ASSESSMENT OF HUMAN RESOURCE CAPACITY BUILDING INTERVENTIONS TO SUPPORT FOOD SECURITY AND NUTRITION IN KENYA

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ABSTRACT
Governments have the cardinal responsibility to ensure food security and nutritional provisions to its citizens since this has direct effects on the social and economic stability of a country. Food security is a measure of the existence of physical and economic access to enough, safe and nutritious food to meet dietary needs. The four pillars of food security include availability, ease of access, proper utilization, and long-term stability. There has been a lot of research on food security, but there is scarce empirical evidence on assessment of the ability of the human resource to support the delivery of the food security agenda. The paper is based on a study that assessed knowledge, skills and competency gaps and identified interventions needed to support the achievement of the big four agenda on food security and nutrition in Kenya was assessed. The work environment factors that affect employee capacity to deliver were delineated and the extent to which the legal, policy and regulatory framework on human resource capacity building supports the achievement of food security and nutrition in Kenya. The descriptive research design targeted a purposively sample of 8 counties with 222 respondents who completed a self-administered questionnaire. The SPSS software generated descriptive statistics and graphical representations, while the qualitative data was analyzed to reveal emerging thematic issues. The study concluded that knowledge skills, competencies; policies, legal and regulatory framework and the work environment all had a positive effect on the ability to deliver the food security and nutrition mandate**.** The government should develop policies that support retooling and reskilling of employees in value addition, climate smart agriculture, post-harvest management and resource mobilization.
Keywords: Capacity building, Knowledge, Skills and competencies, Food security and nutrition

INTRODUCTION

The global population is estimated to reach 10 billion by 2050 and hence demand for food is growing inexorably. According to the FAO synthesis report on how to feed the world from 2012 to 2050 global food production should be increased by at least 50% for every one of the populace to be fed (FAO, 2018, 2014). The surface area for agriculture is limited on per capita basis, arable and grazing land and water are even scarcer (Giz.de, 2019). According to the United Nation's FAO, the four pillars of food security are food availability, ease of access, proper utilization, and long-term stability. Food security is a measure of the existence of physical and economic access to sufficient, safe and nutritious food to meet dietary needs and food preference for an active and healthy life (FAO 1996; WHO, 2003; UNCTAD, 2008). World statistics indicate that one in every nine people in the world is affected by hunger; that is in about 795 million people, every ninth person, is undernourished, including 90 million children under the age of five.

Approximately 780 million of these people live in the developing regions, notably in Africa and Asia and are likely to be small holders farmers with meagre harvests that are inadequate to feed their families and achieve a balanced diet. Depending on the region, the share of undernourished people differs considerably, ranging from less than 5 per cent to more than 35 percent (Giz.de, 2019; United Nations, 2017; Global Hunger Index, 2019). Moreover, a large portion of the food is lost between the field and the plate due to poor coordination at the storage, processing and marketing phases (Giz.de, 2019). It is thus important to build employee capacity to enable the achievement of food and nutritional security to avert a world crisis.

Indicators of food insecurity in a given region include number of "hungry" or malnourished people, underweight children and people "suffering from micronutrient'' deficiencies. The United Nations Second Sustainable Development Goal (2015) states that countries should end hunger, achieve food security, improve nutrition and promote sustainable agriculture by 2030.

Article 43 of the Constitution of Kenya 2010 states that every person has the right to be free from hunger and the right to adequate food of acceptable quality. However, 14.5 million people in Kenya still suffer from chronic food insecurity. Out of this population 30% of all children are stunted, 13% are moderately wasted and 7% moderately underweight (KNBS, Global Nutrition Report, 2018; GoK, 2011). According

to the Food and Nutrition Security Policy, the government desires that all Kenyans access food in sufficient quantity and quality for optimal health (GoK, 2011). Causes of food insecurity include among other factors population growth, changing tastes, climate change, and water scarcity, troubled farmers lack of knowledge, skills, and attitudes of service providers.

On 12th December 2017, President Uhuru Kenyatta announced a socio-economic development agenda for the country named the 'Big Four' to guide the Kenya's development for the period 2018-2022. The realization of the 'Big Four' was viewed to be critical in uplifting the living standards of Kenyans as the country strives to become an upper middle-income nation as outlined in the country's Vision 2030. One of the key pillars of these agenda is Food and nutritional security, which aims to ensure that 100% of the population is food secure by the year 2022. The Government allocated Ksh 20 billion in the 2018 Budget to enhance new initiatives focusing on large scale production, drive small holder productivity and reduce the cost of food.

