CLIMATE CHANGE AND FOOD SECURITY

Food security underlies all the components of human development because without adequate food, one cannot live a long and healthy life, be educated and knowledgeable, have a decent standard of living and participate in community life with dignity and self-respect (UNDP, 2012). Although poverty has multiple dimensions, the worst case scenario is deprivation of food (food poverty) and essential basic non-food items (total consumption poverty) (Manjengwa et al., 2012).

Zimbabwe's Food Security score is 'Serious'

According to the Global Hunger Index (GHI), Zimbabwe is in the 'Serious' food insecurity category with a score of 28.8 (where zero denotes 'no hunger', and 100 is the worst case scenario). Food insecurity in Zimbabwe is a result of the interplay of poverty, progressive low/poor investment in the agricultural sector, and the inelasticity of the food production sector, compounded by the negative effects of extreme weather related events and climate change.

GHI Severity Scale	
Less than 9.9	*Low*
10 – 19.9	*Moderate*
20 – 34.9	*Serious*
35 – 49.9	*Alarming*
50 +	*Extremely alarming*

***Table 1** GHI Severity Scale- Source: International Food Policy Research institute*

The staple food is sensitive to changes in climate

Zimbabwe's four key food crops are maize, millet, sorghum and wheat, with maize making up 80-90% of production. However, maize is very sensitive to temperature and precipitation changes, hence its production is affected seriously by weather related stresses and shocks with adverse impacts on food security. Recent maize production and consumption trends, indicate that Zimbabwe is becoming increasingly food insecure. Maize stock deficits continue to widen due to changing weather patterns, and the country has become a net importer of maize. Food aid accounts for at least one third of the total supply of maize in Zimbabwe (Murisa and Mujeyi, 2015).

Small grains are used to mitigate the risk of food insecurity

Diversification to small grains which are capable of withstanding long dry spells, is currently promoted as a means of: countering the negative effects of climate change on maize production; and as an adaptation measure to alleviate food shortages,

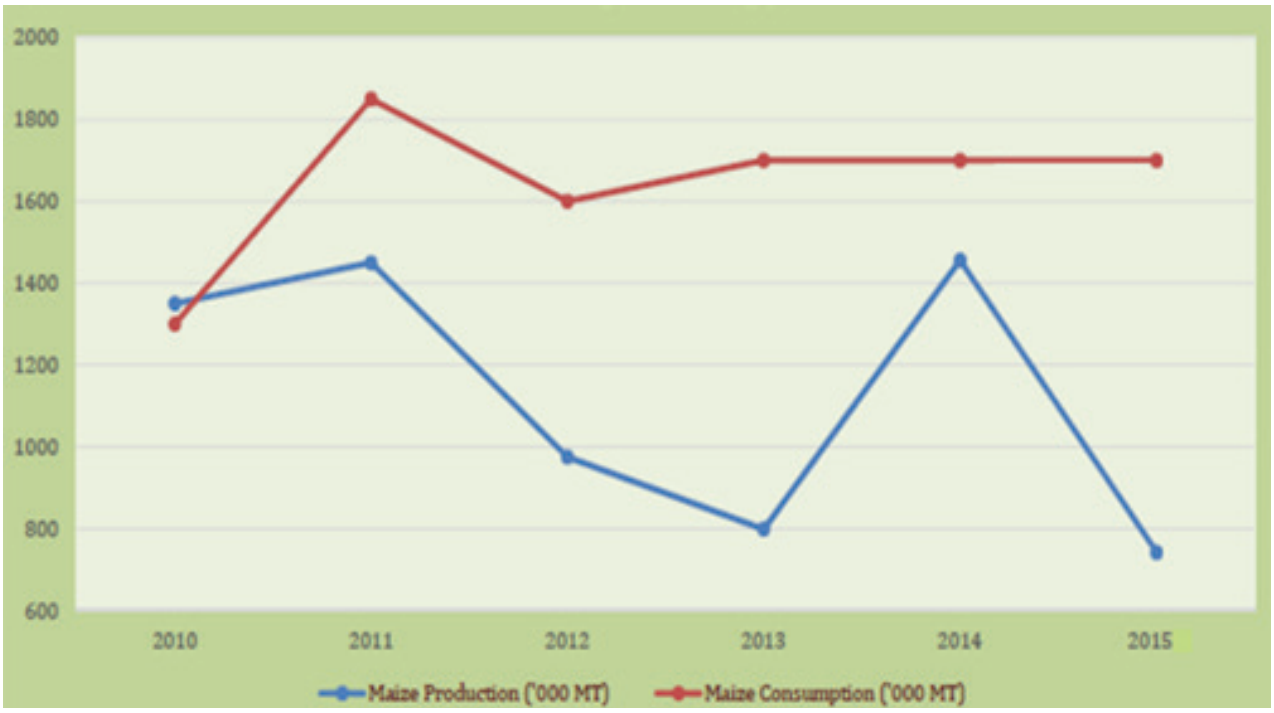

Figure 1 *Maize production and consumption trends, 2010-2015 - Source: Sukume (2016)*

Figure 2 *National small grains production, 1995 to 2015 - Source: Ministry of Agriculture, Mechanisation and Irrigation Development*

strengthen grain reserves and build resilience. Figure 2 shows fluctuating trends in small grain production, mirroring periods of low rainfall drought.

Livestock contributes to food security but productivity is low

Communal farming areas hold most of the cattle, goats and sheep in Zimbabwe, however, the productivity of smallholder herds is generally low, largely because of poor nutrition and animal health. The average calving rate is about 45 percent, and off-take rates are 6 percent, against a recommended 20 percent needed to meet internal and export demand (Sukume, 2016). The national cattle herd has increased since 2008 and is currently estimated to be about 5.4 million (Figure 4.6).

