**Environmental Science: Improving Disaster Resilience in Turkana Community**

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**Abstract**

Turkana County is located in the arid northwest region of Kenya with high temperatures of 400oF and annual rainfall of about 200mm. The residents of Turkana are pastoralists who keep livestock as a means of earning their livelihood. Prolonged frequent droughts have exacerbated the difficult conditions the community has to cope with in an already difficult and underdeveloped environment. Women and girls walk long distances to access water for domestic use while lack of sufficient food and water cause illnesses among children. Turkana people depend on their livestock for livelihood and the loss of animals due to drought normally leaves the community and households in a destitute state. This calls for concerted efforts from cohort players to provide a platform for building resilience among the community members to cope with drought by developing drought coping mechanisms. The Government needs to play a key role in building resilience of the Turkana community to cope with drought, with support from CSOs, the Turkana community and households. The Government needs to develop a comprehensive drought monitoring and early warning systems that provide clear, simple, useful, and usable information that is critical to enable proper preparedness and response by communities. Providing sustainable availability of water is key. This can be done by harnessing surface run-off water and storing it in tanks, dig and fitting boreholes with solar pumps strategically within the county. Building capacity of community to diversify to other activities besides livestock rearing also provides cushioning to drought. Additionally, Livestock offtake and insurance programs are key strategies that promote resilience among the community. Some challenges in creating resilience include lack of sufficient resources, keeping large number of animals and insecurity. In order to create lasting resilience to drought among Turkana community, strategies must be put in place to enable the community to anticipate, absorb, accommodate or recover from the effects of drought in a timely and efficient manner. In all this, the Turkana community must be at the core of the processes adopted.

*Keywords:* resilience, drought, pastoralism, livestock

**Environmental Science: Improving Disaster Resilience in Turkana community**

This write-up looks at factors in relation to improving disaster resilience among communities in Turkana County in Northwest Kenya, and bordering South Sudan, Ethiopia and Uganda. Turkana County is globally renowned as the cradle of mankind. Turkana is one of the 42 counties in Kenya located in the arid northern region of the country. According to the (2019 Kenyan census), the population of Turkana was approximately *926,976* or 2.14% of the Kenyan population, making Turkana the third largest Nilotic ethnic group in Kenya. Turkana covers an area of nearly 77,000 km2 with population density of 14 people per Km2.  It is the largest county in Kenya. Temperatures in Turkana reach close to 104°F during the dry season and receives annual rainfall of about 200mm. It is home to nomadic pastoralists who mainly keep cattle, donkeys, camels and goats for food and also their main source of livelihood. Turkana County is home to a rapidly growing population that is among the poorest in Kenya.

Drought remains the biggest problem faced by Turkana community. A phenomenon that has been recurring every year since 2016. Turkana County has long experienced periods of cyclical drought (Cohen; Horne, Felix; & Rall (2015).

Prolonged and more frequent droughts have exacerbated already difficult access to potable water, making every day a struggle for survival. Women and girls often walk extremely long distances to dig for water in dry riverbeds. Many children become sick because their families are unable to provide them with sufficient food and clean water. Increased competition over grazing lands and water has heightened the likelihood of conflict and insecurity (Cohen; Horne, Felix; & Rall (2015).

There is need to work with the Turkana community to developing drought coping mechanisms and to build their resilience in coping with drought conditions. This can be done using different strategies and working closely with the community.

# **Creating Resilience to Cope with Drought Among Turkana Community**

## **Effects of Drought on the Turkana Community**

Traditionally, the Turkana people have always been dependent on their livestock for sustenance. Whenever they need to buy foodstuffs or household supplies, they sell a goat or cow at the market and with the money received, make the necessary purchases. But with the shortage of rains leading to lack of pasture, many cows, goats and even camels have died, leading to a loss of income for many across this vast county (United Nations (2022).

Women in arid areas such as Turkana County, are heavily affected by climate change. It exacerbates their vulnerability and amplifies existing gender inequalities in livelihoods, health, and safety. Severe drought forces women and girls to travel long distances to fetch water for domestic consumption. Traditionally, women also have the most responsibility for environmental sanitation, and drought only amplifies that burden. Girls’ access to education in rural Turkana is greatly affected as they are kept out of school to search for water (Zawya (2022). Walking long distances in search of water exposes women and girls to the risk of sexual violence, particularly in the event of intercommunal resource-based conflicts (ACAPS, 2022).

Boreholes, dams, water pans, shallow wells, and springs are the primary sources of water for households and livestock. Around 95% of water sources used by pastoral communities dried up because of drought (OCHA, 2022). As a result of the drought, pastoral and agropastoral communities face water shortages, crop loss, livestock deaths, and a subsequent reduction in income (ACAPS, 2022)

Turkana County has Extremely Critical malnutrition levels. An estimated 87,880 children and 29,000 pregnant and lactating women were projected to need treatment for acute malnutrition between July–October 2022 (IPC 28/09/2022). Disease outbreaks are likely to spread further because of factors associated with the drought, such as high malnutrition rates and inadequate access to clean water and sanitation/ hygiene facilities. Malnourished children and pregnant women are more likely to contract diseases given their compromised immunity (ACAPS, 2022).

