

# Coping with Drought and Climate Change in Zambia (CDCC) Project in Gwembe District of Southern Province

# **Endline Assessment Report**

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#### **EXECUTIVE SUMMARY**

This endline assessment revealed that 99.7 percent of study participants grew some crops in the 2020/21 farming season as compared to 94 percent of participants who confirmed of having grown some crops during the 2019/20 farming season. When asked the kind of crops grown, maize accounted for more than 99 percent at endline as compared to 89 percent at baseline. Sorghum accounted for 60 percent at endline as compared to 17 percent of participants at baseline. Millet accounted for 40 percent at endline as compared to 14 percent at baseline. Beans accounted for 29 percent of participants at endline as compared to 2 percent at baseline. Those who cited of having grown other crops such as cotton, sunflower, cow peas, groundnuts etc. accounted for 9 percent at endline as compared to 4 percent at baseline.

The assessment further showed that out of all households surveyed, slightly above 14 percent were classified as food secure at baseline as compared to 26.2 percent at endline, which was an absolute percent change of 11 percent. Only about 0.2 percent of households were classified as severely food insecure at endline as compared to 3.8 percent at baseline.

The report also established that majority study participants owned goats accounting for 87 percent of participants as compared to 66 percent at baseline. Of those that confirmed of having owned any livestock, 74 percent owned chickens at endline as compared to 69 percent baseline. Cattle ownership was the same at endline as compared to baseline surveys with a difference of 0.5 percent absolute difference at endline

Interestingly, this report established that the majority were in support of the fact that women should engage in economic activities. When asked to state who between a man and woman has access to resources at household level, the majority of respondents felt that men were responsible for this aspect - accounting for 65 percent of participants at endline as compared to 60 percent at baseline survey. Those who stated of both men and women having the responsibility over access to resources at household level accounted for 38 percent at endline as compared to 33 percent of participants at baseline.

The endline survey established that 57 percent of study participants attended gender dialogue sessions to discuss roles of men and women in nutrition practices as compared to 43 percent who did not. This implies that a lot needs to go towards sensitization of men and women to look at each other as partners in development. There is also need to ensure that men are fully engaged in all discussions to ensure that they are involved in matters that influence the general wellbeing and that of their families

#### 1.0. INTRODUCTION

According to the Zambia Meteorological Department (ZMD), the country had a mixed season with much of Zambia receiving normal to below normal rainfall in the 2018/2019 rainy season with the exception of Luapula, Copperbelt, Northern, Muchinga, including parts of North-Western, and Eastern provinces that received normal to above normal rainfall. Reports show areas in the southern half that received drastically reduced rains with some areas receiving as little as 50 rain-days during the season which is around a quarter of what the region receives. This may have had a significant effect on food security of the country since production and productivity of most crops is likely to be negatively affected. These drought conditions in the southern half of the country occurred virtually across the season with few decades of downpours.

The situation was compounded by the high temperatures that came with the season which led to quick loss of moisture in the soils and an increased evapotranspiration from the crops. This added to the water stress for the crops. Availability of water for domestic chores and livestock was also not readily available. This led to increase in disease thereby taking away from the households the much needed labour for work in the fields as well as emaciation of livestock due to lack of pasture and water. The hot conditions also led to some districts suffering from pest infestations thereby leading to further crop losses.

The 2020 Global Nutrition Report highlights the need for an urgent and integrated response to global nutrition if the Sustainable Development Goals of Agenda 2030 are to be met. With almost every country in the world facing a serious nutrition-related challenge, the report authors call for a critical change in the global response to malnutrition in all its forms and action throughout the goals to tackle the many causes of malnutrition.

Poor diet is the leading cause of mortality and morbidity worldwide, exceeding the burdens attributable to many other major global health challenges. The resulting global malnutrition crisis includes hunger and undernutrition — mainly stunting, wasting, underweight and micronutrient deficiencies — and diet-related non-communicable diseases (NCDs) — mainly overweight, obesity, diabetes, cardiovascular disease and cancer. This double burden of malnutrition — two sides of one crisis — has vast health, economic and environmental implications, affecting every country of the world in some form.