The study needs to support the Big Four Agenda on Food Security and Nutrition in Kenya, resonates with Sustainable Development Goal number 2, which seeks to end hunger, achieve food security and improve nutrition, and promote sustainable agriculture. The paper examines knowledge, skills and competency gaps that impede the achievement of the Big Four Agenda on food and nutrition security in Kenya. It presents findings on the extent to which work environment factors, legal, policy and regulatory frameworks on human resource capacity building support the achievement of food security and nutrition.

Capacity Building to Enhance Achievement of Food and Nutrition Security

Capacity development is the 'process by which individuals, groups and organizations, institutions and countries develop, enhance and organize their systems, resources and knowledge-all reflected in their abilities, individually and collectively to perform functions, solve problems and achieve desired objectives" (MoH, 2019). Human resource capacity is key to attainment of food security. Notably knowledge, skills and attitudes of key staff in food security, legal and regulatory frameworks and work environment have all been found to have a major influence on the capacity of service providers to offer the requisite service to achieve food security. Several authors argue that the capacity of an individual to perform in a particular sphere is dependent on the asset base and also the capacity to use the said assets productively. The capacity can be at various levels including the individual level, the organization level as well as at the level of the community. Assets are commonly categorized as physical or environmental, managerial assets, human or technical assets, financial, economic and social assets. (Green and Haines 2002; Mathie and Cunningham 2003, Lowe and Schilderman 2001). The current study concerned itself with human assets and their capability to deliver on the food and security mandate.

Capacity building includes acquisition of relevant knowledge, skills and competencies and establishment of appropriate work environments, legal and regulatory frameworks that support food and nutrition security. Capacity development and performance is best achieved through effective coordination of employees, managers, policy makers and other stakeholders. Experts have acknowledged that efforts to promote development and improve food security in developing countries will not be successful without engaging qualified local individuals and institutions to provide the right incentives and management (IFPRI, 2006).

Capacity building is as important as capital investment and infrastructure (Mati, 2008). UNESCO (2006) reports that capacity building focuses on increasing an individual and organization's abilities to perform core functions, solve problems, and objectively deal with developmental needs. For food and nutritional security to be achieved there needs to be adequate human capacity to drive forth the agenda. Food and nutrition security is defined as: a state "when all people have physical, social and economic access to sufficient, safe, and nutritious food that meets dietary needs and food preference for an active and healthy life at all times" (FAO, 2001). Notably, 14.5 million people in Kenya suffer from chronic food insecurity (The Global Hunger Index, 2019). It is estimated that out of children under-5 years old, 7 million, 1.82 million children (26%) are suffering from chronic malnutrition (Kenya National Bureau of Statistics (KNBS, 2015). According to the Food and Nutrition Security Policy, the government desires that all Kenyans, access food in sufficient quantity and quality for optimal health (GoK, 2011). Similarly, the UN second Sustainable Development Goal (2015) states that countries should end hunger, achieve food security, improve nutrition and promote sustainable agriculture by 2030. Likewise, Article 43 in the Constitution of Kenya (Constitution of Kenya, 2010) states that every person has the right to be free from hunger and the right to adequate food of acceptable quality. This is in line with Kenya Vision 2030 focus of creating a "Globally competitive and prosperous country with a high quality of life by 2030". Additionally of the thematic areas of Kenya's 'Big Four Agenda" is to ensure 100% food and nutrition security for the population by the year 2022.

Agriculture is key to Kenya's economy, contributing 26% of the Gross Domestic Product (GDP) and another 27% of GDP indirectly through linkages with other sectors. The sector employs more than 40% of the total population and more than 70% of Kenya's rural people and the sector's key objective is the achievement of national food security. (FAO Country Programming Framework for Kenya 2014-2017). However, although several initiatives have been put in place to overcome food insecurity, a lasting solution has remained elusive. The country continues to witness significant post-harvest losses, low agriculture productivity, lack of diversity in food products, and weather shocks. Given the importance of agriculture in Kenya where food insecurity is prevalent, the sector's importance in poverty alleviation cannot be overstated.

Research has focused on efficiency of food production, marketing and distribution, food nutrition, managing grain reserves and storage. However, it appears, there is scanty evidence on how knowledge, skills and competency gaps, work environment and legal, policy and regulatory frameworks guiding capacity building affect achievement of the food security and nutrition in Kenya. Additionally, there is limited knowledge on human resource capacity building initiatives needed to support post-harvest losses, high cost of agriculture inputs and food safety (FAO, 2014).