As the drought depletes available resources and income, many households are forced to make a choice between spending on food or on essential services such as healthcare and education for children. Many households choose to reduce their spending on health services, likely affecting people suffering from conditions that need long-term treatment, such as tuberculosis and HIV. Conditions that would have been monitored and prevented during routine health checks are also likely to go unnoticed or untreated, such as those related to maternal and reproductive care (WHO, 2022).

There is a gap in WASH interventions, meaning there is a continued risk of the spread of diseases. The health response also faces challenges, such as inadequate medical personnel, a shortage of medicine and medical supplies in health facilities, and weak health systems (NLM, 2022). The scale of the current health outreach is also inadequate, and nomadic communities do not benefit fully from health interventions, such as immunization, nutrition monitoring, and antenatal care (WHO, UNICEF, 2022).

## **Improving Drought Resilience Among Turkana Community**

Drought in Turkana County is cyclic in nature, happening every year with devastating experiences for the Turkana people. This situation is repetitive mainly because no proactive and solid actions are taken by the relevant authorities and stakeholders to ensure the community does not go through the same devastating experience every year. It is always a knee-jack reaction when the drought conditions reach maximum levels each time and animals and human beings start dying from thirst and starvation, diseases breakout and other atrocities set in. There is need to identify and implement some permanent/long-lasting solutions to the recurring drought situation in Turkana County that would build the resilience of the community to cope with drought conditions and help safeguard lives and livelihoods. Changes must be made in a proactive, rather than reactive manner to minimize negative effects on human lives, livestock and crop production during prolonged periods of drought.

Improving resilience among the community that lives in the Turkana drought prone area needs a joint effort not only from the government but from all stakeholders including the national and county government, civil society organizations (CSOs) and the community members themselves. Positive experience is necessary in order to change the attitudes and mindset of the Turkana people, who identify with the pastoralist way of living (Bright Hope (2019).

It is important to note that drought management and creating resilience among those suffering its consequences is not business as usual. Actions to create resilience should be undertaken by the National and County Government, other stakeholders including civil society organizations (CSOs), the community and households.

### ***Creating resilience by the government***

The Government should be at the forefront in creating resilience among the Turkana Community to cope with challenges brought about by drought.

Increase in investments responsive drought warning systems: Through the national government, the county government need to put in place effective weather and climate forecasting that provide informative and operational data that can help in projecting future droughts episodes. This should be coupled with clear, simple, useful, and usable information that is critical to enable proper preparedness and response by communities. Being prepared, responsive and recovering from drought is key. Design comprehensive drought monitoring and early warning systems (integrating multi-scale climate, soil, water and socio-economic indicators) (Windhoek Declaration, 2016), decision support tools, and real-time drought assessment products (UNCCD et al. 2013, Robert, 2016) that provide key and timely information for supporting decisions. There is need to improve the technical capacity of producers and users of climatic information, in order to enhance the use of climate monitoring and forecasting products in climate risk management and environment management (Mbogo, Inganga, and Maina, NEMA, KMS).

Throughout all drought-affected counties, food insecurity has worsened as a result of poor rainfall, lower crop and livestock production, and food inflation resulting from the combined impact of conflict in Ukraine and below-average crop production (IPC, 2022). Pastoral households need livelihood support through the commercial purchase and slaughter of livestock, veterinary services for livestock, the provision of livestock feeds, conservation, and the rehabilitation of pasture and rangelands. Agropastoral households also need seeds for drought-resistant crops and fertilisers. In Turkana County, support is needed in expanding irrigation schemes (ACAPS (2022).

In order to enhance Turkana community resilience to drought effects, there is need for the government to alter fundamental attributes of social, economic and ecological systems (including value systems; regulatory, legislative, or bureaucratic regimes; financial institutions; and technological or biological systems). Put local communities at the centre of drought decision-making processes, policy design and planning since the social impacts of droughts depend on people’s capacity to live with diminished water supply as well as their ability to adapt (Neville, 2019).

Transfer of adaptation technologies is another method through which the Government can contribute to resilience among the drought affected Turkana community. Construction of new infrastructure: During the rainy season in Turkana, there is a lot of water lost especially through floods when rivers break their banks. Increasing the amount of groundwater storage available promotes recharge when surface water flows are in excess of demand, thus increasing climate resilience for seasonal or extended periods of drought, and taking advantage of seasonal variations in surface water runoff. The Government should also sink and equip boreholes strategically across the county where communities can access water for both human and animal consumption. This should be done through underground mapping of aquifers, drilling and equipping boreholes, and conducting comprehensive water reticulation to enhance access (Onyango (2022).  Strategic installation of solar pumps across the region would go a long way in supporting the communities during drought by pumping water from boreholes. Solar pumps use free energy from the sun which is in abundance in Turkana County. The Government and the CSOs can help in accessing and installation of the same.

