



ANALYSIS OF THE TRAINING NEED OF AGRICULTURAL EXTENSION PERSONNEL IN GWAGWALADA AREA COUNCIL, ABUJA NIGERIA.

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ABSTRACT

This research work addressed the training needs among agricultural extension personnels in Gwagwalada area council, Abuja, Nigeria. A stratified random sampling technique was used to select forty-three (43) agricultural extension personnels in the study area. Primary data were collected using a structured questionnaire containing both open and closed-ended questions, while textbooks and journals were used as reference materials. The data collected from the administered questionnaire were analyzed using the Statistical Package for Social Sciences (SPSS version 26). The result revealed that a proportionate number (46.5%) of the extension personnels in the study area were within the age range of 40-50 years, with the majority (69.8%) of them being males. The majority (69.8%) of the extension personnels in the study area had a B.Sc. or HND as their highest educational qualifications. A proportionate number (46.5%) of the extension personnels in the study area had 6-10 years of experience in extension work. Also, a proportionate number (44.2%) of the extension personnels require knowledge and skills of using ICT for extension services, design and planning of extension programs and as well as agricultural entrepreneurship. The findings of the study concluded that the most important training needs by extension personnels in the study area were training on the use of ICT for extension services, design and planning of extension programs, and as well as agricultural entrepreneurship training. The study, therefore, recommended that agricultural extension personnels in the study area should be engaged in efficient training in order to facilitate efficient extension service delivery in the study area.

Keywords: Analysis, training, needs, agricultural extension, personnel's, Gwagwalada

INTRODUCTION

Background of the Study

Agricultural extension is a vital component of agricultural development, aimed at improving agricultural productivity, efficiency, and sustainability. It involves disseminating knowledge, skills, and technologies to farmers, agricultural producers, and other stakeholders in the agricultural sector. The primary goal of agricultural extension is to empower farmers and rural communities with the necessary knowledge, skills, and technologies to improve their livelihoods and contribute to national food security. Effective agricultural extension can

lead to improved food security, income, and livelihoods for farmers and rural communities. It can also contribute to sustainable agricultural development, improved natural resource management, and reduced (Central Bank of Nigeria, 2022). Agricultural extension can facilitate the adoption of improved agricultural technologies, practices, and inputs, leading to increased crop yields, improved livestock productivity, and enhanced agricultural efficiency. However, agricultural extension faces several challenges, including inadequate funding, limited access to technology, and shortage of skilled extension agents (Ogunsumi & Akinwumi, 2020).

Additionally, agricultural extension services are often criticized for being top-down and supply driven, rather than demand-driven and focused on meeting the needs of farmers. Furthermore, the effectiveness of agricultural extension services is often hindered by limited infrastructure, inadequate transportation, and poor communication facilities Yitbarek. (2020). Despite these challenges, agricultural extension remains a critical component of agricultural development. Efforts are being made to strengthen and improve extension services, including the adoption of new technologies, innovative approaches, and participatory methods. The use of information and communication technologies (ICTs), such as mobile phones, computers, and internet connectivity, is becoming increasingly popular in agricultural extension. These technologies can facilitate the dissemination of information, improve communication, and enhance the efficiency of extension services. Moreover, there is a growing recognition of the importance of demand-driven and participatory approaches to agricultural extension. These approaches involve working closely with farmers, rural communities, and other stakeholders to identify their needs, priorities, and concerns. By adopting a more participatory and demand-driven approach, agricultural extension services can become more effective, efficient, and responsive to the needs of farmers and rural communities (Adebayo & Okuneye, 2020).

Furthermore, the agricultural sector in Nigeria is undergoing significant changes, including the adoption of new technologies, climate change, and shifting consumer preferences (International

Fund for Agricultural Development, 2020). These changes require agricultural extension personnel to have the necessary skills and knowledge to provide effective support to farmers. According to Rivera and Alex (2019),

