

**LINKAGES BETWEEN NON-
GOVERNMENTAL AGRICULTURAL EX-
TENSION SYSTEMS AND
TECHNOLOGY GENERATION
AND UTILIZATION SUB-SYSTEMS IN
SOUTH-EASTERN NIGERIA**

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ABSTRACT

This study examined areas of linkage existing between non-governmental agricultural extension agencies and technology generation and utilization sub-systems in south-eastern Nigeria. Thirty-one (31) agricultural extension personnel were interviewed and simple percentages and mean scores utilized for data analysis. The study found that inter-organizational linkages existed between the non-governmental agricultural extension agencies and technology generation and utilization sub-systems for exchange of materials, knowledge and information. Stronger organizational relationships existed between the non-profit extension agencies and the sub-systems. The linkages between the non-governmental extension agencies and the sub-systems were constrained by certain factors identified in the study. However, to ensure effective organizational relationships among the institutions and sub-systems, adequate management, increased publicity as well as high prioritization of agency linkage systems were recommended.

Keywords: NGOs, Agricultural Extension, Technology Generation and Utilization, Linkages.

INTRODUCTION

The importance of Non-Governmental Organizations (NGOs) in socio-economic development of nations has been variously recognized. Jaja and Ogolo (1998) submit that apart from NGOs' role in helping to address the development needs of rural communities, they also constitute a useful avenue for mobilizing the people for self-help projects, thereby contributing substantially to the sustainability of development efforts. Many NGOs in Nigeria undertake agricultural extension services to the people as part of their development programmes. For instance, several multi-national oil companies implement free agricultural extension services to their host communities as a compensation for allowing them to explore petroleum. With the recent governments' dwindling financial investment and development assistance in improving the conditions of the citizenry, the involvement of NGOs' in agricultural extension activities in Nigeria is on the increase (Isife and Madukwe, 1999). Anwanane

(1990) observed that NGOs/Private Voluntary Organizations (PVOs) in Nigeria have been effective in providing needed agricultural inputs to farmers. This shows that private agricultural extension agencies are taking active part in the agricultural technology transfer process in the country.

In view of the vital role played by NGOs in agricultural development and transfer efforts, there is the need for inter-organizational linkages between private agricultural extension agencies and agricultural technology – generating sources (research institutes, Universities) and the technology end-users (farmers) for efficient implementation and administration of agricultural extension services and programmes. Woods (1985) conceptualized linkage as an operational relationship established when two or more organizations pursue commonly shared objectives such as between agricultural extension and research in pursuing increased food productivity. According to Williams et al (1990), linkage among two systems means the evolution

of clearly defined institutions to solve problems faced by farmers and to develop a package of recommendations that will enhance agricultural production. Isife (2000) remarks that inter-agency relationships are advantageous for exchange of information, knowledge and resources. In agriculture, linkage refers to as structural relations between and among the actors and for sub-systems involved in the development, transfer and utilization of technologies and materials to improve agricultural production. Ndukwo (1998) emphasized that agricultural extension strategy for agricultural development is focusing on cooperative action which involves inter-dependence between organizations and that the inter-dependence calls for exchange in which each individual gives something of value. Several profit-oriented and non-profit private agencies interact to exchange materials, knowledge and resources necessary for enhancement of their operations. The agricultural extension agencies serve as a link between technology generation and utilization sub-systems. It is through the extension sub-system that technology and knowledge are exchanged in the linkage proc-

ess. Therefore, the benefits accruing from the inter-system linkages will help to sustain and strengthen the agricultural extension sub-system.