Global leaders affirmed a vision for a world that 'leaves no-one behind' by committing to the Sustainable Development Goals (SDGs). This vision includes a world free from malnutrition in all its forms. Immediately following the SDGs, the United Nations (UN) Decade of Action on Nutrition 2016–2025 articulated the goal of eliminating all forms of malnutrition by 2025, a goal underpinned by the principle of universality and achieving food and nutrition security for all. The principle of universality refers to an inclusive approach ensuring that everyone has fair access to the resources and services they need to achieve optimal nutritional health. Equity adds an ethical dimension and focuses on opportunities rather than outcomes. Unequal nutrition outcomes are rooted in deeper inequities that arise from unjust systems and processes that structure everyday living conditions.

Considerable progress has been made in measuring nutrition inequalities, but we have been less clear on understanding and confronting inequity. Inequity affects people throughout the social hierarchy and is grounded in the marginalization, stigmatization or relative disempowerment of different individuals and groups. This situation coupled by natural

disasters such as flooding, and droughts further push affected people in desperate situations. As the voices and ideas of marginalized people are unheard or ignored, their health and nutrition needs are not addressed.

It is against this brief background that the Coping with Drought and Climate Change in Zambia (CDCC) project was conceived.

# 1.1. Coping with Drought and Climate Change in Zambia Project

# 1.1.1. Project Description

Zambia is currently experiencing severe food insecurity and water shortages due to the worst drought seen in the country since 1981. A total of 2.3 million people are affected and are currently in need of humanitarian assistance.

As can be seen on the map, 58 districts (nearly half of the districts in the country) were facing acute food security, with 3 districts facing emergency levels of acute food insecurity (Gwembe, Lunga, and Shangombo). The situation particularly was acute in the southern and western areas of the country, where the rainfall deficit had devastating effect agricultural production, decreasing sharply the availability of food in the region.

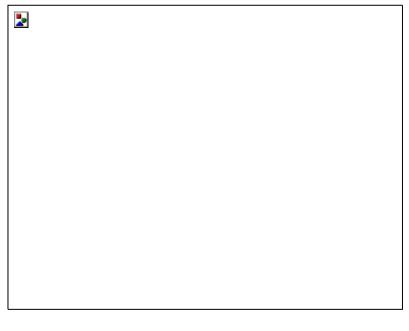


Figure 1: Distribution of food insecurity for Zambia in March 2020

The 2019/2020 drought in Zambia went unnoticed in the global media, overshadowed by other crisis and events. Funding for the drought response had also been limited, hampering the ability of humanitarian actors to respond to the food security crisis. Funding was therefore required to both meet the immediate needs of drought-affected communities and support people to recover from the drought as quickly as possible.

#### 1.1.2. Project Purpose

The purpose for this project was to improve the food and nutritional security of drought-affected small scale-farmers in Zambia, specifically Gwembe District, to restore their livelihoods, and to enhance their resilience to future climate threats.

In order to do so, CARE planned the following measures:

# 1. Distribute two types of seeds to small-scale farmers:

- a. Vegetable seeds to farmers that have access to a water source so that they can quickly start producing food, as some vegetables only take 6 8 weeks to grow;
- b. Drought-tolerant cereal seeds for the 2020 planting season, which can help farmers producing crops even during droughts.
- **2.** Distribute chickens and goats to small-scale farmers to improve their nutritional security, as milk, eggs and meat provide a good source of protein.
- 3. **Train small-scale farmers on climate-smart/conservation agriculture,** which has the capacity to increase the efficient use of rainfall and reduce water runoff and evaporation, making better use of limited water.
- **4. Hold regular community conversations** with communities so that they can discuss how the social and gender norms in their communities perpetuate their vulnerability in this instance, their food security and livelihood challenges.

