Effects of Shifting Away from Indigenous Agricultural Practices in Drought-Affected Chivi District, Masvingo Province

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ABSTRACT

This study investigates the decline of Indigenous Agricultural Practices (IAP) in Chivi District, Zimbabwe. Home to the Karanga people, the district relies heavily on agriculture, yet faces significant food insecurity exacerbated by recurrent droughts. Through qualitative methods, including interviews and document analysis, the study reveals that while residents possess knowledge of indigenous practices, their application has waned, leading to increased dependence on food aid. The research identifies key factors contributing to the shift away from traditional farming methods, including the influence of modern agricultural techniques and the socio-economic impacts of land reform policies. To address these challenges, the study proposes a multifaceted approach focused on education and awareness programs, the integration of indigenous knowledge with modern techniques, community-based resource management, and economic diversification. By revitalizing IAP, the community can enhance food security, preserve cultural heritage, and foster resilience against environmental stresses. This research underscores the importance of leveraging indigenous wisdom alongside contemporary resources to promote sustainable agricultural development in drought-prone regions.

Keywords: Indigenous Agricultural Practices, Food Security, Indigenous Knowledge, Drought Resilience, Modernization, Globalization, Land Reform, Economic Challenges.

INTRODUCTION AND CONTEXT

Located in the province of Masvingo, Chivi district has 155 442 residents and a population density of 43.9 persons per square kilometer throughout its 3 534 km2 of land (ZimStats, 2022). Karanga people, a division of the Shona Tribe, live in the area. Communal farmers who live off the land occupy a large portion of the district. The district's primary sources of income, to some extent, are crop production and animal rearing. According to Mugandani et al. (2022), Zea mays L, small grains (*Eleusine coracan* L., *Pennisetum american* L., *Sorghum bicolor* L.), leguminous crops (*Vigna unguiculata* L., *Arachis hypogae* L., and *Voandzeia subterranea* L.) are the principal crops planted in the district out of the different cropping systems. This speaks to Mugambiwa and Tirivangasi (2017)'s assertion that the importance of agricultural output in Zimbabwe's rural areas is greater because it reduces poverty and expands employment prospects. In the same vein, Kibirige and Obi (2015) note that around 4.75 million Zimbabweans are working in the agricultural sector with the majority of them being involved in subsistence farming. Accordingly, it can be noted that much of Zimbabwe's economy is dependent on agriculture (Sharara, Shekede, Gwitira, Masocha and Dube, 2022). Sharara et al. (2022) notes that Zimbabweans are still primarily rural people who depend on agriculture and other related rural economic activities for their living, making agriculture the foundation of the country's economy.

It is, however, important to note that the agro-based economy of Zimbabwe may be significantly impacted by drought due to the production methods used in agriculture (Mapfungautsi & Munhande, 2013). Instances of low rainfall may have a direct impact on the yields of rain fed agriculture. This has been the case in Chivi which is a drought prone area. Chivi district lies in the low rainfall, agro-region 4 of Zimbabwe which is characterised by sandy unfertile soil (Chineka et al., 2021). As such, Mugandani et al. (2022) notes how crop yields are extremely low in Chivi due to weak soils and ongoing drought. They give an example of the 2007–08 drought, which they term district's greatest drought, whose effects were that 86% of households were left food insecure.

That 86% of households were left food insure due to the 2007-08 drought in Chivi district is no surprise as droughts result in dropped yields and hence food insecurity. Accordingly, Chineka et al. (2021) note how food insecurity brought on by drought has increased poverty levels in rural households in the region, with smallholder farmers not exempt. The severity of the increase in poverty has varied across various households. In the same vein, Mugambiwa and Tirivangasi (2017) note that food availability falls, prices rise, and employment prospects decrease as a result of climate shocks like drought. The least equipped to respond and possibly unable to handle the severity of the situation brought on by droughts are smallholder farmers who face food insecurities.

