HUMAN CAPACITY AND AGRICULTURAL EXTENSION SERVICES DELIVERY IN AKWA IBOM STATE

[1]Nelson U. Okorie and [1]Kesit K. Nkeme
[1]Department of Agricultural Economics and Extension,
Akwa Ibom State University, P.M.B. 1167, Uyo
nelmayo2007@yahoo.com

https://doi.org/10.60787/AASD-v2i1-30

Abstract

The study examined the factors influencing human capacity strengthening in the delivery of agricultural extension services in Akwa Ibom State, Nigeria. Given the crucial role of agricultural extension services in improving agricultural productivity and rural development, the study aimed to identify key factors that increase the effectiveness of these services. Data from 200 respondents were collected using a multistage random sampling technique and analyzed using descriptive and inferential statistics. The findings showed that the majority of the extension agents were aged between 40 – 50 years and had attained tertiary level of education with a mean monthly income of ₦118, 308.3 and 5 to 10 years of working experience. Also, there was a majority consensus by the respondents on human capacity strengthening activities especially virtual workshops on communication skills, forging partnerships with other organizations, mentorship programs, and synergy between extension workers and supervisors. Furthermore, the regression results indicated that adequate training materials, input supply, funding, communication channels and skilled mentorship were significant factors influencing the effectiveness of agricultural extension services. The respondents also considered work experience, incentive support, and specialization categories as factors influencing human capacity strengthening. It is recommended to increase funding, ensure a reliable supply of inputs, develop effective communication channels, implement structured mentoring programs, provide comprehensive training materials, conduct regular supervisor visits, improve infrastructure and transportation, promote specialization and experience, encourage incentive programs develop and promote collaboration with research institutions and other interest groups.

Keywords: *Agricultural Productivity, Rural Development, Training, Communication Skills*

Introduction

According to the World Bank (2017), approximately 80% of the poverty-stricken populations in the world are rural dwellers who largely hinge their livelihood on agriculture or related activities for a living. Boosting agricultural production, therefore, is seen as one of the most powerful tools against poverty (Ojo and Iyanuoluwa, 2017). Several studies indicate that the agricultural sector is a key driver in poverty mitigation and the eventual attainment of economic development in many countries (Odoemelam and Okorie, 2021; Worth, 2016). It is estimated that 50–80% of the staple foods eaten in third-world countries are produced by peasants, fisher folks, and livestock keepers, many of which are inadequately served by research, extension, and advisory services including entrepreneurship (Ubom, Okorie, and Okon, 2023; Adekunle *et al.,* 2018).

Research showed that human capacity strengthening plays a vital role in the development and sustainability of agricultural extension services in Nigeria. According to Aina andFabiyi, (2019), Agriculturalists and other players in rural development need better access to technical information, knowledge, and advice, and must link with other actors in agri-food markets and value chains to improve their livelihoods (Christoplos *et al.,* 2019; Sikhweniand Hassan, 2018). Extension programs in agriculture, fisheries, and aquaculture are seen as a link between farmers, fisherfolks, and other actors in rural development programs including capacity strengthening (Okorie, Ekanem, and Okoro, 2020). Similarly, studies by Udousung, Nkeme,

Umoh and Robson, (2015) on the awareness of traditional and orthodox methods of poultry disease control reveals a significant role played by human capacity in strengthening the agricultural extension service delivery among farmers in Akwa Ibom and Cross River States.

It is not very easy to define agricultural extension in a short concise, phrase or statement but in a broad sense, agricultural extension refers to an informal educational function that relates to any organization disseminating information and advice to promote learning, although it tends to be associated with agriculture, fisheries and aquaculture, and rural development in general (Adeoye and Adegbite, 2017). The role of agricultural extension in the social and economic development of the nation cannot be over-emphasized. Never before in Nigerian history has the necessity for educating and raising the productive capacity of the farmers been of such importance as it is today (Odoemelam and Okorie, 2021).

