

CHARACTERISATION OF FOOD SECURITY SITUATION FOR SMALLHOLDER FARMERS IN ZVIMBA

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Abstract

This study provides a comprehensive analysis of the food security situation among smallholder farmers (SHFs) in Zvimba District, Zimbabwe. Smallholder agriculture is the bedrock of Zimbabwe's food system, yet it remains highly vulnerable to a complex array of shocks and stressors. Using a mixed-methods approach, this research investigates the prevalence, drivers and lived experiences of food insecurity within this community. A structured survey was administered to 412 randomly selected smallholder households across the district's wards. The quantitative data were supplemented by 12 Focus Group Discussions (FGDs) and 24 Key Informant Interviews (KIIs) with farmers, community leaders and agricultural extension officers to capture qualitative nuances. The study is grounded in the Food Security Theory (FST), which conceptualises food security through its four pillars: food availability, food access, food utilisation and food stability. Findings reveal a precarious food security situation. Quantitatively, 78.4% of households were found to be food insecure, with an average Hunger Months Index of 4.7 months per year. The study identifies a significant disconnect between maize production, the national staple and household consumption, with over 65% of households failing to produce enough maize to meet

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their annual requirements. Qualitative data illuminated the multi-faceted drivers of this insecurity. Key points to note include climate change whereby erratic rainfall and prolonged mid-season dry spells were consistently reported as the primary production challenges, limited access to farming inputs whereby high costs and unreliable supplies of certified seeds, fertilizers and agro-chemicals constrain productivity. More so, socio-economic factors such as poverty, lack of viable alternative livelihoods and limited access to formal credit perpetuate a cycle of vulnerability. In addition, institutional weaknesses, for example, challenges with agricultural extension services and market inefficiencies, exacerbate the situation. The study concludes that food insecurity in Zvimba is not merely a problem of food production, but is deeply rooted in structural issues affecting food access, food utilisation, as well as food stability. Recommendations are proposed for a multi-sectoral approach, including promoting Climate-Smart Agriculture (CSA) and drought-resistant crops, strengthening input support systems and rural finance, diversifying livelihood strategies and enhancing the capacity of extension services. This research contributes to a deeper understanding of the localised dynamics of food security and provides evidence-based guidance for policymakers, development practitioners and the farmers of Zvimba themselves.

Keywords: *Zvimba District, climate change, livelihoods, agricultural productivity*

INTRODUCTION

Zimbabwe, like many nations in sub-Saharan Africa, faces a persistent challenge in achieving sustainable food and nutrition security for its population. The agricultural sector is dualistic, comprising a large-scale commercial sub-sector and a dominant

smallholder sub-sector, the latter supporting over 70% of the population (FAO, 2022). Smallholder farmers are, therefore, central to the nation's food security equation. However, they operate in a context characterised by multiple and intersecting vulnerabilities, including climate change, economic volatility and institutional constraints.

Zvimba District, located in Mashonaland West Province of Zimbabwe, is a small-scale version of this national challenge. It is a predominantly agro-based district where the majority of households derive their livelihoods from crop and livestock production. The district lies in Natural Region II, a region usually considered to have high agricultural potential with relatively good and reliable rainfall. Bjornlund, Bjornlund and Rooyen, (2020), despite this favourable agro-ecological classification, anecdotal evidence and periodic reports from government and non-governmental organisations (NGOs), suggest that food insecurity remains a chronic problem for a significant proportion of smallholder farmers (SHFs) in the district.

The problem is that, despite decades of agricultural policies and development interventions, SHFs in Zvimba District continue to experience cyclical food shortages, poverty and malnutrition. This paradox of food insecurity in a region of potential necessitates a systematic and in-depth investigation (Koyratty *et al.*, 2021). Existing studies on food security in Zimbabwe have often taken a broad, national perspective or focused on regions more acutely affected by drought, potentially overlooking the unique, localised factors at play in districts like Zvimba (Bjornlund, Bjornlund and Rooyen, 2020). This study, therefore, seeks to fill this gap by

conducting a detailed assessment of the food security situation, specifically among SHFs in Zvimba District. It moves beyond a singular focus on crop yields to embrace a holistic understanding of food security. The study presents the introduction then the conceptual framework based on the Food Security Theory (FST). The methodology section details the mixed-methods approach, sample and data collection techniques. This is followed by a comprehensive presentation and integrated discussion of both quantitative and qualitative results. The publication concludes with key findings and actionable recommendations for various stakeholders.

CONCEPTUAL FRAMEWORK (THE FOOD SECURITY THEORY)

To comprehensively analyse the food security situation in Zvimba, this study is anchored in the widely recognised FST. According to the Food and Agriculture Organisation (FAO), food security exists when:

"all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO, 2006).

This definition is operationalised through four interdependent pillars:

Food availability refers to the sufficient physical supply of food in a given area. For SHFs, this is mainly a function of their own farming production (crops, livestock). It is also influenced by food imports, food aid and the functioning of local markets to bring in food from other regions. Factors affecting food availability in Zvimba District would include rainfall patterns, soil fertility, seed quality and farming technologies, Manyanga, *et al.* (2022).

Food accessibility, as a pillar, concerns the ability of households and individuals to acquire adequate resources (entitlements) to obtain appropriate foods for a nutritious diet. Access is determined not by the existence of food, but by the household's capacity to procure it. This is shaped by economic access in terms of income, savings, credit and the ratio of food prices to household purchasing power, physical access in line with infrastructure, distance to markets and transportation costs and social access in relation to social safety nets, kinship support and remittances. For a farming household, access may mean the ability to sell surplus livestock or cash crops to buy maize, or to rely on gifts from relatives.

Manyanga, *et al.* (*ibid.*), implied that food utilisation, being the third pillar, encompasses how the body makes use of the nutrients in the food consumed. It is a measure of nutritional outcomes. Utilisation is influenced by health status in terms of diseases like diarrhoea, HIV/AIDS or malaria, preventing the body from absorbing nutrients, knowledge, especially understanding of proper food storage, processing, cooking methods and child care practices (Mujeyi, Mudhara and Mutenje, 2022). Moreso, water and sanitation, especially access to clean water and sanitation facilities, is critical to prevent water-borne diseases that hinder nutrient absorption. In addition, intra-household distribution on how food is allocated within the family, particularly to women and children.

