

# Pastoralism and Climate Change in Ghana

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# Introduction

- Pastoralism is one of the oldest agricultural systems in the world. It involves rearing of livestock and poultry.
- It is an occupation for many people globally.
- In Africa, livestock is reared in every country in various forms.
- Many ethnic groups in Africa are associated livestock, eg, the Maasai in East Africa, the Arabs in North Africa and the Fulani in West Africa are notorious pastoralists.

- In Africa, livestock is kept for various reasons. Apart from the domestic and industrial uses of beef, dairy, hides, wool, etc. Most people kept animal for social, economic and religious purposes (Tonah, 2005).
- Socially, livestock are used in the three stages of life; naming ceremonies, marriage/weddings and funerals. They are also used for festivals.
- Religiously, livestock is used for sacrifices at shrines, gods, oracles, and other rituals. In fact the Muslim Eid Adha hinges on sacrifices of animals. Every year over 10 million sheep, camel and other ruminants are slaughtered on the Eid Adha day by pilgrims to Mecca alone.
- Economically, the global population is growing steadily at an annual growth rate of 1.24% or 83 million people. It is expected to reach about 8.6 billion in 2030 and 9.8 billion in 2050 (UN, 2017). The population growth has a corresponding demand for livestock products

## Justification of the paper and objectives

- The livestock sub-sector requires a great amount of natural resources and this has implication not only on the environment but also on climate change.
- A lot of studies have been conducted in the physical sciences to establish the nexus between livestock and climate change.
- Studies by Gerber et al. (2013) reveal that livestock is responsible for about 14.5% of total anthropogenic greenhouse gas emissions (7.1 Gigatonnes of carbon dioxide equivalents).
- IPCC (2013) and Grossi et al (2019) show that the type of greenhouse gases generate by livestock are methane and nitrous oxide.
- Methane, mainly produced by enteric fermentation and manure storage.
- This gas has 28 times effect on global warming higher than carbon dioxide.
- Nitrous oxide, arising from manure storage and the use of organic/inorganic fertilizers, is a molecule with a global warming potential of 265 times higher than carbon dioxide.
- The carbon dioxide equivalent is a standard unit used to account for the global warming potential.

- However, in the social sciences and humanities, little empirical studies have been conducted especially in Ghana to establish the relationship between livestock production and climate change.
- This paper seeks to establish the links between the activities of pastoralists and climate change. Specifically, it examines the symbiotic impact of pastoralism on environmental degradation and climate change and the vice versa, as well as the implication of these on livestock subsector in Ghana and finally the mitigation strategies

# Data sources and methodology

- This talk is drawn from a larger study:
  - ✓ Access and Authority Nexus in Farmer-Herder Conflicts (AAN Project)
  - ✓ And from a decade long studies on pastoralism in Ghana
- A lot of data is collected through interviews with Pastoralists, local crop farmers, agricultural extension officers, cattle owners, cattle dealers, butchers, Fulani herds men, nomads, and herders who are now sedentary, in the savannah, the forest zone and the costal zone in Ghana
- Observations
- experience sharing/life stories and case studies
- Literature review

# Pastoralism and environmental degradation

- In most places in Africa where pastoralism is practiced, there is a corresponding environmental degradation;- in the Sahel, in the Horn of Africa and in the East and West Africa.
- The African Sahel experienced one of the most dramatic long-term climate change between the 1970s and the mid 1990s, during which hundreds of thousands of people and millions of animals died (Glantz, 1976, 1996).
- This triggered a lot of debate about the causes of the Sahelian desiccation.
- Charney et al., (1975, 1977) pointed accusing finger at pastoralism saying that land degradation and desertification caused by overgrazing and inappropriate land use led to soil erosion and over-exploitation of resources.

