



University of Kentucky
UKnowledge

International Grassland Congress Proceedings

XXIV International Grassland Congress /
XI International Rangeland Congress

Whose Knowledge Counts?: Irrigation Development in Turkana, Kenya (1963-2019)

G. L. Akall
United Nations Environment Programme

Follow this and additional works at: <https://uknowledge.uky.edu/igc>



Part of the [Plant Sciences Commons](#), and the [Soil Science Commons](#)

This document is available at <https://uknowledge.uky.edu/igc/24/7/5>

The XXIV International Grassland Congress / XI International Rangeland Congress (Sustainable Use of Grassland and Rangeland Resources for Improved Livelihoods) takes place virtually from October 25 through October 29, 2021.

Proceedings edited by the National Organizing Committee of 2021 IGC/IRC Congress

Published by the Kenya Agricultural and Livestock Research Organization

This Event is brought to you for free and open access by the Plant and Soil Sciences at UKnowledge. It has been accepted for inclusion in International Grassland Congress Proceedings by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.

Whose Knowledge Counts? : Irrigation Development in Turkana, Kenya (1963-2019)

By Akall, GL*

Key words: Climate change adaptation; Irrigation development; discourses; Turkana

Abstract

Irrigation has long been promoted in Africa's drylands as a means to improve food security and livelihoods. Turkana County, one of the driest regions of Kenya, has a long history of irrigation interventions, extending from the colonial era to the present. The recent discovery of two huge water aquifers in the arid Turkana region, Kenya's Vision 2030 and devolution has fed into enthusiasm for irrigation as an excellent solution to the multiple problems in the region against other activities like pastoralism. This is in spite of a history of failed irrigation developments in Turkana (Hogg 1987). This paper explores the power relations, knowledge and discourses of irrigation development in Turkana County, northwest Kenya in the 20th and 21st Century. It will compare irrigation development in the 20th century with a more recent set of programmes that have emerged since the turn of the 21st century. This paper focuses on Turkwel Irrigation Scheme Association (TISA), based along the Turkwel River in Loima sub-County in Turkana, which was established in 1966 but fell into disuse in the 1990s, but was re-started as part of an attempt to build a new resilience to climate change in the region. Methodologically, this article compares the views of developers with those of the Turkana people to examine the dominant irrigation development discourses across the two periods. Oral histories, participant observation, semi-structured interviews and focus groups discussions were used to collect primary research data.

1.0. Introduction

In Kenya, the drylands cover 80 per cent and host 14 million people, who depend on livestock keeping (Elmi and Birch 2013). Turkana County in northwest Kenya is 80 per cent arid. Turkana borders Ethiopia to the north, South Sudan to the northwest and Uganda to the west. Livestock herding is the main economic activity supporting about 62 per cent of the local populace, with 20 per cent depending on agro-pastoralism, 12 per cent on fishing and eight per cent on casual labour (Turkana County Government 2013).

Pastoralism as a way of life was and continues to be seen as outdated, backward and ill-fitting in a contemporary nation-state. Many governments present their drylands as fast tracts of empty, marginal, uncultivated or inefficiently used land (Lind et al.2020; Turner 2011). Indigenous and local knowledge has enabled dryland residents to cope with climate variability historically. This indigenous knowledge can contribute to climate adaptation and mitigation (Dupar 2019). Turkana pastoralists have long used risk-spreading strategies, including moving livestock to the best pasture and water, keeping species-specific herds to take advantage of the heterogeneous nature of their imbalance environment, and keeping herds containing a mixture of species as insurance against total loss during drought (Flintan et al.2013). However, Turkana has suffered a series of 30 severe droughts between 1963 and 2019. These droughts devastated livestock herds resulting in migration of destitute herders in search of new livelihood and relief (Lind et al.2020). The impact of the droughts prompted planners to promote an agenda for shifting from pastoralism to irrigated agriculture and fishing (Lind et al.2020; Adams and Anderson 1988; Hogg 1987). Irrigated farming was believed to provide a livelihood, and settlement would allow government services to be provided, such as clean water, health facilities, and classroom education (Little and Leslie 1999; Adams 1992). The planners saw the adoption of irrigation as a "privileged" technological response, while ignoring local experience (Adams and Anderson 1988). Yet irrigation was not new in East Africa. In Kenya, Adams and Anderson (1988) mention that the

