

# Exploring the relationship between seed security and food security in eastern Zimbabwe

## RESEARCH FEEDBACK

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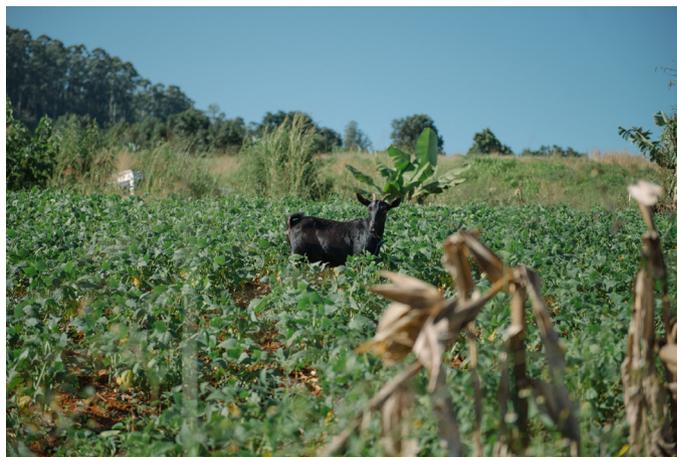
This document summarises the doctoral study undertaken by Bulisani Ncube in eastern Zimbabwe between 2016 and 2020. Focusing on smallholder farmers based in Chimanimani District, Bulisani was particularly interested in finding out whether households with sufficient seed supplies were - as a result - food secure too.

## BACKGROUND

Smallholder farmers in southern Africa rely on agriculture as their main source of food and livelihood. Although agricultural production in the region has been increasing, the number of hungry people who are unable to access adequate food continues to rise. Smallholder crop producers often suffer from a lack of appropriate seed as well as high levels of food insecurity – but are these two commonly observed rural phenomena connected? Interventions such as community seed production, seed aid, and input subsidies assume they are, however this study shows that the relationship between seed security and food security is highly complex and poorly understood. Exploring the factors that have an impact on the relationship between seed security and food security, this study set out to determine whether households with adequate seed also have adequate food.

## STUDY SITE AND METHODS

Set in eastern Zimbabwe, the study was conducted across Chikukwa and Chaseyama Wards in Chimanimani District (see Figure 1). These two areas were selected on account of their distinct differences, particularly in terms of biophysical characteristics and agricultural potential. Chaseyama is located on the western side of Chimanimani and has the lowest and most erratic rainfall in the district, meaning that it is not well suited to dryland crop production. Situated in the east of the district, Chikukwa is characterised by high rainfall and has stable red-clay soils which support diversified cropping as



well as high-value agricultural commodities such as coffee, tea, and potatoes. Chaseyama is more prone to drought than Chikukwa, with severe droughts recorded in 1992 and 2008. More recently, in early 2019, Chikukwa was significantly impacted by Cyclone Idai, a tropical storm which resulted in high rainfall and flooding that caused the loss of human lives, and damage to crops and infrastructure.

Undertaken in 2017, data collection relied on two main methods – a household survey and interviews. The household survey was held with 227 farming households, whereas interviews were conducted with agro-dealers who sell seed in the study areas, local extension officers, and farmer groups. Individual life histories of 12 farmers were also recorded.