Food security refers to the availability of food in a nation and the capacity of its citizens to obtain, afford, and procure enough food (Niles, Bertmann, Belarmino, Wentworth, Biehl and Neff, 2020). As such, food insecurity is the inability to consistently obtain enough food for each member of a household to lead an active, healthy life (Niles et al., 2020). It therefore follows that households in Chivi district have experienced inability to consistently obtain enough food due to drought. Indeed, the January 2019 ZimVAC lean season food security assessment report noted that the levels of food insecurity in the district of Chivi was 38% (Manyanga, Murendo, Pedzisa, Mutyasira and Ndou, 2020). This is evidence about the levels of food insecurities experienced in Chivi as a result of drought.

In the face of these food insecurities, Manyanga et al. (2020) prompt the government and partners to scale up food assistance programmes in response to these high forecasts of food insecurity, which have an impact on project participants' aspirations for self-sufficiency. However, one can note that such programmes do not empower the community. This follows that food programmes are a sort of handout initiative which makes community members reliant on aid, and hence it is not sustainable. Also, as is noted by Bierma et al. (2019), fresh food and perishable items are rarely given out by food banks due to their short shelf lives and high prices. They instead mostly concentrate on tinned and dry foods, which frequently lack nourishment. Long-term risks of vitamin, calcium, and fibre deficiencies in children, families, and the general population exist (Bierma et al., 2019). The implication of this is that food donor programmes are not efficient in mitigating the food insecurities experienced by people in drought prone areas.

Given this, there is need for communities to develop home grown mitigation frameworks that can be sustainable. Jiri et al. (2015) advocate the adoption of indigenous knowledge for both economic development and sustainable food security, refusing the dependency on donor-funded mitigation initiatives. They contend that an important pillar in advancing local food sustenance and economic development is the scoping and examination of existing indigenous knowledge. Indigenous knowledge is wisdom that emerges inside a certain culture and geographic location that has been passed down orally through art, songs, stories, and laws from one generation to the next (Muyambo et al., 2017). According to Basu and Dasgupta (2023), indigenous knowledge is created and preserved by locals through their extensive interactions with their surroundings. In this regard, one can argue that indigenous knowledge is existing local knowledge which community members have amassed over the years as they interact with their environment. This knowledge can best be used in disaster risk reduction, including the mitigation of food insecurities due to drought. This follows that indigenous knowledge is seen as a community's social capital (Jiri et al., 2015).

In light of this, one is justified to support scholars like Kamuti (2022) and Jiri et al. (2015) who note that indigenous agricultural practices (IAP) play a critical role in promoting food security, particularly in rural communities where the population often faces adverse conditions, including drought. Historically, Zimbabwean farmers have depended on traditional wisdom to navigate the challenges posed by drought and other environmental stresses (Chineka et al., 2021). However, there is a concerning trend in Chivi District, where communities appear to have shifted away from utilizing indigenous knowledge in their agricultural practices. Instead, many residents now rely heavily on food donations from non-governmental organizations (NGOs) during periods of drought (Chitongo, 2013), leading to a dependency that undermines local resilience. This shift raises critical questions about the loss of traditional farming techniques that once sustained these communities. To this end, the study so to answer the following questions:

- What factors have led the residents of Chivi District to shift away from indigenous agricultural practices?

- What strategies can be implemented to revive indigenous agricultural practices in Chivi District?

This study is essential for understanding the dynamics behind the decline of IAP in Chivi District. By examining the reasons for this shift, the research aims to identify barriers to the use of traditional knowledge and practices, which could inform strategies to revitalize these methods. Understanding these factors is crucial for enhancing food security and resilience in drought-affected areas, thereby contributing to sustainable agricultural development in the region.

LITERATURE REVIEW

Aikenhead and Ogawa (2017) emphasize that indigenous peoples have historically provided essential ecological and cultural services. They define indigenous knowledge as the collective experience and insights of an ethnic group, which serve as a foundation for decision-making amid various challenges. Muyambo et al. (2017) further describe indigenous knowledge as the information, skills, and beliefs developed by cultures with a long-standing relationship with nature. This knowledge forms part of a complex cultural system that includes language, classification, resource management, social interactions, rituals, and spirituality. Jiri et al. (2015) note that this knowledge is integral to the culture, preserved, shared, and utilized for productive activities, and often transmitted through intricate networks and oral traditions, including myths and legends.