"extension is a vital component of agricultural development, and its effectiveness depends on the quality of its personnel." The quality of agricultural extension personnel is critical in determining the success of agricultural development programs (Anderson & Feder, 2018). Well-trained agricultural extension personnel can facilitate the adoption of improved agricultural technologies, leading to increased productivity and food security. However, many agricultural extension personnel in Nigeria lack the necessary training and skills to effectively perform their duties (Adebayo & Okuneye, 2020). This study aims to assess the training needs of agricultural extension personnel in Gwagwalada Area Council, Abuja Nigeria. The study will identify the training gaps and needs of agricultural extension personnel in the study area and provide recommendations for improving their training and capacity building. Agricultural extension has a long history dating back to the early 20th century. The concept of extension was first introduced in the United States in 1914, with the establishment of the Cooperative Extension System (CES). The CES was designed to transfer research-based information from land-grant universities to farmers and rural communities. Since then, agricultural extension has evolved and spread to many countries around the world. In the 1950s and 1960s, many developing countries established their own extension systems, often with the support of international organizations such as the Food and Agriculture Organization (FAO) of the United Nations. Today, agricultural extension is recognized as a critical component of agricultural development, and is an essential tool for improving agricultural productivity, reducing poverty, and promoting sustainable agricultural practices. Agricultural extension services are provided by a wide range of

organizations, including government agencies, non-governmental organizations (NGOs), private companies, and community-based organizations. Despite its importance, agricultural extension faces many challenges, including inadequate funding, limited access to technology, and a shortage of skilled and experienced extension agents. Additionally, agricultural extension services are often criticized for being top-down and supply-driven, rather than demand-driven and focused on meeting the needs of farmers. In recent years, there has been a growing recognition of the importance of demand-driven and participatory approaches to agricultural extension. These approaches involve working closely with farmers, rural communities, and other stakeholders to identify their needs, priorities, and concerns. By adopting a more participatory and demand driven approach, agricultural extension services can become more effective, efficient, and responsive to the needs of farmers and rural communities. The use of information and communication technologies (ICTs) is also becoming increasingly popular in agricultural extension. ICTs can facilitate the dissemination of information, improve communication, and enhance the efficiency of extension services. For example, mobile phones can be used to send text messages to farmers with information on weather forecasts, market prices, and best farming practices. Furthermore, there is a growing recognition of the importance of integrating agricultural extension with other development programs, such as poverty reduction, health, and education. This integrated approach can help to address the broader development needs of rural communities and promote more sustainable and equitable agricultural development.

Study Area

The study area for this research is Gwagwalada

Area Council, one of the six area councils in the Federal Capital Territory (FCT) of Nigeria. Gwagwalada is located in the western part of the FCT, approximately 40 kilometers west of Abuja city. It shares boundaries with Kuje Area Council to the south, Abaji Area Council to the north, and the Niger State to the west. Geographically, Gwagwalada Area Council has a total land area of approximately 1,043 square kilometers, representing about 12.5% of the total land area of the FCT. The area council is characterized by a tropical savanna climate with two distinct seasons: the wet season, which lasts from May to October, and the dry season, which lasts from November to April. The area council has a population of over 200,000 people, according to the 2006 census, with an estimated annual growth rate of 3.5%. The population is predominantly rural, with many communities engaged in subsistence farming and livestock production.

The main ethnic groups in the area council are the Gbagyi, Hausa, and Fulani. Agriculture is a major economic activity in Gwagwalada Area Council, with many farmers producing crops such as maize, rice, vegetables, and fruits. Livestock farming is also common, with many households keeping cattle, goats, and sheep. The area council is also known for its rich mineral resources, including limestone, granite, and marble. In terms of infrastructure, Gwagwalada Area Council has a good network of roads, including the Abuja-Lokoja highway, which passes through the area council. The area council also has a number of educational institutions, including primary and secondary schools, as well as a number of healthcare facilities, including hospitals and clinics. Overall, Gwagwalada Area Council is a rural area with a strong agricultural economy and a growing population. The area council faces a number of challenges, including limited access to education and healthcare, as well as limited economic opportunities. However, the area council also has a number of opportunities,

including its rich natural resources and its strategic location near the federal capital city Gwagwalada Area Council is located in the western part of the Federal Capital Territory (FCT), Nigeria. The area council has a varied topography, with a mix of plains, hills, and valleys. The area council is generally characterized by a gentle slope, with an average elevation of about 300-400 meters above sea level. The terrain is relatively flat in the northern part of the area council, while the southern part is more undulating with scattered hills. The area council is drained by several rivers and streams, including the Rivers Gurara and Dobi, which flow through the area. The rivers and streams are seasonal, with most of them drying up during the dry season. The geology of the area council is dominated by the Basement Complex rocks, which are composed of granites, gneisses, and schists. The rocks are generally weathered and eroded, resulting in a landscape of rolling hills and valleys. Overall, the topography of Gwagwalada Area Council is characterized by a mix of plains, hills, and valleys, with a gentle slope and an average elevation of about 300-400 meters above sea level.