Food stability, as the fourth pillar, refers to the temporal dimension of food security. A household must have stable access to adequate food at all times, without risking loss of access due to sudden shocks (for example, drought, flood, pest outbreak,

economic crisis, conflict) or cyclical events (for example, seasonal hunger) (Ngwenya, Lunga and Van Eeden, 2022). The stability pillar connects the other three over time. A household may be food secure today, but vulnerable to a shock tomorrow.

Mutyasira (2020) states that this framework provides the analytical lens for research. It allows for a move beyond a simplistic focus on "food production" to a more nuanced investigation. The study examines food availability through crop production data and market supplies, food access through income sources, asset ownership and market engagement, food utilisation through dietary diversity and health/wash indicators, food stability through the analysis of shocks, coping strategies and, lastly, the seasonality of food insecurity (Nkomo, Sedibe and Mofokeng, 2020).

The interlinkages between these pillars are crucial; for instance, a climate shock affecting stability can ruin harvests and food availability, which in turn reduces a household's income and ability to purchase food (access to food), potentially leading to poor nutrition (food utilisation). This conceptual framework guides the research design, data collection, analysis and the ultimate interpretation of the findings from Zvimba District (Mujeyi, Mudhara and Mutenje, 2022).

METHODOLOGY

This study employed a mixed-methods approach. It involves the simultaneous collection of both quantitative and qualitative data, with the intention of merging the results to provide a comprehensive and validated understanding of the research problem. The quantitative data provide broad, generalisable

trends, while the qualitative data offer depth, context and explanatory power (Sukulao, Kurevakwesu and Muridzo, 2025).

SAMPLE AND SAMPLING METHODS

The target population for this study were smallholder farmer households in Zvimba District. A household was defined as a group of people living together and sharing food from a common pot. The sample size for the quantitative survey was 412 households. This was determined using the Cochran (1977) formula for a finite population, assuming a 5% margin of error, a 95% confidence level and a population proportion of 50% (to maximise sample size) and estimating the total number of smallholder households in Zvimba to be approximately 45 000. The purposive selection method was purposively chosen to ensure geographical spread and representation of different agro-ecological variations within the district. Four SHFs from each preferred ward were randomly selected using a list of villages obtained from the District Administrator's Office. Households were randomly selected from each chosen ward using household lists obtained from the District Heads. A systematic random sampling method was used to select the predetermined number of households from each village to reach the total sample of 412.

However, for the qualitative component, 12 focus group discussions (FGDs) were conducted (2-3 per selected ward), each comprising 8-10 participants. The participants were stratified by gender (separate male and female groups) and age to capture diverse perspectives. Twenty-four (24) Key Informant Interviews (KIIs) were conducted with purposively selected individuals with expert knowledge of the local context. These included Agricultural

Extension Officers (Agritex), village heads, leaders of farmer groups, local NGO representatives and health officials.

DATA COLLECTION METHODS

Data collection was conducted over a three-month period, from June to August 2023, capturing the post-harvest period and the onset of the lean season. A structured questionnaire, pre-tested in a non-sampled ward, was administered through face-to-face interviews by trained enumerators. The questionnaire was designed to collect data on socio-demographic characteristics (age, gender of household head, education level, household size), livelihoods and assets (land size, livestock ownership, sources of income), and agricultural production (crops grown, area planted, yields for the 2023/24 season, input use), food security indicators (Household Food Insecurity Access Scale (HFIAS) (to measure perceptions of food access), Household Dietary Diversity Score (HDDS) (to measure food utilisation and dietary quality), Months of Adequate Household Food Provisioning (MAHFP) (to measure stability), Hunger Months Index (HMI) (the number of months in a year the household experiences food shortages) and coping strategies (use of various strategies to cope with food shortages).

QUALITATIVE DATA COLLECTION

A semi-structured FGD guide was used to explore community perceptions of food security, causes of food shortages, coping mechanisms and proposed solutions. Discussions were conducted in Shona, audio-recorded and later transcribed and translated. KII guide was used to gather in-depth information on institutional perspectives, historical trends and policy challenges related to agriculture and food security in the district.

DATA ANALYSIS

Quantitative data were cleaned, coded and entered into SPSS software (Version 27). Descriptive statistics (frequencies, means, standard deviations) were computed. Inferential statistics, including Chi-square tests and logistic regression, were used to determine relationships between independent variables (for example age and size, income) and the dependent variable (food security status). Qualitative Data were analyzed using thematic content analysis. Transcripts were repeatedly read to identify recurring themes and patterns, which were then coded and categorized according to the pillars of the conceptual framework.

MAP OF ZVIMBA DISTRICT

Zvimba District is located in Mashonaland West Province of Zimbabwe. It is surrounded by Makonde District to the north, Chegutu and Kadoma Districts to the south, Hurungwe District to the west and Mashonaland Central Province to the east.

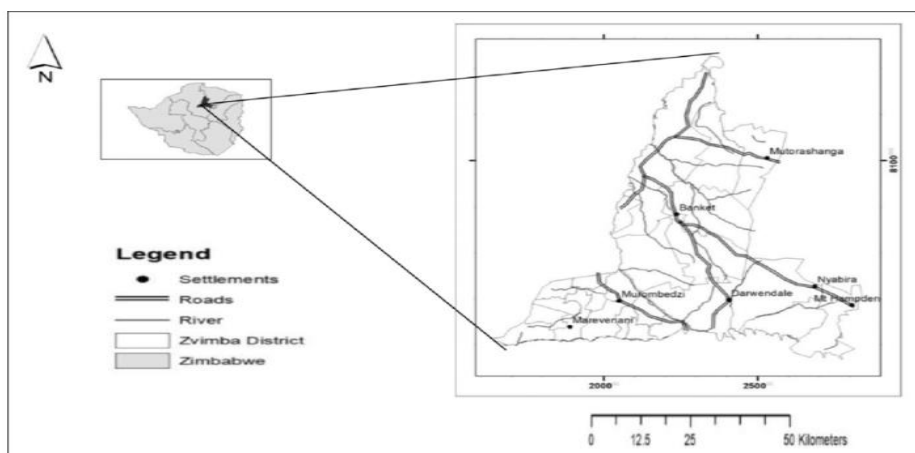


Figure 1: Map of Zvimba District, Mashonaland West Province, Zimbabwe

The district falls largely in Natural Region II, which receives an average annual rainfall of between 750mm and 1 000mm, making it suitable for intensive farming. The main economic activities are agriculture (maize, tobacco, cotton, horticulture and livestock rearing) and mining. The district is characterised by both communal areas and small-scale commercial farming areas. The population is primarily Shona-speaking.

