

## Effect of Farmers' Participation in NGO Interventions on Household Food Security in Yatta Sub County, Machakos County Kenya

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### Abstract

The purpose of this paper is to understand the extent to which farmers' participation in NGO interventions affect their household food security in Yatta Sub County of Machakos County, Kenya. This study assessed farmers' participation in needs identification, selection of interventions, implementation and monitoring. The study applied mixed method approach to collect both quantitative and qualitative data. This involved a cross-sectional survey of 357 farmers selected from 100 farmers' groups that had worked with NGOs for more than three years, 6 focus group discussions (5 with farmers and one with NGOs), 33 key informant interviews, as well as 2 case studies. Quantitative data was analysed using logistic regression model. Findings reveal that there is a significant relationship between farmers' participation in NGO interventions and household food security outcomes. In needs identification, NGOs mainly engaged farmers in joint meetings as opposed to formalized assessments. Selection of interventions was done through consultative meetings, while implementation was carried out in farmer plots and demonstration plots. Farmers participated in monitoring through project management committees, quarterly review meetings and feedback sessions. However, there was no standardized protocols of applying participation among NGOs. Sometimes unstructured needs assessment, hurried selection of interventions and lack of skills among farmers to negotiate with NGOs for preferred interventions negatively impacted farmers' participation. The study is useful in informing NGOs and funding agencies to strengthen farmers' participation in NGO interventions. NGOs should develop standardized participation protocols, which are engrained in their contracts with farmers to enhance uniformity and accountability.

**Keywords:** Participation; Household food security; NGOs.

### 1. Introduction

This study sought to understand whether farmers' participation in NGO interventions, specifically in identification of needs, selection of preferred interventions, implementation and monitoring do affect their household food security. NGO interventions implemented by farmers to improve food security in Yatta Sub County include rain water harvesting, promotion of drought tolerant crops, soil fertility enhancement, provision of farming tools and inputs, farmer extension services, livestock production and income generating activities. The term participation in development emerged as a paradigm shift between 1970 and 1980 mainly to question the effectiveness of 'top-down' models that dominated implementation of projects and programmes. The works of Chamber (1994) vigorously challenged 'top-down' approaches in undertaking research and development which were in his opinion 'extractive', non-inclusive and not cognizant of 'indigenous knowledge' and to a certain extent largely denied local people the ability to analyse and determine their destiny. Although there are diverse opinions regarding what constitutes participation (Chamber, 1994; World Bank, 1994), many of these beliefs tend to converge on ability of stakeholders to share and influence resources and decisions, ensuring people are at the centre of own development, as well as enabling people to mobilize, manage, control and have decision-making power regarding their destiny.

A range of studies (Blackburn and Holland, 1998; Campbell and Vainion-Mattila, 2003; Mohan and Stokke, 2000; Tandon, 2001; World Bank, 1994) have enunciated the general importance of participation in development landscape. Participation which has been widely embraced by NGOs, governments and international agencies (Oakley, 1995) is often applied in diverse ways in various contexts (Cernea, 1991; Uphoff, 1992; World Bank, 1986). Specifically, (Pretty *et al.*, 1995) underpins seven levels in which participation is applied by organizations. These include a channel of giving information, consultative forum, an outlet of providing material things, practical participation, passive participation, co-operative participation and participation that leads to self-mobilization. Pretty (1995) opines that the goal of participation is achieved when beneficiaries and stakeholders determine the process of their decision making, as well as, master control and use of own resources. The above sentiments tend to align with Arnstein (1969) typology on the 'ladder of participation' in which she uses a linear continuum of eight stages of participation that

connotes re-distribution of power to those who do not have it. These ranges from ‘manipulation’, ‘therapy’, ‘informing’, ‘consultation’, ‘pacifies’, ‘partnership’, ‘delegated power’ to ‘citizen control’. The latter entails exercising power to influence decisions and outcomes.