Distribution of animal feeds should be a key step taken by the Government during droughts in Turkana County. The government should take the initiative to not only provide support to humans during droughts but should also provide support to the animals which are the mainstay of the community. This can be done through provision of feed and other supplements to avert livestock diseases and death which is usually a devastating occurrence during severe droughts in Turkana County.

Diversification of activities is a key way of survivability and creating resilience among community members in Turkana County during drought. Diversifying includes engaging in other activities other than livestock keeping such as micro irrigation systems and nature-based enterprises like aquaculture, beekeeping, and poultry among other activities.

Livestock insurance initiated by the Kenyan Government has also contributed in cushioning the community from losses due to drought conditions. The Government provides insurance services for loss of animals and in case of losses due to drought, the insured pastoralists are compensated for the animals they have lost.

### ***Creating resilience by the CSOs***

Turkana is among the counties prioritized in the current drought response. Both national and international humanitarian organizations, including UN agencies, are active in Turkana County, with at least 15 groups in the county taking part in the drought response (UNFPA, 2023). The CSOs engage in various activities including provision of humanitarian aid including provision of food rations and health services.

The Kenya Red Cross Society also takes an active role in the response across various sectors, such as food security and livelihoods, nutrition, gender-based violence protection, and WASH (OCHA 27/06/2022; OCHA 02/11/2022).

World Vision plays a key role in the livestock offtake program where they support the government to buy animals that are not able to cope with the drought conditions. These are bought from the partoralists through the program. This provides a ready market for families grappling with drought challenges and enables them to sell their animals before they incur losses caused by livestock deaths during drought seasons ([www.worldvison.org](http://www.worldvison.org)). The cash they get is used to purchase food items and to meet other basic needs as the drought prevails. Sometimes the World Vision and county government use the animals bought from the farmers to get meat that is distributed to vulnerable families with high poverty levels who are severely malnourished. Priority is given to households with children below five years, as well as lactating and pregnant women.

### ***Creating resilience by the community and households***

Migration:Because of the nomadic nature of pastoralism in Turkana County, many pastoralists migrate with their livestock in search of water and pasture during drought to areas with better pasture. Although temporary, this is one way of averting the devasting consequences of drought by the Turkana community.

Hay production: Community members can embark on production of hay during the rainy season and build stock for use on their own animals and also sell for income to other pastoralists when drought breaks out. This will ensure resilience and survival of their animals and also some income for their households.

Insecurity/resource-based conflicts: With drought worsening in Turkana County, competition over scarce pasture and water has fueled increased intercommunal tensions and resource-based clashes (ACAPS, 2022). Community members from different clans within the county need to find amicable ways of sharing the available resources to avert loss to human lives and animals. This will provide a survivable environment for all.

# **Challenges in Creating Resilience Among the Turkana Community to Cope Drought**

**Resources**

One of the main challenges in creating resilience among the Turkana community is inadequate resources. The Government does not have sufficient financial resources and qualified human resource to put in place all the necessary strategies in support of the Turkana community to build resilience to cope with drought conditions.

**Cultural practices**

Traditionally, Turkana community are pastoralist and also lead nomadic way of life. The community believes they are as rich as the number of livestock they have. Thus, a household may keep animals in their hundreds. This exposes them to heavy losses due to death of animals during severe drought conditions resulting family loss of livelihood.

**Insecurity**

Inter-clan clashes are common place among the Turkana community. These clashes are usually caused by cattle rustling or disputes over resources especially during drought conditions. Sometimes the level of insecurity is so heightened that it is not possible for other stakeholders such as the CSO and even government officials to go to the community to provide support need.

**Overstocking**

The more the livestock in numbers the richer one is. This is the standard belief among the Turkana community and indeed among other pastoralists. This large number of animals makes it difficult to provide necessary basic services such veterinary services if there is an outbreak of animal diseases often resulting in massive losses to the community. Overstocking also depletes the vegetation faster.

# **Conclusion**

Improving the resilience among Turkana Community to cope with the devastating effects of drought is key in preserving lives and resources. It is important for the community being supported to understand the importance of creating resilience as opposed to providing short-term support such as food and water during drought. In order to build resilience among the Turkana community to deal with drought, efforts from cohort players are necessary, and this includes actions from the government, civil society organizations, the community and individual households. The government will play more of the technical role while civil society organizations, the community and households will participate more on social issues that promote and support the process of creating resilience. This will provide a platform that allows convergence of synergy to create resilience in the Turkana community. However, in order to create ownership, appreciation and adoption, the Turkana community must be at the core of all the efforts taken to build resilience among the community to cope with drought. This is the only way tangible and long-lasting resilience will be achieved.

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