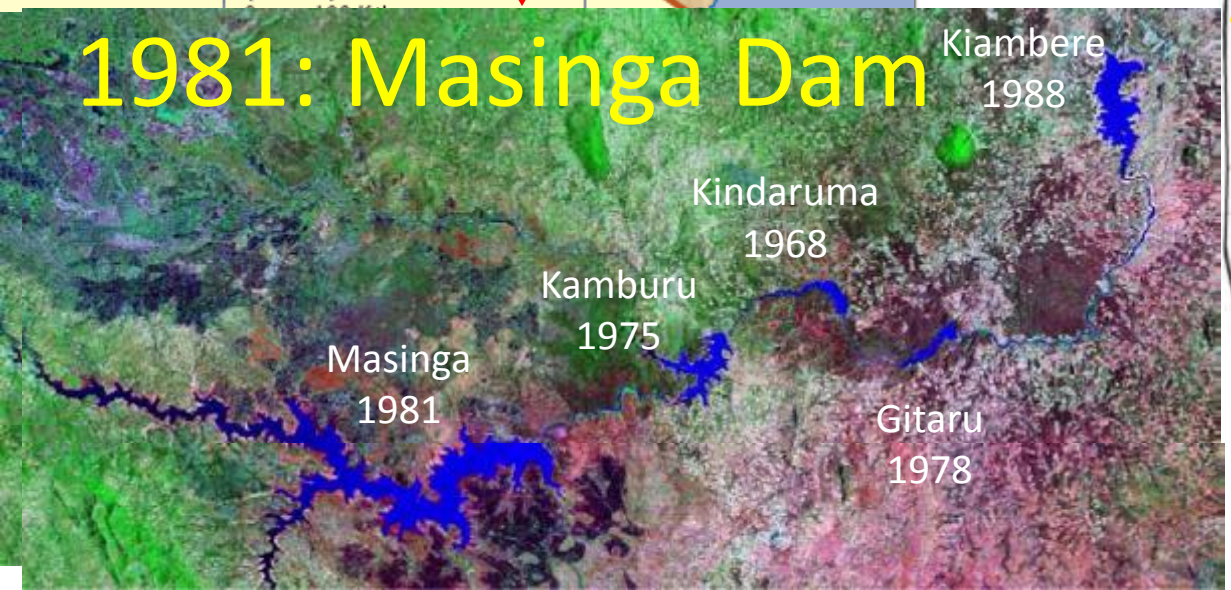
Mosaic of Coastal Deltaic & Floodplain Ecosystems

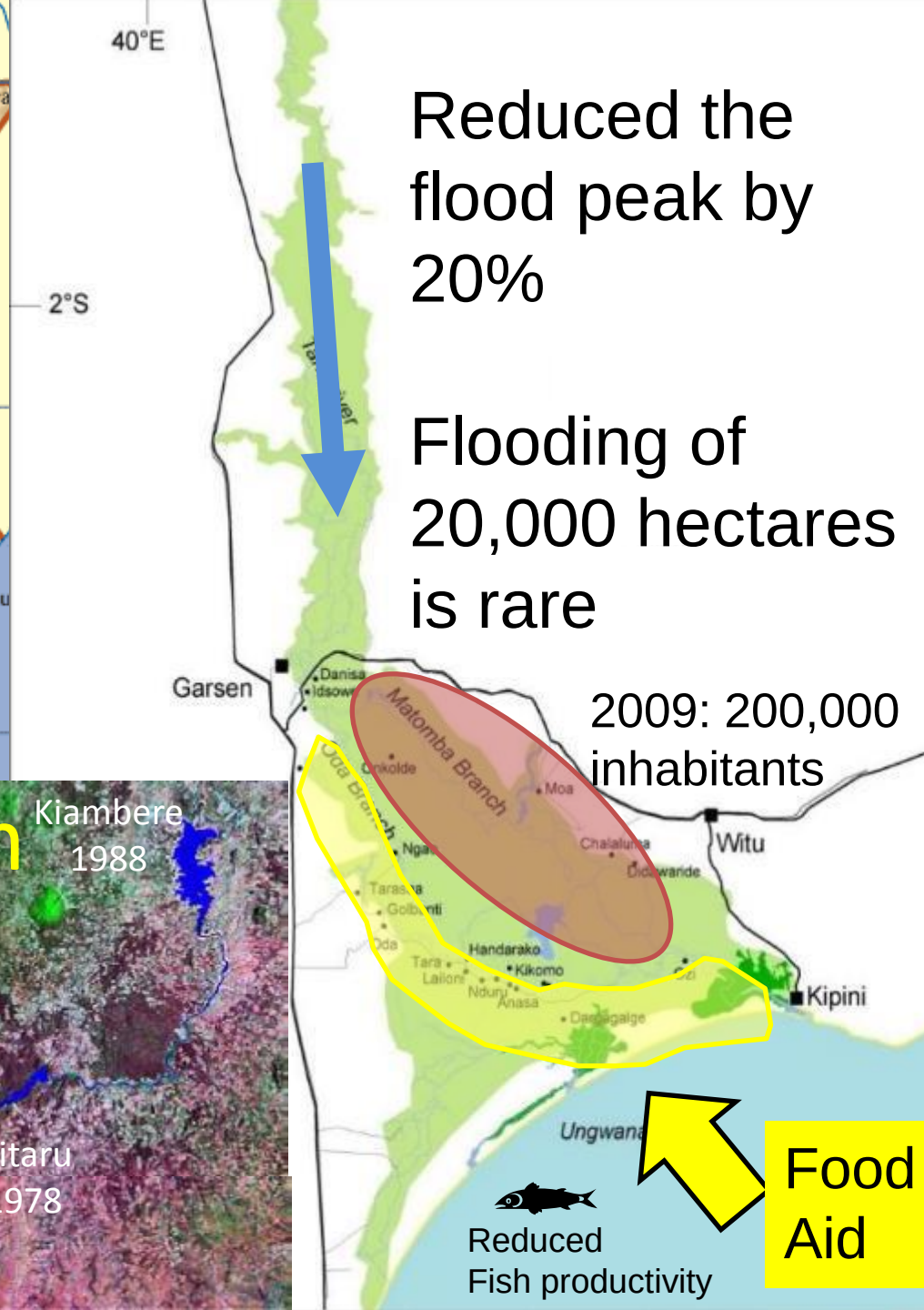
- Flood-dependent ecosystems: no flood = no production
- High Biodiversity: 2 endangered primate taxa, > 700 plant species of which > dozen threatened trees, other groups not sufficiently studied, indications of Congo forest affiliation
- High numbers of breeding & migratory birds (when flooded)