* United Nations Environment Programme (UNEP)

simplest indigenous irrigation practice was recorded among the Turkana, who cultivated sorghum in the floodplains of the Kerio and Turkwel Rivers. Oba (1992) observes that ‘there are few instances where development plans have relied on historical analysis to deal with development issues at a regional level.’ In Turkana, between 1966 and 1978, small-scale irrigation projects were started as a means to reduce dependency on food handouts, (Anderson and Broch-Due 1999) sedentarisation, fishing, restocking and land restoration. The schemes were designed to provide a “new livelihood” (sedentary life) for nomads affected by drought or raiding (Little and Leslie 1999; Anderson and Broch-Due 1999; Adams 1992; Hogg 1987). Irrigation was thought to have great potential in helping the locals to adapt to drought, build resilience and improve food security. The intended role of pastoralists was to be operators (Catley et al. 2013). However, most schemes were capital intensive, technically complex and dependent on external commitments and expertise (Lind et al.2020). The period between 1990 and 2011 was characterised by humanitarian interventions due to the intense droughts experienced in Turkana. From the early 2000s up to 2014, the frequency of recurrent droughts increased (Bersaglio et al.2015). The 2011 Horn-of-Africa-drought stimulated afresh interest in finding a solution to the drought problem. The renovation of irrigation schemes that had fallen into disuse then followed. In 2013, UNESCO discovered two huge water aquifers in the Lotikipi plains and Napuu near Lodwar, estimated to hold enough water to supply the entire Kenya for the next 70 years (Avery 2014b). This discovery triggered enthusiasm among developers. For more than six decades, development planners have continued to promote irrigation as a solution to the problem of drought in Turkana. In this paper, I explore the politics of irrigation development in the Turkwel Irrigation Scheme Association (TISA) to contrast the perceptions of local Turkana with those of developers.

2.0. Methods and Study Site

Data used in this article comprises detailed oral histories, focus group discussions (FGDs), participant observation, and key informant interviews. The data was obtained from 60 agro-pastoralists, and town-dwelling households with the aim to build an understanding of the history and perceptions of irrigation development. I did fieldwork between February and September 2014. Then, follow up visit in May-August 2019. The follow up visit helped to observe progress of irrigation interventions in Turkwel since 2014. During participant observation in 2014, I lived in Turkwel for eight months to observe daily activities of households working in the irrigation scheme. Oral history was used to record major events, such as drought, famine, diseases, raids and locust invasions. About 60 farmers were interviewed, who were mainly farmers. Five focus group discussions were conducted, each comprising six women and six men. They were conducted in the irrigated area, riverine forests, and villages. The FGD participants were purposively selected depending on their availability and willingness to participate in the study. FGDs were used to validate the information from all the interviews. I carried out research into irrigation development and I subsequently conducted in-depth research on the Turkwel Irrigation Scheme Association (TISA). This study area is located in Turkwel division of Loima sub-County, in the lower Turkwel River basin, Turkana County, northwest Kenya. The Government of Kenya and the Food and Agriculture Organisation of the United Nations (FAO) established the scheme in 1966 to support 175 destitute households as a famine prevention measure (Akall 2020). Loima, which is the focus of this study, has a population of 107, 795 people (KNBS 2019). The region of Loima has a significant nomadic pastoralist population with a few agro-pastoralists, mainly *Ngmonia* Turkana (one of the 19 Turkana sub-groups) who combined a focus on agriculture and livestock. Turkwel has an estimated population of 9, 315 (KNBS 2019). TISA is among the oldest of its kind in Turkana County. I purposefully selected TISA because of its long history of irrigation development processes.

3.0. Results

The findings reported in this article discuss the perceptions of local Turkana with those of developers, with particular attention to the Turkwel Irrigation Scheme Association (TISA), one of the earliest interventions to promote irrigation development. I provide personal accounts of respondents on TISA, which was established in 1966. The findings describe the history of flood cultivation and the introduction of ‘formal irrigation’ cultivation along the Turkwel River.