Increased agricultural productivity depends primarily upon the acceptance of cultural and technological changes at the rural farm level. Umeh *et al.,* (2015) noted that for farmers to respond positively to new ideas, they must be properly educated on how best to apply the new ideas or practices to their farming activities. This is because the new ideas are often complex, and technical and can hardly be understood by most of our farmers. Nigeria cannot achieve increased agricultural productivity on the rural farm level, except through the provision of basic agricultural education, particularly, the non-formal form which is the extension type that will help move millions of farmers from traditional to progressive farming, thereby improving the overall quality of rural life (Ajah and Okorie, 2016).

Capacity strengthening involves equipment of people with the knowledge, skill, and information, training that makes them carry out their functions effectively in a nation (Effiong, Ekanem and Ottong (2023). Capacity strengthening also involves the training of staff in relevant skills, competencies and general and technical know-how (Ojo and Adekunle, 2018). Study by Oladejo and Adeyemi, (2016). Found that training extension workers improved their knowledge, skills and attitude towards service delivery, which in turn, resulted in increased farmers' access to extension services and improved agricultural productivity. Human capacity strengthening also helps in the adoption and diffusion of new technologies and innovation, as Behavioural adjustments can be seen as anoutcome of effective awareness efforts and theawareness processes can be driven intrinsically and extrinsically (Ekanem, Okorie, and Ibanga, 2020).

The problem of human capacity strengthening among developing countries is reported in many research publications. A study by Otu-Okereke *et al.,* (2018), states that extension workers need to be trained on new technologies and innovations in agriculture to effectively communicate this knowledge to farmers in rural areas. The agriculture sector depends more on individual agricultural extension contributions to increase agriculture production. Hence, this research is carried out to examine the level of human capacity strengthening in agricultural extension in Akwa Ibom State, Nigeria.

Despite the importance of human capacity strengthening to Agricultural extension, several literatures(Sahya *et al.,* 2021; Aina and Fabiyi, 2019; Out-Okereke *et al.,*2018; Adeoye *et al.,* 2017; and Okorie, 2012) have pointed out challenges faced by agricultural extension services in enhancing productivity, improving food security, and reducing poverty (World Bank Group 2015 and Adekunle et al., 2018). The two main challenges noted are the lack of human capacity and the limited incorporation of research and entrepreneurship in these services. Extension workers often lack the knowledge and skills required to provide effective services to farmers, which can be attributed to inadequate training, limited access to information and technology, and a lack of incentives for further education. Furthermore, while research can provide valuable insights into agricultural practices, human capacity training can help extension workers

improve their skills and knowledge of extension work.

However, these aspects are often overlooked in traditional extension services. These challenges can have significant implications for agricultural development and sustainability without adequate human capacity, farmers may not receive the necessary information, knowledge, and skills to improve their practices, which can lead to reduced productivity and income (Akpaeti, Ekwere and Okorie, 2019). Similarly, the limited incorporation of research and extension services can prevent farmers from accessing valuable insights and opportunities to enhance their practices. There is a need to examine the level of human capacity strengthening for research improvement and Agricultural extension service delivery in Akwa Ibom State, necessitating this research to address the following questions;

a. What are the socio-economic characteristics of extension workers distributed in Akwa Ibom State?

b. What are the levels of human capacity strengthening in Agricultural extension services delivery in Akwa Ibom State?

c. What are the factors influencing human capacity strengthening in Agricultural Extension services delivery in Akwa Ibom State?

T**heoretical Framework**

Human Capital Theory

Human Capital theories believe that an educated population is a productive population (Olaniyan andOkemakinde, 2008). Schultz (1971); Sakamota and Powers (1995) and Psacharopolous and Woodhall (1997) all argued that human capital theory is centred on the assumption that formal education can lead to and is vital to improving the production capacity of a population. Human Capital theorists postulate that there is a direct positive relationship between formal education and productivity. According to Psacharopolous and Woodhall (1997), human resources constitute the Ultimate basis of the wealth of nations. Human beings bring together and manage other factors of production. According to Buta (2015), the human capital theory can be examined from different perspectives, though each raises the issues of definition; the aspects that are relevant to this study include:

- "Education and professional training (education capital) - the set of knowledge, skills, economic, socio-cultural, civic behaviours, obtained through, i.e., the integrated system of skills".
- “Workplace training through specific activities such as research and innovation or participation in various associations/professional networks”.
- Non-formal education at work (on the job) in everyday life and through civic activities".