Despite envisioned benefits of participation, other scholars (Clever, 1999) have questioned the legitimacy of promoting participation as a panacea to development. Cleaver has equated believe in participation as akin to ‘act of faith’ that is scarcely put to test. The belief that participation translates to better and effective outcomes, enhances fairness, sense of responsibility, capacity of end beneficiaries, as well as inclusion can be simplicity. Other determinants such as power dynamics, ownership of resources and information, over-focus on institutions and misconception about community are worthy exploring. However, studies have opined that strong and well-coordinated forms of participation have had a significant effect on farmers’ food security (Beyuo and Anyidoho, 2021). The above debate implies that participation is dynamic and is sometimes affected by diverse factors that play a role in determining its success or failure.

In promoting new agricultural services, a study in Philippines (Mariano *et al.*, 2012) looking at adoption of rice technologies established that farmers are likely to take control of their resource and accept new technologies if they are involved. Further, this study revealed that adoption of rice technologies by the farmers was dependent on possession of resources such as land, incomes, access to credit, availability of extension services and whether technologies were labour intensive. Other studies (Mutune and Nunow, 2018) have asserted that to achieve sustainable development and community engagement and empowerment, participatory approaches must be inclusive in involving communities in implementation and decision making. However, as demonstrated by Eidt *et al.* (2020) study among smallholder farmers in Yatta Sub County in Kenya, power dynamics among stakeholders often play a critical role and affects innovative participatory initiatives, particularly where there is a disconnect between farmers’ objectives and those of dominant stakeholders.

A variety of reasons as to why farmers’ participation in NGOs interventions have generally been poor are articulated by diverse studies in Sierra Leone, South Africa and Uganda (Botlhoko and Oladele, 2013; Martey. *et al.*, 2014; Ngegb *et al.*, 2016; Sseguya *et al.*, 2013). These include false promises, preference to listen more to local elites, negative attitudes among NGO staff, ineffective communication between NGOs and farmers and inadequate funding. Other studies (Etwire *et al.*, 2013; Yila and Recurreccion, 2013) have identified demographic elements such as education, age of household head, gender, incomes, land size as factors influencing farmers’ participation. Similarly, attitudes on NGOs staff and capacities of farmers have been singled out as factors affecting farmers’ participation in studies undertaken in Uganda, Nigeria and Zambia (Dirorimwe, 2000; Musamakweri, 2007). These studies urged NGO experts and extension staff to revisit and change their attitudes on one hand. While on the other, they opined that farmers need to strengthen their negotiation skills in order to voice their opinions and ultimately dialogue better.

In this paper, we examine the effect of farmer’s participation in NGOs interventions on household food security in Yatta Sub County, Machakos County (Kenya). This is against a backdrop that food insecurity although addressed by myriad on NGOs and farmers is increasingly becoming a global challenge that is regrettably evading many countries. According to Food and Agriculture Organization (FAO), food security exists when people have sustainable physical or economic access to enough, safe, nutritious, and socially acceptable food for a healthy and productive life (Food and Agriculture Organization, 1996). Food security denotes dimensions such as food availability, access, utilization and stability which guarantees that households constantly have a steady access to satisfactory food in sufficient supply to meet their nutritional requirements (Hwalla *et al.*, 2016). Sadly, food insecurity is experienced at diverse levels ranging from household, regional to national and can either be chronic or seasonal (World Bank, 1986). Predictably, food insecurity will continue to be a concern as global population sharply grows and is likely to reach 9 billion around 2050 (FAO, 2015c; Godfray *et al.*, 2010). This portends a scenario in which food demands grows beyond 70%, while an upsurge of competition over resources such as land, water, energy will remarkably pile pressure on the environment.

In spite of UN emphasizing in its goal two of the 17 Sustainable Development Goals (SDGs) on ending hunger, achieving food security, improving nutrition and promoting sustainable agriculture, emerging climate change, conflicts, unstable economies as well as inability to afford healthy diets coupled with growing inequality, poverty and COVID 19 pandemic might reverse gains already achieved towards enhancing sustainable food security globally (FAO, *et al.*, 2021).