RESULTS AND DISCUSSIONS

This section presents and discusses the findings of the study according to the stated research objectives. The analysis is framed through the four pillars of the Food Security Theory: food availability, food access, food utilisation and food stability to provide a holistic understanding of the food security situation in Zvimba District.

SOCIO-DEMOGRAPHIC AND LIVELIHOOD CHARACTERISTICS OF RESPONDENTS

Table 1: Socio-Demographic and livelihood characteristics of respondent HHs (n=412)

Characteristic	Category	Frequency (N)	Percentage (%)
A. Household Head Profile			
Gender of Household Head	Male	281	68.2%
	Female	131	31.8%
Age of Household Head	Mean Age (Years)	-	52.0 (±13.4)
	18-35 years	58	14.1%
	36-59 years	238	57.8%
	60 years and above	116	28.1%
Education Level of Household Head	No Formal Education	41	10.0%
	Primary Education (Grade 1-7)	185	45.0%
	Secondary Education (Form 1-4)	157	38.1%
	O-Level and above	29	7.0%

	(Form 5+)		
B. Household Composition			
Household Size	Mean Number of Members	-	5.8 (±2.3)
	1-3 members	72	17.5%
	4-6 members	243	59.0%
	7+ members	97	23.5%
C. Livelihood Assets			
Land Ownership	Mean Landholding (Hectares)	-	2.1 (±1.2)
	< 1 Ha	62	15.0%
	1-3 Ha	295	71.6%
	> 3 Ha	55	13.4%
Livestock Ownership	Cattle	115	28.0%
	Goats	185	45.0%
	Sheep	45	11.0%
	Chickens	309	75.0%
	Donkeys (for draught power)	28	6.8%
Main Source of Income (Multiple Responses Possible)	Crop Sales	330	80.1%
	Livestock Sales	115	28.0%
	Casual Labour (for example piece jobs)	214	52.0%
	Formal Employment (household member)	91	22.0%
	Petty Trading /Small Business	136	33.0%
	Remittances (from family abroad /urban)	103	25.0%
	Artisanal Mining	87	21.1%
D. Farming Practices			
Main Crops Grown (Multiple Responses Possible)	Maize	404	98.0%
	Sorghum	156	38.0%
	Millet	124	30.0%
	Groundnuts	287	70.0%
	Sunflower	45	11.0%
	Tobacco (as a cash crop)	88	21.0%
	Horticulture (vegetables)	165	40.0%

The data reveal a community predominantly led by middle-aged and aging males (average age 52), with a significant proportion (28.1%) being over 60. This suggests a potential future challenge of labour shortages and generational transfer of knowledge and land. The educational attainment is generally low, with over half (55%) having only primary-level education or less, which can be a barrier to adopting new agricultural technologies and practices.

Households are moderately sized, with an average of 5.8 members, indicating a high dependency ratio. The landholding size is small, with 86.6% of households farming less than three hectares, which constrains the potential for producing significant marketable surpluses. Livestock ownership, a key indicator of wealth and a safety net, shows that while most households own chickens (75%), ownership of larger, more productive assets like cattle is limited to only 28% of households. This has direct implications for access to draught power and manure for soil fertility.

Critically, the income sources highlight a high level of livelihood diversification out of necessity. While 80% rely on crop sales, over half (52%) depend on insecure casual labour and a third (33%) on petty trading. This underscores that farming alone is insufficient for survival and households are heavily engaged in the informal economy to meet their needs. The significant reliance on remittances (25%) and artisanal mining (21.1%) further points to the fragility of the local economic base. This profile sets the stage for understanding the underlying vulnerabilities that contribute to the high levels of food insecurity documented in the subsequent sections.

CURRENT STATE AND PREVALENCE OF FOOD INSECURITY AMONG SMALLHOLDER FARMERS IN ZVIMBA DISTRICT

This objective sought to quantify the scale and severity of the food security problem in the district. The quantitative data reveal a dire situation. The prevalence of food insecurity is alarmingly high. Based HFIAS), 78.4% (n=323) of the 412 surveyed households were classified as food insecure. This was further broken down into 45% moderately food insecure, and 33.4% severely food insecure. The Hunger Months Index shows the number of months households struggled to meet their food needs and is averaged at 4.7 months per year. Figure2 illustrates the distribution of this hardship, showing that most households experience food shortages for a significant portion of the year.

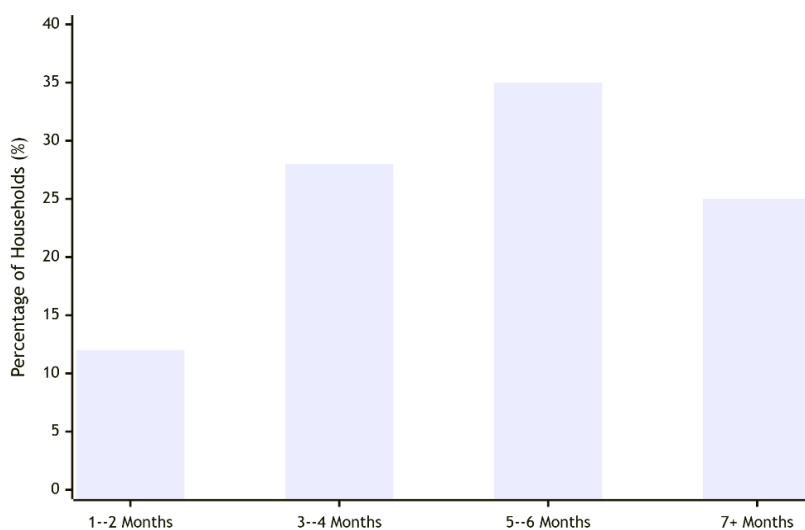


Figure 2: Distribution of hunger months experienced by households

The high prevalence of food insecurity, affecting more than three-quarters of the population, indicates a systemic failure that impacts all pillars of food security.

In terms of food availability and access, the 4.7-month hunger period is a stark indicator of failed food stability and directly points to chronic shortcomings in insufficient food from self-production, as well as inability to bridge the gap through purchase. The fact that only 21.6% of households are food secure in a region considered to have high agricultural potential underscores that the problem is not merely ecological, but deeply socio-economic.

