



The Nexus of Dam Construction, Oil Exploration, and Resource Use Conflicts: Vulnerability of Fishing Communities in Lake Turkana, Kenya

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Presentation Outline

1. Introduction: Major Frontier Transformations
2. Major Development Projects Vs. Biodiversity Hotspot
3. Objectives, Research Question and Hypothesis
4. Methodology
5. Results and Discussions
6. Recommendations/Policy Implications

Frontier Transformations in Northern Kenya and Southern Ethiopia

- African approaches to development have shifted, particularly in north-eastern Africa “African Rising”.
- Donor-driven policies has given way to state-led development ‘visions’ and plans with a focus to large-scale infrastructural projects: Kenya’s Vision 2030 and Ethiopia’s GTP I & II (Mosley and Watson, 2016).
- Aim of projects is to: (1) ‘open up’ marginalised frontier areas (2) tackle persistent poverty; and (3) tap unexplored resources as “engines of growth”.

Major Development Projects

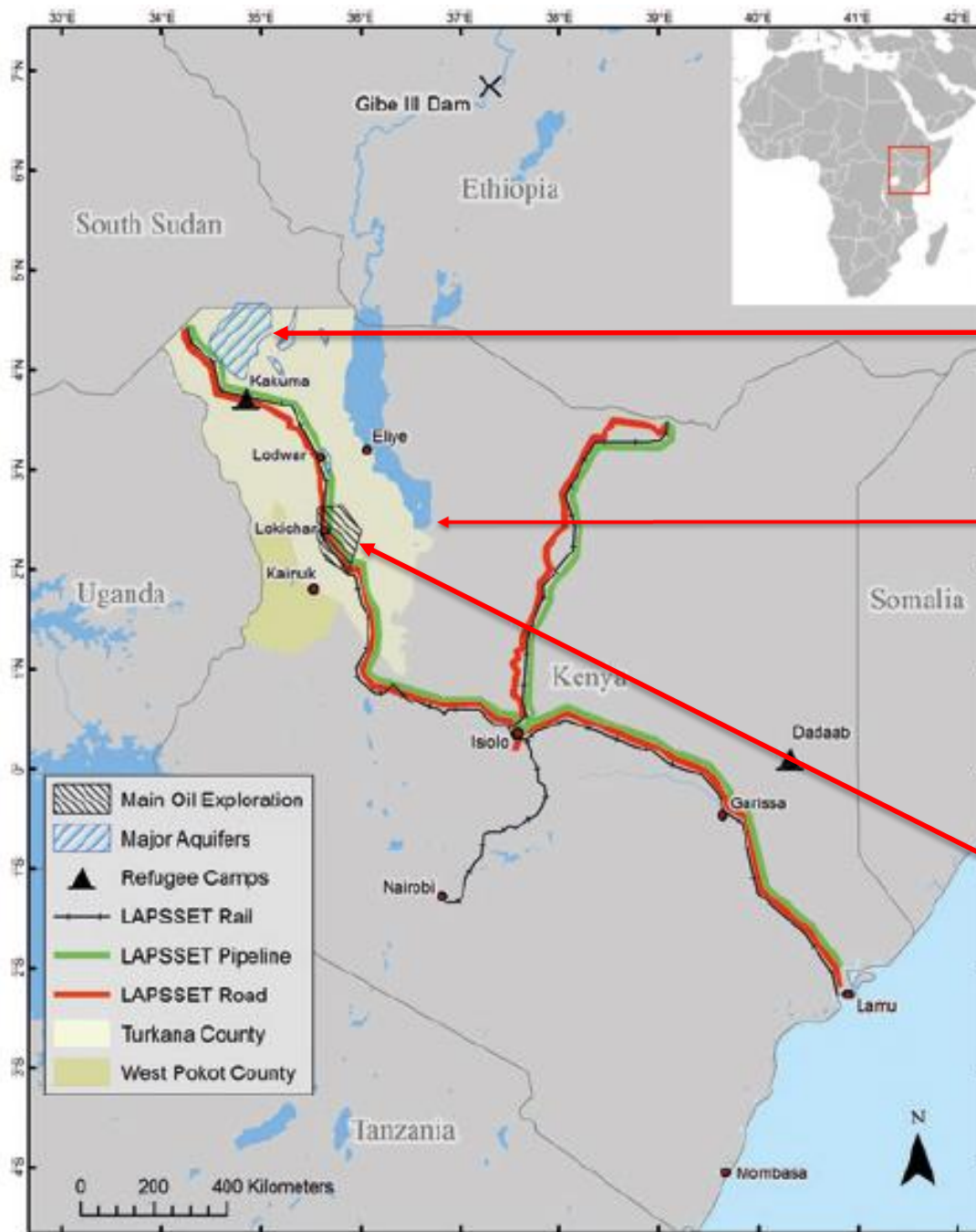


Gibe III dams: 1,870 MW
(Filling in February 2015)

Large scale irrigation
plantations (175,000 Ha
planned; 13,000 cleared by
mid-2016)

Lamu Port South Sudan
Ethiopia Transport
(LAPSSET) Corridor

Overlying map: Mosley &
Watson, 2016



Aquifer discovery (1.2 billion cubic meters annually, RTI, 2015)

Lake Turkana Wind Power Project, largest wind power project in Africa. Area \approx 400,000 Ha

Oil discovery and exploration (Turkana basin contains > 600 million barrels of oil (Tulloch, 2014))

Overlying map: Schilling *et al.*, 2016

Lake Turkana Basin - Biodiversity Hotspot

- Turkana region is the “Cradle of Mankind”, but is the least studied of the African Great Lakes;
- Lake Turkana National Parks (World Heritage Site in 1997)
- The Omo-Turkana basin hosts at least 79 valid native fish species referable to **44 genera, 22 families and 9 orders** (Wakjira & Getahun, 2017);
- Lake Turkana supports over 350 native and migratory bird species “Important Birdlife Area” (UNESCO, 2014);
- The lake and river host the world’s largest remaining population of Nile crocodile (*Crocodylus niloticus*) (UNESCO, 2014);
- There are also four species of endemic reptiles in the region, including 3 species of frogs (*Bufo chappuisi*, *B. turkanae*, and *Phrynobatrachus zavattari*) and the endemic Turkana mud turtle (*Pelusios broadleyi*, vulnerable) (Ojwang *et al.*, 2016).