The soil in Gwagwalada Area Council is varied, with different types of soil found in different parts of the area council. However, the dominant soil type in the area is the ferruginous tropical soil, which is characterized by a reddish-brown color and a sandy loamy texture. The soil in the area council is generally well-drained, with a moderate to high water-holding capacity. However, the soil is also prone to erosion, particularly during the rainy season, due to the high intensity of rainfall and the lack of vegetation cover. The pH of the soil in the area council ranges from slightly acidic to neutral, with a mean pH value of around 6.5. The soil is also relatively fertile, with moderate to high levels of organic matter and nutrients such as nitrogen, phosphorus, and potassium. However, the soil in the area council is also facing some challenges, including soil degradation, nutrient depletion, and soil erosion. These challenges are

largely due to the intensive farming practices, deforestation, and lack of soil conservation measures in the area. Overall, the soil in Gwagwalada Area Council is an important natural resource that requires careful management and conservation to ensure its sustainability and productivity.

Gwagwalada Area Council has a tropical savanna climate, characterized by two distinct **Seasons**: the wet season and the dry season. The wet season typically lasts from May to October, while the dry season lasts from November to April. The average temperature in Gwagwalada Area Council ranges from 22°C to 30°C throughout the year. The highest temperatures are usually recorded during the dry season, while the lowest temperatures are recorded during the wet season. The area council receives an average annual rainfall of around 1,200 mm, with the majority of the rainfall occurring during the wet season. The rainfall pattern is characterized by a unimodal distribution, with a peak rainfall period in July and August. The relative humidity in Gwagwalada Area Council is generally high, ranging from 60% to 80% throughout the year. The highest humidity levels are usually recorded during the wet season, while the lowest humidity levels are recorded during the dry season. Gwagwalada Area Council receives an average of 6-7 hours of sunshine per day throughout the year, making it an ideal location for agricultural activities. The wind pattern in Gwagwalada Area Council is characterized by a prevailing wind direction from the southwest during the wet season and from the northeast during the dry season. The wind speed is generally moderate, ranging from 5-15 km/h. Overall, the weather and climate in Gwagwalada Area Council are suitable for agricultural activities, with a distinct wet and dry season pattern.

Research Design

This study employed a mixed-methods research design, which combines both qualitative and quantitative approaches. The mixed-methods design was chosen because it allows for the collection of both numerical data and narrative

data, providing a more comprehensive understanding of the research topic. The qualitative component of the study involved collecting data through focus group discussions and in-depth interviews, while the quantitative component involved collecting data through a survey questionnaire.

Sample Size

The sample size for this study was determined using the Yamane (1967) formula:

$$n = N / (1 + N(e^2))$$

Where:

n = sample size

N = population size (estimated to be 82)

E = margin of error (0.1)

Substituting the values, we get:

$$n = 82 / (1 + 82(0.1^2))$$

Calculating further:

$$n = 82 / (1 + 82(0.01))$$

$$n = 82 / (1 + 0.82)$$

$$n = 82 / 1.82$$

$$n = 45$$

Thus, the final sample size for this study is 45, using N = 82 and e = 0.1 .

Sampling Technique

The sampling technique used for this study is stratified random sampling. Stratified random sampling is a probability sampling technique that involves dividing the population into subgroups or strata and then selecting a random sample from each stratum. The strata were

defined based on the job categories of the agricultural extension personnel, including agricultural extension agents, agricultural extension officers, agricultural extension specialists, and agricultural extension educators.

Data Collection Methods

This study used both primary and secondary data collection methods. Primary data was collected through focus group discussions, in-depth interviews, and a survey questionnaire. Secondary data was collected from existing literature on agricultural extension and training needs assessment.

Data Analysis Procedures

The data collected for this study will be analysed using both descriptive and inferential statistics. Descriptive statistics involved summarizing and describing the basic features of the data, including means, frequencies, and percentages. Inferential statistics involved making inferences or generalizations about the population based on the sample data, including regression analysis and t-tests.

RESULTS AND DISCUSSIONS

This chapter deals with the data analysis collected through the use of a questionnaire. Out of the 45 questionnaires distributed to all respondents, 43 questionnaires were returned and analyzed.