Purpose of the Study

This study was designed to examine the areas of linkage or relationship existing between non-profit and -oriented NGOs undertaking agricultural extension functions and the agencies generating agricultural technologies and the end-users of the technologies in South-eastern Nigeria. The study also sought to identify problems associated with linkages between the NGOs and technology generation sources and the end-users

MATERIALS AND METHODS

The study was conducted in Enugu (EN), Ebonyi (EB) and Rivers (RV) State in South-eastern Nigeria. The study examined both non-profit and profit oriented NGOs. Four selected non-profit NGOs engaged in agricultural extension activities in the three states were studied. Two non-profit NGOs in Rivers State which include the Shell Petroleum Development Company of Nigeria Limited (SPDC) and the

Nigerian Agip Oil Company (NAOC) were studied. In Enugu state, the Nsukka United Self-Help Organization (NUSHO) was studied. And in Ebonyi State, the Sudan United Mission (SUM) was used for the study. Four operational areas (Zones) of the various non-profit NGOs were randomly selected for the study. And each of the extension zones was controlled by an Extension Agent (EA). In each operational area, one field extension agent was interviewed. Therefore, four EAs for all the non-profit NGOs were interviewed.

Similarly, in each of the states studied, five profit-oriented NGOs were also selected for the study. The commercial extension agencies included: Livestock/Crops, agricultural equipment/tools, credit support, agricultural chemicals, and agricultural consultancy/integrated agro-business enterprises. Each of the profit-oriented NGOs (business firms) was controlled by one Sales Agent (SA) or sales representative. Therefore, five SAs from each state, making a total of 15 SAs for all the profit-oriented NGOs in the three states were interviewed. On the whole, a total of thirty-

one (31) extension personnel (EAs and SAs) formed the sample size for the study.

A four-point Likert type scale of very great extent (4), great extent (3), little extent (2) and very little extent (1) was utilized to ascertain the degree to which certain factors affected the linkages between the non-governmental extension systems and technology generation and utilization sub-systems. Responses with mean scores of > 2.5 were regarded as serious factors, while those with mean scores of < 2.5 were taken as factors with less effect. Structured questionnaires were used to collect data from the respondents, and simple percentages and mean scores utilized for data analysis.

RESULTS AND DISCUSSIONS

The respondents indicated areas of relationship existing between their extension agencies and agricultural technology generation and utilization sub-systems. Their responses are shown in Tables 1 and 2.

Table 1: Areas of Relationship Between Non-Governmental Agricultural Extension Systems and Technology Generation Sources.

EAs (N=4)	SPDC	NAOC	NUS HO	SUM	TO- TAL	SAs	EN	EB	RV	TO- TAL N=15
Area of Relationship Regular solution to field problems by researchers	100	100	100	75	93.75		40	20	40	33.3
Regular feedback from firms or researchers to agents request	75	75	50	25	56.25		20	20	80	40
Collaboration between agents and researchers at field level	25	50	-	-	18.75		-	-	-	-
Production of technologies for farmers by researchers	50	50	-	-	25.00		20	20	40	26.7
Occasional organisation of training workshop/ seminars by researchers or manufacturers	100	100	100	-	75.00		40	60	60	53.3
Agents meet with subject matter specialists occasionally to exchange ideas and experiences	100	100	-	50	62.50		-	-	-	-
No formal relationships exist between the agencies	-	-					60	40	-	33.3

Figures in the table represent multiple percentage responses

Table 2: Areas of Linkage between Non-Governmental Agricultural Extension Agencies and Technology Utilization Sub-System

EAs (N=4)	Non-Profit NGOs					Profit-Oriented NGOs				
	SPDC	NAOC	NUSHO	SUM	TOTAL	SAs	EN	EB	RV	TOTAL N=15
Area of Linkage										
Credit and financial administration	75	25	100	100	75		20	40	40	33.3
Training workshop and extension fairs	75	75	25	62.50	56.25		-	20	20	13.33
Joint diagnosis of field problems and sharing of ideas	100	100	50	75	81.25		-	-	20	20
Joint negotiation of social and infrastructural services provided in places of operation Business activities	100	50	-	100	62.50		100	80	100	93.33
Negotiation on supply of production inputs	100	75	50	100	81.25		40	40	60	46.67
Technical guide/training on production techniques at field level	100	100	25	75	75.00		40	40	60	46.67
Joint provision of solutions to field problems	75	75	-	50	50.00		40	20	40	33.33

Figures in the table represent multiple percentage responses

Areas of Relationship Between Non-Governmental Agricultural Extension Systems and Technology Generation Sources.