- The Sahel has long history of pastoralism dated back to about 6000 and 7000 years ago (Holl, 1998; Hassan, 2002).
- Over half a century ago, ecologist Garrett Hardin's (1968) "tragedy of the commons" sought to put the blame of desertification and environmental degradation on pastoralism.
- However, this theory did not see the light of the day and was heavily criticized by the new rangeland concept.
- The new rangeland paradigm represents a shift in the discourse on pastoralism and environmental degradation from the "tragedy of the commons."
- The new rangeland paradigm argues that mobility is an appropriate strategy to sustainably exploit the natural resources and could avoid degradation of the environment



- The mobility of pastoralists enables them to exploit various kinds of feeds for their animals and allows pastoral herds to use the drier areas during the wet season, control disease outbreaks (Niamir-Fuller, 1998, 1999; Scoones, 1995).
- The Sahelian droughts in the 1970 and 1990s further increase the migration of the herdsmen to Ghana (Tonah, 2005).
- From the 1990s, Ghana began to experience another dimension of pastoralism - the influx of seasonal migration of pastoralists from the neighbouring countries to graze in many free palaces.
- All these were in response to exploiting the rangeland

- However, the over exploitation of the rangeland is associated with socio-economic and politico-cultural consequences which have far reaching negative implications for pastoralism.
- The expansion of population has a corresponding increase in demand for agricultural farmlands leading to a considerable reduction of rangeland.
- Attempts by the pastoralists to exploit the rangelands often lead protracted conflicts between pastoralists and crop farmers (Adriansen, 2008; Adriansen and Nielsen, 2005)
- It also led to cattle rustling, lost, death as they travel long distances, sometimes into unfamiliar terrains.

# Pastoralism and Climate Change in Ghana

- In the savannah zone, pastoralism is practiced for several decades. Livestock, especially cattle are part of the social, economic, marital and religious rites. In the Upper East Region, cattle are used to pay bride price. Thus, every house keeps cattle, leading to overgrazing, desertification, reduced rainfall.
- The destruction of pastoral infrastructure in the savannah, leading to insufficient pastures, and in pursuance of rangeland for grazing, led to the incursion of cattle into the forest zone.
- From the early 2000s, pastoralist began to penetrate the forest zone. Now there are evidence of destruction in the forest, - cattle pathways, over grazing and conflicts in the Asante Akyem Districts, Afram Plains, etc.
- In the coastal plain zone, cattle rearing began shortly before independence, when Accra began to expand and cattle were brought from the northern parts of the country sale. Excess cattle that were not bought were grazed around areas like Nima, Mamobi, Madina, etc (suburbs of Accra) for fattening for the next market. This encouraged cattle dealers and pastoral to take advantage coastal pastures to rear cattle. Now there evidence of overgrazing, degradation of the environment, etc.

# Impact of Pastoralism on Climate Change

- Over grazing due to reduced rangeland
- Destruction of vegetative cover, forest reserves, secrete growths
- Hardening of the top soil, killing of micro organisms such as ants, earthworms, etc that help to loosen the soil for easy penetration of water, air and nutrients.
- Pastoral activities lead to erosion
- Burning of bushes
- Cutting down of trees
- Pollution of small water bodies and quickening their drying up

# Impact of Climate change on Pastoralism

- Prolong dry seasons, heavy concentrated rains, high temperatures
- Increases transhumances as a pastoralists survival strategy in search for pastures and water
- Increases Violent Conflicts between farmers and pastoralists,
- Lost of weight and market value of animals due to over roaming in search for water and pasture
- High temperatures or excessive rains are not good for the health of livestock
  - Contraction of diseases by animals, high morbidity and mortality of livestock
- Cattle rustling, theft and high cost of supplementary feeding
  - High cost of rearing livestock, making it unattractive and uneconomical
- ☐ The combined effects of these make pastoralism vulnerable, unproductive and unattractive. It exacerbates the poverty of the pastoralists

# Implication for the Livestock subsector in Ghana

- High cost of producing livestock lead to high cost of dairy and beef products
- Increase in the importation of inorganic chicken and fish products
- Reduction of livestock population
- Collapsing of pastoral livelihoods
- Alternative livelihood means for pastoralists families
- Low contribution of livestock to GDP

## ☐ Covid-19 Implication

- Reduced the trans boarder movement of pastoralist
- Reduced farmer herder conflicts
- Increased cost of livestock
- Affects pastoralists economy

# Mitigation strategies

- ❖ Semi-intensive farming
- ❖ Mixed farming
- ❖ Intersectional linkages –processing of manure

# Conclusions

- There is a symbiotic relationship between climate change and pastoralism
- Pastoralism lead to over grazing, environmental degradation, desertification and pollution of water bodies.
- Climate change leads to excessive rains or droughts, high temperatures, etc
- Reduction of livestock population leading to high cost of livestock products
- Collapsing of pastoralist livelihoods