3.1. Flood cultivation among Turkana

Turkana pastoral economy involvement with the cultivation of small riverside plots can be traced first when they migrated into the region between 300 and 400 years ago (McCabe 2004). Turkana began their southern migration after AD 1500. Evidence from oral histories with respondents shows *Ngmonia* Turkana exploited flood cultivation in the Kachaimeri floodplains continually for well over a hundred years where locals planted sorghum. More than 40 years after the introduction of sorghum in the area (Kachaimeri), but before any serious involvement of colonial officials in irrigation, the *Ngmonia* were joined by impoverished settlers from other Turkana sub-groups who moved in voluntarily to the Turkwel riverine forest to live by gathering wild food and hunting. By 1936, *Ekaru a Eesomalit* (the year Somali traders’ arrived in Turkana) some of the earliest Turkana settlers in this area had acquired gardens and also started cultivating sorghum gardens at Kachaimeri. The households increased from four to 14 before 1966, when modern irrigated agriculture and Turkana settlements were introduced in the area (see Akall 2020).

3.2. Fragmentation of land and shrinking cropland

The views of local people on irrigation investment are excluded in decision-making processes. For example, National Irrigation Board (now National Irrigation Authority) surveyors who designed the new main canal ignored local experience and ended up designing canal topography incorrectly. The schemes have taken over the dry season grazing areas, displaced pastoralists and blocked livestock from accessing the riverine forest and water sources because of fencing. Similarly, the problem of the thorny invasive *Prosopis juliflora*, locally known as *etirae*, which has altered the indigenous riverine forest of the area important for local livelihoods, remains invisible to planners. For instance, 430 hectares of irrigable land has been colonized by the invasive shrub *Prosopis juliflora* (*etirae* in Ng’aturkana), which is reducing the per capita land under irrigation and thereby placing a spatial limitation on livelihoods, especially shrinking cropland.

3.3. Narratives of formal schemes and ‘official’ acreage

Following the 2002 Water Act, which liberalized the water sector, particularly the management of the river basins, the creation of Water Users Associations (WUAs) occurred. Schemes like Turkwel Irrigation Scheme Association (TISA) were registered as a WUA in response to the reforms. This was to enable the scheme to access external support as a communal group. In 2014, there were six formal irrigation schemes in Turkwel location, which are registered as community-led water users’ associations (WUAs). The government, through NIB, surveys registered WUAs or formal schemes to get “official” acreage of the total irrigated area and ‘potential’ irrigable land. As a counter-mapping, this study challenged the visible “official” irrigation measurement. For example, the potential irrigable area and altered by *Prosopis* in TISA as mapped by local farmers in June 2014 was 212 hectares, as opposed to the NIB’s 175 hectares. The farmers estimate the irrigable area more highly than the organisations because of their local understanding of the history of irrigation activities and practices in the area. For instance, TISA initially had 11 blocks but five blocks have been swallowed by *Prosopis juliflora* (Interview with TISA official).

3.4. Missing local knowledge in ‘formal irrigation’ development

Local voices are excluded and silenced in policy processes. One elderly farmer commented: “We demand involvement in every aspect of development. We should not be excluded because of our illiteracy. Generations depend on this scheme for survival” (Interview with a 82-year-old farmer and TISA labourer, June 2014). Another farmer, a retired field extension officer at the TISA scheme, explained: “While NIB are rehabilitating the canal, they do not want us to get near where they are working” (Interview with a farmer, March 2014). The locals and NIB also knew that the contractor lacked the technical capacity to carry out the work. A farmer said: “The contractor excavated the canal without considering the topography of the area. They missed the older canal survey and excavated a new one, which was poorly levelled. We told them to follow the old survey, but they would hear none of it” (Interview TUR64). Respondents said that NIB ignored past experience of farmers. The agricultural engineer told me: “We advised NIB to involve farmers, who understood how the older canal was designed and worked. Thereafter, NIB involved a few farmers” (Interview in July 2014).

4.0. Discussion and Conclusion

This article suggests that local Turkana exploited flood cultivation well over hundred years before the introduction of ‘formal irrigation’ development in the lower Turkwel River basin. This evidence challenges the narrative of irrigation as ‘privilege technological’ solution to the problem of drought in Turkana. It shows how Turkana combined livestock herding and sorghum cultivation, which was complimentary to each other unlike developers’ notion of making destitute herders to full-time crop farmers through settlement and formal irrigation. As argued by Dupar (2019), indigenous knowledge coupled with scientific innovation can contribute to climate adaptation and mitigation. The narratives of ‘potential’ irrigable land and formal schemes characterize irrigation development resulting in exclusion of local cultivators with knowledge and history of flood cultivation. There is need for developers to promote the adoption of indigenous knowledge and practices to help local cultivators to adapt to the risks associated with climate change.