Literature Review

Adekunleand Ogunniyi, (2018), reviewed human capacity development and agricultural extension services in Nigeria.The review provided an overview of the role of human capacity development in agricultural extension services in Nigeria, highlighting the need for continuous training and development of extension workers to improve their research skills and entrepreneurial abilities. Aina and Fabiyi, (2019) emphasized the importance of human capacity building in agricultural extension services, exploring the relationship between capacity building and sustainable agricultural development in Nigeria, and highlighting the need for training programs that focus on entrepreneurship and research skills to enhance agricultural extension services.

Adeoye *et al.,* (2017) examined the relationship between human capacity building and agricultural extension service delivery in Nigeria, emphasizing the need for capacity-building programs that focus on research improvement and entrepreneurship skills. The

finding suggested that the government and relevant stakeholders should invest in training programs to enhance the competencies of extension workers. Okorie (2012) opined that Extension and Advisory Services (EAS) perform an important role in agricultural development and help reduce hunger and poverty and that development efforts are increasingly complicated because of challenges such as natural resource depletion and climate change, pointing that agricultural development frameworks have moved from a linear to a more complex systems perspective.

Research Methodology

Study Area

The study was conducted in Akwa Ibom State, Nigeria, located in the coastal southern part of the country; it covers a total land area of 7249km^2 and lies between latitude 4^0 32′ and 5^0 33'North; and longitude 7^0 35′ E and 8^0 25's East. The study area is in the rain forest zone and has two distinct seasons viz: the rainy and the dry season. Most of the inhabitants of the study area are farmers dwelling especially in the peri-urban and rural communities growing varieties of crops and raising livestock.

Sampling Procedure/Sample Size

Respondents were selected through a multi-stage random sampling technique. In the first stage, five (5) blocks were selected from the existing Nine (9) blocks that make up Abak Agricultural Zone. Secondly, four (3) cells were randomly selected from each of the selected blocks in the zone making a total of fifteen (15) cells. Finally, six (6) extension agents were randomly selected from each of the fifteen cells giving a total of 90 respondents for the study.

Analytical Techniques

Descriptive and inferential statistical methods were used to analyze the data. Descriptive statistics included means, tables, and frequencies. Multiple regression was used to analyze the factors influencing human capacity strengthening. It is specified thus;

$$Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_p X_p + u$$

Y= independent variable - human capacity strengthening
X1= factors that influence the human capacity
X2= increase in the factor value
Xp= value of s and p 500 index
Bo= y-intercept at zero
Bi= regression coefficient
U = error term

Results and Discussion

Socio-economic Characteristics of Extension Agents

Table 1: Socioeconomic Characteristics of Extension Agents

Socioeconomic Characteristics	Frequency (n=90)	Percentage
Age (Mean = 30 years)		
<30	15	17
40– 50	45	50
>50	30	33
Marital Status		
Single	30	33
Married	30	33
Widow	30	33
Educational Level		
Primary	10	11
Secondary	10	11
Tertiary	70	78
Household size (mean = 4 persons)		
< 5	30	33
5-10	45	50
> 10	15	17
Monthly Income (Mean = ₦118,308.3)		
< 100,000	30	33
100,000 – 200,000	45	50
> 200,000	15	17
How long have you been working		
< 5	20	22
5-10	60	67
> 10	10	11
Have you attended any job training in your job rule		
Yes	50	55
No	40	45

Source: Field survey, 2023

The result shown in Table 1 indicated that the majority of the respondents were 50% below 30 years, and above 40 years of age. The average age of respondents in the study area was 30 years which implies that the respondents were still in their productive age and would engage effectively in extension activities to meet up the services. The mean age is also an indication that the

respondents are still very active in engaging in agricultural production that will contribute to extension services. The result is in line with the findings of Haddabi*et al.* (2019) and Yusuf *et al.* (2015) who claimed that at the active working age, folks adopt innovations that positively affect their productivity and income. The result corroborates with Okorie, (2012) on respondents average age of 30.8 years in Akwa Ibom.

