



A SOUTH AFRICAN FOOD SECURITY CHALLENGE: THE CRITIQUE OF INITIATIVES AT HOUSEHOLD LEVEL

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Abstract

*The food security challenge has affected many households in South Africa, as some households struggle to maintain a healthy diet and adequate food access. Many households in South Africa experience food hunger and starvation, in particular households in rural areas which is often characterised by large family groups. The pressing challenge encountered by policy makers is ensuring that all households in South Africa are food secure, as it stands this has not been achieved. Despite pro-active initiatives such as the Integrated food security, nutrition program, zero hunger programme and social grants, households in South Africa continue to be negatively impacted by food insecurity, especially in the wake of climate change. The paper **aims** to argue that food security challenges faced by households in South Africa could be addressed if strategies are formulated not only to secure the individual but the entire household. The paper analyses three literature themes namely: food security globally, accessed food security challenges in South Africa and finally critiqued food initiatives that potentially play a role in household food security. The **findings** of the paper conclude that food security initiative programs are available in South Africa, however they often rely on monetary terms of ensuring food security, the social grants for example are targeted to some household members not everyone in the household. The paper suggests that targeting certain household members is not a comprehensive approach in addressing food security at household level. Lessons drawn from literature, provide a way forward towards policy effective and efficient interventions that seek to foster household food security interventions while observing nature-based agro-forestry initiatives that are community-led.*

Keywords: Food Security, Households, Initiatives, South Africa

INTRODUCTION

A majority of those living in poverty, live in Sub-Saharan Africa, and are said to live below the international poverty line of 1.90 per day (Ochi et al, 2023). Approximately 828 million people in the world battled with hunger in 2021, and Africa at 278 million people being the worst affected (Martínez-Cruz and Rosado-May, 2022). The Covid-19 pandemic also added to the food security crisis. Statistics reveal that world hunger rose further in 2021, adding a total of 150 million people since 2019 pre-COVID-19 (Swinnen and Ros, 2021). With more people being more food insecure this requires tentative interventions to ease food insecurity. The pressing challenge encountered by policy makers is ensuring that all households in South Africa are food secure, as it stands this has not been achieved. Despite pro-active initiatives such as the Integrated food security, nutrition program, zero hunger programme and social grants, households in South Africa continue to be negatively impacted by food insecurity. The first section of the article will look at the social stratification theory, methodology and literature within the context of food security in South Africa and provide a critique on food security initiatives. Finally, unpack a way forward in relation to practical food security solutions for households.

1.1 SOCIAL STRATIFICATION THEORY

The social stratification theory or concept refers to the classification and degrees of placement of people in society, the concept stratifies or classifies individuals into categories or societal class (Farkas, 2023). Social class refers to the resources or access to incomes education, or social benefits

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that a person has in society (Philips et al, 2020). The classification of individuals into class positions often reflects the degree of advantage that that individual has (Oesch and Vigna, 2023). Gephart et al, (2023) argue that social positioning and class is negatively related to levels of empathy. This means that when people identify themselves within a particular class structure such as the bourgeoisie or proletariat class. Depending on the positioning, if some for an example classifies themselves as bourgeoisie this may come across as unemphatic or uncaring towards the proletariats who often have less in comparison to the bourgeoisie. Philips et al, (2023) argue for the need for social class theory to transition into dynamic perspectives. This call is imbedded on the notion that dynamic perspectives are adaptive and evolving, thus foster increased empathy and reduced entitlement of resources and assets. The shift in the social class paradigm will encourage collective and dynamic household interventions and initiatives that are community-led.

Inequalities at household levels are perpetuated by the social stratification construct that maintain class stratification of the classes. Therefore, the transition towards a dynamic and multifunctional perspective can help equalise social security and food security at household level. It can be argued that food security initiatives in South Africa have taken a social stratification stance, in which the household has been stratified by those who are eligible to attain social grants versus those who are not eligible to attain the grants. This household stratification is not sustainable in addressing food security at household level given that this approach has the likelihood to target certain household members while leaving other household members.