Prices volatility contributes to food insecurity

Zimbabwe has highly volatile food prices, which can increase by 30-40% in a season. High prices may make certain foods unaffordable which in turn, affects individual nutrition and health. The informal markets in urban areas have become critical

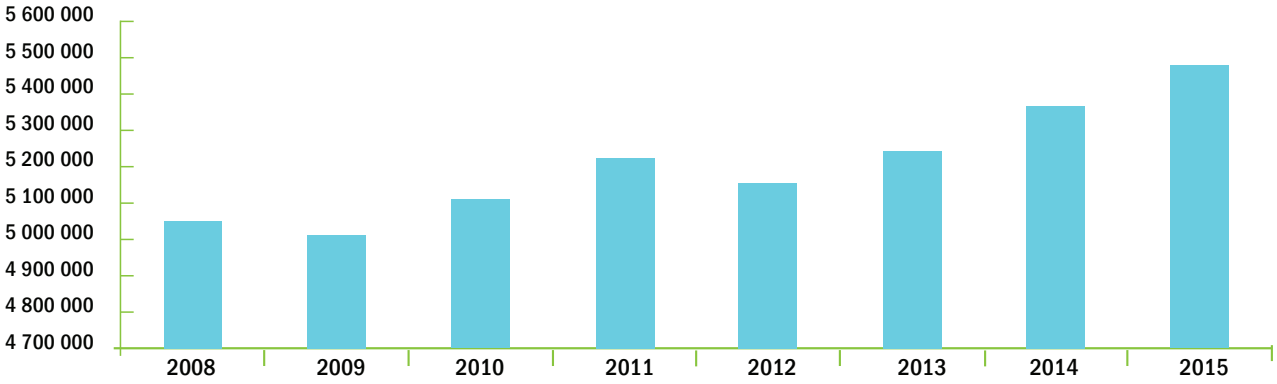

Figure 3 *National production level of non-dairy cattle 2008 to 2015 - Source: Ministry of Agriculture, Mechanisation and Irrigation Development*

Figure 4 *Trends in cereal production and food insecurity, 2002 to 2016 - Source: ZIMVAC (2016)*

sites for the urban poor to obtain food, as they repackage most products into small and affordable portions, a process called 'bulk breaking'. Figure 4.7 provides food insecurity trends from 2009 to 2016, and shows that the drought seasons (2001/02, 2004/05, 2006/07, 2011/12, 2012/13 and 2015/16) were the poorest cereal production years for rural households.

Stunting has remained high

While Zimbabwe has made remarkable progress in keeping the underweight and wasting in children under the age of 5 years in check, the level of stunting has been remarkably high, remaining above 30 percent in most years, with a recent decrease to 27 percent in 2015. Micronutrient deficiencies and stunting associated with poor levels of food security are considered an 'extremely serious development issue'.

Floods have impeded food availability and access

While not frequent, floods have caused loss of human life, loss of livestock, water-borne diseases, and damage to infrastructure such as roads, electric power lines and bridges. Damage to infrastructure has a negative effect on food systems (and ultimately food security) because when roads and bridges are destroyed, individuals and communities, especially those in remote areas, are not able to transport their produce to markets or to gain access to food and food aid.

Drought and high temperatures have reduced production

The frequency of extreme heat and erratic rain patterns have impacts on the common food crops – maize, sorghum and millet – which are susceptible to wilting, poor germination, pests and microbial diseases. Extreme heat also has a negative effect on ruminant production systems, especially on cattle which are sensitive to heat stress, and exposes livestock to increased disease. Figure 6 shows the

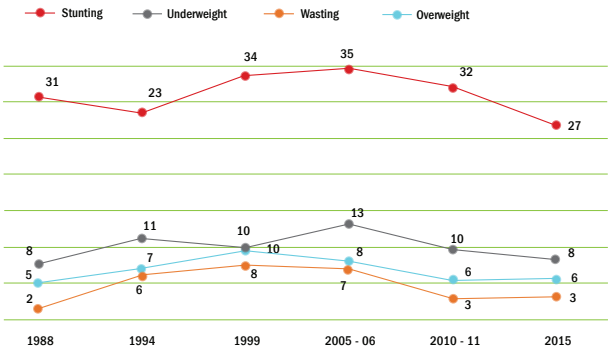

Figure 5 *Percentage of children under age 5 classified as malnourished - Source: ZIMSTAT, 2016a*

close relationship between crop yields and rainfall (Figure 4.11) (Government of Zimbabwe, 2016).

Women are disproportionately affected by climate change

There are clear gender-specific impacts of climate change, especially on women in the global South. The gendered implications of climate change in Sub-Saharan Africa arise from patriarchal norms and inequalities that often place women in disadvantageous positions in their ability to respond to and cope with climate change (Sultana, 2014, UNDP, 2016a).

Government has responded to climate change through policy

The Government of Zimbabwe has responded to the effects of climate change on food security by developing policies and strategies and enacting laws that are conducive to food security in the face of a changing climate.

Responses have varied among NGOs and donor government. However humanitarian assistance has often centred on the distribution of food aid.

The effectiveness of programmes is often hampered by limited resources

While the Government of Zimbabwe regards climate change as a threat to the country, it is inhibited by its human, institutional and financial resources. Domestic spending cuts put pressure on the ability of the government to cope with climate stresses and weather related disasters.