CARE's approach was to meet the immediate needs of drought-affected communities but also to offer sustained support so that people are better able to face and navigate climate threats without needing external assistance. Ultimately, its main goal was to help people becoming more resilient. The project was implemented in Gwembe District of Southern Province, Zambia. Gwembe District was one of the three districts most impacted by the drought in Zambia, as most of the population is dependent on rain-fed agriculture (as opposed to irrigation), with a mix of crops and livestock.

#### 1.2. Main Goal of the Assessment

The endline assessment was aimed at collecting endline quantitative and qualitative information on nutrition-related topics so as to measure the current state of affairs after the program interventions were rolled out

# 1.3. Specific objectives

- 1) Examine Knowledge, attitudes, behaviors and practices related to agriculture, nutrition, gender and women's empowerment.
- 2) Identify programmatic priorities and approaches through key informant interviews with stakeholders such as government staff and community leaders.

#### 2.0. METHODOLOGY

# 2.1. Study Design

The assessment adopted a cross-sectional pre-post study design. A pre-post study design was aimed at measuring the occurrence of an outcome before, and again after a particular intervention has been implemented. In perspective therefore, the CDCC project operated in specific selected communities of Gwembe district of Southern province. Methodically, the endline assessment gathered both qualitative and quantitative data elements. Quantitative data were collected through a structured household schedule (questionnaire) while qualitative data were collected through Individual In-depth Interviews (IDIs) and Key Informant Interviews (KIIs).

#### 2.2. Data collection

The assessment was conducted in August, 2021. The assessment was designed to collect cross-sectional data on knowledge, attitudes, behaviours and practices related to health and nutrition, agriculture, hygiene and sanitation, gender and women empowerment using a semi-structured household questionnaire. Other data collection procedures included the following:

- **A.** Secondary data collection through document review of CDCC project related relevant internal and external documents, and
- **B.** Primary data collection through a **Household survey** using a semi-structured questionnaire with women and men of reproductive age group. **KIIs** (Key Informant Interviews) with district agricultural officers, agricultural extension officers and health facility in-charges, and the rural water and sanitation officers. **In-Depth Interviews** with project beneficiaries to fully appreciate the current levels of knowledge, attitudes and practices around nutrition, agriculture and gender related aspects, were equally conducted.

## 2.3. ETHICAL CONSIDERATIONS

As part of preparations for fieldwork, all partners were trained on research ethics, obtaining informed and on-going consent for household interviews, IDIs and KIIs; privacy and protection of identity of interviewees and avoiding negative blow back to interviewees. In addition, all Researchers were educated on ensuring that interviews were conducted in a safe and secure environment, i.e. ensuring physical safety of interviewees as well as data safety. Furthermore, given the COVID 19 pandemic, all interviews were conducted at a private but open space maintaining the recommended "social distancing" space of about 6 feet.

#### 3.0. STUDY FINDINGS

## 3.1. Demographic Characteristics of Households

Information on the demographic characteristics of the households in Gwembe district provides a context to interpret the age, educational levels, and occupation and identify the heads of households and furnish an indication of the representativeness of males and females that participated in the survey.

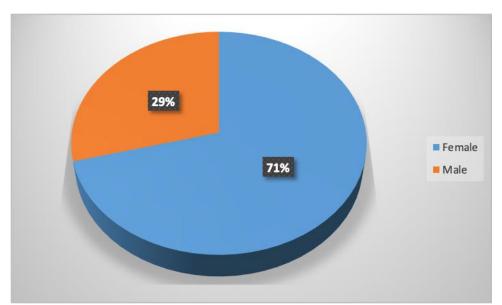


Figure 2: Gender distribution of study participants

A total of 669 households participated in the endline assessment in Gwembe district of Southern province in Zambia. The survey results indicate that 473 (70.7%) were female and 194 (29%) were male. This is as depicted in figure 2. And the majority of all participants on this survey were aged 26 years.

#### 3.2. Head of Household Profile

Of the heads of households, 586 (87.6%) were male and 74 (11.1%) were females (see table 1). This situation is in tandem with the existing situation in the area where it is expected that a man will marry a number of women and he remains the head over those households. This is necessitated by culture and traditions in the area.