The latest plague, highlighted by the current locust conundrum in the form of billions of insects devouring crops, threatens the food security of a population in a region already weakened by years of irregular rainfall patterns and extreme-climate events (The Africa Report, 2020). The desert locust is considered to be one of the most dangerous of flying pests (FAO), as it has ability to fly long distances allowing it to migrate quickly. Local agencies tasked with dealing with the phenomenon have faced a difficult task in containing the pests as they currently lack the necessary skills to tackle the concern. As a result FAO has started training 300 National Youth Service (NYS) trainees as part of its action plan to boost the Government of Kenya's surveillance and control of the worst desert locust invasion the country has seen in 70 years (FAO Reginal Office for Africa, 2020). This is a glaring example of the importance and lack of human capacity as it pertains to agriculture in Kenya. Many of Africa's agricultural and rural development problems have been related to misguided policies, weak institutions and a lack of well-trained human resources as can be seen in the example above. A critical factor in meeting the challenge of food security in Africa is human resource development through knowledge building and information sharing (Crowder and Lindley, 1998).

Skills and competencies on post-harvest management, food production, distribution, irrigation management, large-scale farming, smallholder production, value addition, knowledge management and management of Small Market Enterprises were assessed. The legal and regulatory framework parameters included awareness and availability of capacity building policies and initiatives while the work environment was operationalized by availability of financial resources, hierarchy levels and other considerations. Food and nutritional security have the four main dimensions of availability, access, utilization and stability.

Human Resources Capacity Needed to Support Food and Nutritional Security

Development experiences of the last decades have made it clear that human resources are ultimately a key factor behind any progress that has been made (Errata, 1989). However well developed, institutions are only as effective as the people who work in them. The development of human resources is essential for food security in Africa. An educated and informed populace is fundamental to any policies and strategies to reduce poverty, excessive population growth, environmental degradation and other factors that are most often the direct causes of hunger. This is especially true in the low-income, food-deficit countries of Africa where there is an urgent need for human capacity development and for increased knowledge and information about food production.

Food production and rural development countries with significant food security inadequacies require appropriate up-to-date technologies which, according to sustainable development criteria and local food traditions, promote modernization of local production methods and facilitate transfer of technology. Full benefit from these technologies will require training, education and skill development programmes for local human resources (FAO, 1996). Many of Africa's agricultural and rural development problems have been related to misguided policies, weak institutions and a lack of well-trained human resources. A critical factor in meeting the challenge of ensuring food security in Africa is human resource development through knowledge building and information sharing.

Indeed, there can never be any economic development without the human resource, which is a major factor of production. The agriculture sector is labor intensive and therefore requires human resource development (Gitu, 2006). In light of this, the study will aim to explore the requisite knowledge, skills and competency gaps that affect achievement of food security and nutrition in Kenya. Webb and Rogers (2003) assert that for food security to be achieved communities need to

the ability and competencies to execute and perform numerous functions, starting with ensuring that food is available and accessible for all in a sustainable manner and that people can and do utilize foods adequately. Additional critical functions relate to reducing vulnerabilities and increasing resiliency for the entire community (Webb and Rogers 2003, FFP 2003).

Information, education and training allow farmers to make use of new farming knowledge and technologies. Research shows that both formal education and non-formal training have a substantial effect on agricultural productivity. A study in Nigeria in (1992) found that an increase in the average education of farmers by one year increased the value added to agricultural production by 24 percent. In Burkina Faso, a (1993) study found that crop yields were 25 to 30 percent higher for farmers who participated in training programmes than those who did not participate. As farming becomes more and more complex and greater crop yields are required to feed more people, farmers' knowledge and information need to be constantly up-graded. It is critical that farmers know about sound farming practices so that natural resource base is maintained for food production for future generations. Organizations that support farmers such as government extension agencies, non-governmental organizations and agri-businesses, need up-to-date knowledge and information about improved farming (FAO, 2019).

Knowledge refers to the outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study. Skills refer to the ability to apply knowledge and use know-how to complete tasks and solve problems. The skills can either be cognitive or practical in nature. Competence means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. Parry (1998) defined competency as a cluster of related knowledge, attitudes, and skills that affect a major part of one's job. Davis et al. (2004) states that competencies encompass clusters of skills, knowledge, abilities, and behaviours required for people to succeed. Burke (1990) defined competencies as embodying ability to transfer skills and knowledge to new situations within the occupational area. There is a growing popularity for the notion of competence as integrated capabilities (Biemans et al., 2004). Mulder (2001) defined competencies as capabilities, capacities or potentials and can be understood as characteristics of persons, teams, work units or organizations which enable them to deliver.