Table 1 Socio-Economic-characteristics

CHARACTERISTICS	FREQUENCY	PERCENTAGE
Age range		
20-30	2	4.7
31-40	13	30.2
41-50	20	46.5
51 and above	8	18.6
Sex		
Male	30	69.8
Female	13	30.2
Educational level		
ND/NCE	2	4.7
B.Sc./HND	30	69.8
M.Sc.	8	18.6
Ph.D.	3	7.0
Years of experience in service		
Less than 2 years	3	7.0
2-5 years	8	18.6
6-10 years	20	46.5
Above 10 years	12	28.0

Source: Field Survey, 2025

Age of the respondents

Table 1 shows that a proportionate number (46.5%) of the respondents were within the age range of 41-50 years. 30.2% of the respondents were within the age range of 31-40 years. 18.6% of the respondents were within the age range of 51 and above, and only 4.7% of the respondents were within the age range of 21-30 years. This implies that the majority of agricultural extension personnels in the study area were within the age range of 31-50 years, indicating that extension personnel in the study area were active and productive and could be more productive than the aged personnel

Therefore, this result was in line with that of Alameeri et al., (2018) who reported that, majority of extension personnel in North central Nigeria were within the age range of 31-50 years

Sex of respondents

Table 1 also revealed that the majority (69.8%) of the respondents in the study area were males. While 30.2% of them in the study area were females. This implies that the majority of the

extension personnel in the study area were males, indicating the predominant nature of people in the area, where values and beliefs restrict women from active participation in some outdoor activities

This result agreed with that of Branch (2017), who reported that the majority of extension workers in West Africa were males with few females

Table 1 Educational Level of Respondents

Table 4.1 also indicated that the majority (69.8%) of the respondents had B.Sc./HND as their highest educational level. 18.6% of the respondents have M.Sc. as their highest educational level. 7.0% of the respondents had a Ph.D. as their highest educational level, and only 4.7% of them had ND/NCE as their highest educational level. Implying that extension personnel in the study area had a graduate qualification (B.Sc./HND)

This finding inclined with that of Ayele (2020), who revealed that the majority of extension personnel in Africa are now graduates.

Years of Experience in services

Table 1 shows that a proportionate number (46.5%) of the respondents had 6-10 years' experience in service. 28.0% of the respondents were above 10 years of experience in extension service. 18.6% of the respondents had 2-5 years' experience in extension service, and only 7.0% of them had less than two years' experience in extension service. This implies that the majority

of the extension personnel in the study area had many years' experience in the extension service, indicating that respondents were not new to the service

Therefore, these results supported that of Swanson (2018), who reported that extension personnel in Nigeria have years of experience in extension service.

Table 2 Training needs of Extension Personnels in the study area

Training needs	Frequency	Percentage
Use of ICT	40	42.1
Agricultural Entrepreneurship	30	31.6
Program planning	25	26.3
Suitable time for training		
Week days	40	42.1
Weekends	30	31.6
Farming seasons	20	21.1
Off-season	5	9.30
Total	95	100.0

Source: field survey, 2025 (multiple responses)

Training needs of Extension personnel

Table 2 shows that a proportionate number, 42.1% of the respondents, had ICT training needs as their major training needs in the study area. Followed by 31.6% of the respondents who revealed that Agricultural Entrepreneurship training was their major training need in the study area, and 26.3% of the respondents revealed that program planning was their major training need in the study area.

This implies that the major training needs of extension personnel in the study area are the use of ICT, agricultural entrepreneurship, and the design and planning of extension programs.

Therefore, this finding coincides with that of Ogunyinka (2019), who reported that agricultural extension personnel in Nigeria lack efficient training, particularly in the areas of ICT

use, agricultural entrepreneurship, and design of extension programs and planning.

suitable time for training

The same result shows that, according to the respondents, the suitable time of training should be during the weekdays, and that constitutes a good number (42.1%) of the respondents. 31.6% of them also revealed that weekends are the most suitable time for training. 21.1% of the respondents revealed farming season, and only 9.30% of them revealed the off-season period of training (Table 2).

This result corroborates with that of the Food and Agriculture Organization (2020), which reported that the most extension personnel in West Africa prefer weekdays for training.