# 3.3. Education levels among the respondents

According to the 2018 Zambia Demographic Health Survey (ZDHS), the majority of Zambians have either no formal education or only some primary education. Urban residents are better educated than rural residents.<sup>1</sup> In as far as education is concerned, endline results show that those who completed primary education (grades 1-7) accounted for 61.7% of participants; 21.2% of participants confirmed of having completed lower secondary school (grades 8-9) and only 8.1% accounted for those that completed upper secondary school

<sup>&</sup>lt;sup>1</sup> Zambia Demographic Health Survey (2018)

education (grades 10-12). The situation was similar at baseline as compared to endline survey (see table 1).

Table 1: Socio-demographic characteristics of respondents

| Variable                               | Baseline | Endline |
|--|----------|---------|
| n                                      | 660      | 667     |
|  | %        | %       |
| Head of Household                      |          |         |
| Male                                   | 96.0     | 87.6    |
| Female                                 | 4.0      | 11.1    |
| Education                              |          |         |
| Completed primary (grade 1 - 7)        | 68.8     | 61.7    |
| Completed junior secondary (grade 8-9) | 23.0     | 21.2    |
| Completed secondary (grade 10 -12)     | 8.2      | 8.1     |

# 3.4. Agriculture production

The overall Zambian agriculture sector comprises crops, livestock, and fisheries. Domestic production is comprised of crops such as maize, sorghum, millet, and cassava while exports are driven by sugar, soybeans, coffee, groundnuts, rice, and cotton as well as horticultural produce<sup>2</sup>.

One of the thrusts of the endline assessment was to establish numbers with regards to how many people were involved in crop production and the kind of crops grown in that region. Endline results show that 99.7 percent of study participants grew some crops in the 2020/21 farming season as compared to 94 percent of participants who confirmed of having grown some crops during the 2019/20 farming season.

When asked the kind of crops grown, maize accounted for more than 99 percent at endline as compared to 89 percent at baseline. Sorghum accounted for 60 percent at endline as compared to 17 percent of participants at baseline. Millet accounted for 40 percent at endline as compared to 14 percent at baseline. Beans accounted for 29 percent of participants at endline as compared to 2 percent at baseline. Those who cited of having grown other crops such as cotton, sunflower, cow peas, groundnuts etc. accounted for 9 percent at endline as compared to 4 percent at baseline. Figure 3 depicts the information presented above.

<sup>&</sup>lt;sup>2</sup> https://www.google.com/search?client=firefox-b-d&q=Agriculture+production+in+zambia

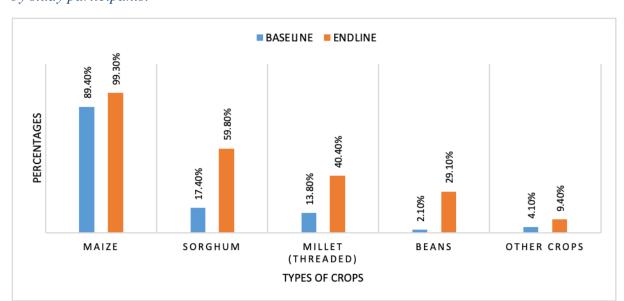


Figure 3: Percentage distribution of crops grown in the 2019/20 and 2020/21 farming season by study participants.

It is critical to note that production of crops during the 2018/2019 farming season was a problem due to crop failure as a result of a severe dry spell experienced in the area during that time. This situation led most of the households to being food insecure.

Crop diversity is fundamental to agricultural growth because it enables farmers and plant breeders to develop higher yielding, more productive varieties that have the improved quality characteristics required by farmers and desired by consumers. Research in Sub-Saharan Africa has shown that crop diversification provides smallholder farmers with a diversity of diet, improves their income, and nutrition security.