Global statistics on food security paint a gloom picture. Notably, 2 billion people continue to suffer from food insecurity worldwide (Food and agriculture Organization, 2019). Of these, 52% live in Asia, 34% in Africa, while 9% are in Latin America. Food security in Africa has more or less stagnated for the last five years. In 2015 alone, 53 million people in Sub-Saharan Africa were suffering from severe food insecurity and more than 23.3% were undernourished (FAO, 2015b). Climate change and attendant El Niño and La Niña phenomena that are manifested in cyclical occurrence of droughts and floods have significantly contributed to crop failure, (FAO, 2015c; UNDP, 2012). Further, conflicts alone left 33 million people in dire humanitarian assistance in 10 countries of Africa in 2018 (Food and agriculture Organization, 2019). All these pile on top of other challenges that have continually beleaguered food production in Africa ranging from insufficient extension services; poor soils; dysfunctional markets; poverty; limited access to credit; HIV/AIDS to low economic growth (FAO, 2013; Markelova and Mwangi, 2010; Masuku and Sithole, 2009). The overriding need to integrate farmers in the debate and implementation of food security interventions is increasingly becoming paramount. NGOs have become undoubtedly one of the key stakeholders that promote global food security among farmers. Therefore, farmers’ participation in NGOs interventions focusing on household food security is of paramount importance.

In spite of countless efforts to feed her population since independence in 1963, Kenya has generally remained food insecure (Government of Kenya, 2010;2011). Approximately 10 million people intermittently face chronic food insecurity annually. There has been an increasing trend of undernourishment among Kenyan population ranging from 22.3% in 2013 (constituting 10 million people) to 29.4% (approximately 14.7 million people) in 2017 (Food and agriculture Organization, 2019). More recently, uncharacterised weather conditions including floods left 2.6 million people in need for food assistance and displaced 310,000 others in April and May of 2018 alone (Food and agriculture Organization, 2019). Although, the county has made favourable strides in reducing child wasting and obesity prevalence, indicators in child stunting and undernourishment are still low (Sachs *et al.*, 2019). Similarly, there is a marked reduction in caloric intake per person per day from 209 kcal recorded in 1990 to a paltry 135 kcal in 2016. Yatta Sub County which is within Kenya's arid and semi-arid lands is home to approximately 63.5% households that constantly face recurrent food shortage forcing them to depend on food relief aid. This situation is exacerbated by increasing occurrence of prolonged droughts, water shortages, low adoption of agricultural innovations leading to poor production (Kithu, 2012; Mburu *et al.*, 2015). This paper examines how farmers' participation in needs identification, selection of interventions, implementation and monitoring on various NGO interventions influence their household food security. Household food security outcomes are measured on whether or not food produces and incomes are sufficient to meet household food needs, as well as whether or not households engaged with NGOs are still dependent on food relief aid.

## 2. Materials and Methodology

The study was carried out in Yatta Sub County of Machakos County (Kenya) among five wards of Ndalani, Matuu, Kithimani, Ikombe and Katangi. This study used a mixed method design that integrated both quantitative and qualitative approaches to provide a better grasp of the study question (Creswell, 2014). This involved a cross-section study of 357 farmers sampled using Israel (1983) formula for selecting finite population. The sample size was extracted from a population of 3341 farmers distributed among 100 farmer groups that had worked with NGOs for more than 3 years. The sampled farmers were proportionately distributed among 100 farmers groups in the five wards of Yatta Sub County. Qualitative information was gathered through interviewing selected key informants as well as conducting six focus group discussions among farmers and NGOs. Emerging data was analysed using SPSS. Factor analysis was utilized to collapse multiple variables to extract one principal component for both independent and dependent variables and finally a logistic regression model was applied to measure farmer's participation in NGOs interventions and its effect on household food security. The logistic regression equation is presented as follows:

$$\Pr(Y_i = 1|X_i) = \Lambda(\alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \varepsilon_i)$$

..... Equation 1

Where:

$Y_i$  – Household food security indicator computes whether food produced and income earned is sufficient in providing monthly household food needs (1) or not (0) and whether household receives relief food (1) or not (0).

$X_1$  – Farmers participation in needs identification

$X_2$  – Farmers participation in selection of interventions

$X_3$  – Farmers participation in implementation of food security interventions.