Work Environment and Achievement of Food and Nutritional Security

The term work environment is used to describe the surrounding conditions in which an employee operates. The work environment can be composed of physical conditions, such as office temperature, or equipment, such as personal computers. It can also be related to factors such as work processes or procedures (Amaravathi, Parimalam, and Ganguli, 2013). Haynes (2008) asserts that workplace environment is also an important factor that has a significant impact on an e employee's performance. It fulfills the employee's intrinsic and social needs and forms basis of desire to stay or leave the organization. It is also the determinant of the quality of work and performance levels.

Governments provide the legal and policy frameworks necessary for successful and sustainable management of national development agenda. The Government of Kenya has often responded to food and security challenges by performing three major policy interventions: these include Supply, prices and income related policies (Pelling and Holloway, 2006). Workplace environment is also an important factor that significantly impacts employee's performance, fulfilling their intrinsic, extrinsic and social needs form the basis for their stay in an organization as well as being the key determinant of quality in work and performance levels (Haynes, 2008). Work environment refers to everything that forms part of employees' involvement with the work itself, such as the relationship with co-workers and supervisors, organizational culture, room for personal development, furniture and ICT equipment. Kenya continues to make significant progress in recognizing the direct impact a conducive work environment has on employee performance and actualization of goals. It is imperative that the factors that constitute a positive work environment are fully understood and cultivated to compliment various initiatives that have been put in place by both the National and County governments to address the perennial problem of food insecurity.

Legal and Regulatory Frameworks to Enhance Food Security and Nutrition

The Kenyan Government outlined its commitment to improving performance of Public Service by setting Human Resource Strategy Framework for the Public Service (2017) through the Ministry of Public Service, Youth and Gender Affairs and the Directorate of Public Service Management. The framework aims to strengthen Human Capital capacity to meet current and future needs of Public Service organizations for effective and efficient delivery of services.

The Government has established various training institutions to provide an environment in which public servants continuously learn and acquire new ideas, improve their competences, skills, behavior and attitudes, key of which being the Kenya school of Government. However, the Public Service continues to experience skills and competency gaps in critical and specialized technical skills. The Human Resource strategy framework for the public service aims to provide a basis for integration of human resource management in the Public Service. The framework aims to strengthen human capital capacity to meet the current and future needs of Public Service organizations for effective and efficient delivery of services. As such the study will consult this document widely and also seek to analyze the extent to which the legal, policy and regulatory framework on human resource capacity building supports achievement of food and nutrition security in Kenya.

MATERIALS AND METHODS

The study used a descriptive research design to capture human resource capacity gaps. Purposive sampling was used to get 222 county agriculture and nutrition staff from 8 County Governments who completed a self-administered questionnaire. The sampling was based on a criteria that considered geographical, political, and ethnic and accessibility factors. Information was collected on gender, age, education, number of years working in the organization, level in the institution and counties involved. Secondary data was obtained from county government's documents. Quantitative data was analyzed using SPSS software, while qualitative data revealed emerging thematic issues.

RESULTS AND DISCUSSION

Majority were male 58% (129) while 42% (93) were female aged 31-60 years. Most of them had education above O' Levels and were graduates (44%) (Figure 1).

Awareness and achievement of Objectives on Food Security and Nutrition in Kenya

Most respondents (94%) indicated that they were aware of objectives on food security and nutrition, while 23% were not aware.