Furthermore, the result indicated that an evenly distributed proportion of the respondents (33%) were married, single, and widowed respectively. Also, the majority (78%) attained tertiary education, 10% attained secondary education and 10% attained primary education. This finding agrees with that of Ademola and Abang, (2015) but is contrary to the findings of Haddabi *et al.* (2019). Ajah and Okorie, (2016) reported that education determines the quality of skills of an individual, his abilities and how well the individual manipulates his environment and equips them with the capacity to perform more roles. The income distribution showed that 33% of the respondents earned below ₦100,000, 50% earned between ₦100,000 - ₦200,000 and 17% earned above ₦200,000. The mean monthly income was ₦118,308.3, implying that the majority of the respondents were earning above the minimum wage rate.

Human Capacity Strengthening for Effective Agricultural Extensions Services

Table 2: Human capacity strengthening for effective agricultural extensions services

Human capacity strengthening activities	Frequency (n=90)	Percentage (%)
Training On specific needs		
Yes	68	75
No	22	25
Periodic meeting		
Yes	77	85
No	13	15
On-the-job training		
Yes	54	60
No	36	40
Management training for administrative staff		
Yes	76	84
No	14	16
Effective collaboration between research institute and extension services		
Yes	84	93
No	6	7
Mentorship program		
Yes	89	99
No	1	1
Virtual workshop on relevant communication skill		
Yes	90	100
No	0	0
Forging partnerships with other organizations		
Yes	90	100
No	0	0
Use of participatory approach in extension		
Yes	81	90
No	9	10
Provision of adequate training materials to increase productivity		
Yes	72	80
No	18	20
Improving extension workers' workspace		
Yes	84	93
No	6	7
Improving the teamwork synergy between extension workers and supervisors		
Yes	86	95
No	4	5
Staff development programme		
Yes	85	94
No	5	6

Source: Field Survey 2023.

From the result of the analysis, 95% of the respondents affirmed that all the human strengthening capacity activities impact the extension services delivery while 5% did not affirm the human strengthening capacity activities. The result shows that with the use of all these human strengthening capacity activities, the extension services will be delivered perfectly. This corresponds with the work performed by Okorie (2012). On-the-job training, staff development, training on specific needs, and mentorship programs among others are the key factors in Human capacity strengthening for effective agricultural extension services in Akwa Ibom State.

Table 3: OLS Regression of Factors Influencing Human Capacity Strengthening

Variable	Coefficients/estimate	SE	*T*-value	Sig. level
(Constant)	–	7.426	4.483	0.945
adequate of funding	0.167	2.10	2.26	0.023
adequate input supply	0.222	1.293	2.594	0.011
adequate communication channels	0.176	0.548	2.003	0.046
skilled mentorship	0.140	0.840	1.939	0.055
adequate training materials	0.286	1.063	3.055	.0000
infrastructure/transportation	0.129	2.078	1.638	0.104
Supervisor visit and evaluation	−0.061	1.992	−0.613	0.541
Work experience recorded	−0.166	1.443	-1.708	0.090
Specialization category	0.124	2.621	1.721	0.087
Incentive support	−0.073	0.789	-1.023	0.309

ANOVA model fit measure = 0.591754; ***, **, *, represent significant at 1%, 5%, and 10% level of significance, respectively. Source: own survey results, 2023 from Abak Extension Zones

Source: SPSS 20

Table 4: Factors influencing human capacity strengthening in Agricultural extension service delivery

FACTORS	YES	NO
Work experience recorded	90	0
Incentive support	90	0
Specialization category	87	3
Adequate training materials	85	5
Skilled mentorship	82	8
Adequate input supply	80	10
Adequate of funding	78	12
Supervisor visit and evaluation	76	14
Adequate communication channels	75	15
Infrastructure/Transportation	69	21

Source: Field Survey, 2023

Table 3 summarizes the results of the multiple regression analysis of the human capacity of extension agents in Akwalbom State. The base category of the model was the moderate dietary diversity status of respondents in Uyo Agricultural Zone, Akwalbom State. The chi-square result was significant ($p<0.01$), implying that the model has a fairly strong explanatory power. Marital status and experience were statistically significant ($p<0.05$, $p<0.01$ respectively) in explaining the human capacity of extension agents, in Akwalbom State.