Table I shows that about 94% of the EAs and 33% of the SAs were of the view that their agencies usually sent farmers' field problems to researchers and firms for solution. About 56% of the EAs and 40% of the SAs indicated that they regularly received feedback from the researchers. Only about 19% of the EAs remarked that they had collaboration with researchers at field level. About 25% of the EAs and 27% of the SAs said that research institutes produced technologies for their farmers. Nearly 75% of the EAs and 53% of SAs indicated that there were some occasions when research institutes and manufacturing firms organized training workshops and extension fairs for them. Only 63% of the EAs indicated that they sometimes met with subject matter specialists to exchange ideas and experiences. Nearly 33% of the SAs only stated that no formal relationship existed between their agencies and technology – generating sources.

The foregoing results suggest that non-profit NGOs had better formal relationship with technology generation sub-system than the profit-oriented NGOs. The information also suggests that various non-governmental extension systems sourced their farmers' technologies and materials from almost the same organizations. It seems that non-profit extension agencies were spending more money on linkages with technologies and materials from almost the same organizations. It seems that non-profit extension agencies were spending more money on linkages with technology generation sources than the profit-oriented extension agencies. This situation could affect proper functioning and administration of essential extension services to practicing farmers by private agricultural extension firms. Isife (2000) emphasized that inter-organizational linkages among agencies are necessary for exchange of information, knowledge and resources.

Areas of Linkage Between Non-Governmental Agricultural Extension Agencies and Technology Utilization Sub-System

Table 2 explains that 75% of the EAs and 3% of the SAs were of the view that credit and financial administration were among the areas of linkage their agencies had with the Participating Farmers (PFs) of their extension programmes. About 63% of the EAs and 13% of the SAs indicated training workshop and extension fairs. Almost 81% of the EAs and 47% of the SAs said that joint diagnosis of field problems and sharing of ideas were among their linkage areas. Nearly 63% of the EAs and 20% of the SAs said that their agencies jointly negotiated with host communities the social amenities provided in their areas of extension operation. About 81% of the EAs and 93% of the SAs stated that they had negotiations with their PFs on supply of production inputs to the farmers. Seventy - five percent (75%) of the EAs and about 47% of the SAs stated that they provided technical guide on production techniques to farmers at field level. About 50% of the EAs and 33% of the SAs said that they had joint provision of solutions to field problems with farmers.

The findings show that the non-profit NOGs had better

linkages with their PFs than the profit-oriented NGOs. The major area of linkage between profit-oriented non-governmental extension agencies and their farmers was on supply of production inputs. This could imply that the firms focused more on sale of inputs for economic returns than any other services to the PFs. The profit-oriented extension agencies seemed to concentrate on sale of inputs because their major focus is profit-making.

The extension personnel identified problems limiting effective linkages between their agencies and technology - generating institutes as well as their participating farmers. The identified problems are shown in Tables 3 and 4.

Constraints to Effective Linkages Between Non-Governmental Agricultural Extension Systems and Technology Generation Sub-System.

Table 3 shows that the major problems limiting effective linkages between all the non-profit non-governmental agricultural extension systems and technology generation subsystem were poor training workshop, conferences and

Table 3: Constraints to Effective Linkages between Non-Governmental Agricultural Extension Systems and Technology Generation Sub-System