The high productivity sustains a range of traditional activities

Recession agriculture	Forest use woody & non-woody	Fisheries	Livestock keeping
			
Pokomo	Pokomo Wataa	Luo, Pokomo, Orma, Wataa	Orma, Wardei, Somali


34° E
38° E
ETHIOPIA
Lokitaung
Great Rift Valley
Lake Turkana (Lake Rudolf)
Chalbi Desert
Mandera
Moyale
Lodwar
UGANDA
Turkwel
Kerio
Mt. Kulal 7,522 ft. (2,293 m)
Marsabit
Mt. Elgon 14,177 ft. (4,321 m)
Lake Kyoga
Wajir
Maralal
Kitale
Mt. Kenya 17,057 ft. (5,199 m)
Meru National Park
Eldoret
Kakamega
Nanyuki
Nakuru
Meru
Kisumu
Nyeri
Embu
Garissa
Lake Victoria
Kissii
Mara
Narok
Thika
Tana
Kitui
Nairobi
Hola
Masai Mara Reserve
Lake Natron
Machakos
Garsen
Tsavo National Park
Lamu
Namanga
Amboseli National Park
Ungama Bay
TANZANIA
Kilimanjaro 19,340 ft. (5,895 m)
Voi
Galana
Malindi
Taveta
Kilifi
Mombasa
Kwale
0
100 Miles


1981: Masinga Dam
Kiambere 1988
Kindaruma 1968
Kamburu 1975
Masinga 1981
Gitaru 1978