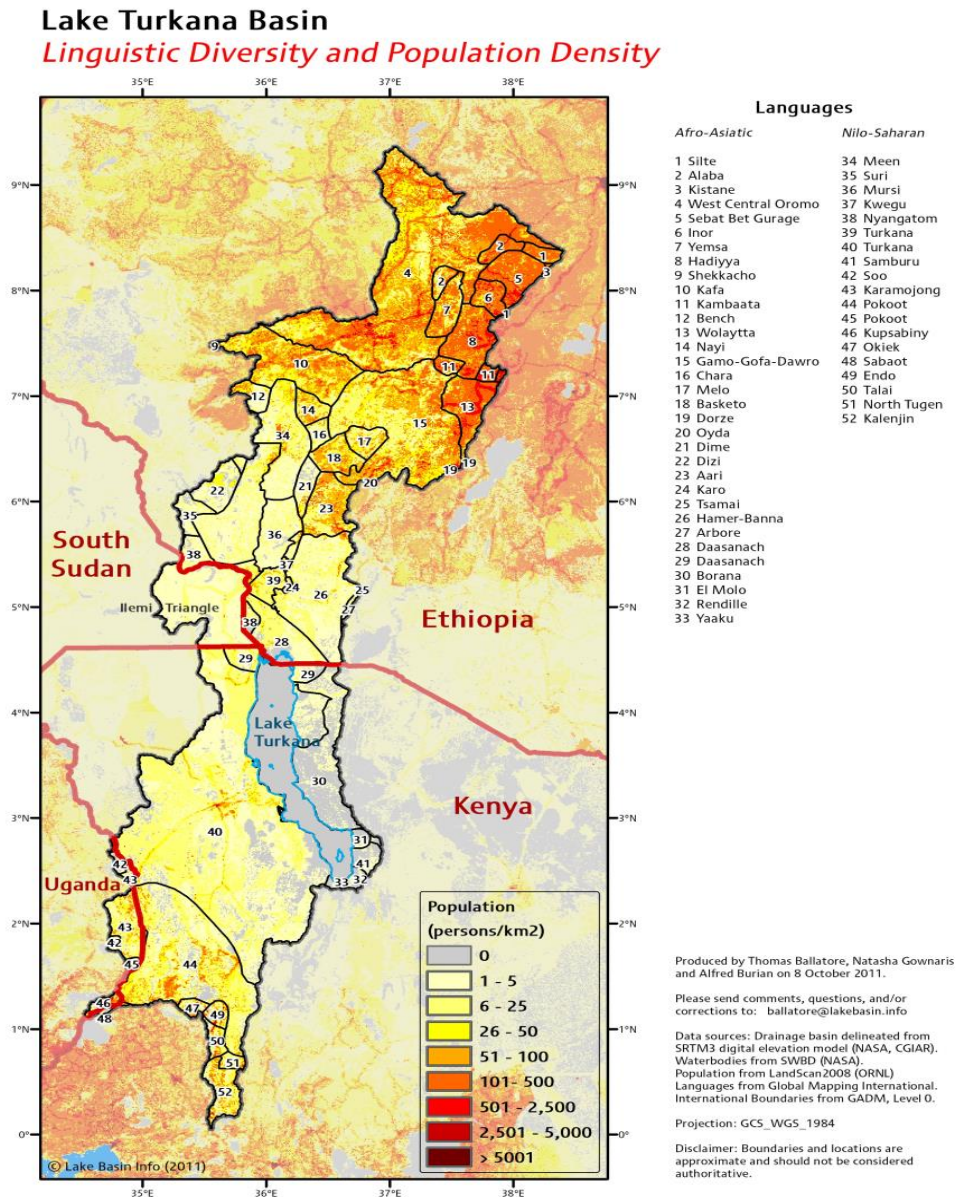
Cultural Diversity

Turkana basin, ken supports the livelihoods of > 300,000 people who are traditionally pastoralists (UNEP, 2008)

Major Groups:

- Turkana
- Borana
- Daasanach
- Samburu
- Rendile
- **El-molo** (traditionally fisheries depended ethnic group; **200** purebred people)

Source: Ballatore, Gownaris and Burian 2011)



Objective / Research Question

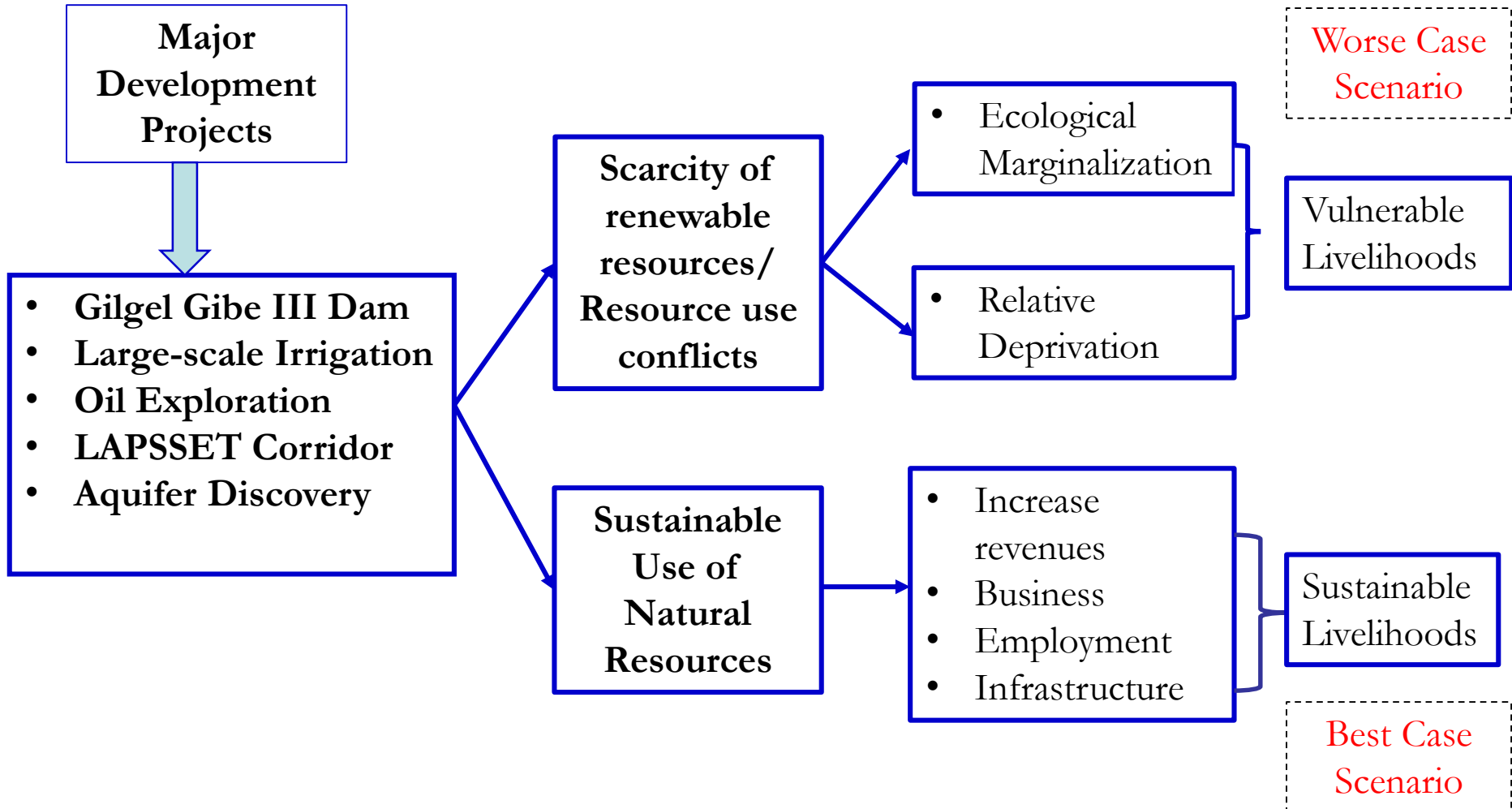
- (1) Explore the socioeconomic impacts of development projects on Lake Turkana fisheries and communities,
- (2) Propose management measures to ensure sustainable livelihoods of fisheries dependent communities.

