

Pastoralist Maasailand Creation Care: Climate Change MITIGATION and ADAPTATION in Maasailand

These notes are for conversation and not prepared for publication.

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1) Maasai traditional environmental knowledge (TEK):

1. Semi-nomadic pastoralism for sustainable pasturing of cattle

- a. "...pastoralism was...a highly productive system of land use that was more compatible with wildlife conservation than other rural production systems."¹
- b. "Once vilified as a destructive land use, since the late 1980s pastoralism has come to be understood as the livelihood system most compatible with wildlife. Unlike agriculturalists, who directly compete with wildlife habitat for productive land, pastoralists typically manage their rangelands in ways that support both wildlife and livestock."²
- c. "Pastoralism is the dominant livestock production system in most of Africa. Pastoral practices are based on local endogenous knowledge of both the environment and the animal. It is based on the continued capacity to adapt to a harsh environment, characterized by the scarcity, dispersion and variability of natural resources over vast territories."³
- d. Making strategic and sustainable use of land areas where, "Farming in the arid and semi-arid zones is socially unacceptable (low food security because of crop failure risks) and economically not feasible."⁴ Arid lands "...are unsuitable for rainfed agriculture (the driest spot [in Monduli District] is Mfereji village in the rift valley with about 200 mm rainfall annually). Soils are generally shallow and not fertile."⁵

¹ Benjamin Gardner, *Selling the Serengeti: The Cultural Politics of Safari Tourism* (Athens, London: University of Georgia Press, 2016), 6. Footnote Ellis and Swift 1998; Coppock, Ellis, and Swift 1986; Warren 1995.

² Gardner, 24.

³ Gaafar Rizgallah. "AU Guidelines to secure Pastoralism [sec] and prevent conflict in Africa". African Union, 26 Sept 2022. <https://au.int/en/pressreleases/20220926/au-guidelines-secure-pastoralism-and-prevent-conflict-africa>

⁴ J. Douwe Meindertsma and Jan J. Kessler, eds., *Planning for a Better Environment in Monduli District* (Rotterdam: Netherlands Economic Institute, 1997), 46.

⁵ J. Douwe Meindertsma and Jan J. Kessler, eds., 43.

2. **Sustaining biodiversity**⁶
 - a. Not hunting wild animals or poaching, because they are not used as food sources.
 - b. Even lion hunting, a former prestigious act for a warrior, is no longer supported.
3. **Protecting ecosystems**
 - a. “Manzano and others pointed to a growing body of scholarly research demonstrating what the Maasai had long known: that their management of the land did not degrade the Serengeti ecosystem but had actually helped sustain and even create it—the grasslands the Maasai had cultivated for hundreds of years were the same grasslands that many wild animals needed to thrive.”⁷
 - b. Not burning for slash and burn agriculture.⁸ Perhaps limited burns for pest management.⁹
 - c. Not cutting down wood, in general, no logging industry; no mangrove destruction. Rather scrounging for deadwood for fires.
 - d. Not making charcoal.¹⁰
4. **Environmentally sustainable livelihoods:** Not engaged in carbon generating industries/agro-business/etc.
 - a. No CO² producing industry. Cows do produce methane, CH₄.
 - b. Not using artificial fertilizers that cause phosphate and nitrate run off and water pollution.¹¹ Not using herbicides and pesticides used in agro-business.¹²
 - c. No blast fishing.
 - d. No mining industries that bring arsenic, lead, copper pollution or contamination to groundwater.¹³
 - e. No hydrocarbon oil spills from shipping refuse on the ports and plastic wastes from land-based sources as well as excess nutrients from wastewater disposal in the ocean.¹⁴
5. Traditional Maasai pastoralists do not significantly contribute to the environmental challenges of urban cities.¹⁵

⁶ Philip Isdor Mpango, ed., “National Environmental Master Plan for Strategic Interventions (2022 – 2032)” (United Republic of Tanzania Vice President’s Office, June 2022), 61, https://www.vpo.go.tz/uploads/files/MASTER%20PLAN-English_eBOOK_FINAL.pdf. After the Serengeti, which has the strictest prohibitions of no hunting or human activity, then the most “high” and “medium” biodiversity quality habitat is in Maasailand, especially Ngorongoro—where the Maasai are being restricted (no cultivation) and forcefully displaced from. Note, there is little (or undiscernible) change since 1995 from these images. The Loliondo area is where hunting safaris are increasingly located, which impacts biodiversity.

⁷ Stephanie McCrummen, “‘This Will Finish Us,’” *The Atlantic*, 8 April 2024, 25.

⁸ Mpango, 61. (Contra: “...most fires are caused by human activities particularly farm preparation. Driving forces include game hunting, honey collection, charcoal burning, and burning to simultaneously improve pasture quality...”)

⁹ Maasai research participant Lemayian with Elness-Hanson, “Dialogue for Qualitative Research,” 19 Feb 2020.