1.2 METHODOLOGY

The study draws literature from peer-reviewed articles and book chapters. Certain keywords we used to extract data namely, household food insecurity at household level, challenges of food security, food security initiatives in South Africa. The database used was Google Scholar and government databases. The methodology followed to review the literature was as follows: The research problem was formulated by the challenge of food insecurity in South African households. The research problem was then accessed according to the various initiatives of food security-looking at whether these initiatives have been adequate in addressing food insecurity. The type of literature review conducted has been a narrative and exploratory review. The narrative review provided a broader perspective of the challenges of food initiatives, while the narrative review provided case studies of factual stories and events of food insecurity experienced by those living in disadvantaged households in South Africa.

1.3 LITERATURE REVIEW**Food insecure households in South Africa**

Statistics South Africa indicate that South Africa is food secure at national level (Statssa, 2019). However, this is not the case for some South African households. There are high levels of poverty and inequality in income and asset ownership in South Africa. A study by Akbar et al, (2023), revealed that food security at national level does not often translate to food security at household level. Statistics in South Africa concur by suggesting that 53% of rural households declared themselves to be severely food insecure. These stats show that half the population size of the South African 60 million people have a food challenge (De Cock et al, 2013). Food security in South Africa highlights that about 26% of South Africans are food insecure and 28% are at the brink of facing food insecurity (Adetero et al, 2023) This is a huge number that needs urgent interventions that are simple, adaptable in approach yet effective. The above percentage ratio was influenced mainly by human capital (education, number of people in the household, household income and the dependency ratio).

In order to understand household food insecurity in South Africa. It is imperative to determine household dynamics that constitute food insecurity. Characteristics of households mostly likely to be food insecure are; households composed of large household members, limited wealth and household strategies to attain wages and incomes, such households are often located in rural areas and secluded to opportunities, the length of time in which they are affected by issues of food insecurity can often be pro-longed, these households do not live in close proximity to amenities such as markets and



institutions. They are often most likely to be affected by issues of climate risks (Jacobs, 2009). Household composition is important for example, strategies created that do not address the number of people supported in each household will most likely fail to meet the target of that household's food security goal. Often the strategies created provide piece-meal solutions that come across as a blanket approach to all household problems. In households that already do not have an income and have a large number of extended family members it becomes difficult for these households to become food secure in comparison to smaller households that can be accommodated by current state initiatives.

This is why social grants have come as piece-meal solutions to food insecurity however they too are not helping to meet the needs of the most vulnerable as these grants are often received by one family household member who needs to have it stretched across household members of more than 10 members at times. This makes it difficult for even the nutritional needs of the social grant recipient to be met. Policy makers need to fully understand that the lack of understanding people on the ground, failing to include them in decision making, inability to factor their true incomes and households' size will continue to affect the positive outcomes of effective food security challenges. Strategies and initiatives to tackle food security will continue to be recorded as a tick box exercise while the lives of the vulnerable will continue to be the same or worse-off, plummeting into deeper levels of vulnerability. Therefore, the South African state and policy makers need to reconsider rolling out blind approach initiatives in hopes that they will change the lives of the most vulnerable.

Food security challenges in South Africa

Nationally, food security has remained a challenge in South Africa. Statistics South Africa highlights that approximately 20% of households have challenges accessing food (Statssa, 2018). This statistic reveals slow paced change relative to other surveys. The South African National Health and Nutrition (SANHANES) survey revealed that approximately 26% of people in the country were experiencing food insecurity while 38.3% were at risk of experiencing hunger (Battersby et al, 2019). In 2019 Stats revealed that about 1,6 million households were living in food insecurity (Nenguda et al, 2023). According to Wills et al, 2023, food insecurity was exacerbated during the Covid-19 pandemic as households reported that 47% ran out of financial means to buy food. Despite the statistical differences throughout the years, what has remained constant is the persistent food insecurity experienced by households in South Africa.