Research Question

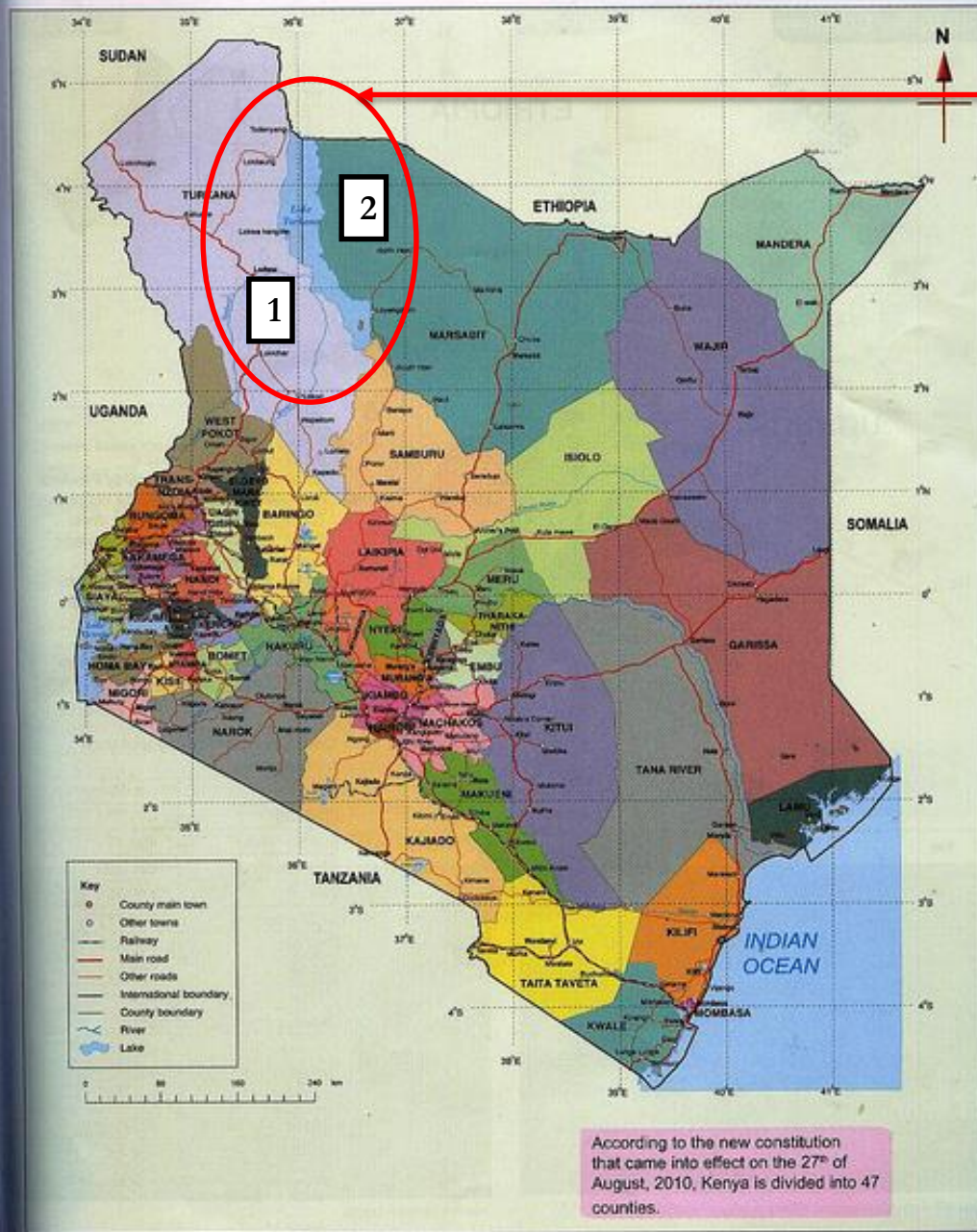
How does large-scale development projects / plans impact the livelihoods of people they are ostensibly designed to support in the Lake Turkana basin, Kenya?

Hypothesis Showing Causal Mechanism

Major development projects are highly likely to lead to cumulative negative impacts on Lake Turkana ecosystem and livelihoods of fishing communities



Study Area



Lake Turkana region

- Study conducted within the Lake Turkana Fishing Livelihood Zone (Oxfam, 2011)
- Study conducted in 2 phases covering a total of 8 landing beaches (Dec 2015-March 2016) .