Constraint	Non-Profit NGOs				Profit-Oriented NGOs				
	SPD C	NAOC	NUS HO	SUM	T O - T A L Mean	EN	EB	RV	T O - T A L N=15
Poor training workshop, conferences and symposia	2.25	2.50	2.60	2.73	2.52	2.60	2.85	3.55	3.00
Poor transport facilities	1.10	2.23	3.40	3.00	2.43	2.90	3.00	2.70	2.87
Poor communication facilities	2.00	2.45	3.70	3.80	2.99	3.23	3.50	2.55	3.09
Poor organizational responsibility and commitment to linkage systems	2.30	2.40	2.50	2.50	2.43	3.75	3.65	3.05	3.48
Poor monitoring and evaluation of linkage Mechanism	2.60	2.50	2.70	2.75	2.64	2.70	2.75	3.02	
Poor budget for linkage activities	1.53	2.60	2.70	3.20	2.51	3.80	3.50	3.00	3.43
Professional incompetence of field staff	1.10	2.35	1.50	2.55	1.88	2.60	2.70	2.45	2.58
Poor knowledge of the need for institutional linkages	1.00	1.75	1.85	2.50	1.78	2.80	2.70	3.55	.02
Disparity in Organizational arrangement and schedule	3.02	3.11	2.60	2.70	2.86	3.04	2.98	2.70	2.91
Dearth of institutionalized policies for organizational linkages	1.00	1.20	1.45	1.30	1.24	3.55	3.80	3.63	3.66
Agency views institutional linkages as unnecessary	1.00	1.10	2.40	2.30	1.70	2.40	2.58	2.85	2.61
Disparity in technologies developed and the needs of the extension systems	2.50	2.32	2.60	2.80	2.56	2.44	2.68	2.03	2.38
Lack of liaison Unit for inter - organizational linkages	1.50	1.60	1.80	2.34	1.81	3.08	3.58	3.75	3.47
Poor publicity of agency's activities	2.50	2.70	3.53	2.95	2.92	3.05	3.44	2.80	3.10

Maximum Mean Score was 4.00

symposia (2.52), poor communication facilities (2.99), Poor monitoring and evaluation of linkage mechanism (2.64), poor budget for linkage activities (2.51), disparity in organization arrangement and schedule (2.86), disparity in technologies developed and the needs of the extension agencies (2.56), and poor publicity of the extension agencies' activities (2.92). On the other hand, the major constraints to effective linkage between all the profit-oriented NGOs and technologies generation sub-system include all the factors listed except the disparity in technologies developed and the needs of the profit-oriented NGOs (2.38).

The analysis suggests that profit-oriented NGOs were faced with more problems than non-pro

Table 3 shows that the major problems limiting effective linkages between all the non-profit non-governmental agricultural extension systems and technology generation sub-system were poor training workshop, conferences and symposia (2.52), poor communication facilities (2.99), Poor monitoring and evaluation of linkage mechanism (2.64),

poor budget for linkage activities (2.51), disparity in organizational arrangement and schedule (2.86), disparity in technologies developed and the needs of the extension agencies (2.56), and poor publicity of the extension agencies' activities (2.92). On the other hand, the major constraints to effective linkage between all the profit-oriented NGOs and technology generation sub-system include all the factors listed except the disparity in technologies developed and the needs of the profit-oriented NGOs (2.38).

The analysis suggests that profit-oriented NGOs were faced with more problems than non-profit extension agencies in linking with technology generation sources. Although the non-profit NGOs had more inter-organizational linkages with technology generation sources, it seems that the agencies were administratively inefficient. However, a greater percentage of profit-oriented NGOs viewed organizational linkages as non-imperative. This confirms earlier finding that more private commercial extension systems lacked inter-agency linkages with technology-generating sources (Isife, 2000) the poor linkage

Table 4: Constraints to Effective Linkages between Non-Governmental Agricultural Extension Systems and Technology Utilization Sub-System