The result showed that adequate financing has a positive and statistically significant impact on strengthening human capacity in agricultural extension, with a significance level of 0.05. This implies that increased funding is likely to lead to improvements in human performance. A sufficient supply of inputs also shows a positive and statistically significant effect with a significance level of 0.01, which means that a reliable supply of necessary inputs is crucial for strengthening human performance in this context.

Furthermore, the adequacy of communication channels is positively associated with human capacity strengthening and is statistically significant at a 5% significance level. This means that effective communication channels are essential for improving the effectiveness of agricultural extension services. The coefficient of qualified mentors was positive and significant at 5%. This suggests that mentoring is likely important for capacity building. In addition, appropriate training materials have a highly significant positive impact on enhancing human performance, which has a 1% probability of being significant. This shows that providing sufficient training materials is one of the most important factors. Work experience was negatively and statistically significant at a 10% level. This may suggest that increased years of work experience could negatively influence performance. Furthermore, the specialization category has a positive effect and is significant at the 10% level.

The result presented in Table 4 shows a strong consensus among respondents on several key factors that are essential for strengthening human capacity in the delivery of agricultural extension services. The most highly agreed upon factors are work experience and incentive support, both of which received 100% positive ratings. This unanimity suggests that ensuring that professionals in the field gain relevant experience and receive appropriate incentives is critical to effective service delivery. Other factors such as skilled supervision, appropriate training

materials and specialization categories also received high approval ratings, indicating their importance in building a competent workforce. Adequate funding, provision of inputs and communication channels, although slightly lower, still reflect strong support from respondents and highlight their crucial role in capacity building.

Interestingly, infrastructure/transportation received the lowest percentage of "YES" responses (76.7%), though still a majority. This might suggest variability in the perception of its importance, possibly influenced by regional or contextual factors where some areas may have better existing infrastructure than others. The result is that strengthening human capacity in agricultural extension services requires a multifaceted approach with emphasis on financial support, resource availability, mentorship, training, specialization, experience, and incentives.

Conclusion

The analysis shows a strong consensus among respondents on the importance of various factors such as adequate funding, input supply, communication channels, mentoring, training materials, infrastructure, supervisor visits, work experience, specialization and incentive support. Each of these factors has a significant impact on the effectiveness of agricultural extension services.

Work experience and incentive support received unanimous support, indicating their critical role in service delivery. Adequate funding, provision of inputs and effective communication were also strongly supported, emphasizing the need for a robust infrastructure to facilitate the flow of knowledge and resources. While infrastructure and transport received slightly less support, they still represent crucial elements for improving service delivery in rural areas.

This highlights the need for a comprehensive approach to capacity strengthening that includes financial support, resource availability, mentoring, training and incentives. By considering these areas, agricultural extension services can be significantly improved, leading to better agricultural productivity and rural development.

Recommendations

i. Allocate more funding for agricultural extension programs to ensure adequate funding for training, infrastructure and operational needs.

ii. Ensure a reliable supply of agricultural inputs to support extension activities and increase productivity.

iii. Develop and maintain effective communication channels to facilitate information dissemination and feedback between extension agents and farmers.

iv. Implement structured mentoring programs to provide ongoing support and guidance to extension agents, leveraging the expertise of experienced professionals.

v. Provide extension agents with comprehensive training materials and resources to equip them with the necessary knowledge and skills, and conduct regular supervisor visits and assessments to ensure they receive the necessary support and supervision.

References

Adekunle, A. A., and Ogunniyi, L. T. (2018). Human capacity training in Agricultural Extension Services in Nigeria: A Review. *International Journal of Agricultural Extension,* 6(1), 1-16.

Adekunle, A.A., et al. (2018). Research and Extension Linkages for Agricultural Productivity and Rural Development in Africa. *Journal of Agricultural Education and Extension,* 24(1), 1-14.

Adeoye, I. B., and Adegbite, D. A. (2017). Human Capacity Building and Agricultural Extension Service Delivery in Nigeria. *Journal of Agricultural Extension,* 21(1), 1-12.

Aina, O. O., andFabiyi, Y. L. (2019). Capacity Development in Agricultural Extension Services: A Key to Sustainable Agricultural Transformation in Nigeria. *Journal of Agricultural Extension and Rural Development,* 11(2), 47-54.