# 3.5. Food Security

In order to assess food security of the households, the standardized "Household Food Insecurity Experience Scale" (HFIES), developed by the Food Agriculture Organization was used. The FIES is a measure of access to food at the level of individuals or households. It measures severity of food insecurity based on people's responses to questions about constraints on their ability to obtain adequate food. This approach to food security measurement represents a significant change compared to traditional ways of assessing it indirectly through determinants such as food availability, or consequences such as poor quality diets, anthropometric failures, and other signs of malnutrition.

FIES is an experience-based food insecurity scale representing a simple, timely and less costly method for measuring the access dimension of food insecurity based on data collected at the household or individual level. It focuses more broadly on reported food-related behaviors associated with the experience of food insecurity due to limited access to food (Ballard et al, 2013). This section highlights findings on food security, with details in terms of household hunger scale and Food Insecurity Experience Scale (FIES).

# 3.6. Food Insecurity:

Food security, as defined by the United Nations' Committee on World Food Security, means that all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their food preferences and dietary needs for an active and healthy life.

In order to contribute to household food security, the CDCC Project supported sensitization activities on home gardens to grow food. The CDCC project imparted communities with knowledge on the appropriate methods to grow crops. All these efforts were aimed at improving not only nutrition but also aspects of the FIES.

To measure the hunger scale, the endline assessment used a 4 weeks (30 days) recall period of the frequency of the occurrence for the three items where never=0, rarely or sometimes=1, and often=2 (with a minimum possible score of 0 and a maximum possible score of 6). Then, households were categorized based on the score as; "mild food insecurity" (scores of 0-1), "moderate household hunger" (scores of 2-3), and "severe household hunger" (scores of 4-6).

Table 2: Change in Households Classified as Food Secure from Baseline to endline

| Food Security<br>Categorization | Baseline (%) | Endline (%) | Absolute Change (%) |
|---------------------------------|--------------|-------------|---------------------|
| Food Secure                     | 14.3         | 26.2        | 11.9                |

Table 2 shows that out of all households surveyed, slightly above 14 percent were classified as food secure at baseline as compared to 26.2 percent at endline, which was an absolute percent change of 11.9 percent. Only about 0.2 percent of households were classified as severely food insecure at endline as compared to 3.8 percent at baseline.

#### 3.7. Main Source of Income

When asked to state the main source of income for the household in the previous three months prior to the assessment, 32 percent accounted for study participants citing sale of livestock at endline as compared to 31 percent of participants citing piece work as a main source of income at baseline. Other means such as charcoal burning, sale of fish, brewing beer and gardening as a source of income reduced from 22 percent at baseline to 13 percent at endline. This is shown in figure 4 below.

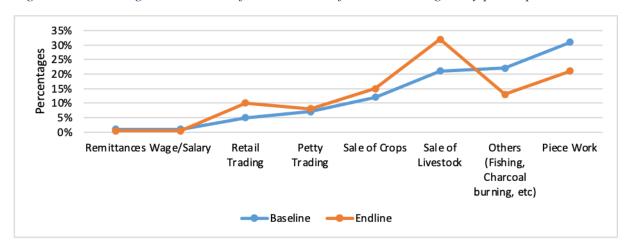


Figure 4: Percentage distribution of main source of income among study participants

Interestingly, when asked to state where they usually spend most of the money, food accounted for 35 percent at endline as compared to 78 percent at baseline survey. Paying fees and other school requirements accounted for 27 percent at endline as compared to 9 percent at baseline. Other needs such as buying groceries, seed, clothing and beddings accounted for 38 percent at both baseline and endline surveys (see figure 5 below).

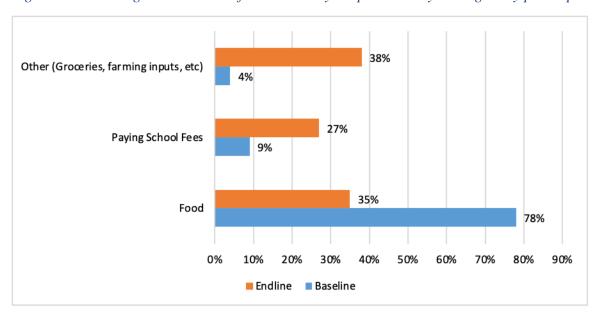


Figure 5: Percentage distribution of where money is spent usually among study participants

Similarly, when asked to state the main source of food consumed in the previous 24hours, the majority at endline accounted for 56 percent citing own production as compared to 26 percent at baseline. Those who cited "purchased food" as a source of food accounted for 35% at endline as compared to 69 percent at baseline (details are as presented in figure 6).