1

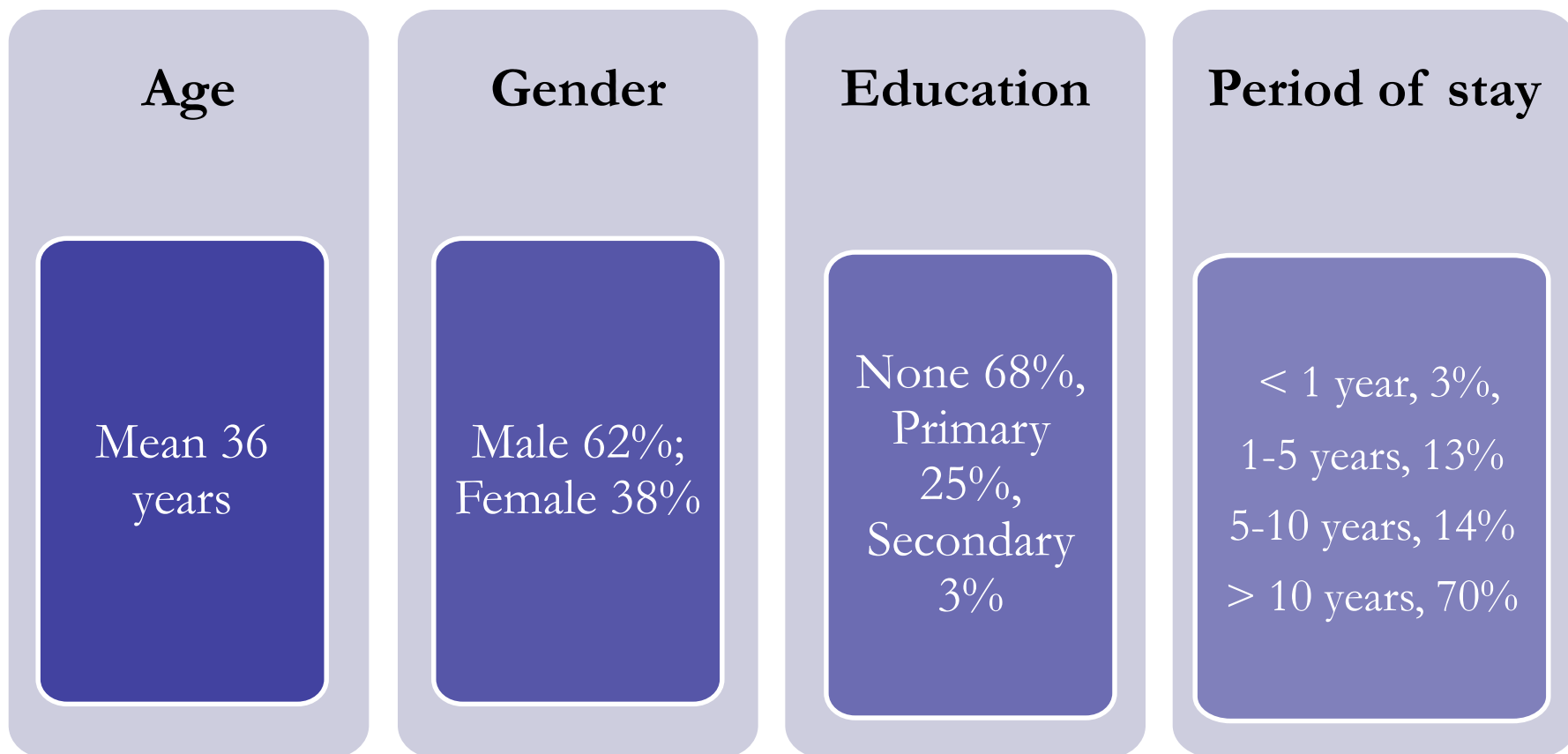
Turkana County (n=206)

- Lowarengak
- Nachukui
- Kataboi
- Eliye Springs

2

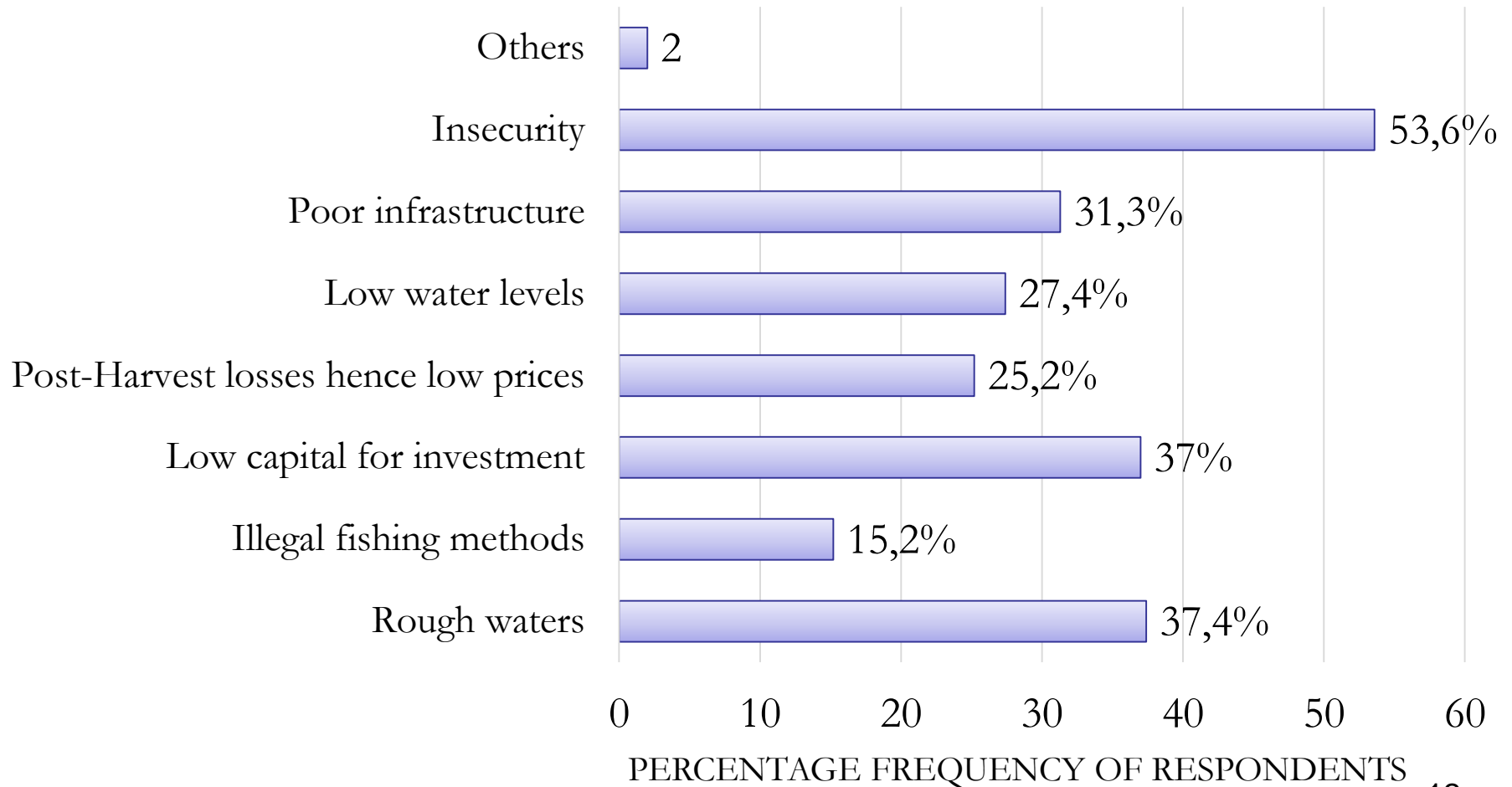
Marsabit County (n=104)

- Loiyangalani
- El Molo Bay
- Soit
- Moite



In Turkana and Marsabit Counties, 3 – 6% of the residents have a secondary level of education and above; 15 – 26% have primary level of education only. A staggering 82% of residents in Turkana County and 68% in Marsabit County have no formal education (County Integrated Development Plans). **Lack of formal education offer residents very few opportunities in formal job market** (UNDP, 2010)