However, the concentration of hunger months in the pre-harvest period (December-March) highlights a cyclical and predictable pattern of instability. This seasonality shows that households' food stocks and financial resources are exhausted long before the next harvest, making them vulnerable to even minor shocks during this lean season. The qualitative data corroborate this, with a female FGD participant in Ward 15 stating,

"We know the hunger is coming every year. It is like a clock. From December until we harvest, we are just trying to survive."

This statement reflects a normalised state of hardship, where food insecurity is not an unexpected shock, but an anticipated and dreaded annual event.

SOCIO-ECONOMIC AND AGRO-ECOLOGICAL FACTORS INFLUENCING FOOD SECURITY IN ZVIMBA DISTRICT

FOOD AVAILABILITY

The following figures illustrate the primary socio-economic and agro-ecological factors that constrain food production and availability among SHFs in Zvimba District. The main challenges

farmers reported facing in their farming activities, which directly impact food availability are show in Figure 3.

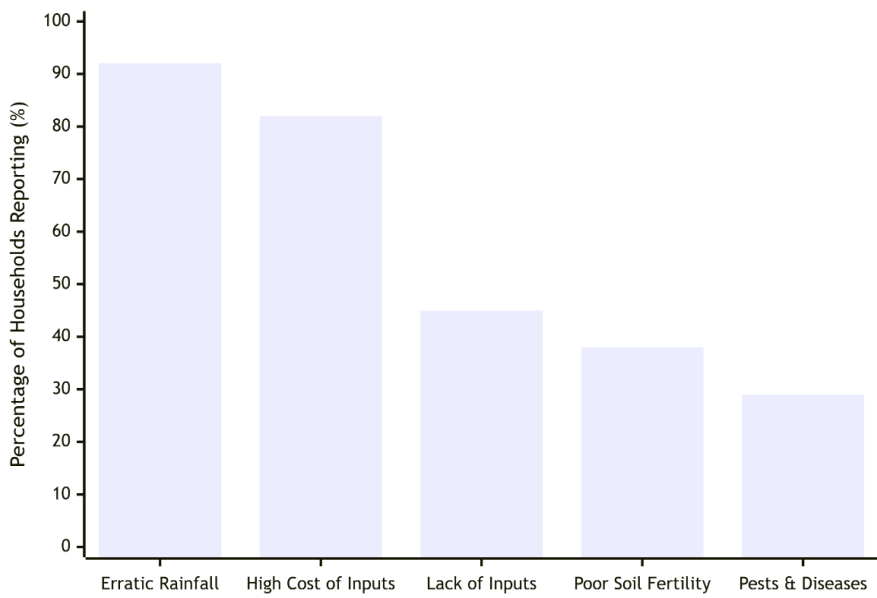


Figure 3: Primary constraints to agricultural production

The data reveal that agro-ecological factors are the dominant challenge, with 92% of households citing erratic rainfall as a primary constraint. This is closely followed by socio-economic factors - the high cost of inputs (82%) and lack of input availability (45%). This combination of climate vulnerability and financial limitation creates a perfect storm that severely constrains food production and availability.

In terms of maize production, 98% of households grew maize, but the average yield was dismally low at 0.65 tonnes per hectare. Only 34.5% of households produced enough maize to cover their annual consumption needs. The actual maize production

outcomes with annual household consumption needs, directly measuring the food availability gap, are compared in Figure 4.

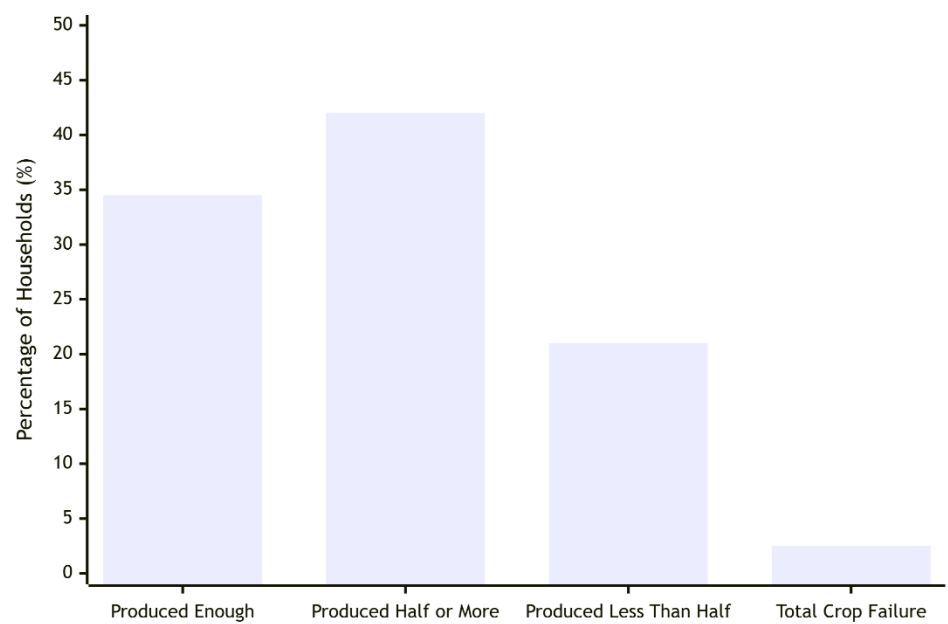


Figure 4: Maize production vs. annual consumption needs

Figure 4 provides the most direct evidence of the food availability crisis. Only 34.5% of households achieved food self-sufficiency in maize, the staple crop. The majority (65.5%) experienced a deficit, with 21% producing less than half of their annual needs. This significant production gap is the fundamental reason for the high prevalence of food insecurity in the district.

HOUSEHOLD ACCESS TO KEY AGRICULTURAL INPUTS AND CLIMATE SHOCKS

The following visualisations demonstrate the severe constraints on agricultural production in Zvimba District, highlighting the

critical gaps in access to essential inputs and the near-universal experience of climate-related shocks.

HOUSEHOLD ACCESS TO KEY AGRICULTURAL INPUTS

The proportion of households that had access to certified seeds and inorganic fertilizers during the last planting season is shown in Figure 5.