Using the SANHANES survey, Pereira and Drimie (2016), highlighted that overweight was 20.1% and 24.8% for men and women respectively, while obesity was at 10.6% and 39.2%. Kroll et al. (2019) report that 68.5% of women and 34.2% of men in urban South Africa were either overweight or obese. A study on people living with diabetes revealed that obesity could be because of the causal effect of low household incomes which attribute to poor health diets, consumption of unhealthy foods and lack of nutritional food intake (Mphasha et al, 2023). There was no decline in child stunting between 2013 and 2016 (Kroll et al., 2019). The South African National Income Dynamics (SA-NIDS) longitudinal survey reveals that food security has had considerable impacts as children in the age category of 4–24-month, 15.1% were stunted and 24.7% were severely stunted. In the same category, above 26%) of children were characterised as overweight or obese, as low birth weight and stunting was prevalent in early childhood (Harper et al, 2023). In support of the these statistics, the household dynamics reveal the disproportional inequalities to food security. The South African household food status in Bophelong Gauteng, indicated that female headed households had greater food security than male headed households due to better resource utilization (Sekhampu, 2013). Women might not have adequate resources to sustain food security, however they are able to use their minimal resources to good use.

A study conducted by Cock (2013) in Limpopo, South Africa, revealed that on average a single household had an income of R 2, 953 per month. All households in the study indicated that they had an income below R500 a month while only 7.6% agreed to have an income above R 7, 500 a month. 75% of Households indicated that their main sources of income depended on social grants from the welfare, while only 31% received a formal salary. The study results indicate that human capital, household incomes and location in which the household is situated were important variants in

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determining the household's food security. Food production and access to land did not appear as determinants of food security. While households that produce or sell crops or farm with livestock did not necessarily have a higher probability of being food secure. Farming income and remittances were income sources for 15 % and 13 % of households, respectively. Smaller households with older and more educated household heads seem to have lower odds to be food insecure. A higher monthly income leads to higher food security levels. In Limpopo of the 43% household members that had left their homes to seek employment elsewhere, only 25,5% of those contributed to household remittances. This means that about 15% of the households were not receiving money from relatives that had left. Remittances can also play an important role in tackling food security in the household; however, this money cannot be relied on as it is not a guarantee. Although household remittances can be beneficial it also can be limiting as the monies received overtime can fluctuate. Social grants were, thus, the most prevalent source of income across all districts in Limpopo. These stats reveal that although social grants incomes are minimal, they however contribute to the challenge of food security in South Africa, especially for the most vulnerable. However, it can also not be ignored that although social grants are invaluable especially in smaller households, they are however thinly stretched in big households making such incomes unimpactful to a larger degree. Evidently, if social grants had a staggering impact on food security all households would positively report that they are food secure. This also highlights that the importance is not that households receive incomes; the vital question is are those incomes enough to meet the individual household needs of each member.

A study in South Africa found that women living in rural Kwa-Ngwanase, were experiencing food security challenges due to climate change impacts. Subsistence farmers were experiencing shrinkage and crop failure. As a result, these farmers were neglecting farming as they considered alternative coping mechanisms such as chopping down trees to make wooden products to sell by the roadside as ways to gain income and maintain household food security. Despite this nature-based solution, the chopping and selling of wooden products exacerbate their climate vulnerability to natural resource degradation and scarcity (Masinga et al. 2021). As ways to circumvent resource degradation, household members need to be given awareness on the importance of replanting trees once used, that way replenishing the resource base (van der Zaan and van't Hof, 2020; Long, 2020). This study depicts the multifaceted challenges faced by subsistence farmers in rural areas with minimal coping mechanisms available at their disposal of which are seasonal based solutions and unsustainable in the long run.