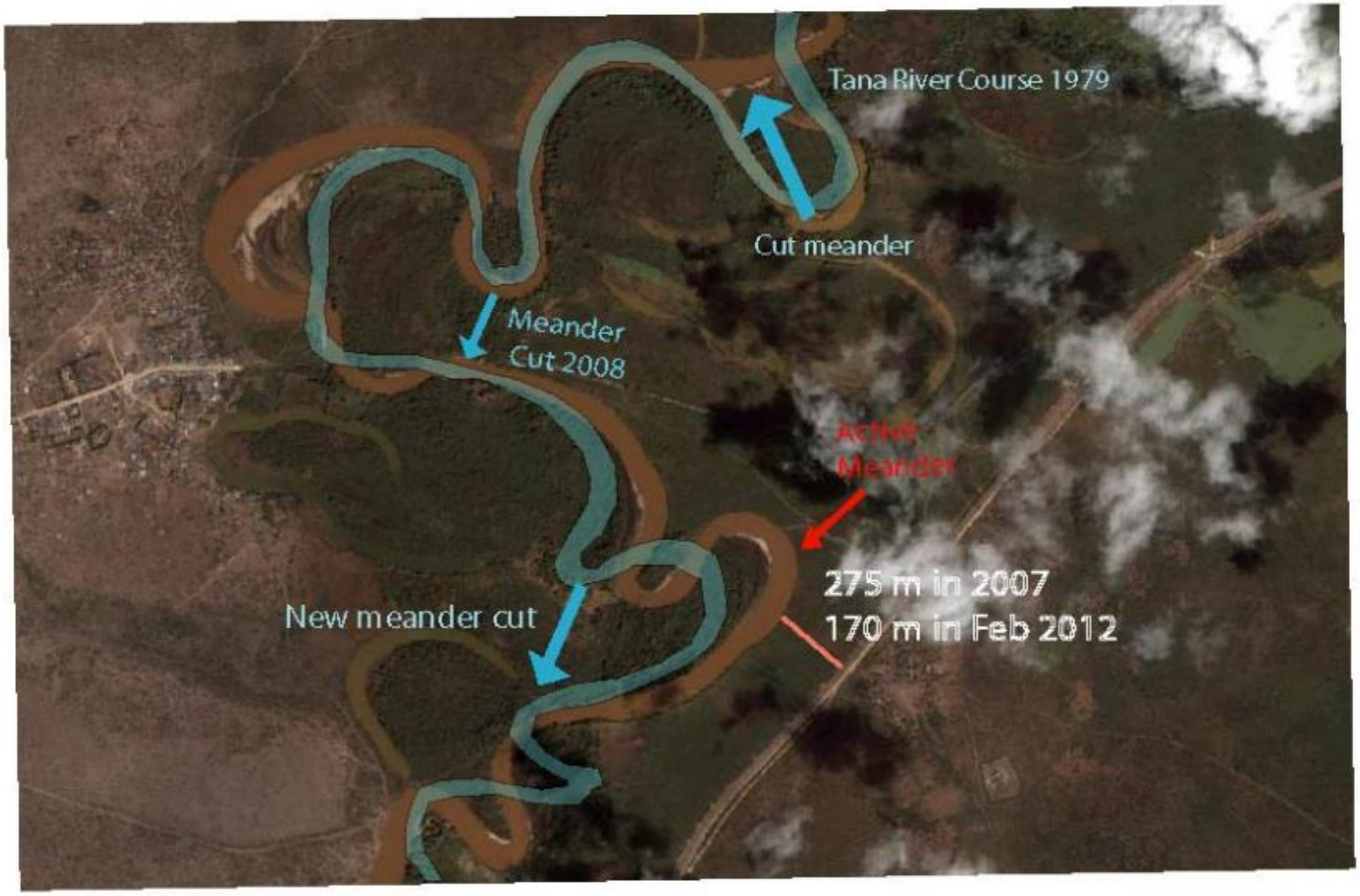

40°E
2°S
Reduced the flood peak by 20%
Flooding of 20,000 hectares is rare
Garsen
Danisa
Idsowe
Malomba Branch
Witu
Moa
Kipini
Handarako
Kikomo
Ungwana
2009: 200,000 inhabitants
Food Aid
Reduced Fish productivity