¹⁰ Gardner, 128.

¹¹ Mpango, 94, 99.

¹² Mpango, 61.

¹³ Mpango, 95.

¹⁴ Mpango, 95.

¹⁵ Mpango, 126.

2) Maasai/pastoralist issues in concern for the environment:

1. **Large herds:** Inherent cultural value of large herds, which can result in overgrazing.
 - a. The herd is the “bank account” of a Maasai with spiritual, cultural, and economic values.
 - b. “Carrying capacity” is an environmental concern, though politically, the concept has been hijacked.¹⁶
2. **Overgrazing** can lead to soil erosion. Land disturbance is higher around watering holes.
 - a. However, overgrazing has been exacerbated by government policies, restrictions of traditional watering locations, borehole development, and villagization that encourage more-concentrated grazing.¹⁷
 - b. Overgrazing was a result of being squeezed into ever smaller domains, which kept the Maasai from rotating grazing zones as they normally would. Citing their own surveys, they said the government had inflated livestock numbers, a claim supported by Pablo Manzano, a Spanish ecologist with the Basque Centre for Climate Change, who had conducted research in the region and found that the government was perpetuating a tragic misunderstanding.¹⁸
3. **Deforestation:** While traditionally trees are not cut, there is not a tradition of planting trees for ensuring sustainable forests.
4. **Population growth** increases the numbers dependent upon the natural resources, increases the number of herds, and thus the subsequent factors, i.e., overgrazing.
 - a. The loss of traditional grazing areas (national parks, agricultural encroachment, restricted hunting safari areas) means less land for more population.

Tanzania Nation ¹⁹	Pop. % of Region	2002	Growth	Pop. % of Region	2012	Growth	Pop. % of Region	2022
		33,500,000			43,600,000			59,900,000
Arusha Region		1,288,088	1.315		1,694,310	1.391		2,356,255
Arusha City	24%	313,004	1.330	25%	416,442	1.483	26%	617,631
Arusha Rural	20%	251,856	1.283	19%	323,198	1.391	19%	449,518
Karatu District	9%	117,951	1.951	14%	230,166	1.218	12%	280,454
Longido District	6%	81,550	1.510	7%	123,153	1.428	7%	175,915
Meru District	18%	231,399	1.159	16%	268,144	1.237	14%	331,603
Monduli District	8%	102,966	1.544	9%	158,929	1.432	10%	227,585
Ngorongoro CA	10%	129,362	1.347	10%	174,278	1.570	12%	273,549
	1	1,228,088		1	1,694,310		1	2,356,255

¹⁶ Sara de Wit, “Victims or Masters of Adaptation? How the Idea of Adaptation to Climate Change Travels Up and Down to a Village in Simanjiro, Maasailand Northern Tanzania,” *Sociologus* 68.1 (2018): 31, <https://doi.org/10.3790/soc.68.1.21>.

¹⁷ Gardner, 43, 45, 50.

¹⁸ Stephanie McCrummen, 25.

¹⁹ The United Republic of Tanzania (URT), Ministry of Finance and Planning, Tanzania National Bureau of Statistics and President’s Office - Finance and Planning, Office of the Chief Government Statistician, Zanzibar, “The 2022 Population and Housing Census: Administrative Units Population Distribution Report; Tanzania Mainland,” December 2022, <https://www.nbs.go.tz/index.php/en/census-surveys/population-and-housing-census>.

3) Climate Change MITIGATION and ADAPTATION

Primary source: “Climate Change Mitigation and Adaptation: Simple Guide to Schools in Africa” (UNESCO, United Nations Educational, Scientific and Cultural Organization, 2019), <https://unesdoc.unesco.org/ark:/48223/pf0000372168>.

3a) Climate Change MITIGATION

“Mitigation measures are those actions that are taken to reduce and curb greenhouse gas emissions. Adaptation measures are based on reducing vulnerability to the effects of climate change.

“Mitigation, therefore, attends to the causes of climate change, while adaptation addresses its impacts.”²⁰

Which aspects support climate change MITIGATION?

- **Energy use reduction**
 - Practice energy efficiency
 - Using fuel-efficient stoves
 - Increase the use of renewable energy such as solar...
 - Use efficient means of transport
- **Planting trees**, especially species endemic/native to the local region
- **Reduce one’s carbon footprint** (*italics are aspects not common in Maasailand*)
 - Your carbon footprint is the amount of carbon dioxide released into the air because of your own energy needs. You need transportation, electricity, food, clothing, and other goods. Your choices can make a difference.
 - *Communities can invest in solar powered water disinfection system to reduce the use of plastic bottles, increase health of the people, reduce burning biomass to boil water.*
 - Swap old incandescent light bulbs for the new compact fluorescent lights (CFLs).
 - *Plug electronic devices into a surge protector or power strip that has an on/off switch. Then you can shut off all the power without unplugging each gadget.*
 - *Walk or ride your bike instead of taking a car everywhere. Even a 3.5 km car trip puts 1 kg of CO₂ into the atmosphere! If you must ride, then carpool.*
 - Reduce the use of materials that are not made from plastic.
 - *If you have access to recycling, then recycle whatever you can.*
 - *Don’t idle engines, which pollute without going anywhere.*

²⁰ “Climate Change Mitigation and Adaptation: Simple Guide to Schools in Africa” (UNESCO, United Nations Educational, Scientific and Cultural Organization, 2019), 13, <https://unesdoc.unesco.org/ark:/48223/pf0000372168>.