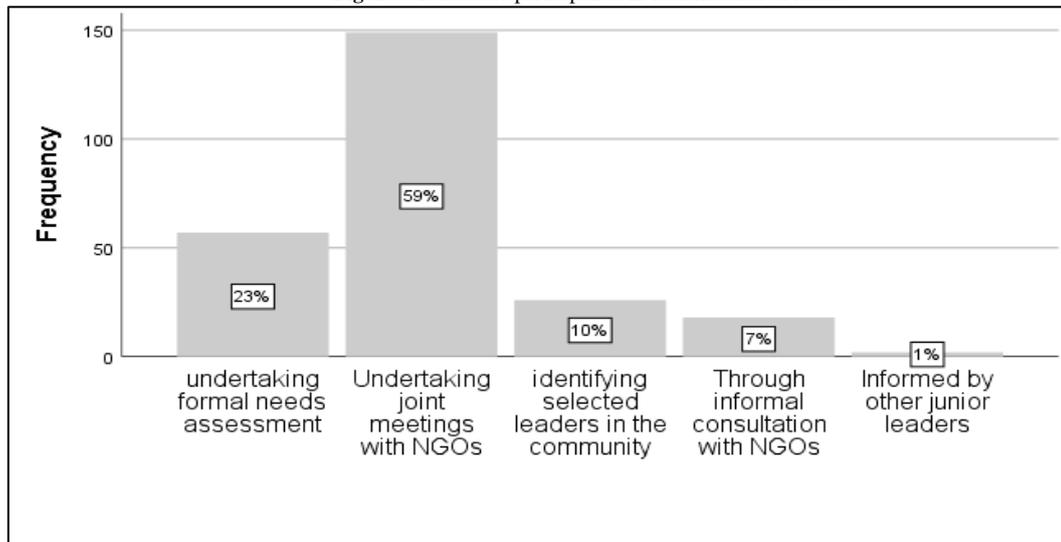
$X_4$  – Farmers participation in monitoring of food security interventions.

Qualitative data utilized framework analysis (Gale *et al.*, 2018). This involved summarizing data, developing memos, coding and anonymizing sensitive information and finally identifying emerging themes and patterns.

## 3. Findings and Discussions

The study examined how farmers' participation in NGOs interventions affect household food security in Yatta Sub County. This was measured in terms of farmers participation in identification of food security needs, interventions, their involvement in implementation and monitoring. In identification of food security needs, the study demonstrated that an upward of 73.1% of farmers participated in different ways. More than half (59%) of these as shown in Figure 3.1 were involved in joint meetings with NGOs compared to 23% who participated in structured and formalized needs assessment. Others depended on either community leaders to identify needs on their behalf with NGOs or held informal meetings with NGOs to realize this. These findings imply that although farmers participated in determining their food security needs in general, this process was mainly undertaken through joint meetings with NGOs compared to formal needs assessment mechanisms.

The above findings were consistent with information collected from key informant interviews and farmer focus group discussions. This information revealed that most NGOs held joint meetings with farmers to identify their food security needs. Fewer NGOs engaged farmers on formalized needs assessment. However, when this happened, the process was rushed with little time allotted to create rapport with the farmers and for understanding the local context. It was further reported that the local elites and people with inherent political interests sometimes hijacked the process of needs identification by liaising directly with NGOs. This behaviour overshadowed the voice of the ordinary farmers. It was also noted that there was no standard way of undertaking needs assessment and each NGO used different methodologies and approaches thus making it difficult for farmers to hold them accountable. Overall, the farmers maintained that they appreciated that NGOs had good intentions to engage with them, but the process of needs identification would be improved and structured for optimal results.

**Figure-3.1.** Farmers participation in identification of needs

In the area of selecting preferred food security interventions, the study established that majority of the farmers (73.9%) were involved. However, there were variations in ways in which they participated. As demonstrated in [Table 3.1](#) a half of the farmers (51%) were asked by NGOs to prioritize food security interventions based on their own preference. Nevertheless, 13.4% jointly and formally discussed with NGOs and agreed on interventions. Nonetheless, 13.2% of the farmers selected interventions from a list that was proposed by NGOs. Fewer NGOs either allowed farmers to select interventions that they implemented or listened to their input.