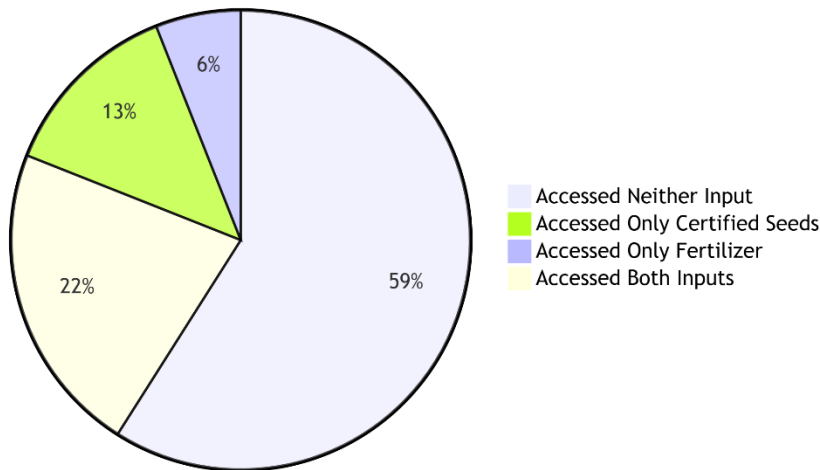


Figure 5: Household access to key agricultural inputs

Figure 5 reveals a critical input crisis. A staggering 59% of households were completely cut off from modern agricultural inputs, having access to neither certified seeds nor inorganic fertilizer. Only 22% of households had access to both inputs necessary for achieving high yields. This widespread input deprivation is a primary driver of the low productivity documented in the study, locking farmers into a cycle of low-output farming regardless of weather conditions.

REASONS FOR LIMITED INPUT ACCESS

Figure 6 shows the primary barriers preventing farmers from obtaining improved seeds and fertilizers.

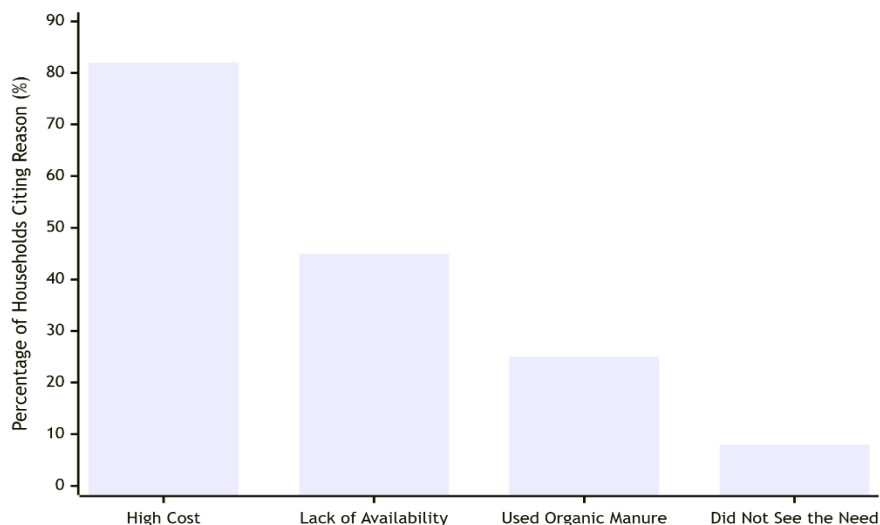
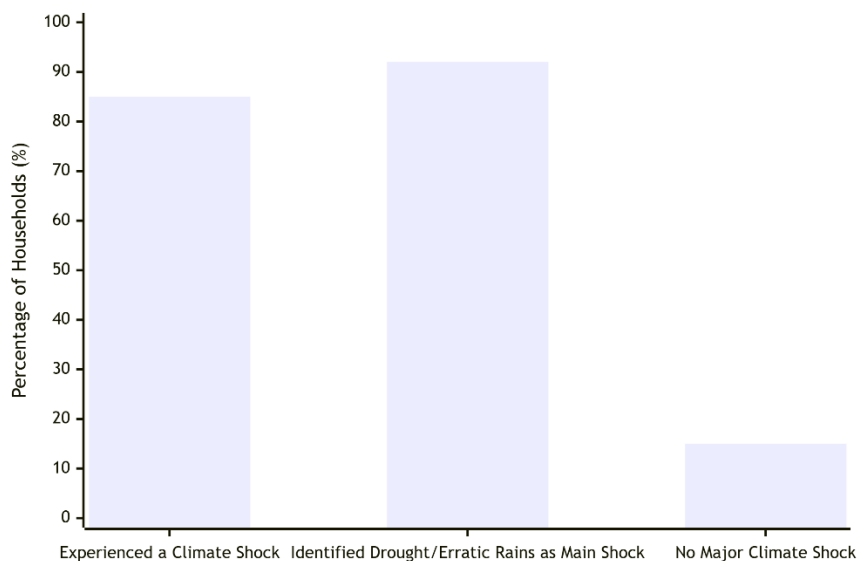


Figure 6: Reasons for limited input access

The data show that the input gap is primarily a socio-economic issue. High cost is the dominant barrier, cited by 82% of households, indicating a severe lack of purchasing power and access to credit. Lack of availability (45%) points to failures in both the government input scheme and the private market supply chain. These barriers prevent farmers from investing in the very technologies that could help them mitigate other risks, such as climate shocks.

PREVALENCE AND IMPACT OF CLIMATE SHOCKS

Figure 7 visualises the proportion of households affected by climate shocks and identifies the most significant type of shock.



Note: The 92% is a percentage of the 85% who experienced a shock.

Figure 7: Prevalence and impact of climate shocks

Figure 7 underscores the overwhelming environmental challenge facing farmers. An extraordinary 85% of households experienced a climate shock in the last two years and for the vast majority of those (92%), the main shock was drought or erratic rainfall. This demonstrates that climate volatility is the new normal in Zvimba. The convergence of high input costs (Figure 3) and frequent climate shocks creates a perfect storm. However, SHFs lack the resources to invest in resilience, making them profoundly vulnerable to the very shocks that are now guaranteed to occur.

The interaction between input access and climate shocks creates a devastating trap for productivity. SHFs are too resource-poor to afford the inputs that could help them withstand climate variability and they are too frequently battered by climate shocks

to accumulate the resources needed to purchase inputs. This self-reinforcing cycle is the core of the "production paradox" in Zvimba District, explaining why availability of food from own production remains critically low despite the region's agro-ecological potential. Breaking this cycle requires interventions that simultaneously address input affordability/access and build climate resilience.