In comparison to South Africa where rural subsistence farmers are dependent on agricultural produce to self-sustain (Ramaano, 2023), Ethiopia's most significant sector for food security and poverty reduction, especially among rural households involved in farming and non-farming activities (Kgopolo, 2023). Although these initiatives are not in farming these initiatives can very well be in agriculture or other sectors. This is also cognizant of the notion that the agricultural sector alone cannot solve the challenges embedded in food insecurity (Aragie et al, 2023). This is dependent on the notion that for the farming sector to be sustained its reliance is embedded on the other sectors ability to thrive vise-versa (Sibanda and Ndlela, 2020). Masinga et al, (2021) case study, is significant in that too much reliance on the farming sector as the main food security sector and potentially an alternative is not an alternative for farmers. This reliance on the farming sector can potentially cripple the sector's ability to self-renew and self-sustain.

1.4 FOOD SECURITY INITIATIVES, A SOUTH AFRICAN HOUSEHOLD CRITIQUE

The South African Bill of Rights within the 1996 Constitution (Section 27 and 28) stipulates that everyone has the right to have access to basic food (Kimani-Murage et al, 2023). South Africa is one of the very few countries in the world to have constitutionally guaranteed food access rights (Pritchard et al., 2016). Since then, different spheres of governments have succeeded in putting together a plethora of policies and programmes, either directly or indirectly related to the reduction of food and nutrition insecurity, and which have all evolved over time. Nutritional programmes have been implemented to promote behavioural change, to increase food fortification and to tackle some other factors responsible for malnutrition. Social welfare programmes have expanded greatly to



reduce poverty and food insecurity. Also, overarching developmental policies of government have alluded to and addressed the imperative of improving food security. Yet, Kimani-Murage et al, (2023) notes that despite the interventions, the state has failed to realize the constitutionally guaranteed right to food access of all. The initiatives have proven insufficient to significantly improving the food and nutrition security status of South Africans and the “slow violence of malnutrition” continues (May et al., 2021: 24).

Initiatives

The South African government adopted the Integrated Food Security Strategy (IFSS) in 2002. The vision was: “to attain universal physical, social and economic access to sufficient, safe and nutritious food by all South Africans at all times to help them meet their dietary and food intake for an active and healthy life” (IFSS 2002: 13, Candel, 2018). This vision was like the definition of food security of the FAO. The goals of the IFSS were linked to the millennium development goals (MDGs), especially MDG 1 (“to reduce hunger, malnutrition and food insecurity by half by 2015.”) The IFSS was subsequently translated into the “Integrated food security and nutrition program” (IFSNP), which has a task team in the National Department of Agriculture, Forestry and Fisheries (DAFF) to oversee its implementation (De Cock et al, 2013). Next to the IFSS, the South African government recently started two other programmes to increase food security. First, the Zero Hunger Programme of DAFF focuses on food access, food production, nutrition security, development of marketing channels, fostering of partnerships with relevant stakeholders and promoting stakeholder dialogue (Zita 2012). Second, the Outcome 7 programme launched by the government focuses on sustainable agrarian reform and aims to improve access to affordable and diverse food, rural services and sustainable livelihoods, rural job creation and enabling an institutional environment for sustainable and inclusive growth (De Cock et al, 2013). Outcome 7 is a broader development programme while zero hunger focuses on reducing hunger.

The outcome 7 programme although ideal as it promotes affordable and diverse foods. It however, is limiting considering that affordability often has a price tag attached to it which some households cannot afford as they often rely on the grant to support a large number of household members. Therefore, more accessible nature-based approaches can be more favourable in addressing food insecurity in South African households. Evidently, recent studies seem to reveal that indigenous foods such as foods and fruits are often “unknown species” that are less likely used given the lack of awareness on the benefits of these foods not only in Southern Africa but in South Africa (Sardeshpande and Shackleton, 2020). Furthermore, there is not much indigenous knowledge available on indigenous foods which household members can draw from (Nxusani et al, 2023).