**Table-3.1.** Farmers prioritization of food security interventions

If yes, how were you involved	Frequency	Percent
Identifying own preferred priority interventions	182	51.0
Identification of interventions based on consultations with NGOs	48	13.4
Identification of interventions from NGOS lists	47	13.2
Selecting interventions implemented by the farmers themselves	27	7.6
Interventions based on farmers' input.	13	3.6
Interventions based on a consensus	8	2.2
Others	8	2.2

The above findings were confirmed by focus groups discussions and key informant interviews which asserted that to a large extent many NGOs gave opportunities to farmers to identify their own preferred interventions. However, fewer NGOs hardly took time to understand farmers underlying conceptions and experiences on certain interventions – some of which had not worked in the local contexts. On one hand, key informants noted that farmers avoided contradicting NGOs because of fear of missing out on NGO programmes which are normally competitive and scarce. On the other, farmers felt that sometimes local elites with inherent political interests manipulated NGOs by pushing for their preferred interventions. This behaviour overshadowed the voice of the ordinary farmer.

The study further revealed that farmers were less involved in formulation of food security proposals. Only (14%) were involved in writing proposals as compared to 86% that were not. Farmers from the focus group discussions confirmed that they were not engaged in proposal development processes. This role was left for the technical NGO staff who sometimes consulted the lead farmers that were perceived to have better education skills. Although the farmers felt that the NGOs had a responsibility to share the contents of the proposals with them for validation, this was never done. Additionally, farmers asserted that the NGOs kept them uninformed regarding the entire process of budgeting.

Majority of the farmers (59.7%) were involved in direct implementation of interventions as compared to (38.9%) who were not. Among those involved, 36.4% asserted that they directly implemented these interventions on their own farms. This compares with 17.9% who did this in group farms, while 12.6% implemented interventions in demonstration plots. These findings imply that even if many farmers implemented interventions on their own farms, others combined this with group and demonstration plots owned by farmer groups. This was consistent with focus group discussion in which farmers confirmed that they were trained using demonstration farms and later implemented similar interventions on their respective farms with the guidance from a lead farmer. Lead farmers played significant roles in ensuring that each farmer on their group was adopting technologies that were promoted by NGOs. Sometimes farmers came together in their group farms to implement what they had learned in order to bolster joint learning.

As shown in Table 3.2 more than half (58.8%) of the farmers admitted that they participated in monitoring NGO interventions. These included monitoring directly on their farms by keeping personal records on the progress, participating in reviews either monthly or quarterly reviews in groups, as well as providing feedback to NGOs by completing monitoring formats provided by NGOs. NGOs also visited farmers on their farms to review progress.

**Table-3.2.** Forms of monitoring food security interventions by farmers

If yes, how were you involved?	Frequency	Percent
Monitoring directly	118	33.1
Monthly/quarterly monitoring review meetings	88	24.6
Provision of feedback in groups	74	20.7
Filling monitoring tools given by NGOS	19	5.3
Giving feedback to NGOS by filling monitoring tools developed by NGOS periodically	45	12.6
Others - individual farm visits by NGOs and CBOs	20	5.6

The above findings were consistent with focus group discussions and key informant interviews which confirmed that most NGOs trained farmers to keep personal records and encouraged them to have review meetings periodically within their groups. Sometimes, NGOs organized larger stakeholder forums constituting of other NGOs and government extension officers to monitor and review interventions on farmers plots. However, some farmers felt that such review forums were not always effective because of inherent different power dynamics that often caused vulnerable farmers to fear sharing their experiences of failure explicitly. Additionally, key informants noted that NGOs always utilized external consultants to review, monitor and evaluate interventions at different times of the project implementation. However, farmers regretted that findings from such consultancies were rarely reported back to farmers thereby denying them an opportunity to learn.