Flood-dependent ecosystems

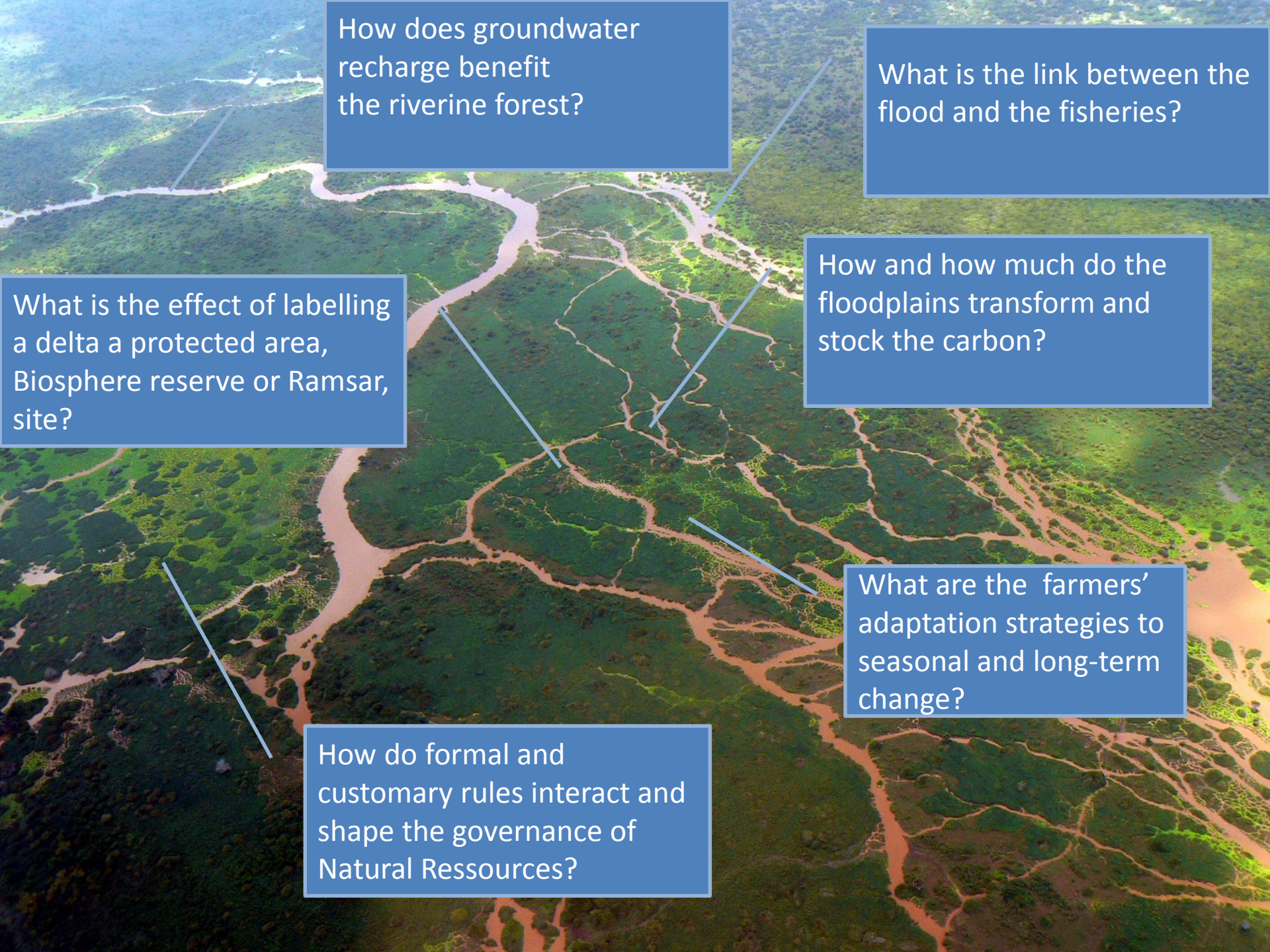
Threats and competition

Coastal Erosion

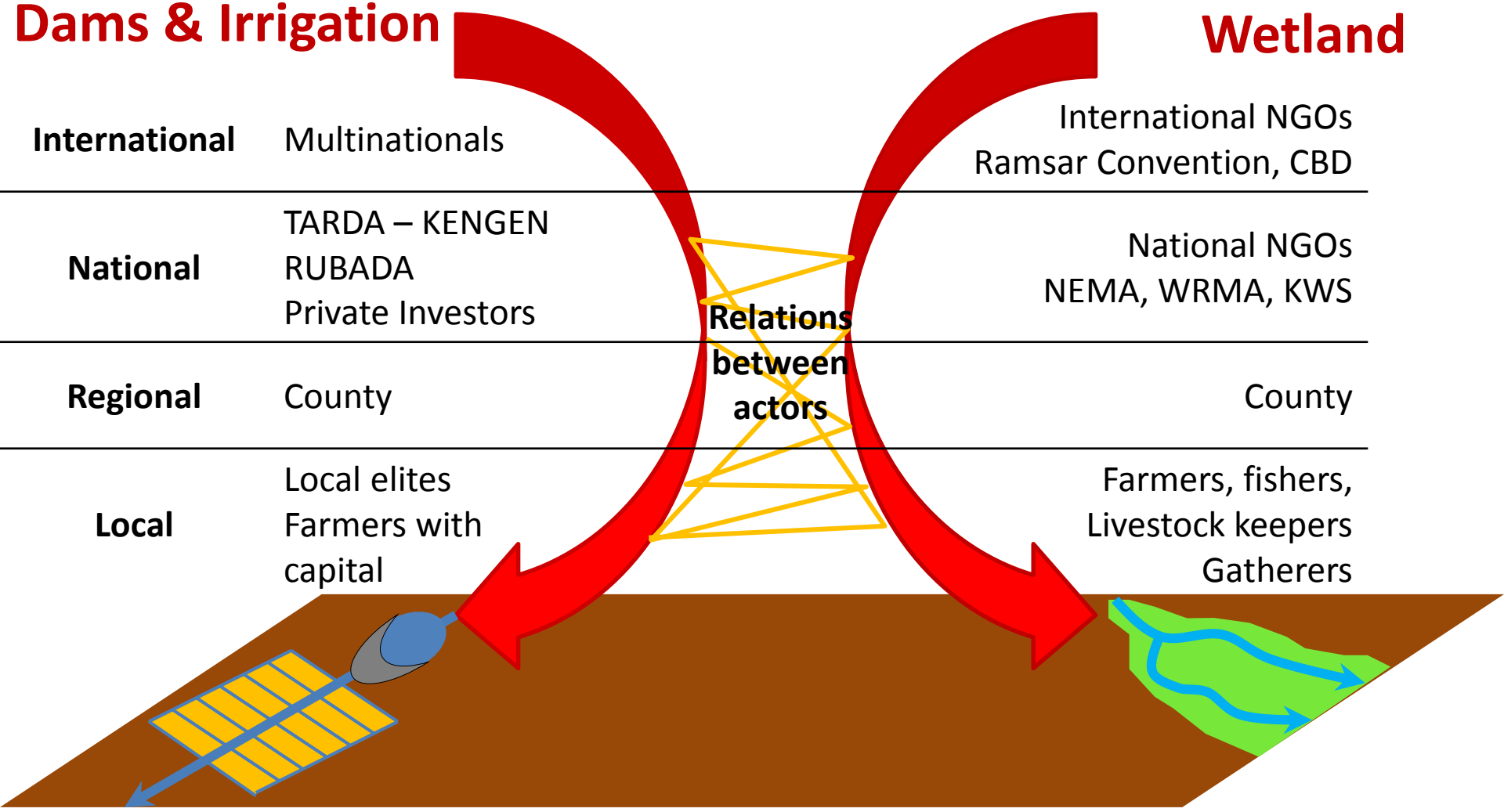
Altering river flow




The Ocean water intrusion


How does groundwater recharge benefit the riverine forest?
What is the link between the flood and the fisheries?
How and how much do the floodplains transform and stock the carbon?
What is the effect of labelling a delta a protected area, Biosphere reserve or Ramsar, site?
What are the farmers' adaptation strategies to seasonal and long-term change?
How do formal and customary rules interact and shape the governance of Natural Ressources?