Ajah, J. and Okorie, N. U. (2016). The Impact of Education on Small-scale Farmers' Use of ICT in Abuja, Nigeria. *Journal of Agricultural Economics, Extension and Rural Development.* 4(7): 476 – 487.

Akpaeti, A. J.,Ekwere, O. J. and Okorie, N. U. (2019). Effects of value-addition on income and poverty status of cassava farmers in Uyo Agricultural Zone, Akwa Ibom State,Nigeria. *AKSU Journal of Agricultural Economics, Extension and Rural Development.* 2(2): 85 – 91.

Effiong U., Udousung I. and Udoh E. (2018). Herdsmen/Farmers Crisis and Rehabilitation of Victims: A Study of Middlebelt-Nigeria. *Uyo Journal of Sustainable Development,* 3(2), 163-169.

Effiong, U., Ekanem, A., and Ottong, I. (2023). *Inclusive Education and Sustainable Learning* Opportunities for Persons with Disabilities in Akwa Ibom State University, Obio *Akpa Campus, Nigeria.* In: Innocent V. O. Modo, Kingdom S.Mboho, Ekaette R.Udoh and Umo U.Effiong (Eds) *Academic Practioners Research for Sustainable Development Goals in Africa.* ICIDR Publishing House: Ikot Ekpene.

Ekanem, J. T., Okorie, N. U. and Ibanga, J. (2020). Biodiversity Conservation Friendliness Status of Rural Farmers in Abak Agricultural Zone of Akwa Ibom State. *International Journal of Environment and Climate Change.* 10(9): 179 – 189.

Odoemelam, L. E. and Okorie, N. U. (2021). Selected factors influencing rural women in the adoption of improved agriculturaltechnologies in Enugu state, Nigeria. *International Journal of Agriculture Extension and Social Development.* 4(1): 01 – 05.

Ojo, A. T., and Adekunle, A. A. (2018). Promoting Entrepreneurship in Agricultural Extension Services: A Case Study of Nigeria. *International Journal of Agricultural Extension and Rural Development Studies,* 5(1), 1-8.

Ojo, T.K. and Iyanuoluwa, O.A. (2017). Human Capacity Building in Agriculture: A Panacea for Achieving Food Security in Nigeria, *Fountain Journal of Agricultural Sciences,* 4(1), 51-55.

Okorie,N. U.(2012). Global financial crisis; consequences on the Nigeria Agricultural Economy. *Journal of Agricultural Economics and Extensions Research Studies (AGGEERS)*, 1(1):13-28.

Okorie, N. U., Ekanem, J. T. and Okoro, G. I. (2020). Gender-Based Analysis of Technical Efficiency of Oil Palm Farmers and the Implication for Sustainable

Development in Akwa Ibom State. *Journal of Agricultural Economics, Extension and Science.* 6(2): 124 – 137.

Oladejo, J. A.,and Adeyemi, T. O. (2016). Capacity Building Needs of Agricultural Extension Workers in Nigeria. *Journal of Agricultural Extension,* 20(2), 1-12.

Otu-Okereke, U., and Ejembi, S. (2018). Human Capacity Building in Agricultural Extension Services in Nigeria. *Journal of Agricultural Extension,* 22(2), 188-197.

Ubom, E. E., Okorie, N. U., and Okon. U. (2023). Risk Mitigation Strategies Utilized by Poultry Farmers in Akwa Ibom State, Nigeria. *AKSU Journal of Agricultural Economics, Extension and Rural Development.* 6(1): 34 – 43.

Udousung, I. J., Nkeme, K. K., Umoh I., and Robson , U., (2015). Awareness of Traditional and orthodox methods of Poultry disease control among Farmers in Akwa Ibom and Cross River States, Nigeria. Nigerian Journal of Agriculture, Food and Environment 11(2):38-45

Umeh, O. J; Ekumankama, O. O; Nwachukwu, I; Ekwe, K.C. (2015). Comparative performance evaluation of the Agricultural Development Programmes (ADPS) OF Abia and Enugu States, Nigeria. *Journal of Agricultural Extension.* Vol 18 (3) 2015: pp 111-112.

World Bank Group. (2017). Strengthening Extension and Advisory Services for Agricultural Development in Africa. Washington, DC: World Bank.