Further, this study sought to establish whether farmers' participation in NGO interventions was significantly affecting their household food security. Firstly, factor analysis was utilized to collapse multiple variables into Principal Component Analysis (PCA) to represent farmers' participation and household food security. This factor represented 51.839% of disparity in the scores in the model. Secondly, the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.638, while the Bartlett's test of sphericity was found to be significant ( $\chi^2=127.038$  (6df);  $p=0.000$ ). It was hence determined that this score was reliable and thus incorporated into the logistic regression.

In order to test whether farmers' participations accounted for household food security outcomes, this study assessed the null hypothesis that stated thus:

$H_0$ : Farmers' participation in NGOs interventions is not positively associated with household food security outcomes.

This was tested using logistic regression model as demonstrated below.

**Table-3.3.** Omnibus Tests of Model Coefficients

		Chi-square	Df	Sig.
Step 1	Step	7.859	1	0.005
	Block	7.859	1	0.005
	Model	7.859	1	0.005

The omnibus test which measures whether or not the explained variance in a set of data is significantly greater than the overall unexplained variance is presented in Table 3.3. The model was found to be significant at the 0.95 confidence level.

**Table-3.4.** Model Summary

Step	-2 Log likelihood Initial model	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	434.681 <sup>a</sup>	424.982 <sup>a</sup>	0.278	0.337
a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.				

In Table 3.4 above, Cox and Snell R Square and Nagelkerke R Square scores indicated the amount of variance explained by the logistic model. Higher Nagelkerke R Square score indicates better model fit and the R square score that is equal to 1 demonstrated a perfect model fit. Nagelkerke R Square was found to be 0.337 and the score indicated that 33.7 percent of the model was explained by the independent variables. The -2 log likelihood value is used for investigating the contribution of independent variables to the model and testing the significance of the regression coefficients (Ata *et al.*, 2015). The -2 log likelihood was found to be 424.982 at 95 % confidence level. In the initial model that includes only the constant term, the -2 log likelihood value was found to be 434.681, but at the end of the fourth step, the value was found to be 424.982. The decreasing -2 log likelihood indicates improvement in model-data fit as independent variables were added to the model.

**Table-3.5.** Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
1	17.095	7	0.017

The Hosmer–Lemeshow test (Table 3.5) is used to measure the goodness of fit for logistic regression models. This test examines whether or not all logistic regression (logit) coefficients (except the constant) term is equal to zero. The hypotheses are follows:

H0: There is no significant difference between observed and predicted value in the model.

H1: There is significant difference between observed and predicted value in the model. As seen in Table 3.5 above, since the p value of the chi-square value of the model with 7 degrees of freedom ( $\chi^2 = 17.095$ ) was found to be less than 0.10,  $H_0$  hypothesis was not rejected at 10% level of significance.

**Table-3.6.** Classification table

	Observed		Predicted		
			Household Food Security		Percentage Correct
			NO	YES	
Step 1	Household Food Security	NO	5	100	4.8
		YES	2	250	99.2
	Overall Percentage				71.4
a. The cut value is 0.500					

The classification scores obtained from logistic regression model are presented in Table 3.6. The ratio of the total correct classification of the model at 5% significance level was found to be 71.4%. The model correctly estimated 250 of 350 food secure households.

**Table-3.7.** Variables in the Equation

	B	S.E.	Wald	Df	Sig.	Exp(B)	95% C.I. for EXP(B)		
							Lower	Upper	
Step 1 <sup>a</sup>	Farmers Participation	0.808	0.291	7.742	1	0.005	2.244	1.270	3.966
	Constant	-0.222	0.106	4.386	1	0.036	1.037		
a. Variable(s) entered on step 1: Farmer's Participation.									

The standard error of coefficients of independent variables (SE), Wald statistics (Wald), significance levels (Sig) and Exp (B) statistics are portrayed in Table 3.7. In logistic regression, Wald statistic, which has a specific distribution known as chi-square, is a measure of the significance of  $\beta$ . The variables including farmer's participation was found to be significant at 95 % confidence level. Eventually, the model was constructed as follows;

$$\ln \left[ \frac{p}{1-p} \right] = -0.222 + 0.808 \text{Farmers Participation}$$

According to the model, it was concluded that, as farmers' participation in NGO interventions increased, the likelihood of a household food security also increased. This study therefore accepted the alternative hypothesis and concluded that there is a positive relationship between farmers' participation in NGOs interventions and household food security outcomes.