Incompatible visions



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

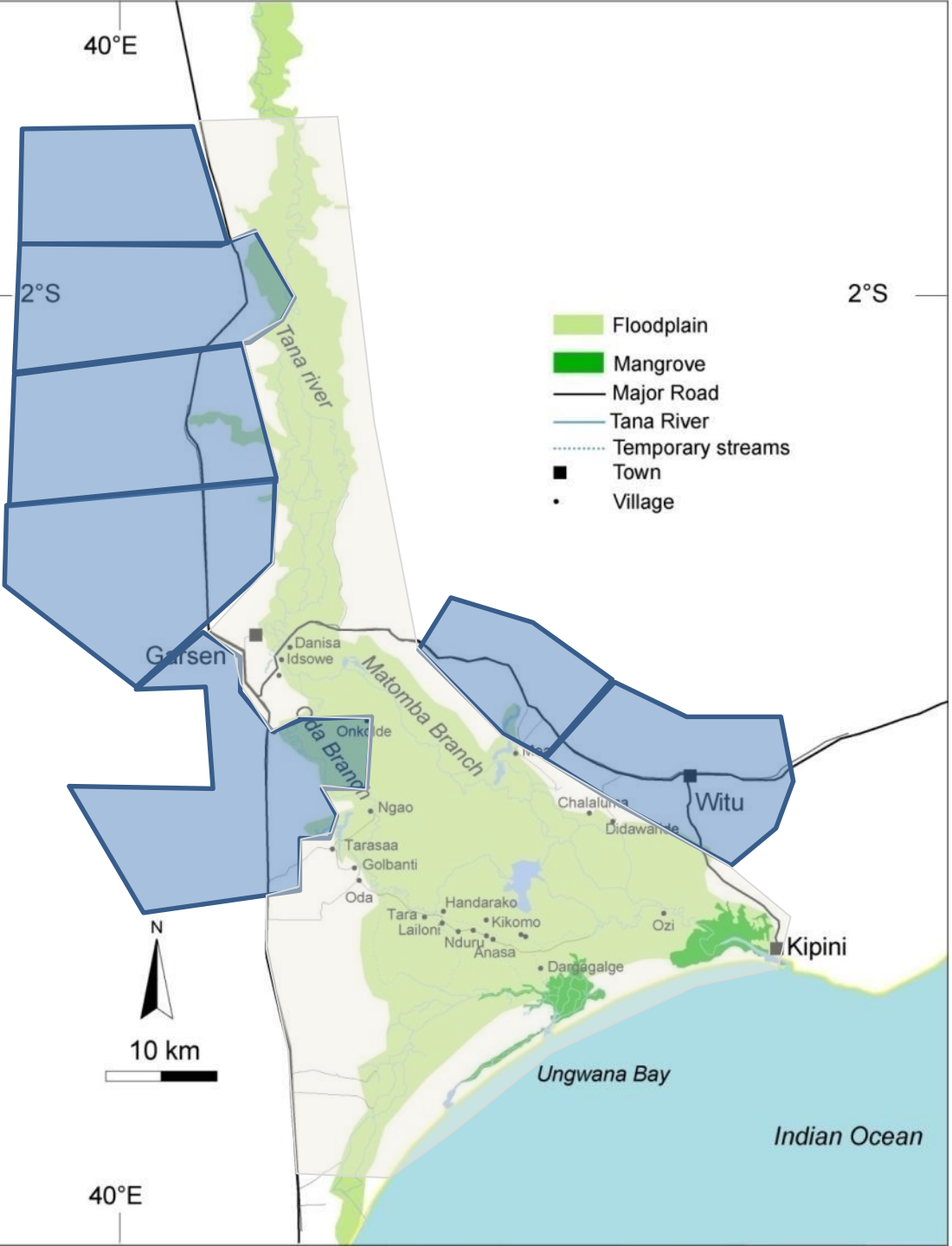
Blood and tears as 48 villagers killed

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

Militias for political supremacy

Over 200 people killed,
mainly women and children

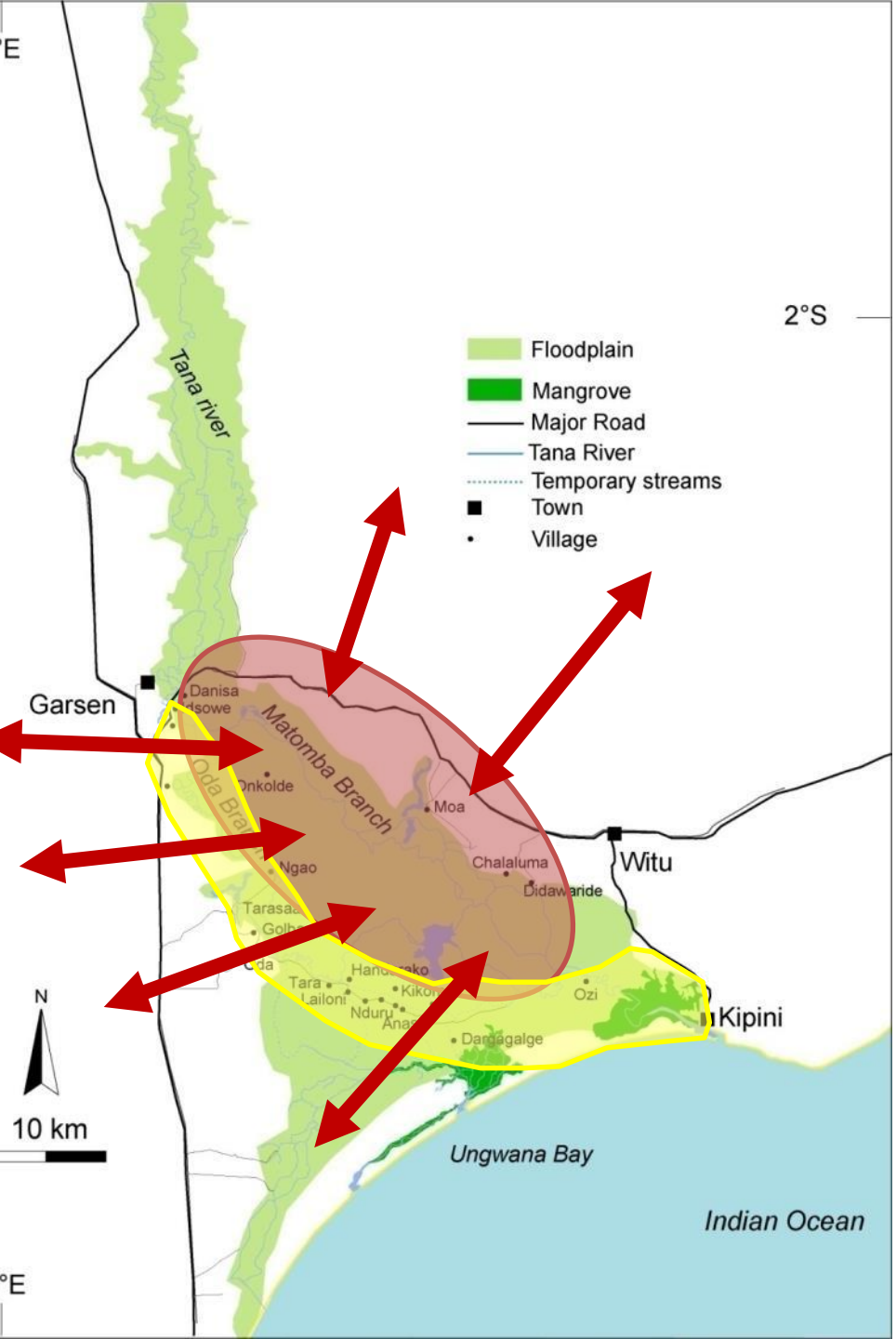


Official Land Status

- Independence :
  delta = government land
  + small trust land (council)

contrast with most of semi-arid Kenya: trust land

- 1970s creation of ranches : World Bank take out development loans with land as collateral (failed)
- Pastoral territory cut into blocks not adapted to mobile livestock keeping