Jiri et al. (2015) explored how Zimbabwean farmers use indigenous knowledge to forecast seasonal weather and adapt their agricultural practices. They noted how, without access to reliable scientific forecasts, farmers rely on local indicators like tree phenology and animal behavior to inform decisions on crop selection and planting dates, emphasizing the importance of indigenous knowledge in adaptation. Furthermore, Matsa and Mukoni (2013) conducted 50 interviews in Matabeleland South to assess women's roles in traditional agricultural knowledge regarding the processing, preservation, and storage of crops and seeds. Their findings indicated that traditional preservation methods, like smoke coating and ash, are favored over modern chemicals, highlighting the significance of indigenous practices in agriculture.

Mararike (2021) discussed the revival of indigenous food security strategies, referencing the traditional cultivation of crops like finger millet, sorghum, and rapoko by the Great Zimbabwe and Mutapa peoples. He argued that traditional crops bolster community resilience to climate change and economic challenges, unlike commercial crops that depend on substantial chemical inputs, thereby advocates for a shift back to indigenous strategies to enhance crop diversity and better align with local conditions.

Theoretical Framework

The study utilized the Integrated Natural Resources Management (INRM) theory which is defined as a holistic approach to managing natural resources that emphasizes the interconnectedness of environmental, social, and economic factors (Campbell & Sayer, 2018). According to Lesslie et al. (2016), this framework is particularly useful for examining the dynamics of agricultural practices, as it facilitates a comprehensive understanding of how various natural resources interact within a specific context. INRM was used herein to analyze the ecological impacts of shifting agricultural practices and the role of indigenous knowledge systems in resource management. By focusing on the interactions between land, water, biodiversity, and climate, this approach helped illuminate the reasons behind the community's transition away from traditional methods. The study also leveraged the stakeholder engagement aspect of INRM, involving local communities, government agencies, NGOs, and researchers to gather diverse perspectives on the factors contributing to the decline of indigenous practices. This participatory approach not only empowered local voices but also highlighted the socio-economic changes and external pressures influencing agricultural decisions.

METHODOLOGY

The research involved a case study design that focused on Ward 11 of Chivi District, using qualitative methods, namely interviews and document analysis, to gather data. The aim was to gain insights into the community dynamics and the role of indigenous knowledge systems in resource management. A convenience sampling method was employed to select participants who were accessible and willing to engage in the study,

supplemented by snowball sampling to identify additional participants. The sample comprised 11 individuals, including one chief, three village heads, and seven community members. Secondary data were also collected from books, journals, and other scholarly sources relevant to indigenous knowledge and agricultural practices in Zimbabwe. Document analysis was conducted systematically, involving the collection, categorization, and coding of documents to identify key themes. Structured interviews with standardized questions provided in-depth insights into the experiences of community members regarding indigenous farming practices. Thematic analysis was used to interpret the qualitative data, following a structured process to identify and define emerging themes.

DATA FINDINGS

It was paramount for the research to firstly understand the level of knowledge the people of Chivi District have regarding IAP. To this end, the research identified key indigenous agricultural knowledge and practices in Chivi District, which were vital for traditional farming. Participants emphasized the significance of seasonal forecasting techniques, relying on observations of tree phenology, animal behavior, and atmospheric conditions to predict rainfall and planting times. For instance, they noted that specific trees and birds served as indicators of upcoming weather patterns, crucial for planning agricultural activities.

Additionally, rainmaking rituals, particularly the Mukwerera, played a significant role in ensuring adequate rainfall during dry periods. This ritual, conducted by a spirit medium, reflected the community's deep spiritual and cultural ties to agriculture. Participants also highlighted community farming practices, such as Humwe and Zunde raMambo, which fostered social cohesion and food security. Various farming techniques, including shifting cultivation, crop rotation, intercropping, and the use of organic fertilizers, were integral to traditional agriculture. The emphasis on seed selection and preservation ensured that farmers maintained crop diversity and resilience. Overall, these indigenous practices illustrate a sophisticated understanding of environmental management that has sustained the Chivi community for generations.