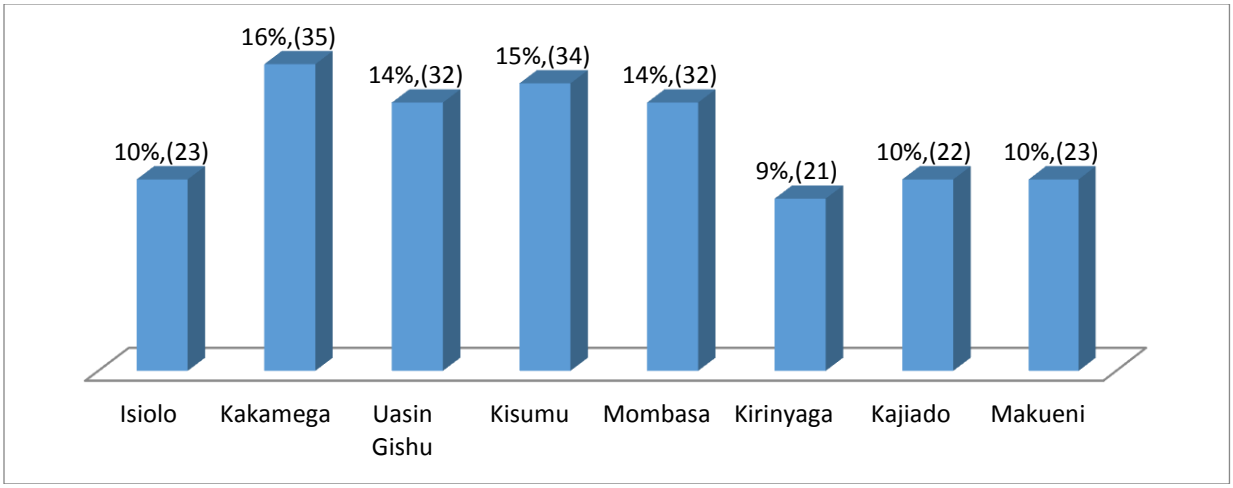

Figure 1. Number of respondents per County

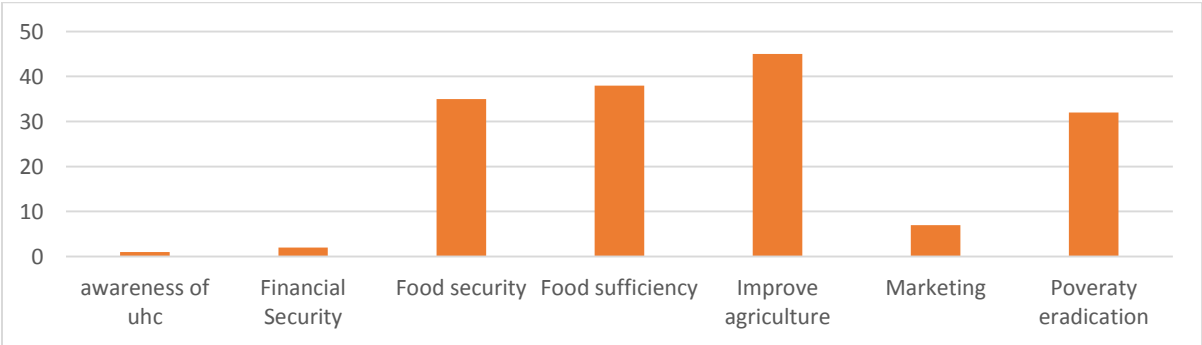

Figure 2. Objectives of food security and nutrition, n=160

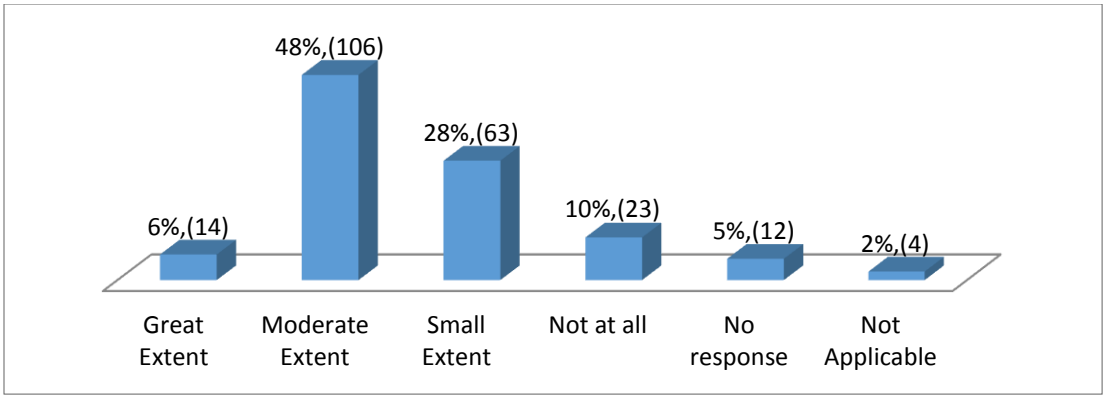

Figure 3. Extent to which "Big 4 Agenda" on food security and nutrition has been achieved

Figure 3 revealed that the agenda on food nutrition had been achieved to a moderate extent (48%) Respondents indicated that most farmers depended on unpredictable rain fed agriculture and climate change issues also raised drought and flood experiences Other issues include lack of farm inputs and distribution of relief food among communities that do not generate food. Challenges highlighted were lack of funds, few capacity building sessions, inadequate staff numbers, corruption, lack of political goodwill infrastructure and traditional beliefs about food and agriculture. Key barriers were negative attitude among farmers on use of new technology, inadequate skills among extension officers, communities and service providers.