## 5. Conclusions

The findings revealed that there was a significant positive association between farmers' participation in NGOs interventions and household food security outcomes. The null hypothesis was thus rejected because farmers' participation in NGO interventions was statistically significant at 95% confidence level in predicting household food security outcomes. This means that the more the farmers participated in NGO interventions, the higher the likelihood a household food security outcomes increased. Overall, a unit increase in farmers' participation in NGO interventions subsequently raised household food security by 0.808 units. These findings concurred with a study in Kwazulu-Natal Province (South Africa) in which household food security among 330 beneficiaries that participated in one household one garden (OHOG) interventions were compared with 165 that did not participate (Ngema *et al.*, 2018). The study concluded that those households that participated in OHOG recorded significant positive food security outcomes in contrast with those that did not. Similarly, Mmbando *et al.* (2015), studying the impact of maize and pigeon pea market participation among rural households in Tanzania by comparing this with household consumption expenditure concluded that rural households that were involved in market participation improved their welfare by increasing expenditure on consumption by a rate of 0.5 and 0.3 for both maize and pigeon peas. All these translated to improved household food security.

The findings of this study supports the theory of participatory approaches as envisioned by Chambers (1983) analogy of 'putting the last first'. In this, Chamber highlighted the importance of putting people at the centre of development, especially by including the poor in decision making, allowing them to determine their future, improving listening and being empathetic to their situations. Chambers (1997) further in his proposal of 'putting the

first last' advocated for change of attitude and biases among professionals in order to create a conducive environment for empowering the poor. This involves evaluating power dynamics and triangulating information and facilitating people to participate fully in their development.

This study found that farmers' participation in NGO interventions particularly in needs identification, selection of interventions, implementation and monitoring play a critical role in affecting household food security. However, farmers' participation in needs identification was skewed towards consultative meetings as opposed to formalized participatory processes. Occasionally interference from local elites and political interests as well as hastening the process of needs assessment dampened the voice of farmers. The study further concluded that NGOs did not have unified methods, standards and protocols to define how farmers' participation was to be undertaken, especially in needs assessment and selection of preferred interventions. Consequently, NGOs applied different methodologies of participation sometimes in a haphazard manner thus compromising on their accountability to farmers. Although farmers were given opportunity to select priority interventions either on their own or through consultative meetings with NGOs, sometimes NGOs presented a list of preconceived interventions that were not in tandem with the farmers' choices. Nevertheless, the study concluded that farmers were involved in implementation of interventions on own farms and in demonstration farms. Similarly, farmers monitored progress of interventions either individually on their farms, or via group reviews and stakeholder meetings. However, gathering of evidence and lessons learned were not given priority. Despite the above findings, there were indications that farmers' participation positively predicted household food security.

It is recommended that NGOs revisit the entire process of farmers' participation in food security interventions in order to make it inclusive, accountable and comprehensive by developing clear and standardized participation protocols that nurtures open, structured and formalized participatory processes. These standards should be audited by representatives of farmers, NGOs and County Development Forum periodically to bolster NGO accountability and commitment to participation. This is because of the fact that farmers participation in NGO interventions is a critical predictor of household food security. As such, funding agencies should engrain farmers participatory processes in contracts to ensure it is undertaken effectively. Secondly, NGOs should invest time and money in the initial stages of programming to engage with farmers and build robust relationship. This will enable NGOs to understand the local context, address power dynamics and create safe spaces and opportunities for farmers to negotiate for their preferred interventions. Thirdly, NGOs should enhance capacities of farmers to define their agenda as opposed to relying on local elites and political class for one sided input. In this, NGOs should be deliberate in paying attention to diversity among farmers during participation in order to be inclusive in terms of gender, age, disability, size of farm, education levels among other variables. Lastly, NGOs should be more proactive in gathering evidence and lessons learned from implementation of interventions.

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