From the above, it can be noted that the people of Ward 11 of Chivi district are very knowledgeable about indigenous agricultural knowledge and practices that existed in the past. However, there is a lack of utilisation of said knowledge and practises within the community. This is evidenced by a variety of scholars. For instance, Chineka et al. (2021) argue that many community members have abandoned traditional farming practises and are utilising modern ones. Likewise, Mapfungautsi and Munhande (2013) note that traditional agricultural practises have been lost in most Zimbabwean communities, including Chivi, where their revival could assist in dealing with the changing climate. As such, it can be noted that the people of Ward 11 of Chivi have abandoned indigenous agricultural knowledge and practices.

Factors Have Led the Residents of Chivi District to Shift Away from IAP

The following are the factors noted by participants that account for their shift away from IAP:

Modernisation and Globalisation

Participants noted that traditional agricultural practises have declined as a result of the advent of modern farming techniques and technology, as well as the effect of globalisation. Many farmers have been urged to embrace modern agricultural practises and technologies as these are being said to be more efficient and productive. Participant 3 noted the following:

Kubudirira kwechimanjemanje nekudyidzana kwenyika dzepasi rose kwakakanganisa zvikuru kurima kwagara kuchiitwa muno maChivi. Kunyange hazvo kusimukira kwechizvino-zvino nekudyidzana kwepasi rose kwakaunza pundutso dzakawanda munyika, sekuvandudzwa kwemichina uye kuwaniswa kwemisika yepasi rose, zvakonzerawo kudzikira kwekushandiswa kwetsika dzechinyakare, kunyanya marimiro aiitwa kare mudunhu rino.

(The development of modernity and globalization has greatly affected the farming that has always been done here in Chivi. Although the development of modernity and globalization has brought many benefits to the

country, such as the development of technology and access to international markets, it has also caused a decline in the use of traditional customs, especially the structures that were used in the past in this region).

Indeed, the promotion of industrial agriculture has been one of the most significant effects of modernisation and globalisation on traditional agricultural practises in Chivi and Zimbabwe in general. This has led in a move away from traditional agricultural practises, which are frequently more ecologically friendly and sustainable. Many small-scale farmers have been compelled to utilise contemporary agricultural practises and technology, such as monoculture farming and the usage of synthetic fertilisers and pesticides.

Another effect of modernisation and globalisation on Chivi's traditional farming practises has been the loss of traditional knowledge and skills. Many young people are leaving rural regions to find work in cities or overseas, resulting in a loss in the transfer of traditional knowledge and skills from generation to generation.

Furthermore, changes in land use patterns and agricultural production systems have resulted from modernization and globalisation. Large-scale commercial agricultural enterprises have grown, frequently at the expense of small-scale farmers practising traditional agriculture. As a result, agricultural diversity has decreased and a trend towards cash crops for export rather than food crops for local consumption has occurred.

Land Reform Policies

Participants also noted that the land reform policies implemented in Zimbabwe in the early 2000s led to the abandonment of indigenous farming practises as it resulted in significant changes in the agrarian sector. Participant 6 noted the following:

*Sokuziva kwenyu, dunhu rino raive nevarimi vadiki kusati kwaitwa chirongwa chekuvandudza ivhu. Varimi vadiki ava vakawanda vavo vanga vachirima zvechinyakare. Izvi zvakamiswa nekuuya kwe*land reform *sezvo vanhu vaka pihwa minda mirefu kurima kwakakura kwekutengeserana kwakatangwa. Izvi zvakakonzera kusuduruka kubva kumaitiro ekurima echinyakare uye kutarisa zvirimwa zvekutengesa*.

(As you know, this region had small farmers before the land reform programme. Many of these small farmers have been farming traditionally. This was stopped with the advent of land reform as people were given large plots of land for large-scale commercial farming. This led to a shift away from traditional farming practices and a focus on commercial crops).

Indeed, land reform policies introduced in Zimbabwe in the early 2000s had a substantial influence on the country's conventional farming practises. As noted by Stoneman (2018), the policies aimed at transferring land from large-scale commercial farmers, who were primarily white, to small-scale farmers, who were mostly black, and resolving land ownership inequities that had persisted since the colonial era.