Major challenges facing Lake Turkana fisheries

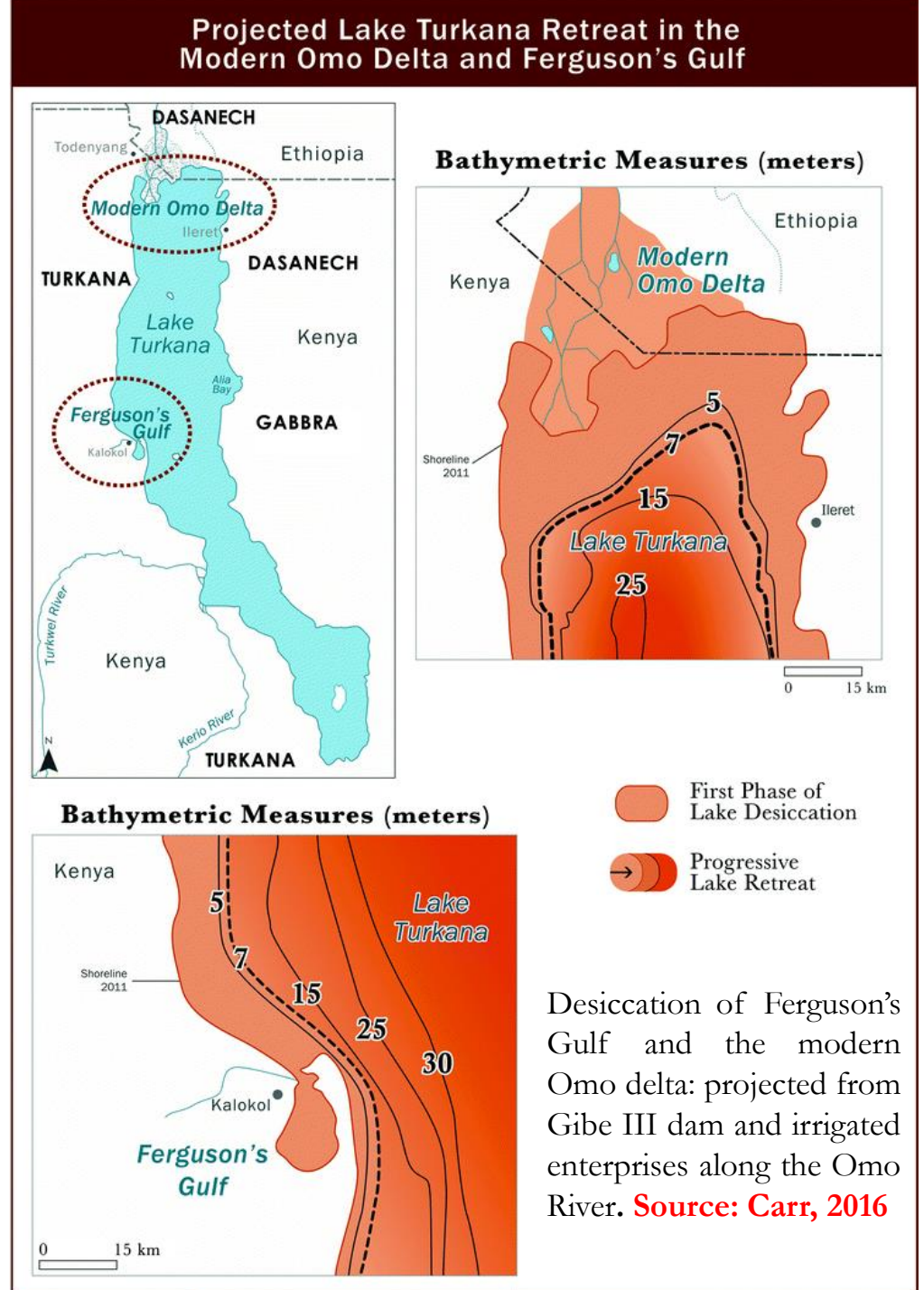


Perceived Impacts of Gibe III and Irrigation plantations on Omo River inflows

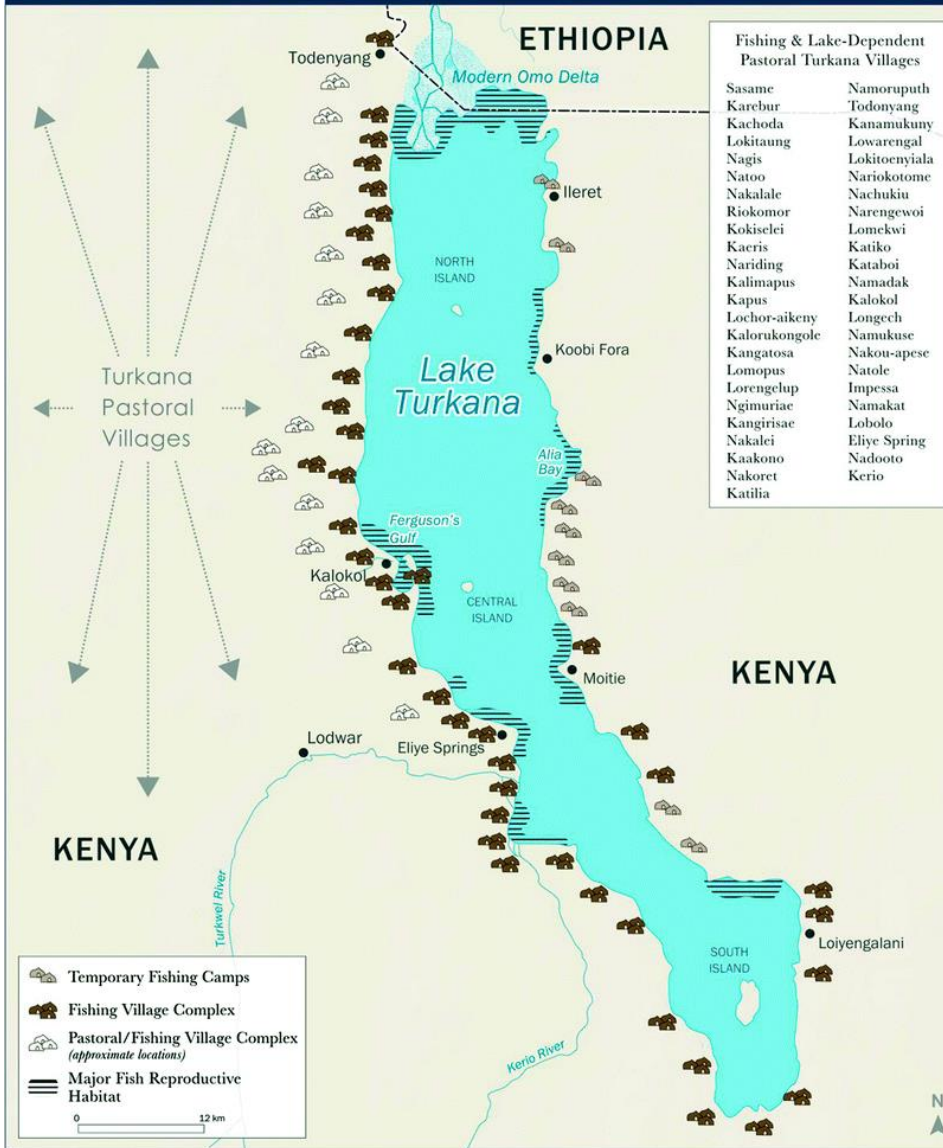
- 71% and 63% of respondents stated that Gibe III Dam and large scale irrigation projects would significantly reduce water flow, respectively