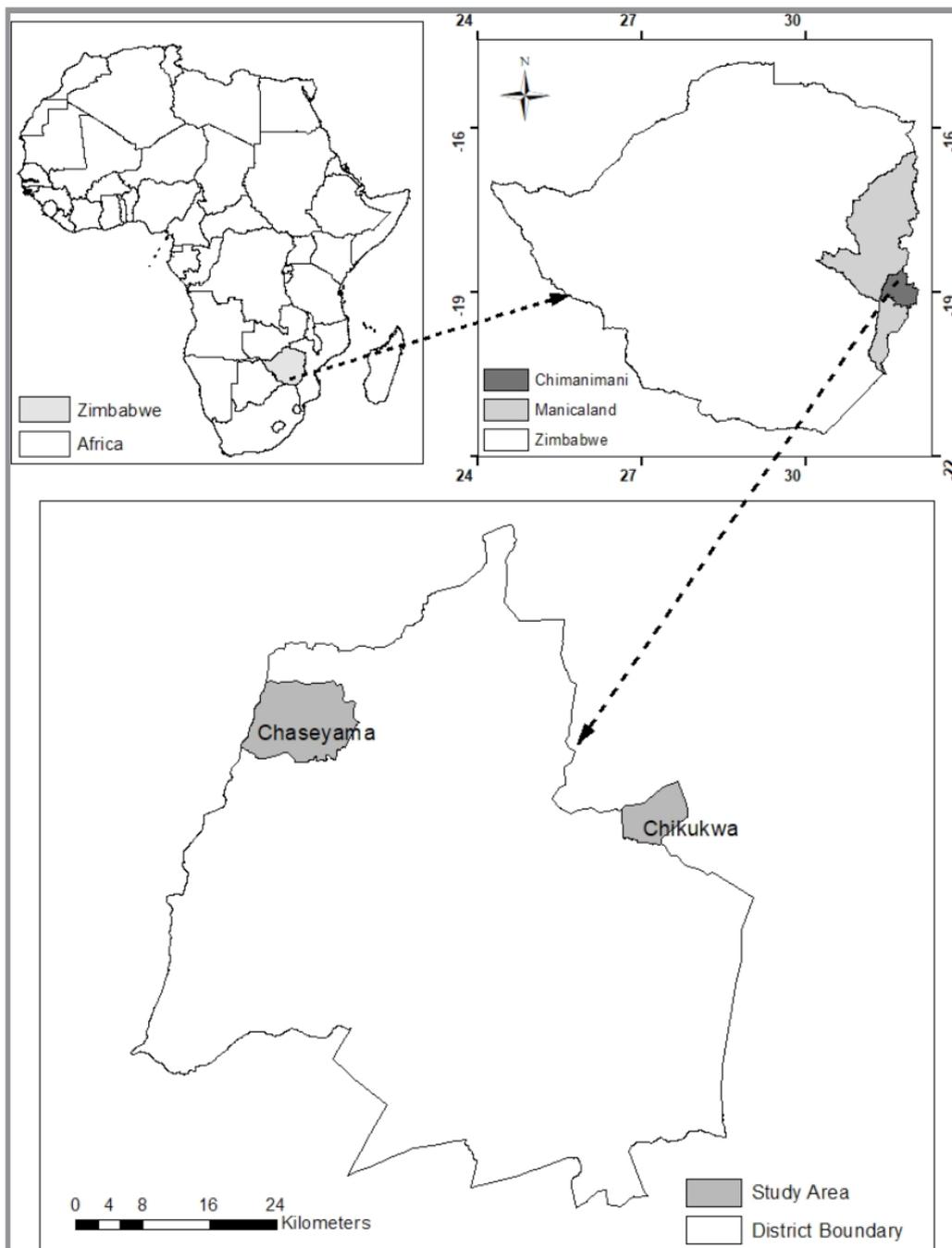


Figure 1: Location of Chikukwa and Chaseyama in Chimanimani District.

## KEY FINDINGS

### *The farmer-led seed system plays a leading role*

The study's results highlight the leading role played by farmer-led seed sources, such as own saved seed, seed bought at local markets, and seed acquired through social networks. On the other hand, formal seed sources - including seed sold by agro-dealers and distributed as seed aid - play a relatively minor role. This underscores the importance of farmer-led seed systems as avenues for seed access among smallholder farmers.

In terms of comparing the two sites, Chikukwa had higher levels of seed insecurity (63%) compared to Chaseyama (9%), and whereas farmers in Chikukwa needed yearly assistance in the form of seed aid, those in Chaseyama largely reported only receiving seed aid once or twice in the five-year period (2012-2016).

The results further indicate that farmer-led seed systems have shown resilience over time in the face of an unpredictable policy framework, harsh socio-political environment, and natural hazards such as droughts and cyclones.

Farmer-led seed sources were more reliable in ensuring that seed was available on time and in closer proximity to households compared with formal seed sources. The farmers who were able to obtain most of their seed in time for planting were invariably the ones who relied on farmer-led seed sources.

### *Food consumption and food security*

Different measures of food security were used to identify the diverse forms of food insecurity of households in the study sites during the peak hunger season. These revealed that households with sufficient crop production to sustain them throughout the year, growing a diverse variety of vegetables and owning productive assets (such as livestock), were more likely to have a diverse diet and to perceive themselves as being food secure.



### *The relationship between seed and food security*

The relationship between seed security and food security is not direct, but rather complex and contextual. Seed security does not necessarily equate to food security, nor does seed insecurity necessarily lead to food insecurity.

This study revealed a diverse grouping of households in terms of the following categories:

- some had adequate seed and food
- some had adequate food but had challenges with their seed
- some had adequate seed but had challenges with obtaining sufficient food
- some had challenges in obtaining both seed and food

These findings clearly illustrate that farmers do not become seed secure and food secure through the simple provision of seed and food assistance.