One of the ways to avoid barriers and bridges to knowledge transmission is for the requirement of a prerequisite of a community-based agro-forestry mediation (Rosenstock et al, (2019). Agro-forestry is a land management system commonly known as land-use technological system (it is a system that can either be applied in forestry or farms where trees/animals are deliberately integrated) woody plants such as shrubs, bamboo’s, palms are planted or grown within the same land management units (Dubyna et al, 2023). The agro-forestry combination of animals or shrubs and trees help create a diverse ecosystem within the management system that is profitable and healthy (Qureshi and Ismail, 2017). Thus agro-forestry technological systems in communities can play a pivotal role in mitigating climate impacts by restoring and sustaining the environmental system, improving livelihoods and ensuring food security (Johansson, 2015).

For example, countries such as Nigeria have reported an increase in the poverty profile despite the poverty alleviation programmes in the country (Orokpo and Mutong, 2018). The increase of the poverty profile despite interventions could be that interventions lack the holistic approach of targeting all household members alike thus addressing not only individual inequities but household inequities. As ways to avert food poverty and household food insecurity it will be vital for developing countries to integrate household targeted interventions. Household interventions could be designed to change behaviour of household members on nature-based solutions and strategies that help address food insecurity. The effectiveness of behavioural intervention is that it could potentially reduce household reliance on social grants and individually targeted interventions. Food waste interventions

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could be targeted at household level to ensure that households use their food efficiently and in a sustainable way, by using and re-using their natural resources to access food.

For example, due to food insecurity, some countries in Africa have resorted to insect farming and consumption as a supplement to their dietary intake, consuming edible insects has proven essential in improving nutritional quality as the insects are said to contain high levels of micro-macro nutrients (Heckmann et al, 2018). Ramos-Elorduy reported that edible insects had high propensity of efficiency in conversion of digested food (e.g. 53-73% in mealworms) relative to livestock (10-12%) and chicken (38-43%) (Imathiu, 2019). Although edible insects have been stigmatized and often labelled 'as a poor man's diet' (von Hackewitz, 2018), the very same edible insects are labelled differently in high end restaurants where they are supplied at exorbitant prices for fine dining (Hwang et al, 2023). Nematodzi et al, (2023), demonstrate that diverse groups of people in South Africa consider Mopane worms as a high value source which is highly consumed. This suggests that with limited input resources, insect rearing would be a better venture contributing to food and nutritional security. Despite the positive attributes to insect consumption, the challenge is in the food safety of these insects. There is much concern on the microbiological and chemical hazards thereof. It is therefore important that such initiatives are regulated. This study, however, reveals the importance of the need to rely on indigenous knowledge systems as a potential initiative that can be pioneered at local level to encourage local communities to consume fruits and animal insects readily available to them that are not only accessible but full of nutrients. Such locally based initiatives will not only target certain individual members to benefit, however all household members are most likely to access fruits and insects that are nutritious provided they have the awareness and know-how of the potential benefits of these natural-based options of acquiring nutrients.

Therefore, local government campaigns could play a pivotal role in spreading the word on various local food items that can be consumed than purchased foods. Natural-based solutions implemented at local level have the potential to reduce government spending on initiatives that are not household targeted. This way, the entire household members can be catered for, without leaving anyone behind. What can be learnt from other countries in regard to household food solutions is that, in Canada they have participatory, community-based programs designed to enhance individuals' knowledge and skills in food selection, shopping, and preparation and to improve their access to food. Examples include community kitchens and targeted education programs designed to "ensure that every food dollar is wisely spent." (Tarasuk, 2001, p498). This Canadian practical solution indicates the importance of knowing that food security can be achieved not through one specific approach but through other alternatives.

1.5 POLICY IMPLICATIONS AND WAY FORWARD

What comes more clearer is that there have been strategies adopted by the state in South Africa to try and address food security however, it has become evident that these initiatives have not fully addressed the food crisis in South Africa. As a result, the strategies have not met their objectives year after year resulting in these strategies being pushed out to the following years. What has also been clear is that most of the strategies used have not been fully encompassing the needs especially the household food needs of the vulnerable as a result food security remains a challenge in South Africa. As indicated, there are several programs that have been created as ways to tackle food security in the country, however the burning question is whether these initiatives are speaking to the direct needs of the people, or they are built on the idea that people need these created solutions (and by "whom" are these strategies created).