One of the consequences of Zimbabwe's land reform policies on traditional agricultural practises has been the relocation of small-scale farmers engaged in traditional agriculture (Stoneman, 2018). Many of these farmers were evicted from their property and forced to relocate to new places where they were forced to adapt to new environmental conditions and farming practises. This led to a decline in the use of traditional farming practices, as many small-scale farmers were forced to adopt new practices that were often less sustainable.

Another result of land reform measures has been the transfer of land from large-scale commercial farmers to small-scale farmers, many of whom lack the means and experience to adequately manage the land (Stoneman, 2018). As a result, agricultural production fell as many small-scale farmers battled to keep the land and follow appropriate farming practises.

Furthermore, land reform initiatives influenced land use patterns and agricultural production systems (Stoneman, 2018). Many of the new small-scale farmers focused on export products like tobacco and cotton rather than food crops for local use. This resulted in a decrease in agricultural diversity and a shift away from traditional farming practises, which frequently emphasised the significance of producing a diverse range of crops for food security.

Economic Challenges

Participants also noted that the economic challenges the country has and continues to experience is a reason for abandoning indigenous farming practises by community members of Ward 11, Chivi. Participant 1 noted the following in this regard:

*Matambudziko eupfumi aya akanganisa kurima kwatagara tichiita sezvo kwave nekurasikirwa kukuru kweruzivo nehunyanzvi hwechivanhu. Vechidiki vakawanda vari kubva kumaruwa vachinotsvaga mabasa mumaguta, vamwe vakawanda vachienda kunze kwenyika. Vazhinji vari mu*South Africa. *Izvi zvakakonzera kudzikira kwekufambiswa kweruzivo rwechinyakare nehunyanzvi kubva kune chimwe chizvarwa kuenda kune chinotevera*.

(These economic challenges have affected our traditional farming as there has been a major loss of traditional knowledge and skills. Many young people are leaving the rural areas to seek employment in urban areas, with many others going abroad. Most are in South Africa. This has resulted in a decline in the transmission of traditional knowledge and skills from one generation to the next).

As noted above, Zimbabwe has faced significant economic challenges in recent years, including hyperinflation, drought, and political instability. These challenges have made it difficult for farmers to continue practicing traditional agriculture, as they have forced people to migrate and leave their households in order to look for employment opportunities elsewhere. Also, it can be noted that the economic challenges have led to a decline in the diversity of crops grown in Zimbabwe. Many small-scale farmers have been forced to focus on cash crops for export, such as tobacco and cotton, rather than food crops for local consumption (Stoneman, 2018). This has led to a shift away from traditional farming practices, which often emphasise the importance of cultivating a variety of crops for food security.

Strategies to Revive IAP in Chivi District

Reviving indigenous agricultural practices in Chivi District requires a multifaceted approach that considers the factors of modernization, globalization, land reform policies, and economic challenges. Several strategies that could be effectively implemented for this aim include the following:

Education and Awareness Programs

To support the revival of IAP in Chivi District, it is essential to implement comprehensive education and awareness programs. These programs should focus on cultural education, aiming to teach younger generations about the benefits and techniques of indigenous farming. Schools and community workshops can play a pivotal role by emphasizing the significance of these methods for sustainability and cultural heritage. Additionally, organizing workshops led by experienced farmers who have successfully employed indigenous techniques can facilitate knowledge sharing on traditional practices, seasonal forecasting, and soil management. By integrating this educational approach, the community can foster a deeper understanding of the interconnectedness between indigenous practices and sustainable resource management, ultimately leading to a more resilient agricultural system.

Integration of Indigenous Knowledge with Modern Techniques

Encouraging the integration of indigenous knowledge with modern agricultural techniques is vital for optimizing agricultural practices in Chivi District. By promoting hybrid farming approaches, farmers can combine traditional methods, such as indigenous soil management techniques, with modern irrigation systems to enhance yields while preserving cultural practices. Additionally, collaborating with agricultural research institutions to study the effectiveness of these indigenous practices in contemporary contexts will be crucial. This research can inform adaptations of traditional methods to align with current environmental conditions and market demands, ensuring that the benefits of both indigenous knowledge and modern technology are fully realized for sustainable agricultural development.