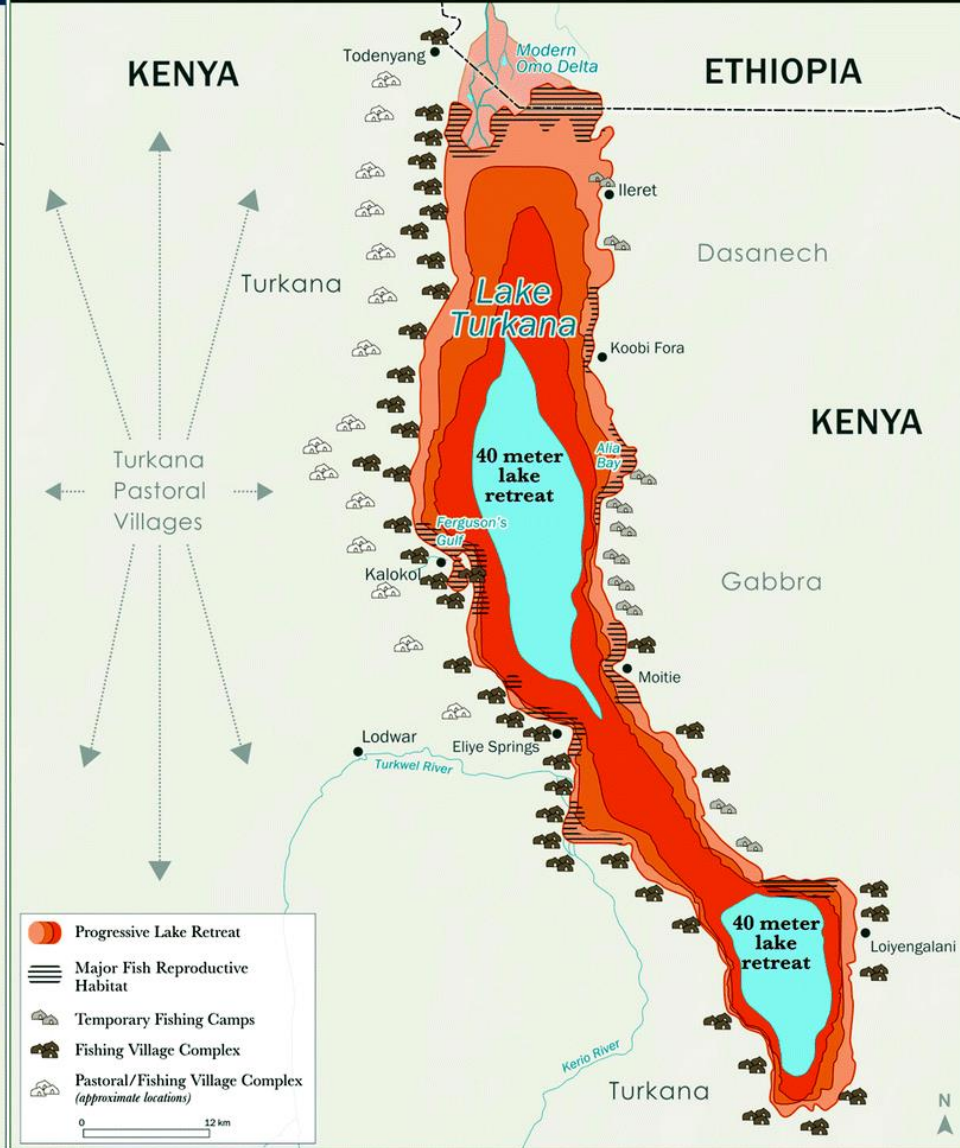
April 2017, Photo: John Malala



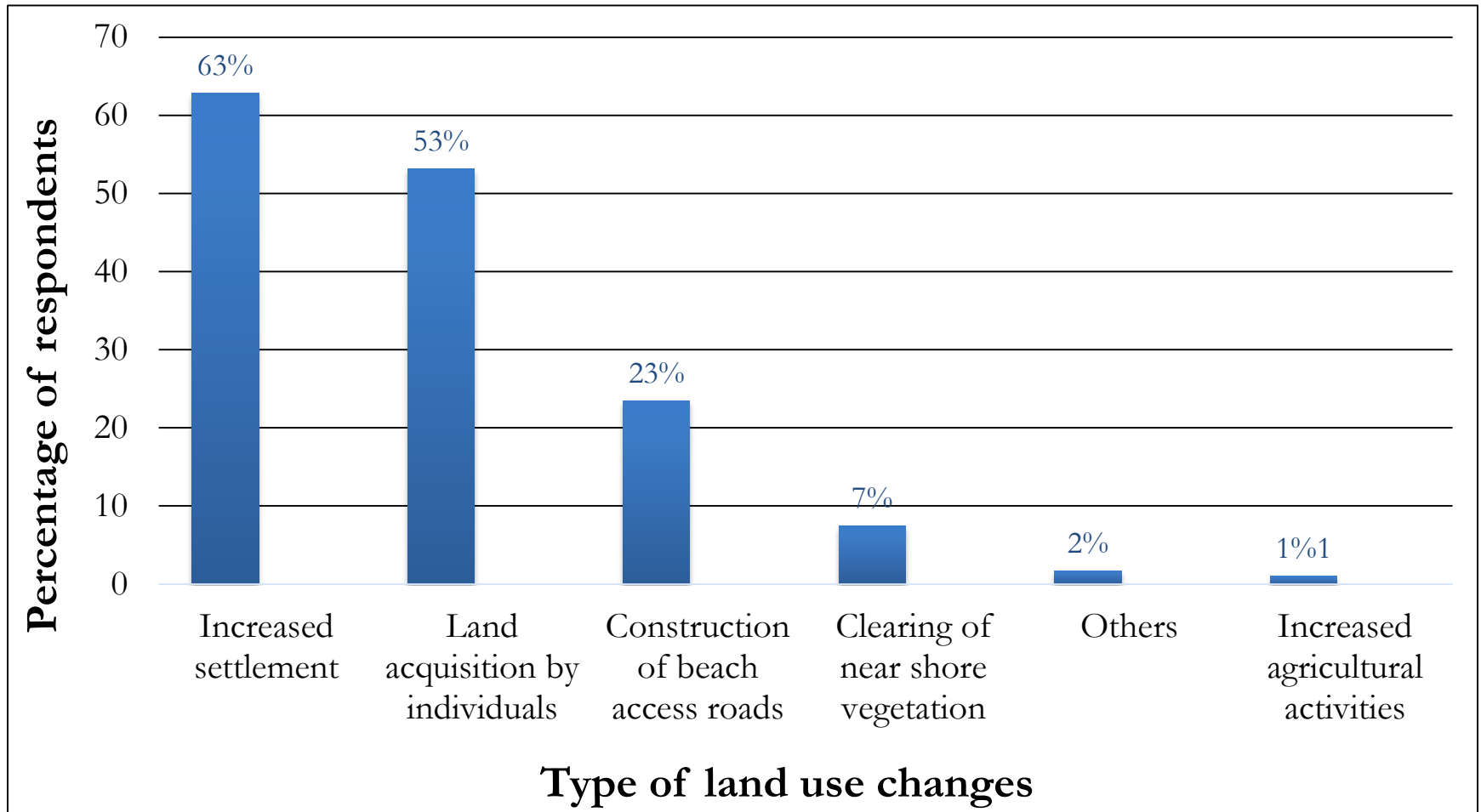
Turkana Villages Dependent on Lake Turkana Resources: A Fishing and Pastoral/Fishing Survival System