Knowledge, Skills and Competencies Required to Achieve the Agenda on Food Security and Nutrition

The respondents were asked to rate their knowledge, skills and competencies. Overall knowledge in nutrition and diet, post-harvest technology, food production, food distribution, irrigation, large scale farming, small holder farming management, value addition, knowledge management and Management of SMES was above 50% except for irrigation (Figure 4).

The non-training interventions proposed included adequate funding, availability of transport to ease mobility, benchmarking, mentoring, security creation of food reservoirs. Other issues mentioned included attitude change, corruption, reduction of wastage, overreliance and dependence on food crops. Aging workforce in the agriculture sector and poor alignment of CIDP to the FNS agenda.

Legal and Regulatory Framework on Food Security and Nutrition

Figures 5 and 6 show the extent to which ratings of the legal and regulatory frameworks affects the delivery of the agenda on food security and nutrition. Figure 6 depicts the extent to which policies affect achievement of Big Four Agenda on Food Security and Nutrition. Figure 7 indicates that 49% felt counties lack policies that guide human resource capacity building initiatives whereas 41% felt there were adequate policies.

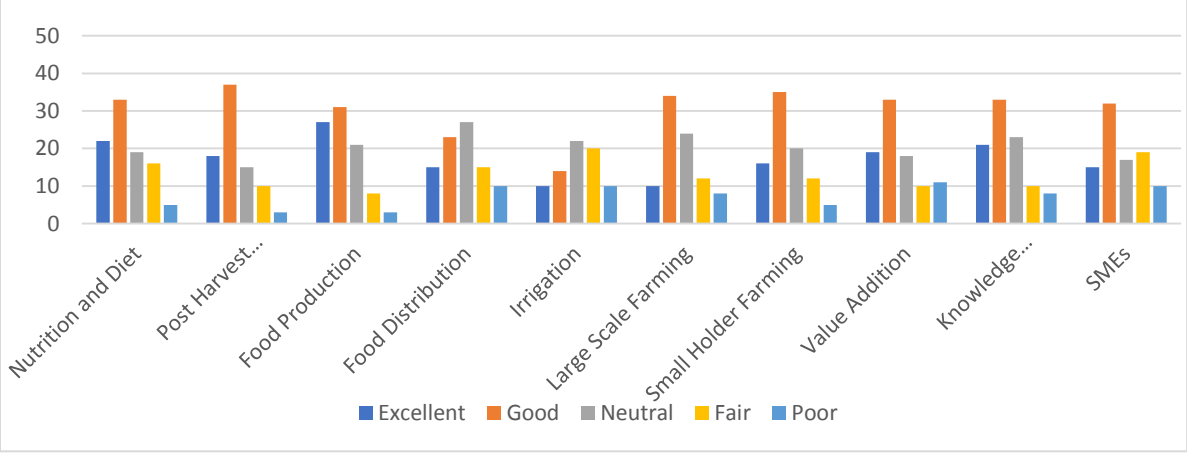

Figure 4. Self-assessment of knowledge, skills and competencies

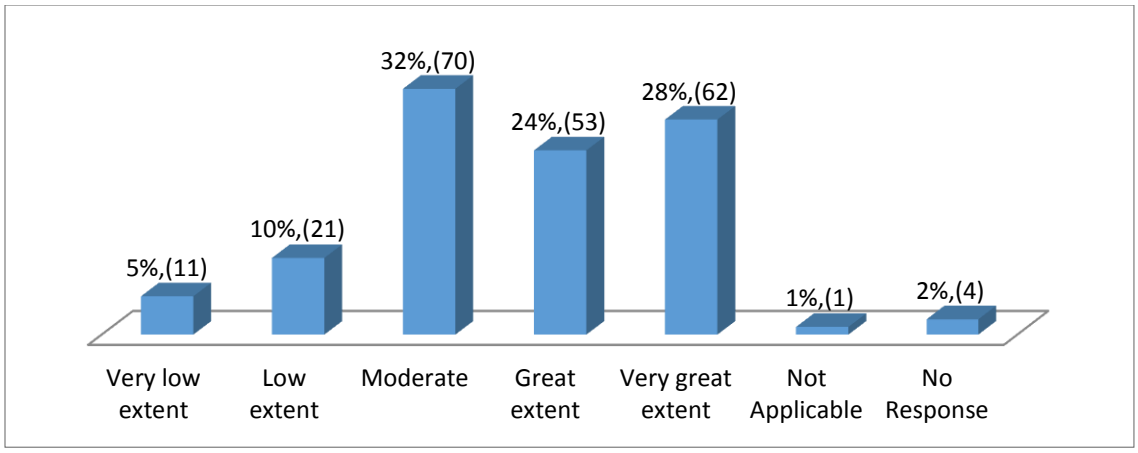

Figure 4. Legal and regulatory framework

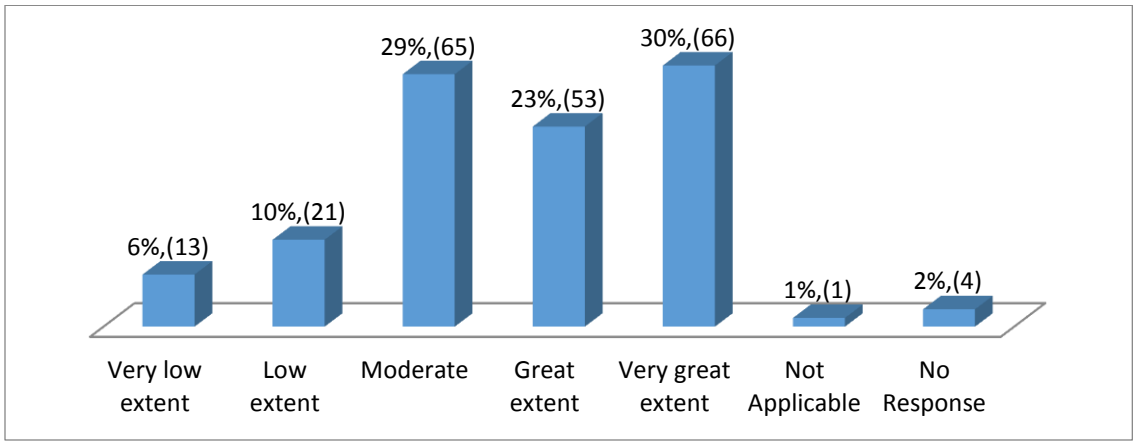

Figure 5. Extent to which policies affect achievement of "Big 4 Agenda" on food security and nutrition

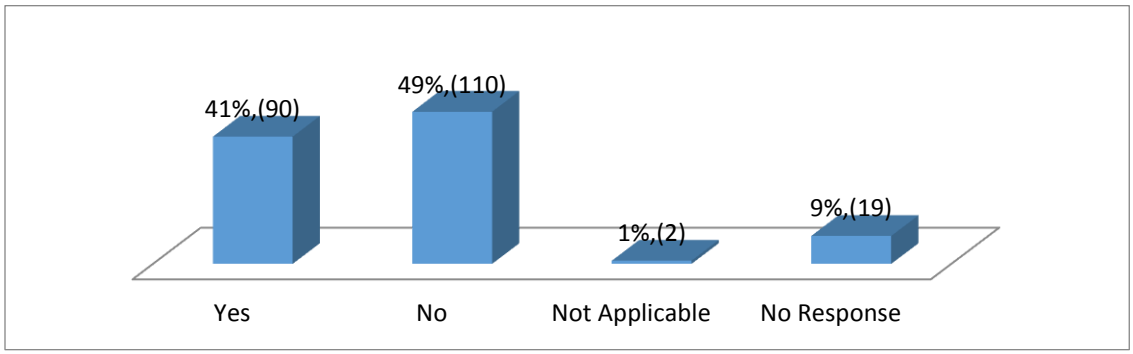

Figure 6. Presence of policies that support staff capacity building on food security and nutrition

Work Environment and Financial Resources

Figure 8 depicts the extent to which the work environment affects the capacity of the human resource staff to achieve FNS. Results indicate 75% of the participants alluded to the fact that work environment enable the achievement FNS by agricultural and nutrition staff. Financial resources affect the capacity to deliver on the FNS agenda (66%) whereas 30% opined that financial resources had a low to very low extent of influence. County Government Hierarchy 63% gave positive responses ranging from moderate to very great extent. Work environment factors that influenced achievement of the FNS included adequate and timely facilitation including infrastructure, office equipment, office space, and transport and internet connectivity.