When such strategies are created, they often neglect the participation and decision making of those affected by vulnerability. Most decision makers who compile these programs are often removed from the core realities of the people on the ground therefore such strategies look better on paper than they do in the lives of the vulnerable. Decision makers often conclude decisions in headquarters stationed in urban settings neglecting the need to consult with the vulnerable as to how they believe their situation can be resolved for them. As such strategies are created without the consultation of the poor, the question is who then these strategies are created for and who do they really seek to benefit as



evidently data shows that food security continues to be a challenge despite such interventions. It is important to interrogate such data so as to ensure that various strategies created are not created to feed or support just a few but that everyone affected is catered to.

It is important that technology introduced at the local level considers the demographics, educational background and acceptability and usability of the technology. It is imperative that a localised framework at local level (municipal) is designed for communities to know what applicable and effective technological nature are- based resources that can be adopted and provided to household members to help them speed up the process of ensuring household food security. Fundamentally, agro-forestry that is community-based and led should be adopted at local level. The initiatives applied have often been through the monetary means of addressing food security. There is a misconception that solutions need to be borne from external factors rather than the solutions within communities that are easily accessible. Communities and households can rely on. Furthermore, the notion that solutions or programs have focused on individual's food security tends to be a challenge at addressing food security at household level.

Finally, however, the challenge here is that there are no food security direct initiatives to uplift the entire household from dependency. Most of the grant recipients are children, the youth and the elderly, oftentimes the grant recipients. It is evident from social grants that a single income from a grant recipient cannot uplift the entire family out of food insecurity. The question is what happens to a larger pool of unemployed South Africans who are often left behind. The state cannot expect poor households to move themselves out of poverty without an active form of assistance from the state, especially a large population pool, who are often unemployed due to structural unemployment in South Africa.

Household food security initiatives do not come with a requirement on what is expected of the household to do on a daily or monthly basis to receive any form of assistance. A whole new model needs to be devised on how the entire household collective can be taken out of food poverty that ideally targets all household members.

The initiative should be designed in a manner that encourages community participation. Therefore, the state needs to put in place initiatives that are efficient, effective and goal oriented. The initiatives should to a larger degree be monitored and evaluated overtime and those set recommendations should be applied by the state as recommended. When initiatives such as community-based agroforestry are put in place they need to be effectively funded and run by diligent personnel. Therefore, encouraging local households and communities to take initiatives. Agro-forestry technological system in both plant and animal land-management is a rural conscious strategy that is not piece-meal but sustainable. Most South Africans have heavily relied on social grants which too has become problematic as people become too reliant on the piecemeal welfare they receive instead of nature-based solutions.

CONCLUSION

Food security is a fundamental need to sustain the lives of millions of South Africans. Therefore, rolling out blind or blanket approach initiatives will not assist in tackling the real challenges of food security in the country. Food security is a basis for human survival therefore, food security needs to be studied through a holistic lens of the vulnerable to determine easily accessible strategies that can be adopted and applied by those who need it the most at each provincial context in South Africa. This way nature-based frameworks at local levels can be devised as a tool to guide households to determine what is most healthy to consume, thus addressing the issue of food insecurity. As long as food security problems remain undealt with, the vulnerable will continue being household food insecure which could potentially negatively impact the national food security statistics in the long run.