Community-Based Resource Management

Promoting community-based resource management through collective farming initiatives, such as Zunde raMambo, can significantly enhance food security while fostering social cohesion among residents of Chivi District. These collaborative efforts allow community members to share resources, labor, and knowledge, creating a robust support network that strengthens agricultural resilience. Additionally, establishing community-managed seed banks is essential for preserving indigenous seed varieties, ensuring the availability of traditional crops that are vital for cultural identity and biodiversity. By safeguarding these seeds, communities can maintain genetic diversity and promote sustainable agricultural practices, ultimately contributing to the overall health and sustainability of their agricultural ecosystems.

Economic Support and Diversification

To effectively support the revival of indigenous agricultural practices in Chivi District, it is crucial to enhance economic support and diversification. Providing access to microfinancing can empower farmers seeking to transition to or maintain traditional farming methods by alleviating the financial burdens associated with this shift. These microloans can help cover initial costs, such as seeds and tools, enabling farmers to invest in sustainable practices. Furthermore, developing markets for indigenous crops is essential to highlight their nutritional value and cultural significance, thereby increasing demand. By creating a viable market for these products, farmers will be incentivized to adopt and sustain traditional practices, ultimately contributing to the economic viability of their communities while preserving their agricultural heritage.

DISCUSSION

The findings above reveal a profound knowledge of traditional farming methods among community members, particularly in their use of natural indicators for seasonal forecasting. Participants highlighted techniques rooted in ecological observation, which align with findings by Jiri et al. (2015) on local ecological knowledge's role in adapting to environmental changes. Rituals like Mukwerera further illustrate the spiritual and cultural dimensions of agriculture, reinforcing community identity amidst modern pressures. However, the shift towards industrial agriculture threatens to dilute this traditional knowledge, leading to concerns about cultural erosion and the sustainability of farming practices.

Several factors contribute to the decline of IAP in Chivi. Modernization and globalization have introduced industrial farming techniques that prioritize cash crops over subsistence farming, as noted by Mapfungautsi and Munhande (2013). This trend not only undermines local food security but also results in a loss of intergenerational knowledge transfer, particularly as rural youth migrate to urban areas in search of better opportunities. Additionally, land reform policies implemented in the early 2000s have displaced many small-scale farmers, disrupting traditional practices and exacerbating food insecurity. Stoneman (2018) highlights that many new farmers lack the experience to manage their land sustainably, leading to a focus on profitability at the expense of ecological diversity.

Reviving IAP in Chivi necessitates a multifaceted approach that combines education, community engagement, and economic support. Implementing educational programs can foster an appreciation for indigenous practices among younger generations, while workshops led by experienced farmers can facilitate knowledge sharing. Integrating traditional methods with modern agricultural techniques can enhance resilience, and community-based initiatives like Zunde raMambo can strengthen resource sharing and preserve indigenous seed varieties. Economic support, including microfinancing and market development for indigenous crops, is essential to incentivize the adoption of traditional practices and promote food security. By embracing both indigenous wisdom and modern strategies, the Chivi community can secure a sustainable agricultural future that honors its cultural heritage.

CONCLUSION

This study has highlighted the critical challenges and opportunities surrounding IAP in Chivi District, Zimbabwe. The region's reliance on agriculture, particularly among the Karanga people, is threatened by

modernisation, globalization, land reform policies, and ongoing economic difficulties. The findings reveal that while knowledge of traditional farming methods persists among the community, their application has diminished significantly due to external pressures and changing agricultural paradigms. The extensive impact of drought on food security further exacerbates this decline, underscoring the urgent need for sustainable solutions.

To address these challenges, the study suggests a multifaceted approach emphasizing education and awareness programs to revive cultural understanding of IAP. Integrating indigenous knowledge with modern agricultural techniques can enhance resilience against climate variability, while community-based resource management initiatives, such as collective farming and seed banks, can foster food security and social cohesion. Additionally, bolstering economic support through microfinancing and market development for indigenous crops can empower local farmers and sustain traditional practices.

Ultimately, revitalizing IAP in Chivi District is not only vital for food security but also for preserving cultural heritage and enhancing community resilience. By embracing a holistic approach that leverages both indigenous wisdom and modern resources, the community can forge a sustainable path forward, ensuring that agriculture remains a cornerstone of local livelihoods in the face of environmental and economic challenges.

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