Table 3: Knowledge and skills required by respondents in the study area

Knowledge and skills	Frequency	Percentage
Knowledge of the use of ICT	10	23.3
Entrepreneurship skills	5	11.6
Design of extension program	3	7.0
Use of ICT and Agric-entrepreneurship	6	14.0
Use of ICT, Agric -entrepreneurship, extension programs, and planning	19	44.2
Total	43	100.0

Source: Field survey, 2025

Table 3 revealed that a proportionate number (44.2%) of the respondents required knowledge and skills in the use of ICT, Agricultural Entrepreneurship, and program planning skills development. Followed by 23.3% of the respondents who require only knowledge and skills on the use of ICT. 14.0% of the respondents only need knowledge and skills on the use of ICT and Agricultural entrepreneurship. 11.6% of the respondents require only entrepreneurship skills in agriculture, and only 7.0% of them require knowledge on extension programs and

planning. This implies that the majority of the extension personnel in the study area require knowledge and skills on ICT use in extension, agricultural entrepreneurship, and extension programs, and planning skills development. This result agreed with that of Adebayo (2020), who positioned that extension personnel in sub-Saharan Africa require training, particularly in the area of ICT use in extension services, agricultural entrepreneurship skills, and knowledge on extension program planning and design.

Table 4 constraints militating against extension service by respondents in the study area

Constraints	Frequency	Percentage
Limited resources	60	24.0
Lack of training	89	35.6
Insecurity	90	36.0
Poor transport network	20	8.0
Total	250	100.0

Source: Field survey, 2025 (multiple response)

Table 4 shows that lack of efficient training and insecurity are the major constraints militating against extension service delivery by respondents in the study area, and these constitute 35.6% and 36.0% respectively. 24.0% of the respondents revealed that limited resource supply was their major constraint, and only 8.0% of the respondents revealed that poor transportation network was their constraint in the study area. This implies that the major challenges affecting extension services in the study area are insecurity, lack of constant training, and limited supply of resources by the

government.

This result complies with that of Adebayo (2020), who positioned that the major constraints of agricultural extension service in West Africa today are insecurity, limited supply of resources, and lack of constant training for extension workers.

CONCLUSION

In conclusion, this study has provided a comprehensive and in-depth examination of the training needs of agricultural extension personnel in Gwagwalada Area Council, Abuja,

Nigeria. The findings of this research have significant implications for policymakers, government agencies, and agricultural institutions, highlighting the critical importance of targeted training programs, infrastructure development, and policy support to enhance the effectiveness of extension agents and support the growth and development of the agricultural sector in the region.

The study's results have shown that agricultural extension personnel in Gwagwalada Area Council face numerous challenges, including inadequate training, insufficient resources, and limited access to modern technology. These challenges hinder the ability of extension agents to provide high-quality services to farmers, ultimately affecting agricultural productivity and development in the region. Therefore, it is imperative that policymakers and stakeholders take immediate action to address these challenges and provide extension personnel with the necessary support and resources to excel in their roles.

The study's findings also underscore the importance of regular training and capacity-building programs to keep extension personnel up to date with the latest developments in agriculture. Such programs would enable extension agents to acquire the necessary skills and knowledge to effectively support farmers, improve agricultural productivity, and contribute to the overall development of the agricultural sector in the region.

Furthermore, the study's results highlight the need for infrastructure development, including the provision of internet facilities, to support the work of extension agents. This would enable them to access vital information, communicate effectively with farmers, and utilize digital tools to enhance their services.

RECOMMENDATIONS

Based on the study's findings, the following recommendations are made:

1. **Targeted Training Programs:** Government and agricultural institutions should provide regular training programs tailored to the specific needs of extension personnel, covering areas such as

modern agricultural practices, technology adoption, communication skills, problem-solving, and critical thinking.

2. **Capacity Building:** Institutions should invest in capacity-building programs to enhance the skills and knowledge of extension agents, including workshops, seminars, and short courses.

3. **Infrastructure Development:** Government should provide necessary infrastructure, such as internet facilities, to support extension agents' work and enhance their ability to access vital information and communicate effectively with farmers.

4. **Policy Support:** Policymakers should prioritize agricultural extension services, providing adequate funding and resources to support extension agents' work, and develop policies that promote the welfare of extension personnel and improve their working conditions.

5. **Regular Needs Assessment:** Regular needs assessments should be conducted to identify the training needs of extension personnel and inform the development of targeted training programs.

6. **Collaboration and Partnerships:** Government, agricultural institutions, and other stakeholders should collaborate to provide comprehensive support to extension personnel and enhance the effectiveness of agricultural extension services.

7. **Monitoring and Evaluation:** A system for monitoring and evaluating the effectiveness of training programs and extension services should be established to ensure that they are meeting their intended objectives.

By implementing these recommendations, stakeholders can enhance the capacity of agricultural extension personnel, improve agricultural productivity, and support the growth and development of the agricultural sector in Gwagwalada Area Council and beyond.

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