



Climate Vulnerability and Capacity Analysis

Kaloma District, Kalonda Zone

MAIN LIVELIHOODS AND RESOURCES

Livelihoods: Small holder, non-mechanized mixed farming systems with crops and livestock. Farming maize (main crop), sunflower; tobacco, and groundnuts. Livestock keeping- cattle, sheep, goat, and chicken

Natural resources: Trees for charcoal, tobacco curing and brick making; water resources from streams, rivers, wells, boreholes, and dams; forest products such as fruits, mushrooms, and honey

CURRENT AND FUTURE CLIMATE CHANGE TRENDS

- Mean annual temperature is increasing (by an estimated 2° c between 2040-2059)
- More frequent extreme weather events: heat waves, thunderstorms, floods, droughts
- Rainfall seasons less predictable and shorter. Rainfall decreases in September-November and increases in January - March
- More extremely wet periods, severe flooding, and flash floods.
- More frequent, longer, and severe droughts, dry spells



HAZARDS IN ORDER OF IMPORTANCE

1. Drought
2. Flooding and strong winds during the rainy season, cyclones
3. Shorter rain seasons
4. Extreme temperatures, heat waves

The world must come together to confront climate change. If we do nothing, we will face more drought, famine and hunger.

Barack Obama

VULNERABILITIES IDENTIFIED BY EACH GROUP

Group	Vulnerability Faced	Capacities and Strategies Used
All	<ul style="list-style-type: none"> • Water scarcity, also for household use • Reduced crop yields, livestock, arable land • Reduced attendance at school: flooding prevents access, hunger and limited income keeps students at home • Reduced income, increase in poverty 	<ul style="list-style-type: none"> • Conservation farming, drought tolerant crops
Older People	<ul style="list-style-type: none"> • Reduced crop production and vegetable gardening • Increased prevalence of animal diseases has reduced animal draft power • Population increases have limited available land for farming – exacerbating farming challenges 	<ul style="list-style-type: none"> • Droughts: Practicing conservation agriculture, afforestation, crop diversification, drought tolerant crops, multi-paddock grazing, digging shallow wells • Floods: Planting on ridges, placing stepping stones in flood prone areas • Pests and diseases: Afforestation to bring back birds (natural pest predators), mass livestock vaccinations and crop spraying • General: Livestock selling, bartering, reliance on credit, storing more food produce
Women	<ul style="list-style-type: none"> • Crop fields are affected, cultivation area has reduced from 4 Ha to 1-2 Ha per household • Flooding makes it impossible to plough gardens • Drought stunts crop growth and leads to drying of crops and low yields • No extra maize for sale reduces incomes • Poor roads have impacted the ability to sell at markets • Lack of cattle due to diseases means no animals for ploughing and transport • Walk long distances to fetch water for household use 	<p>Droughts:</p> <ul style="list-style-type: none"> • Conservation farming from May to September • Planting drought tolerant crops (cowpeas, sunflower and early maturing maize) • Keeping goats - less prone to diseases than cattle.
Men	<ul style="list-style-type: none"> • Crop failure and water shortages which dries grasses and leads to poor harvests • Floods lead to increases in animal diseases and loss of animal power (increasing cost of livestock), droughts also contribute to animal diseases outbreak and increases in livestock dehydration. • Walk long distances to get water for the animals 	<p>Droughts:</p> <ul style="list-style-type: none"> • Conservation farming, afforestation and crop diversification <p>Floods:</p> <ul style="list-style-type: none"> • Use of weekly weather forecasts
Young Women	<ul style="list-style-type: none"> • Floods and droughts have affected crop yields and viability of gardens • Deforestation has led to having to walk longer distances to fetch firewood which is dangerous as men have sexually assaulted women during these trips • Droughts have led to animals dying which has affected availability of transportation and draft power • Housing materials (poles and grass) and forest foods (mushrooms, fruits) are not available. 	<ul style="list-style-type: none"> • Village savings groups, small businesses of selling groceries, making flitters, brooms, and doormats. • Conservation farming and crop diversification • Drought resistant crops (maize) off-season planting of okra and cabbages • Rearing small livestock: goats, chicken and guinea fowls
Young Men	<ul style="list-style-type: none"> • Erratic rainfall patterns with flooding and droughts have led to reduced yields and poor livestock health 	<ul style="list-style-type: none"> • Water harvesting • Conservation farming and planting early maturing crops, rice planting, ant hill planting

Impacts: Extreme events, droughts and existing land use practices have resulted in:

Reduced yields and income: later planting season due to late onset of rains, noticeable decline in maize production, increasing crop failure, loss of arable land in droughts, reduced food security and wealth across all groups, increase in nutrition challenges, hunger and poverty.

Increase in livestock challenges: increased disease (including Foot and Mouth Disease), malnutrition and death, shift to goats as preference over cattle (for women), competition for fodder for livestock and food production (fields and gardens).

Scarcity of water resources: damage to fragile ecosystems such as stream banks and wetlands, streams and water sources drying out, limited dam water supply, pollution of shallow wells, lack of drinking water. 10 years ago, streams that are now seasonal had water throughout the year.

Ecosystem decline: Deforestation, soil erosion, loss of fertile top soil and reduced soil water retention, land degradation. Loss of Indigenous trees and forest products such as firewood, wild fruits, mushrooms, honey, and rural medicines. Destruction of assets: flooding of fields, roads and bridges washed away and destroyed, buildings submerged, roofs blown off.

A vicious cycle: climate change is accelerating land and natural resource degradation. As natural vegetation cover decreases, forests, streams and soil are degraded and the severity of extreme events (floods, strong winds, droughts) and their impacts increases, causing greater destruction of resources and assets. This impacts the viability of livelihoods which in turn causes people to exploit natural resources (such as tree cutting for charcoal production) further in a non-sustainable way. When farming and livestock fail, forests come under pressure for income. Forests are also under pressure from energy needs related to livelihood developments: for cooking, charcoal for income, curing of

tobacco and producing bricks for house building. Social relations are challenged as resources decline. E.g. Livestock belonging to men eat vegetables grown by women, and women travel farther to collect water.

Barriers to overcoming current and future climate change impacts and vulnerabilities

Health: shortages of medicine and staffing, women have challenges to accessing healthcare centers.

Literacy and education: low levels of literacy affect ability, especially of women, to participate in development activities (Farmer Field Business Schools, CARE). Lack of adequate learning materials and infrastructure in schools.

Infrastructure and services: Ministry of Agriculture and Ministry of Livestock are not present, agricultural extension officers are not supplying drought tolerant seeds; degradation of roads causes access and transport challenges. Community and social life: low male participation in churches; exclusion - some organizations only provide help to a specific target group or only member groups; gender relations such that women are unsafe in isolated locations.

Gender inequality: Women often lack the ability to own and control land and resources such as grazeland and finances, and women also lack power in decision-making within households and among the community and local institutions. Women's household roles such as caring for children in addition to fetching water or firewood leave them uniquely vulnerable to the effects of climate change such as increased temperatures, floods, and droughts, as well as the threat of gender-based violence.

Climate information and early warning: no daily or weekly information, poor communications (weak radio signal, no information on weather on local channels), no climate and early warning committee in Kalonda or farmer forums to raise awareness.

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