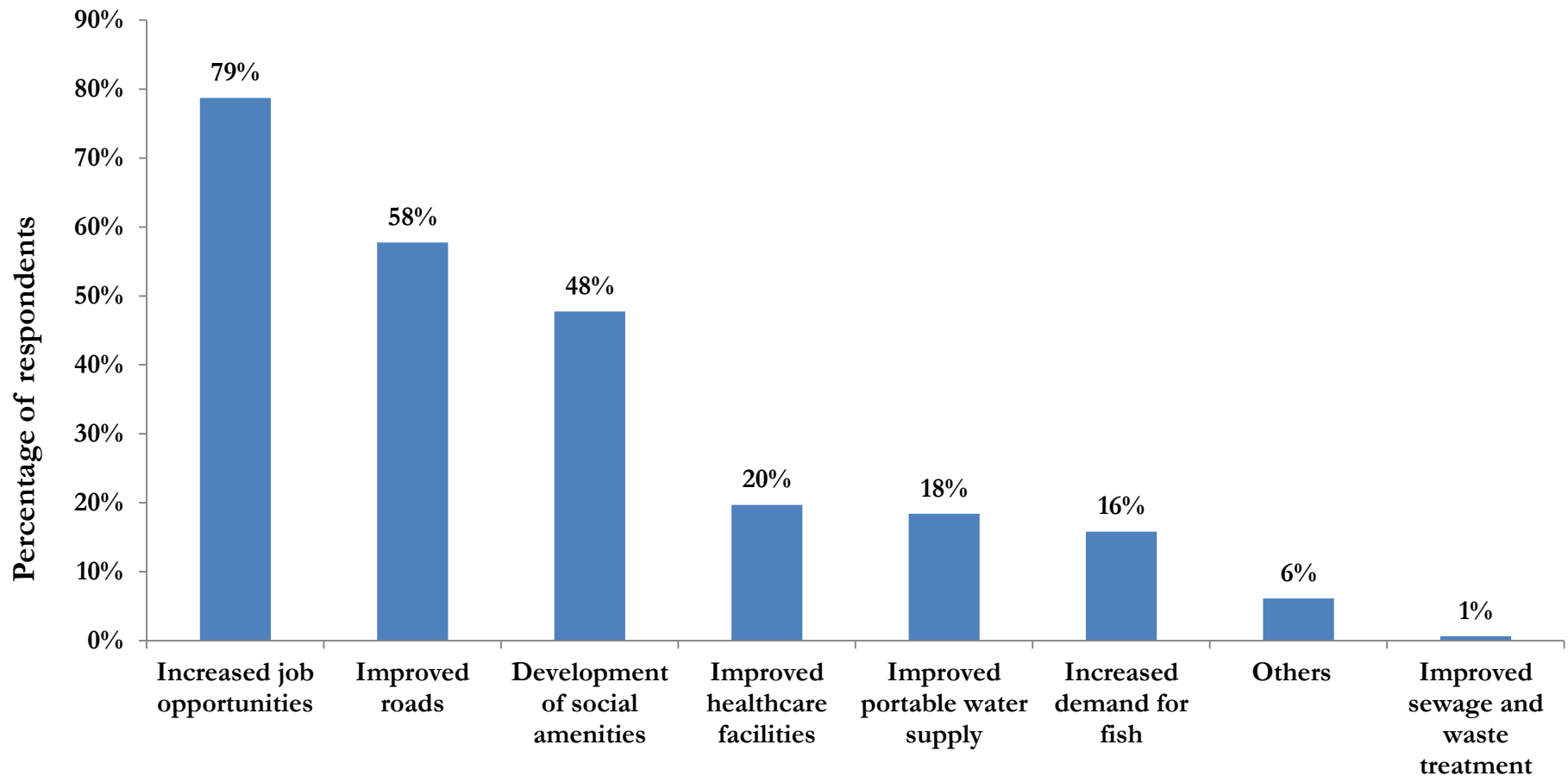
Turkana Villages Dependent on Lake Turkana Resources & Lake Retreat



Percentage Changes in Land Use Patterns



“Economics of anticipation” drive land resource conflicts (enclosing land in plots as individuals anticipate local land value to rise)