Availability of food from own production is severely constrained. The low maize yields are a function of multiple failures. The agro-ecological challenge (erratic rainfall affecting food stability) intersects with socio-economic constraints (lack of access to inputs and finance, affecting access). The reliance on rain-fed agriculture without the means to mitigate climate risk makes domestic *food availability* highly volatile. An Agricultural Extension Officer (KII) explained,

"The soil fertility has declined and the rains are no longer trustworthy. Farmers are planting with hope, not with confidence."

This demonstrates how environmental and resource factors directly undermine the availability pillar.

FOOD ACCESS

The following figures illustrate the economic dimensions of food security in Zvimba District, highlighting the reliance on fragile income sources, the protective role of assets and the market inefficiencies that trap households in poverty.

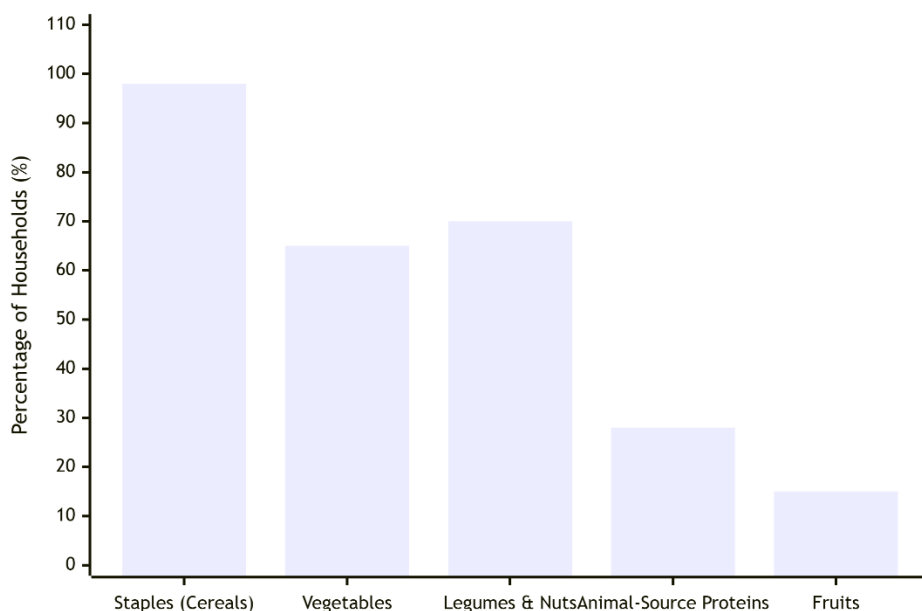


Figure 8: Consumption of key food groups

Figure 8 reveals a stark contrast between near-universal consumption of calorie-dense staples (98%) and very low consumption of nutrient-dense foods like animal-source proteins (28%) and fruits (15%). This imbalance is the hallmark of micronutrient deficiencies, where caloric needs may be partially met, but needs for essential vitamins and minerals are not, leading to poor health outcomes and impaired development.

WATER, SANITATION AND HYGIENE CONDITIONS

Figure 9 shows the proportion of households treating their drinking water, a critical factor for preventing waterborne diseases that hinder nutrient utilisation.

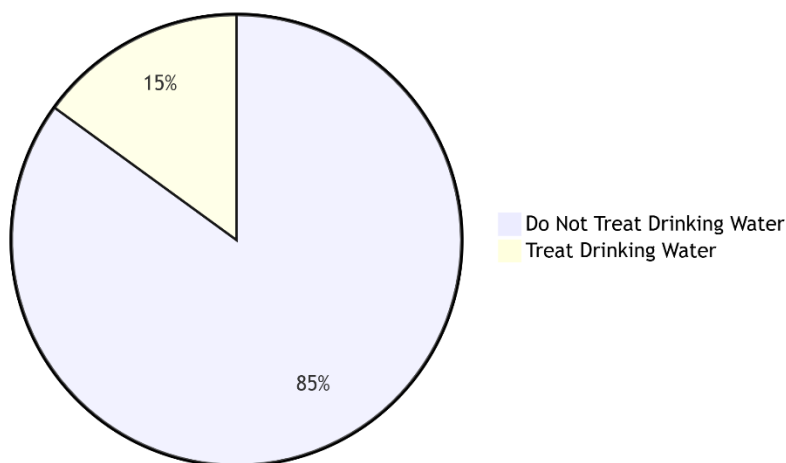


Figure 9: Household water treatment practices

The fact that 85% of households do not treat their drinking water is a major public health concern. When combined with the finding that 40% use unimproved sanitation, it creates a high risk of waterborne diseases. Conditions like diarrhoea prevent the body from absorbing nutrients from food, effectively nullifying the nutritional value of whatever is consumed. This directly undermines the utilisation of food, as the body cannot make use of the available nutrients.

The data for Pillar 3 reveal that food insecurity in Zvimba is not just about quantity, but critically about quality and biological use. The monotonous, starch-based diet, lacking in essential proteins and vitamins, combined with poor water, sanitation and hygiene (WASH) conditions, creates a double burden. Even when food is available and accessible, its nutritional benefits are not fully realised by the body. This results in the micronutrient deficiencies,

which have severe long-term consequences, including impaired cognitive development in children, increased susceptibility to disease and reduced labour productivity in adults, thereby perpetuating the cycle of poverty and food insecurity.

The low HDDS score reveals that the problem is not just about caloric intake, but also about the quality of the diet. The lack of dietary diversity indicates "hidden hunger" or micronutrient deficiencies, directly pointing to a failure in the *utilisation* of food. This is exacerbated by poor WASH conditions, which can lead to diseases that prevent the body from absorbing nutrients effectively. A mother in a female FGD in Ward 4 shared,

"We know the children are not strong and get sick often. We give them *sadza* (maize porridge), but it is not enough. We cannot afford milk or eggs."

This shows a clear link between economic *access* (cannot afford nutritious food) and poor *utilisation* (children are weak and sickly).

FOOD STABILITY

The following figures illustrate the precarious nature of food security in Zvimba District, highlighting the high prevalence of shocks and the coping strategies households are forced to employ, which ultimately undermine their long-term stability.