REFERENCES

1. Akbar, A., Darma, R., Fahmid, I.M. and Irawan, A., 2023. Determinants of Household Food Security during the COVID-19 Pandemic in Indonesia. *Sustainability*, 15(5), p.4131.
2. Aragie, E., Balié, J., Morales, C. and Pauw, K., 2023. Synergies and trade-offs between agricultural export promotion and food security: Evidence from African economies. *World Development*, 172, p.106368.
3. Battersby, J. and Haysom, G., 2019. How food secure are South Africa's cities?. *The geography of South Africa: Contemporary changes and new directions*, pp.169-178.
4. Candel, J.J., 2018. Diagnosing integrated food security strategies. *NJAS-Wageningen Journal of Life Sciences*, 84, pp.103-113.
5. Constant, N.L. and Tshisikhawe, M.P., 2018. Hierarchies of knowledge: ethnobotanical knowledge, practices and beliefs of the Vhavenda in South Africa for biodiversity conservation. *Journal of ethnobiology and ethnomedicine*, 14, pp.1-28.
6. De Cock, N., D'Haese, M., Vink, N., Van Rooyen, C.J., Staelens, L., Schönfeldt, H.C. and D'Haese, L., 2013. Food security in rural areas of Limpopo province, South Africa. *Food security*, 5, pp.269-282.
7. Dubyna, D.V., Ustymenko, P.M., Baranovski, B.A. and Karmyzova, L.A., 2023. Forest strips of Ukraine in the modern realities, state assessment and ways of their restoration. *Agrology*, 6(2), pp.38-44.
8. Farkas, Z., 2023. Review and critique of the main conceptions of social position, status, or situation. *SN Social Sciences*, 3(2), p.38.
9. Harper, A., Rothberg, A., Chirwa, E., Sambu, W. and Mall, S., 2023. Household Food Insecurity and Demographic Factors, Low Birth Weight and Stunting in Early Childhood: Findings from a Longitudinal Study in South Africa. *Maternal and Child Health Journal*, 27(1), pp.59-69.
10. Heckmann, L.H., Andersen, J.L., Gianotten, N., Calis, M., Fischer, C.H. and Calis, H., 2018. Sustainable mealworm production for feed and food. *Edible insects in sustainable food systems*, pp.321-328.
11. Hwang, J., Kim, H. and Kim, J.J., 2023. Examining the Importance of Motivation and Its Impact on Outcome Variables in the Context of Edible Insect Restaurant. *SAGE Open*, 13(2), p.21582440231180088.
12. Johansson, K.E., 2015. *Barriers and bridges for introducing agroforestry and community-based forestry among food insecure households in eastern Africa*. School for Forest Management, Swedish University of Agricultural Sciences.
13. Kgopolo, C.O., 2023. *Rural non-farm activities in South Africa* (Doctoral dissertation).
14. Kimani-Murage, E., Gitagia, M., Osogo, D., Mutoro, A., Paganini, N., Kimani-Murage, E., Gitagia, M., Osogo, D. and Mutoro, A., 2023. A Human Rights-Based Approach to Food Security in Kenya and South Africa.
15. Long, E.H., 2020. *The demand for tree planting: an over idealized quick-fix or a promising nature-based solution?* (Master's thesis).
16. Martínez-Cruz, T.E. and Rosado-May, F.J., 2022. Indigenous Peoples' Food Systems.
17. Masinga, F.N., Maharaj, P. and Nzima, D., 2021. Adapting to changing climatic conditions: perspectives and experiences of women in rural KwaZulu-Natal, South Africa. *Development in Practice*, 31(8), pp.1002-1013.
18. Mphasha, M.H.P., Skaal, L. and Mothiba, T.M., 2022. Prevalence of overweight and obesity amongst patients with diabetes and their non-diabetic family members in Senwabarwana, Limpopo province, South Africa. *South African Family Practice*, 64(2).
19. Nenguda, R., Scholes, M.C., Tantoh, H.B., Sarma, V., Reza, M., Nenguda, R. and Scholes, M.C., 2023. frontiers *Frontiers in Sustainable Food Systems ORIGINAL RESEARCH*