3b) Climate Change ADAPTATION

“Adaptation measures are based on reducing vulnerability to the effects of climate change. Mitigation...attends to the causes of climate change, while adaptation addresses its impacts.”²¹

Which aspects support climate change ADAPTATION?

- **Infrastructure resilience**
 - More secure facility locations and infrastructures
 - Preventive and precautionary measures (evacuation plans, health issues, etc.)
- **Ecosystem and landscapes**
 - Landscape restoration (natural landscape) and reforestation
 - Using nature to build resilience
 - Conservation of natural ecosystem (biodiversity and water)
- **Traditional environmental knowledge (TEK)**
 - Identify and sustain indigenous/traditional Maasai knowledge with practices that are good for caring for the environment.
 - “...local knowledge systems and institutions should buttress policy-making and implementation to promote local resilience.”²²
 - “Gradual and medium to long-term livelihood diversification initiative is a highly recommended policy strategy to increase resilience among pastoral communities as opposed to the current policy which condemns pastoralism as a backward and environmentally destructive activity.”²³
- **Food security**
 - The households’ ability to purchase food is the most important food security strategy.²⁴ A reliable income source and asset base is crucial for household response to climate shocks.²⁵ 58% reported that they resort to selling livestock...in response to shocks.²⁶
 - Put in place food security enhancement strategies²⁷ (food reserve)
- **Water**
 - Water harvesting and storage mechanisms²⁸
 - In acute water scarcity, temporary migration to areas where water is accessible²⁹
 - Local development of boreholes, piped water, and dams³⁰

²¹ “Climate Change Mitigation and Adaptation: Simple Guide to Schools in Africa” (UNESCO, United Nations Educational, Scientific and Cultural Organization, 2019), 13, <https://unesdoc.unesco.org/ark:/48223/pf0000372168>.

²² Mark J. Mwandosya, “National Adaptation Programme of Action (NAPA),” 2007, ix, <https://unfccc.int/resource/docs/napa/tza01.pdf>.

²³ Ndesanjo, Theilade, and Nielsen, 2607.

²⁴ Ndesanjo, Theilade, and Nielsen, 2601.

²⁵ Ndesanjo, Theilade, and Nielsen, 2602.

²⁶ Ndesanjo, Theilade, and Nielsen, 2601.

²⁷ Ndesanjo, Theilade, and Nielsen, 2601.

²⁸ Ndesanjo, Theilade, and Nielsen, 2602. The absence of piped water to be the main determinant of water storage mechanisms. “Water scarcity is a common determinant of migration among pastoral communities.” (Berkhout 2012; Brockhaus et al. 2013).” (2603)

²⁹ Ndesanjo, Theilade, and Nielsen, 2602.

³⁰ Mwandosya, ix.

- **Agro-pastoralism/small-scale agriculture**
 - Use flexible and diverse cultivation
 - Seed banking³¹
 - Incorporate crops that are more drought resistant than maize, “such as sorghum, pigeon-pea, finger millet, sweet potato and chickpea...”³²
- **Leadership and governance**
 - Include women in decision making that affects their and their children’s lives to reduce the vulnerability of the entire household
 - Strengthen local traditional leaders as the elders are in charge of resource control and allocation especially during periods of acute scarcity³³
[How?] ...infrastructural, social, legal, and financial support³⁴
 - Strengthen the village council³⁵ for how to seek government support.
[How?] ...infrastructural, social, legal, and financial support³⁶

³¹ Ronald Boniphace Ndesanjo, Ida Theilade, and Martin Reinhardt Nielsen, “Pathways to Enhance Climate Change Resilience among Pastoral Households in Northern Tanzania,” in *African Handbook of Climate Change Adaptation*, ed. Nicholas Oguge et al. (Cham: Springer International Publishing, 2021), 2601, https://doi.org/10.1007/978-3-030-45106-6_128.

³² J. Douwe Meindertsma and Jan J. Kessler, eds., 44.

³³ Ndesanjo, Theilade, and Nielsen, 2604.

³⁴ Ndesanjo, Theilade, and Nielsen, 2605.

³⁵ Ndesanjo, Theilade, and Nielsen, 2604.

³⁶ Ndesanjo, Theilade, and Nielsen, 2605.