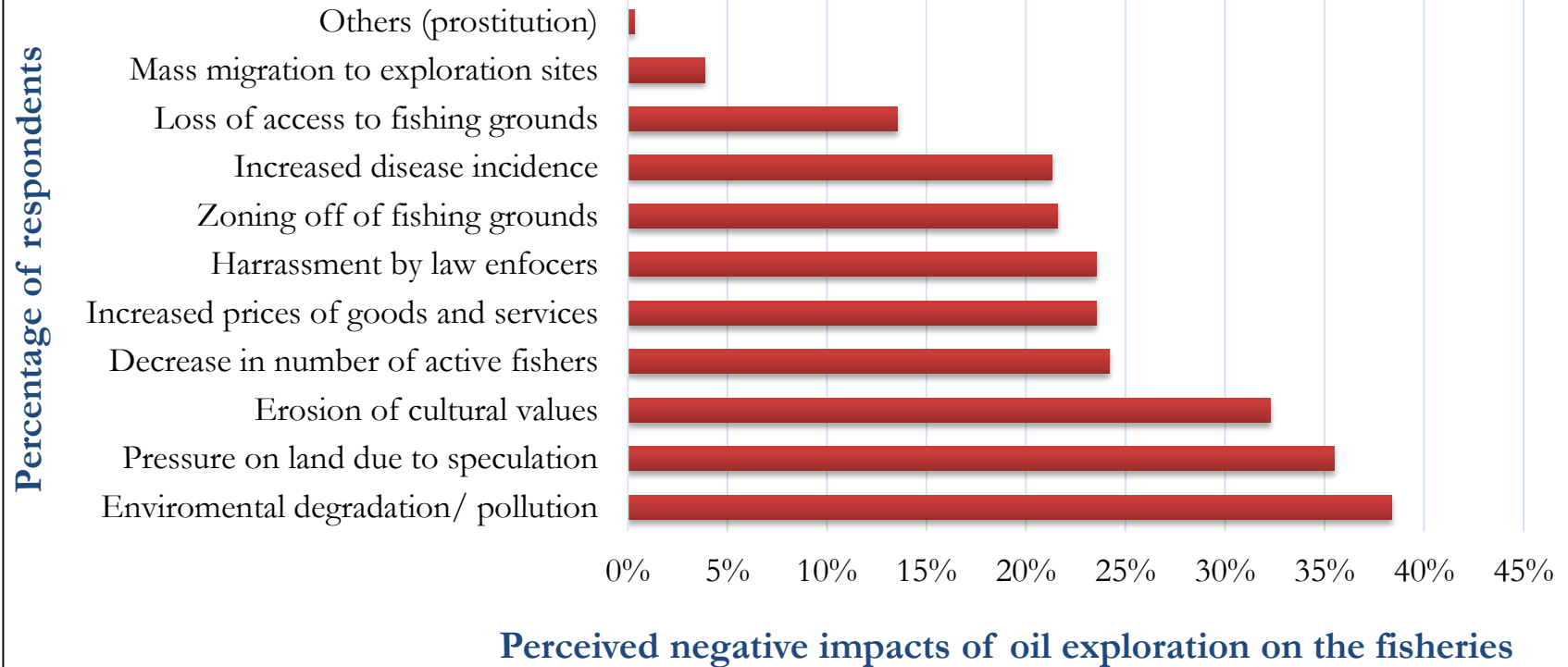


Perceived positive impacts of oil exploration activities

Points to Note:

- The oil industry is a capital rather than labor intensive industry (Schilling et al., 2016)
- Along the roads leading to oil rigs, new settlements and markets have emerged, opening opportunities for trade and business opportunities (high purchasing power).

The likely negative impact of oil exploration on the fisheries



A jetty constructed at Kalimapus/Namadak beach to enable boats access lakes during marine seismic exploration activity in Lake Turkana

Photo: Kevin Obiero

Insecurity and resource use conflicts

- 91% of respondents have experienced resource use conflicts
- 83% stated that there has been an increase in frequency of conflicts



An armed Turkana man on the shore of Lake Turkana. Photo: Siegfried Modola / Reuters

Possible causes of violent conflicts:

- Competition over pasture (81%)
- Competition over fishing areas (76%)
- Livestock raids (74%)
- Theft of fishing gears (49%)
- Fishing in protected areas (15%)

We have lost our livestock and much of our lands. Now we must fish, or we die [Turkana male elder from lakeside village near Ethiopia-Kenya border]. Interviewed by Claudia Carr (Carr, 2016)

Policy relevance: Message Box

Problem:

The livelihoods and ecosystems of people in Turkana Basin are significantly threatened by damming, oil, conflicts, climate change, irrigation and wind developments

Benefits

Sustainable ecological systems and livelihoods (jobs, businesses, food security, poverty reduction etc.) in Lake Turkana Basin

Issue:

Significantly Vulnerable Ecosystems, Biota and Livelihoods

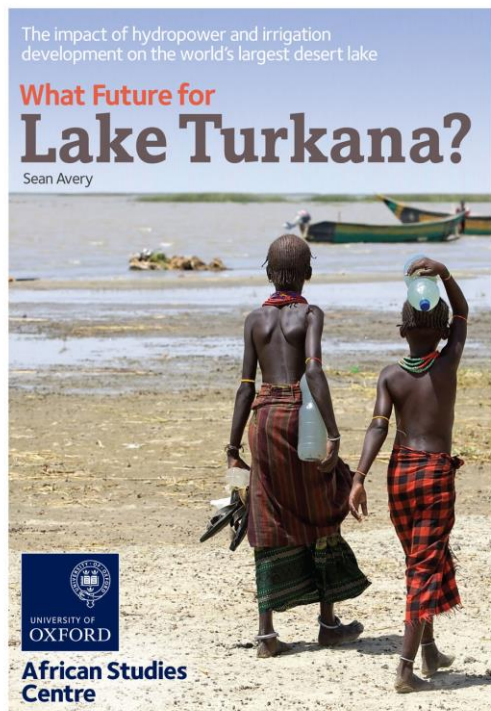
So what?

Potential demise of Lake Turkana as we currently know it. Warning signs of an “Aral Sea Disaster” in the making

Solutions:

- (1) Promote basin-wide ecosystem management through transboundary management institutions;
- (2) Increase awareness through sharing of information and best practices;
- (3) Create incentives for livelihood diversification

Awareness creation through sharing information and best practices



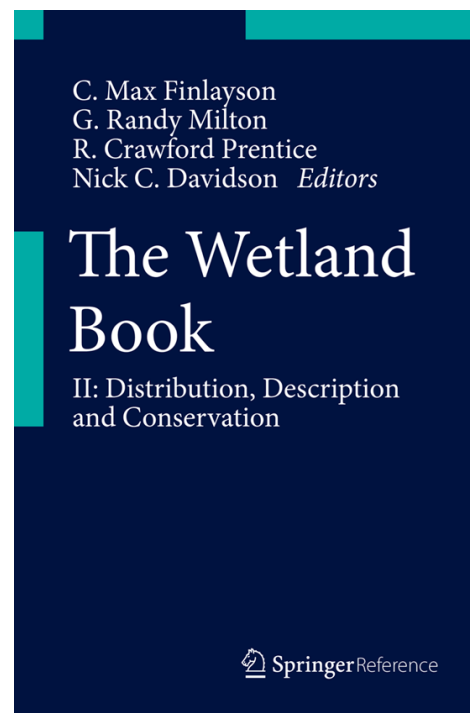
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RESEARCH ARTICLE

Fisheries and water level fluctuations in the world's largest desert lake

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Lake Turkana: World's Largest Permanent Desert Lake (Kenya)

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R. Omondi, S. Agembe, J. Malala, and S. T. Avery



<http://www.canr.msu.edu/oturn/aboutus>

Thanks for Listening!

*“One Generation Plants
Trees And The Next
Rests Under Its Shades”*

Chinese Proverb

The Nature
Conservancy



MacArthur
Foundation