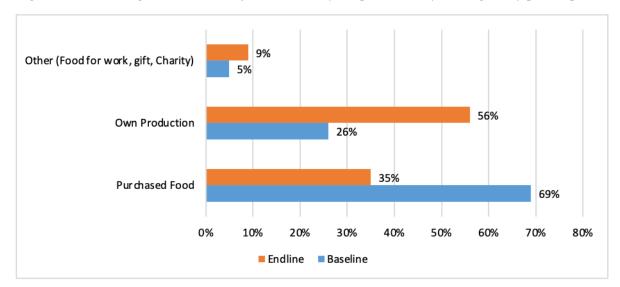


Figure 6: Percentage distribution of where money is spent usually among study participants

# 3.8. Small Livestock Ownership

It was one of the thrusts of the endline assessment to establish livestock ownership. It was established that majority study participants owned goats accounting for 87 percent of participants as compared to 66 percent at baseline. Of those that confirmed of having owned any livestock, 74 percent owned chickens at endline as compared to 69 percent baseline. Cattle ownership was the same at endline as compared to baseline surveys with a difference of 0.5 percent absolute difference at endline. This is depicted in figure 7 below.

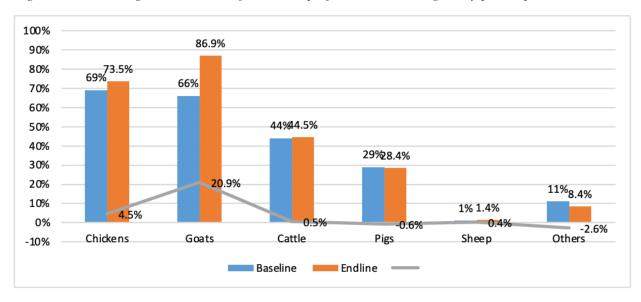


Figure 7: Percentage distribution of ownership of livestock among study participants

# 3.9. Gender Roles and Access to Resources at Household Level

The concept of 'gender roles,' refers to the activities ascribed to women and men based on their perceived differences. Gender roles are socially determined, changes over time and space and are influenced by social, cultural and environmental factors characterizing a certain society, community or historical period<sup>3</sup>. The respondents stated that they have witnessed no changes in gender roles and responsibilities in households, mainly due to the cultural connotation embedded in the community.

When asked to state who between a man and woman has access to resources at household level, the majority of respondents felt that men were responsible for this aspect - accounting for 65 percent of participants at endline as compared to 60 percent at baseline survey. Those who stated of both men and women having the responsibility over access to resources at household level accounted for 38 percent at endline as compared to 33 percent of participants at baseline.

When asked to state whether women should engage in economic activities, the majority confirmed in affirmative that women should equally be engaged in economic activities accounting for 99 percent at endline as compared to 97 at baseline.

However, this assessment went further to establish who owns or controls productive assets (land, equipment, tools, etc.), findings show that 51 percent at endline confirmed of jointly owning assets between husband and wife. The same situation was the case at baseline. Those who stated of husbands owning assets accounted for 43% at baseline and reduced to 31 percent at endline. Wives owning productive assets increased from 7 percent at baseline to 18 percent at endline. This is depicted in figure 8.