**These results imply that interventions such as community seed production, seed aid, and input subsidies do not automatically result in improved food security.**

### *Enablers and constrainers of seed and food security*

A number of factors at the household level play a role in either enabling or constraining seed and food security, including farming practices, such as crop production and diversity, differentiated seed and food plots, and farming longevity. The human, natural, economic, and social assets of households, such as social networks, water resources, employment, and geographic differences, such as physical and agroecological characteristics, are also important.

*My parents in Bocha Marange used to grow plenty of pearl millet and sorghum that was harvested into large granaries. This lasted my family for three years so that even when drought years followed, we did not lack food. I got the seed and learnt these farming practices from my parents and so I am now using them to ensure that we are also able to harvest enough food most years. (Edson<sup>1</sup>, life case-history interview, Chaseyama, September 2017)*

<sup>1</sup> All names have been changed to protect the identities of the respondents.

The broader dimensions that had an impact on seed and food security included social, economic, and political factors and the effects of weather and climate. These dimensions had a historical as well as ongoing impact on access to seed and food security.

*My own crop varieties are very tolerant to drought especially sorghum, groundnut (Zai ratimba), bambara groundnut (Zai redawa) and beans (mung beans and Karongoda) while my finger millet variety needs to be planted during the early rainfall in order to develop well. I always need to take care when planting the finger millet. It should be planted before the first rains so that when the rains begin the seed is already in the ground. With that little rainfall it germinates and develops well. (Tabeth, life case-history interview, Chaseyama, September 2017)*

## RECOMMENDATIONS

1. Before seed is provided to farmers, it is critical to understand the environmental and climatic influences, the type of seeds usually grown, and the seeds they lack. If farmers lack food, it does not necessarily mean they lack seed.
2. When seed is distributed to farmers, it should be provided before the planting season and in close proximity to them. This will ensure that farmers are able to plant in a timely fashion in response to the weather and may reduce the cost of acquiring seed.
3. In order to ensure that households have adequate seed and food, wider contextual factors must be taken into account. These include other livelihood activities, climate, and the policy environment.



## IN CONCLUSION

The study revealed that, although there are similarities in the factors that determine food security and seed security, these are not consistent across all farmers or time periods. Seed security does not necessarily equate to food security, nor does seed insecurity necessarily lead to food insecurity. The development of seed and food security policies and strategies for smallholder farmers should be informed by the factors that could be potential enablers and/or constrainers in attaining seed and food security. These factors should be analysed according to different scales and time frames, including at the household level and should take into consideration social, economic, and political factors, and the effects of weather and climate. These factors have both a historical and a continuously evolving influence on farmers' seed and food security.

*During harvest, I grade all my seed, separating it from the grain, and storing more quantities of seed than I need so that I am able to give some to relatives or other farmers, or sell to others.*

*The seed preservation methods I use include mixing seed with certain tree ashes (Ruvengo, Hanye and Mnyambanje) that I place in a tin, then the seed is covered to prevent entry of air. Weevils do not affect my finger millet at all. (Terry, life case-history interview, Chikukwa, October 2017)*

*In the past my children used to send me money to purchase seed for my planting needs. That was before I was able to keep enough varieties and quantities of my own seed. These days I use the money from my children to hire additional labour to help me in my fields. (Christy, life case-history interview, Chikukwa, October 2017)*



*The years 1993 - 2015 have been characterised by frequent droughts with little rainfall, and high temperatures (especially during 2013 - 2014). The impact of this on our community has been incidences of kwashiorkor amongst our children, disease outbreaks such as cholera, and many cattle deaths. Many households would sell their livestock in order to purchase grain. There were times a bucket of maize would cost \$12 compared to the current cost of \$5. (Focus group discussion, Chaseyama, 2017)*



**DR BULISANI L. NCUBE**

A researcher and development practitioner with over 20 years' experience in the fields of smallholder agriculture, rural livelihoods, seed systems, and food security, Dr Ncube has worked in multiple countries across southern and east Africa. He is a skilled project and programme manager, and has worked with research organisations, local and international NGOs and the donor community. To learn more about his work, contact him on [Bulisanilncube@gmail.com](mailto:Bulisanilncube@gmail.com).

Bulisani Ncube was supervised by Prof Rachel Wynberg, who holds the DSI/NRF Bio-economy Chair at the University of Cape Town (UCT) which is a partner of the Seed and Knowledge Initiative (SKI), and Dr Shawn McGuire from the Food and Agriculture Organization (FAO). His study received support from the Swiss Agency for Development and Cooperation (SDC) and the National Research Foundation (NRF) of South Africa. This research forms part of SKI.

For further information please visit  
<http://bio-economy.org.za> and <https://www.seedandknowledge.org/>

*All photographs were taken by Xavier Vahed on behalf of SKI.*



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