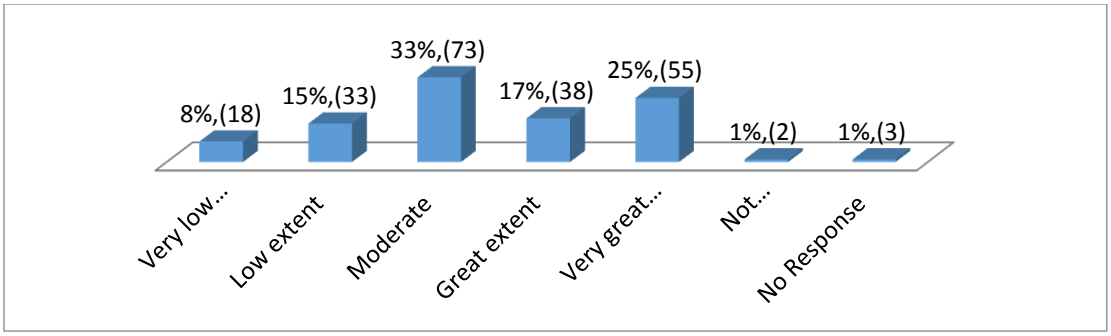

Figure 7. Extent to which work environment affects achievement of food security and nutrition

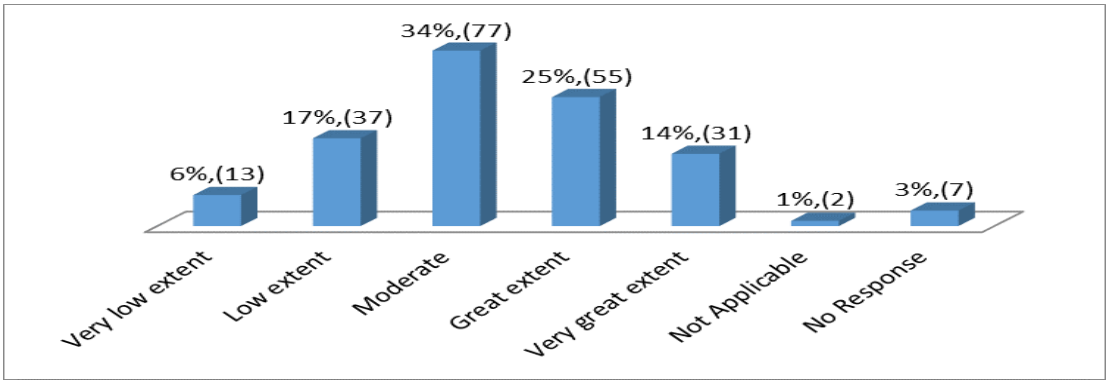

Figure9. County hierarchy blocks affecting achievement of food security and nutrition

CONCLUSIONS AND RECOMMENDATIONS

Achievement of food security and nutrition is a key agenda forming the current world development discussions. Governments across the globe are seeking opportunities and avenues to ensure that their citizens are food secure. The current study was to assess the human resource capacity building interventions needed to support the big four agenda on FNS. Three specific objectives were used to guide the study. These included (1) the requisite knowledge, skills and competency gaps that affect achievement of food security and nutrition in Kenya; (2) work environment factors that affect the capacity of employees to support achievement FNS in Kenya; (3) the extent to which the legal, policy and regulatory framework on human resource capacity building support achievement of food security and nutrition in Kenya.

All three variables of the study returned positive verdict that there exist positive and significant relationships between the dependent variables and the independent variables. The study therefor concludes that knowledge skills competencies of duty bearers are key to the achievement of FNS big 4 agenda, legal policy and regulatory frameworks are key to achievement of big agenda on FNS and that work environment influences achievement FNS. The study established that the workforce is highly elite with ranges levels of education. This was seen across the counties none of which seemed to be deficient. Respondents possessed key skills core to achievement FNS in nutrition and diet management, post-harvest technology, food production, food distribution, large scale farming, small holder farming, value addition and management of SMEs. More focused capacity building initiatives are required in climate smart agriculture, modern agriculture techniques, management of natural resources, post-harvest processes and resource mobilization (Nyongesa, 2017).

There exist discrepancies on the awareness levels of the staff on capacity building policies in the counties. Most of the respondents (49%) feel that counties lacked policies to guide human resource capacity building. Work environment, availability of financial resources; county hierarchy blocks affect the achievement of the FNS big 4 agenda. The current work environment in the counties is not adequately enabling the delivery on their mandate of ensuring FNS. The study also concluded that non-training interventions were also fundamental to achievement of FNS. Human resources capacity needs may be achieved by enhancing policy implementation and work environment through integrated approaches

involving National Government, County Governments and the private sector.

It is recommended that the County and National Governments should retool and re skill the agricultural staff in areas of value addition, climate smart agriculture post-harvest management and resource mobilization. Adoption of creative resource mobilization strategies in collaboration with partners and non-state actors can enable counties to fund their FNS initiatives.

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