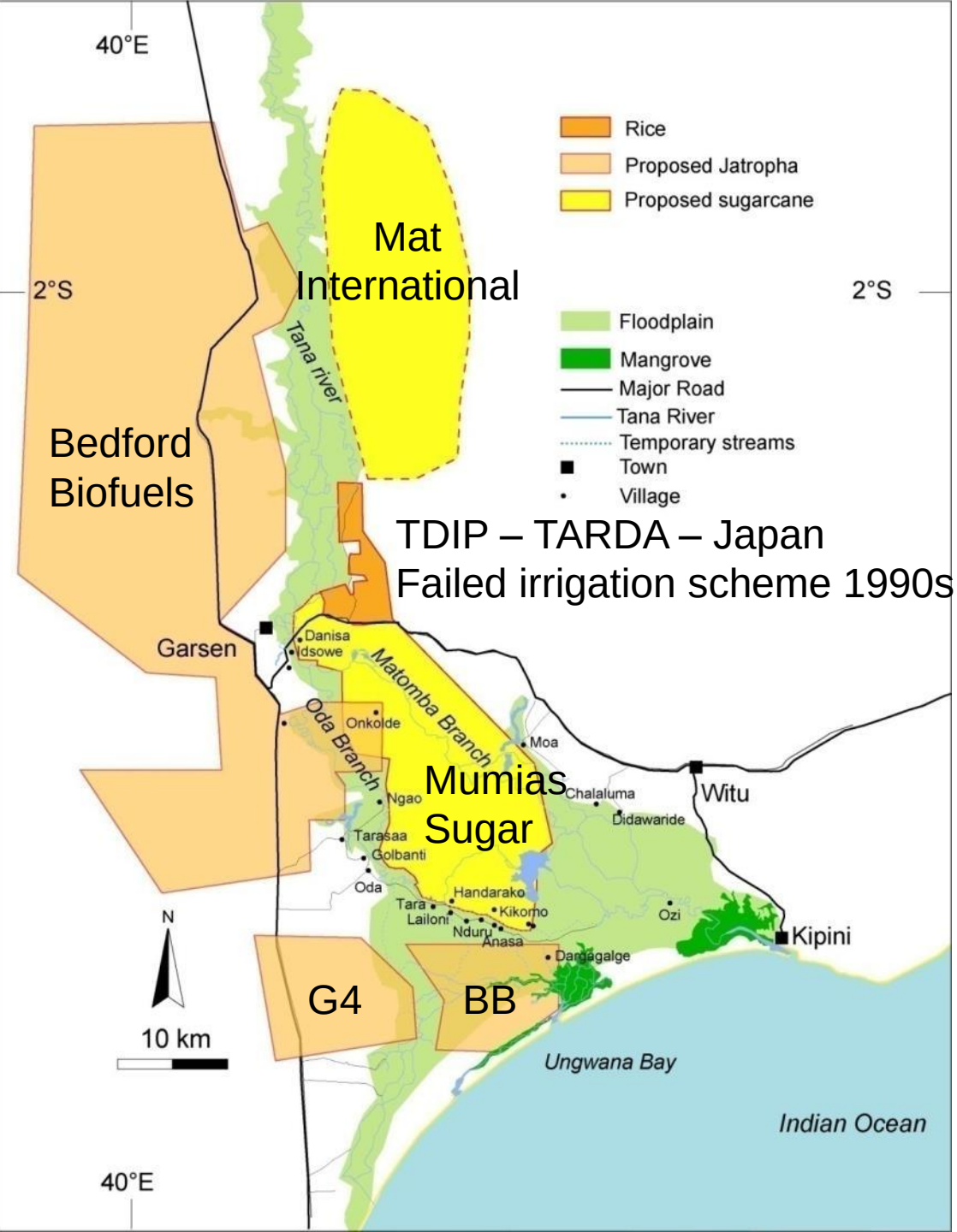


Customary rights of Orma and Pokomo

- Centuries old « Malka » agreements on the sharing of the floodplain and passage of livestock (dry season grazing)

Oda branch (West) Pokomo
Matomba branch (East) Orma

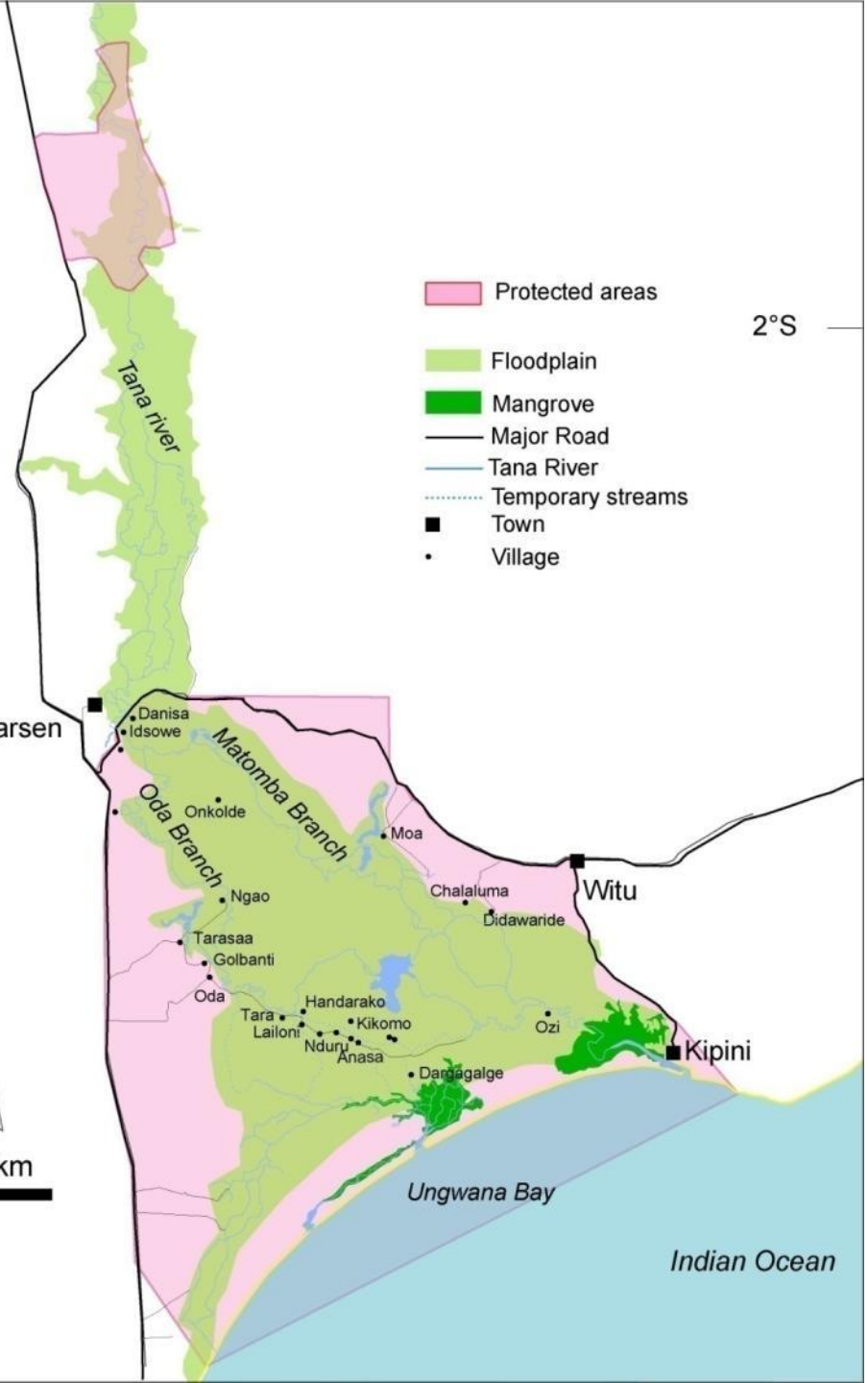
- Solidarity in periods of drought, conflicts resolved by council of elders
- Western branch dried out since 1998 El Nino, increased tension, 2012 there was a big flood but no rain so cows came back early