JOINTLY OWNED BETWEEN HUSBAND WIFE

Figure 8: Percentage distribution of Ownership and control of productive assets among study participants

#### 3.10. Gender Dialogue Sessions

One of the thrusts of this project was to hold regular community conversations with communities so that they can discuss how the social and gender norms in their communities perpetuate their vulnerability - in this instance, their food security and livelihood challenges. Gender experts say the root causes of Gender Based Violence can largely be narrowed down to inequality for women and the associated violence and harmful and controlling aspects of

<sup>&</sup>lt;sup>3</sup> ILO – Module on Gender, Poverty and Employment, 2015

masculinity that result from patriarchal power imbalances embedded in much of Africa's traditional and cultural beliefs<sup>4</sup>.

The endline survey established that 57 percent of study participants attended gender dialogue sessions to discuss roles of men and women in nutrition practices as compared to 43 percent who did not. This implies that a lot needs to go towards sensitization of men and women to look at each other as partners in development. There is also need to ensure that men are fully engaged in all discussions to ensure that they are involved in matters that influence the general wellbeing and that of their families.

 $^4 https://www.google.com/search?q=causes+of+GBV+in+Southern+province\&rlz=1C1AZAA\_enZM751ZM751\&oq=causes+of+GBV+in+Southern+province\&aqs=chrome.\\ 69i57j33i160.15756j0j15\&sourceid=chrome\&ie=UTF-8$ 

#### 4.0. CONCLUSION AND RECOMMENDATIONS

#### 4.1. CONCLUSION

When a drought occurs, their food supply can shrink, and their habitat can be damaged. This may further lead to an increase in diseases in wild animals, because of reduced food and water supplies.<sup>5</sup> This situation was the case for Gwembe district. If the situation was left unchecked, it would have led to catastrophic implications at virtually all levels: national, district and community levels.

Any meaningful interventions to respond to the drought situation and uplifting of people's livelihoods must take cognizance of the unequal power relations between women and men, contextual cultural interpretations of gender roles and expectations and the resulting changes in relations between women and men, boys and girls. Innovative information dissemination strategies through social action analysis and gender dialogue sessions on various livelihood activities that relate to agriculture and nutrition are still some of the key success factors to stopping the negative implications associated with food insecurity. These aspects should continue to be championed by the established community structures.

Key stakeholders including women, men, girls and boys, community leaders, policy makers and the non-profit sector must be fully engaged in the development of programmes, initiatives, policies and plans that directly or indirectly affect them. This will not only promote sense of ownership and participation but more also strengthen the road map towards sustainability of proposed interventions so that they last the taste of time.

Initiatives such as distribution of farming inputs, drought resistant crops and fertilizer should be continue to be promoted to enable farmers to grow their crops on time. Distribution of small livestock on a pass-on scheme would equally continue to support families to have access to food and nutrition as well as have in a long run chance to sell their produce to access other priority needs. By so doing, lives of many vulnerable households will continue to change drastically.

## 4.2. **RECOMMENDATIONS**

Based on results in this report, the following are the recommendations:

- i) Given the realization that men and boys equally have a role to play in changing the nutrition status of families, there is need for a deliberate plan to engage and involve them in social action analysis training and gender dialogue sessions to challenge gender stereotypes and unequal gender roles. These are rooted traditional and cultural issues that cannot be changed overnight. Therefore, all stakeholders in the community should be engaged to support and champion this issue for results to be achieved.
- ii) Engage men as agents of change through men's network groups, involvement of community leaders and other high-ranking male figures as role models. For various interventions to yield meaningful impact, community structures should consider identifying and engaging community champions who will act as gate keepers to keep

<sup>&</sup>lt;sup>5</sup> https://www.google.com/search?client=firefox-b-d&q=drought+in+zambia

- various interventions running. This will further build the sense of ownership among community members and further lead to sustainability of activities introduced by the project.
- iii) Ensure agricultural technical assistance initiatives such as extension services continue to target vulnerable farmers and agricultural workers, including small-scale farmers and households in order to promote increased access to women-friendly technology and skills.
- iv) With support from other stakeholders, Government through Ministry of Agriculture should further consider scaling up the distribution of farming inputs such as drought resistant crops and fertilizers so as to fully resuscitate various households who may have been extremely affected by the dry spell in the past and are struggling to stabilize their farming efforts.

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