PREVALENCE OF MAJOR SHOCKS EXPERIENCED BY SHFs

Figure10 shows the proportion of households that experienced a major shock, confirming the widespread vulnerability that disrupts food stability.

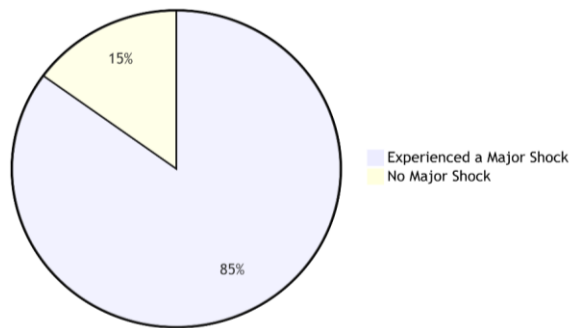


Figure 10: Prevalence of Major Shocks Experienced by smallholder farmers in last two years.

The fact that 85% of households faced a major shock underscores the extreme fragility of their food security system. With such a high probability of disruption, the stability pillar is fundamentally compromised. This data confirms that food insecurity is not a temporary condition for most, but a persistent state of vulnerability to predictable and unpredictable crises.

MOST COMMON COPING STRATEGIES DURING FOOD STRESS

Figure 11 ranks the most frequently reported coping strategies, showing the progression from less to more severe measures.

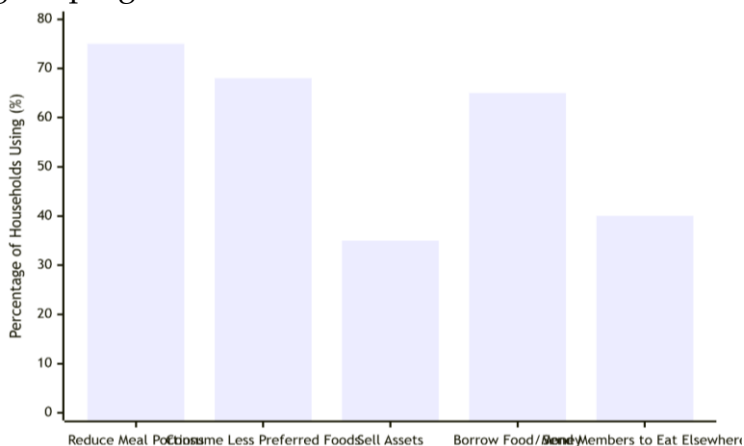


Figure 11: Most common coping strategies during food stress.

The sequence of coping strategies reveals a desperate attempt to maintain stability that ultimately leads to its further erosion. Consumption-based strategies based on reducing portions, eating less preferred foods, are the most common and are direct indicators of compromised food access and utilisation of food. They have immediate negative impacts on health and nutrition. Erosive strategies of selling assets and borrowing are particularly damaging to long-term food stability. Selling productive assets like livestock, reported by 35% of households, provides short-term relief but destroys the very foundation of future food availability and income. Borrowing food or money (65%) creates future debts, jeopardising economic access in the next season.

PEAK MONTHS OF FOOD STRESS

Figure 12 pinpoints the temporal concentration of food insecurity, demonstrating the predictable seasonal nature of the crisis.

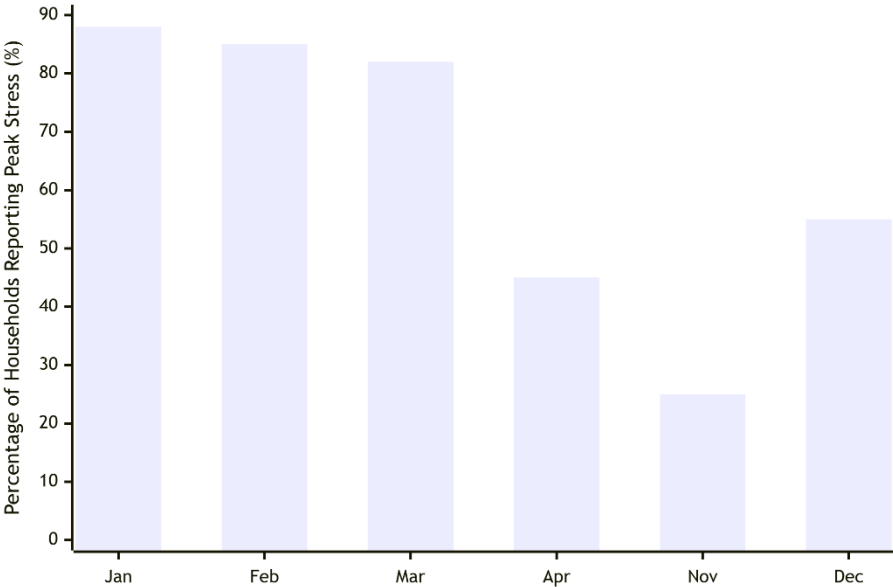


Figure 12: Peak months of food stress.

The concentration of peak food stress between January and March is a classic indicator of a pre-harvest "lean season". Figure 12 powerfully illustrates the failure of the food stability pillar. Households' food stocks from the previous harvest are depleted and financial resources are exhausted, creating an annual period of predictable hardship. This cyclical instability is a defining feature of the food security situation in Zvimba, showing that the problem is not just one of annual quantity, but also of distribution across the year.

The data for the fourth Pillar reveal a system in chronic instability. The high likelihood of shocks (85%), combined with a heavy reliance on erosive coping strategies and a predictable annual hunger season, shows that SHFs in Zvimba are in a constant state of recovery, never able to build a sufficient buffer to achieve stability. This perpetual state of brinkmanship traps them in a cycle where short-term survival tactics actively undermine their long-term resilience, making them even more vulnerable to the next shock. This completes a vicious cycle that connects and destabilises all the other pillars of food security.

Food stability as a pillar is the thread that binds the others over time. The data show a community with no buffer against shocks. The coping strategies employed are primarily erosive, they compromise nutritional intake and sell off productive assets like livestock, undermining future food access and food availability. The predictable seasonality of hunger indicates a failure to achieve stability. The system lacks resilience. As one elderly male farmer in Ward 7 put it,

"One bad season destroys us for years. We sell a goat to eat, then we have no manure, then the next harvest is poor. It is a deep hole."

This quote powerfully illustrates how a shock disrupts *stability*, triggering coping mechanisms that degrade the other three pillars in a vicious cycle.