Boom of large-scale biofuel projects since 2008

- ranches leased for 45 years to private companies, minimal fee unless highly successful and only after lag period
- Government land allocated to TARDA – irrigation schemes have not been successful
- Then the boom of biofuels came about – and is suddenly now been stopped

Ramsar site listing in September 2012



- First official recognition of its natural & cultural heritage
- Listing facilitated and promoted by a wide consortium of organisations (incl. Kenweb)

- The Delta now requires a management plan:

- thus requires funding
- requires a coordination
- the use of accurate data from science
- requires full participation by the community

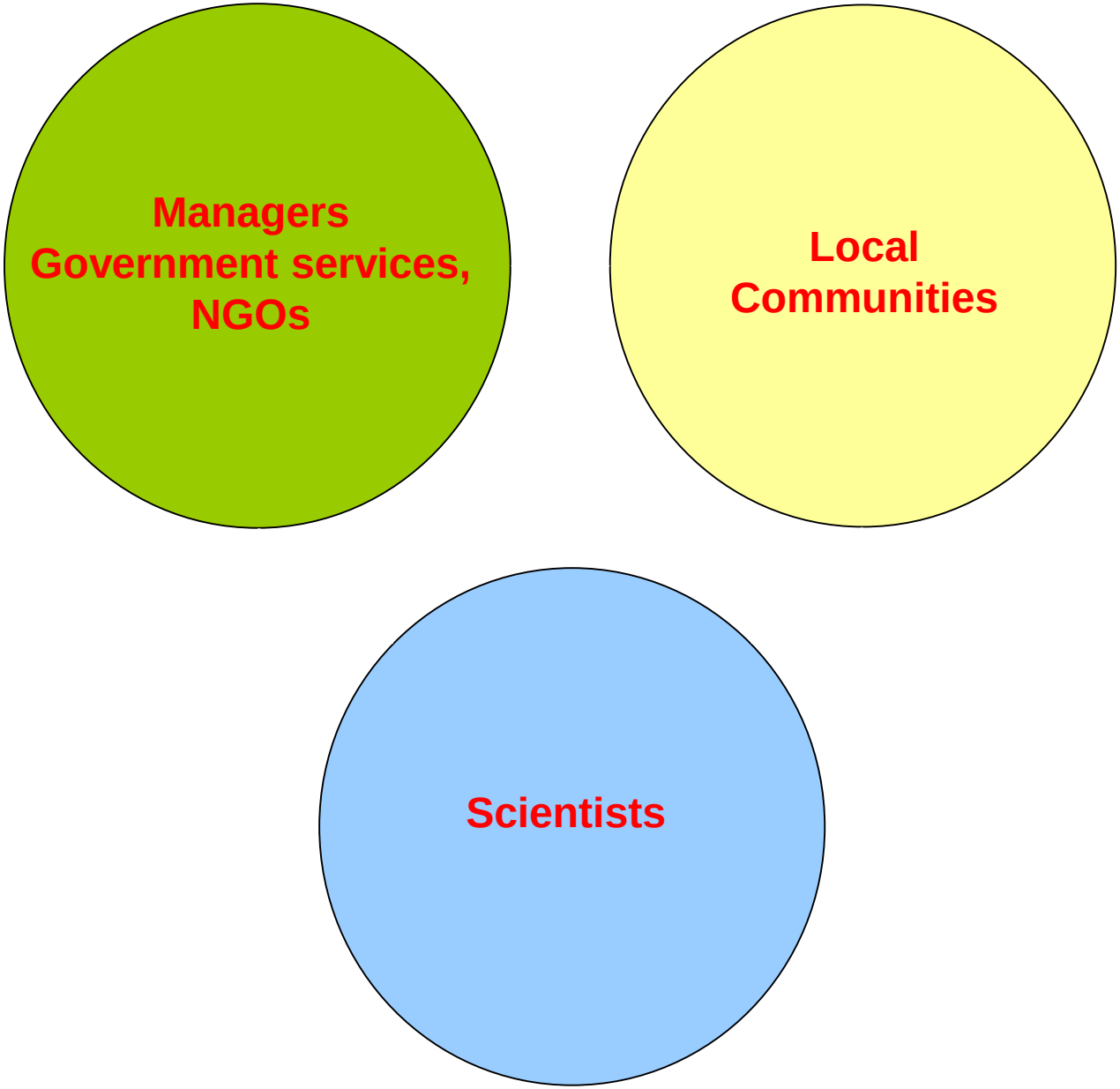
How to involve AND empower the local communities?

Co-management of natural resources with the local communities

Following a few key principles of co-management :

- Develop trust
- Take into account the diversity of interests within the communities
- Initiate a flexible interative negotiation process (involves compromises, re-elaboration, consensus building)
- Build on customary and local organisations

Sharing lessons learned with populations and decisions-makers



Develop participatory research

Participatory mapping

Local observers network (hydrology, rainfall, fisheries, food, agriculture)

Feedback workshop

Research master plan

Long-term studies and data to improve quality of impact assessments