Acknowledgements

The University of Cambridge, The Smuts Memorial Fund and the British Institute in Eastern Africa funded my fieldwork in Turkana, Kenya. Thanks to my supervisor Liz Watson who provided guidance during my PhD research and Kathy Galvin, family and friends for continued support. Many thanks are due to the residents of Turkwel for their time, patience, and hospitality.

References

- Adams, M.W. 1992. *Wasting the rain: Rivers, people and planning in Africa*. London: Earthscan Publications Ltd
- Adams. M. W and Anderson. M. D. 1988. Irrigation before Development: Indigenous and Induced Change in Agricultural Water Management in East Africa. *African Affairs* 87: 519-535
- Akall.G.2020. Farmer-led Irrigation Investments: How Local Innovators are Transforming Failed Irrigation. In Lind, J., Okenwa, D., & Scoones I. (Eds.), *Land, Investment & Politics: Reconfiguring Eastern Africa’s Pastoral Drylands* (pp.155-165). Boydell & Brewer. doi: 10.2307/j.ctvxhrjct.19

Anderson, D.M and Broch-Due, V.1999. *The Poor Are Not Us: Poverty and Pastoralism in Eastern Africa*. Oxford: James Currey Ltd

Avery, S. 2014b. Turkana County's aquifers and irrigated crop development prospects—some reasons to be cautious. Improved data. *Discussion brief*, DLCI

Bersaglio, B., Devlin, J. and Yap, N. 2015. Contextualising emergency responses to famine among Turkana pastoralists in Kenya, *Development in Practice*, 25:5, 688-702, DOI: [10.1080/09614524.2015.1049123](https://doi.org/10.1080/09614524.2015.1049123)

Catley, A., Lind, J. and Scoones, I. (Eds). 2013. *Pastoralism and Development in Africa: Dynamic change at the margins*. London: Routledge

Dupar, M. 2019. *IPCC's Special Report on Climate Change and Land: What's in it for Africa?* Cape Town: Climate and Development Knowledge Network, Overseas Development Institute and SouthSouthNorth

Flintan, F., Behnke, R. and Neely, C. 2013. *Natural resource management in the drylands in the Horn of Africa*. Brief prepared by a Technical Consortium hosted by CGIAR in partnership with the FAO Investment Centre. Technical Consortium Brief 1. Nairobi: International Livestock Research Institute

Hogg, R. 1987. Development in Kenya: Drought, Desertification and Food Scarcity. Oxford: Oxford University Press, *African Affairs*, Vol. 86, No. 342 (Jan., 1987), pp. 47-58

Kenya National Central Bureau of Statistics. 2019. *Population and Housing Census 2019*. Nairobi: Ministry of Devolution and Planning

Lind, J., Okenwa, D and Scoones, I. (eds). 2020. *Land, Investment and Politics. Reconfiguring Eastern Africa's Pastoral Drylands*. Woodbridge: James Currey Ltd

Little, M, A and Leslie, P, W. 1999. *Turkana Herders of the Dry Savanna: Ecology and biobehavioral response of nomads to an uncertain environment*. Oxford: Oxford University Press

McCabe J. Terrence. 2004. *Cattle Bring Us to Our Enemies: Turkana Ecology, History, and Raiding in a Disequilibrium System*. Ann Arbor: University of Michigan Press

Oba, G. 1992. *Ecological Factors in Land use Conflicts, Land Administration and Food Insecurity in Turkana*. Pastoral Development Network Papers No. 33a. London: Overseas Development Institute

Turkana County Government. 2013. *County Integrated Development Plan 2013-2017*. Republic of Kenya, Turkana County Government. Lodwar, Kenya

Turner, M.D. 2011. The New Pastoral Development Paradigm: Engaging the Realities of Property Institutions and Livestock Mobility in Dryland Africa, *Society and Natural Resources*, 24:5, 469-484, DOI: [10.1080/08941920903236291](https://doi.org/10.1080/08941920903236291)