TO DOCUMENT THE COPING STRATEGIES EMPLOYED BY HOUSEHOLDS DURING PERIODS OF FOOD STRESS.

The objective focused on the behavioural responses to food insecurity, which are manifestations of the failure of the four pillars. Table 2 below categorises the coping strategies reported by households, from least to most severe.

Table 2: Coping Strategies Employed by Food insecure SHFs (n=323)		
Severity Level	Coping Strategy	%
Least Severe (Consumption-based)	Rely on less preferred, cheaper foods	91%
	Limit portion size at mealtimes	85%
	Reduce number of meals eaten in a day	78%
Moderately Severe (Social and Economic)	Borrow food or money from friends/relatives	65%
	Purchase food on credit	45%
	Sell non-productive assets (for example, furniture)	28%
Most Severe (Erosive and Destructive)	Send household members to eat elsewhere	40%
	Sell productive assets (for example, livestock, tools)	35%
	Withdraw children from school	22%
	Engage in illegal activities (for example poaching)	15%

The sequence and severity of these strategies provide a window into the progressive collapse of a household's food security system. Firstly, for consumption-based strategies like reducing meal size and frequency are direct attempts to manage dwindling household availability and stretch limited access to purchased food. They are a first line of defence but have immediate negative consequences for the utilisation pillar, leading to hunger and nutrient deficiencies. Social and economic factors to note, as the crisis deepens, households leverage social capital (borrowing) and future earnings (credit) to maintain access. This often leads to indebtedness, creating a future liability that threatens stability.

More also, the most alarming strategies involve the liquidation of the household's productive base. Selling livestock, a key productive asset, provides short-term access to cash but devastates future availability (loss of draught power and manure) and food stability (loss of a safety net). Withdrawing children from school sacrifices human capital for immediate survival, perpetuating intergenerational poverty and future food insecurity. These coping mechanisms are not solutions; they are symptoms of a system in distress. They demonstrate how HHs are forced to make choices that trade long-term resilience for short-term survival, thereby reinforcing the very vulnerabilities that led to food insecurity in the first place. This aligns perfectly with the conceptual framework, showing how failure in one pillar (for instance, food availability due to drought), triggers responses that degrade the other three pillars.

CONCLUSION

This study conclusively demonstrates that food insecurity is a severe and pervasive reality for the majority of smallholder

farmers in Zvimba District. The prevalence rate of 78.4% is alarming and contradicts the district's reputation as a high-potential agricultural zone. The problem is not singular, but multidimensional, deeply entrenched in the interplay of environmental, economic and social factors.

The analysis through the Food Security Theory framework reveals that the challenge extends far beyond low agricultural production (availability). The core issues are structural: limited economic access to food and inputs due to poverty and market failures, poor utilisation of food due to dietary monotony and poor WASH conditions and a profound lack of stability due to high vulnerability to climate and economic shocks.

The SHFs of Zvimba District are not passive victims; they are active agents employing a range of coping strategies. However, these strategies are largely survival-oriented and often erode their human, financial and natural capital, thereby perpetuating the cycle of vulnerability. An aging farmer population and particular constraints faced by female-headed households add further layers of complexity. Without targeted interventions, the food security situation in Zvimba District is likely to deteriorate further under the pressures of climate change and economic instability.

RECOMMENDATIONS

Addressing this complex problem requires a multi-pronged, coordinated and sustainable approach that targets all four pillars of food security. The following recommendations are proposed:

1. Promote climate-smart agriculture (CSA) by disseminating information and support the adoption of CSA practices such as conservation agriculture (*Intwasa/Pfumvudza* done correctly),

agroforestry and water harvesting techniques to build resilience against erratic rainfall.

2. Diversify crop and livestock systems through encouraging a shift away from over-reliance on maize by promoting drought-tolerant small grains (sorghum, millet), legume production (for soil fertility and nutrition) and small livestock (goats, poultry) which are less capital-intensive.
3. Strengthen input support systems by improving the timeliness and targeting of input support programmes. Explore voucher systems that allow farmers to choose their inputs from local agro-dealers to stimulate the local market.
4. Facilitate rural finance and savings through developing and promoting accessible microfinance products, savings and credit cooperatives (SACCOs) and livestock insurance schemes to help farmers smooth consumption and invest in productivity.
5. Strengthen market linkages supporting the formation of farmer cooperatives to improve bargaining power. Invest in market information systems and infrastructure (rural roads, collection points) to reduce transaction costs and improve farm-gate prices.
6. Support livelihood diversification facilitating skills training and support for non-farm and off-farm enterprises (for example, horticulture, beekeeping, tailoring) to reduce over-dependence on rain-fed agriculture and provide alternative income streams.
7. Integrate nutrition-sensitive agriculture extension messages should go beyond production to include nutrition education, promoting the cultivation and consumption of diverse, nutrient-rich foods, especially by women.

8. Scale up WASH interventions and collaborate with health departments and NGOs to improve access to safe drinking water and sanitation facilities, which is critical for nutrient absorption and preventing disease.
9. Empower women by targeting women with resources, information and decision-making power, as they are key to improving household food utilisation and child nutrition.
10. Develop early warning and social protection systems and strengthen community-based early warning systems for climate and pest shocks. Make social protection schemes (for example, cash transfers) more predictable and scaled up to protect the most vulnerable during lean seasons and aftershocks.
11. Invest in irrigation infrastructure and prioritise the rehabilitation and development of small-scale irrigation schemes to reduce dependence on rainfall and allow for year-round production.
12. Strengthen agricultural extension as well as increase the number of extension officers, equipping them with knowledge on CSA, marketing and nutrition. Empower them to be facilitators of learning rather than just top-down advisors.
13. Government must provide an enabling policy environment, invest in public goods (research, infrastructure, extension) and coordinate safety nets.
14. NGOs and development partners must pilot innovative approaches, provide targeted support to the most vulnerable and build the capacity of local institutions.
15. The private sector should also engage in inclusive business models, provide affordable finance and inputs and create reliable markets for farm produce.

16. Farmers and communities must organise into effective groups, adopt sustainable practices and actively participate in finding local solutions.

By adopting this holistic set of recommendations, grounded in the empirical evidence from Zvimba District, stakeholders can work together to break the cycle of food insecurity and build a more resilient and food-secure future for its smallholder farmers.

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