- published: 26 May 2022. *Climate change, land, water and food security: Perspectives from sub-saharan africa*, p.101.
20. Nxusani, Z.N., Zuma, M.K. and Mbhenyane, X.G., 2023. A Systematic Review of Indigenous Food Plant Usage in Southern Africa. *Sustainability*, 15(11), p.8799.
 21. Ochi, A., Saidi, Y. and Labidi, M.A., 2023. Nonlinear Threshold Effect of Governance Quality on Poverty Reduction in South Asia and Sub-Saharan Africa: a Dynamic Panel Threshold Specification. *Journal of the Knowledge Economy*, pp.1-26.
 22. Oesch, D. and Vigna, N., 2023. Subjective social class has a bad name, but predicts life chances well. *Research in Social Stratification and Mobility*, 83, p.100759.
 23. Orokpo, O.F. and Mutong, S.M., 2018. Nigeria's raising poverty profile amidst poverty alleviation programmes: Interrogating the paradox. *International Journal of Innovative Development and Policy Studies*, 6(2), pp.109-116.
 24. Pritchard, B., Dixon, J., Hull, E. and Choithani, C., 2016. 'Stepping back and moving in': the role of the state in the contemporary food regime. *The Journal of Peasant Studies*, 43(3), pp.693-710.
 25. Qureshi, A.S. and Ismail, S., 2017. Prospects of agroforestry for the marginal environments: Evidences from the united Arab Emirates. *Agroforestry: Anecdotal to modern science*, pp.455-475.
 26. Ramaano, A.I., 2023. Environmental change impacts and inclusive rural tourism development on the livelihoods of native societies: evidence from Musina Municipality, South Africa. *International Journal of Ethics and Systems*.
 27. Rosenstock, T.S., Dawson, I.K., Aynekulu, E., Chomba, S., Degrande, A., Fornace, K., Jamnadass, R., Kimaro, A., Kindt, R., Lamanna, C. and Malesu, M., 2019. A planetary health perspective on agroforestry in Sub-Saharan Africa. *One Earth*, 1(3), pp.330-344.
 28. Sardeshpande, M. and Shackleton, C., 2020. Fruits of the veld: Ecological and socioeconomic patterns of natural resource use across South Africa. *Human Ecology*, 48, pp.665-677.
 29. Sekhampu, T.J., 2013. Determination of the factors affecting the food security status of households in Bophelong, South Africa. *International Business & Economics Research Journal (IBER)*, 12(5), pp.543-550.
 30. Setloboko, H., 2022. *An exploration of the experiences of the Social Relief of Distress grant recipients in food-insecure households in two rural communities of Matatiele, a local municipality in the Eastern Cape* (Doctoral dissertation, University of Johannesburg).
 31. Sibanda, M. and Ndlela, H., 2020. The link between carbon emissions, agricultural output and industrial output: Evidence from South Africa. *Journal of Business Economics and Management*, 21(2), pp.301-316.
 32. Stats, S.A., 2019. The extent of food security in South Africa.
 33. StatsSA. (2018). General Household Survey. Statistics South Africa. Statistical release:P0318
 34. Swinnen, J. and Vos, R., 2021. COVID-19 and impacts on global food systems and household welfare: Introduction to a special issue. *Agricultural Economics*, 52(3), pp.365-374.
 35. Tarasuk, V., 2001. A critical examination of community-based responses to household food insecurity in Canada. *Health Education & Behavior*, 28(4), pp.487-499.
 36. van der Zaan, T. and van 't Hof, S., 2022. Regeneration of Degraded Land with Nature-Based Solutions Nature-based solutions (NBS). In *Design for Regenerative Cities and Landscapes: Rebalancing Human Impact and Natural Environment* (pp. 173-196). Cham: Springer International Publishing.
 37. von Hackewitz, L., 2018. The house cricket *Acheta domestica*, a potential source of protein for human consumption.
 38. Wills, G., van der Berg, S. and Mpeti, B., 2023. Household resource flows and food poverty during South Africa's lockdown: Short-term policy implications for three channels of social protection. Available at SSRN 4331504.
 39. Zita, L., 2012. *Zero hunger programme for the Republic of South Africa*. Department of Agriculture, Forestry and Fisheries.