Constraint	Non-Profit NGOs		Profit-Oriented NGOs						
	SPD C	NAOC	NUS HO	SUM	T O - T A L Mean	EN	EB	RV	T O - T A L N=15
Poor training workshop, conferences and symposia	2.50	2.60	2.40	2.70	2.95	2.88	3.02	2.90	2.93
Poor transport facilities	2.25	2.70	3.00	3.05	2.75	3.56	3.66	3.09	3.10
Poor communication facilities	2.40	2.30	3.85	2.20	2.44	1.05	2.40	1.11	1.52
Poor organizational responsibility and commitment to linkage systems	2.10	2.58	3.33	3.67	2.92	2.63	3.00	2.57	2.73
Poor monitoring and evaluation of linkage Mechanism	2.48	2.70	3.35	2.80	2.83	2.89	3.21	2.75	2.93
Poor budget for linkage activities	1.50	2.08	2.85	2.53	2.24	3.50	2.48	3.14	3.04
Professional incompetence of field staff	2.88	2.79	3.04	2.80	2.88	2.98	3.23	2.88	2.97
Poor knowledge of the need for institutional linkages	3.05	2.88	3.70	3.85	3.37	3.21	3.90	2.99	3.03
Disparity in Organizational arrangement and schedule	2.30	2.50	2.20	1.50	2.13	1.21	2.04	2.56	1.94
Dearth of institutionalized policies for organizational linkages	2.30	2.20	2.30	1.40	2.05	1.00	1.10	1.56	1.22
Agency views institutional linkages as unnecessary	1.40	1.80	2.50	2.35	2.01	2.30	2.50	2.68	2.49
Disparity in technologies developed and the needs of the extension systems	1.21	1.60	1.80	1.38	1.50	1.50	2.01	2.35	1.95
Lack of liaison Unit for inter - organizational linkages	1.51	2.50	2.80	2.60	2.38	2.99	3.70	3.45	3.38
Poor publicity of agency's activities	1.50	2.70	3.05	2.85	2.53	3.10	2.60	2.88	2.86

Maximum Mean Score was 4.00

situation could have, in no small measure, affected the general performance of the extension systems (agencies). Inter-agency linkages are the major avenue for exchange of technologies, materials and knowledge needed for proper work or any extension organization.

Constraints to Effective Linkage Between Non-Governmental Agricultural Extension Systems and Technology Utilizations Sub-System

Table 4 shows the problems affecting linkages between non-governmental agricultural extension agencies and technology utilization sub-systems (farmers). The major constraints to effective linkages between all the non-profit NGOs and their PFs were: poor training workshop and conferences of the extension agencies (2.95), lack of, or inadequate extension fairs (2.75), poor participation of farmers in extension programmes (2.92), inadequate funding of extension programmes by the agencies (2.83), poor field work incentives (2.88), poor literacy level of the PFs (3.37), and poor publicity of extension activi-

ties of the agencies (2.53), similarly, the major factors constraining effective linkages between all the profit-oriented NGOs and their PFs include poor training workshop and conferences (2.93), lack of, or inadequate agricultural shows (3.10), poor participation of the farmers in extension programmes of the agencies (2.73), inadequate funding of extension programmes by the agencies (2.93), poor priority to extension programmes by management (3.04), poor field work incentives (2.97), poor literacy level of the PFs (3.03), lack of, or dysfunctional extension communication facilities (3.38), and poor publicity of extension activities of the agencies (2.88), and poor publicity of extension activities of the agencies (2.86).

The preceding results show that poor management was one of the factors affecting effective linkages between the non-governmental extension agencies and farmers.

CONCLUSION AND RECOMMENDATION

The study established that linkages existed between non-governmental agricultural extension agencies and technol-

ogy generation sources and the end-users of the technologies. However, relationships were stronger between non-profit extension agencies and the sub-systems than between profit-oriented extension agencies and the sub-systems. The poor linkages existing between the later may be connected with high financial implication associated with institutional linkages, which most of the profit – making extension agencies were perhaps not in a position to afford. Such linkages among the institutions involved in the development and transfer of agricultural technologies is necessary for exchange of materials, knowl-

edge and information to enhance farmers' productivity. The institutional linkage systems were constrained probably because of inefficient management and poor consideration of factors necessary for proper relationship among the sub-systems. Factors like proper funding, regular publication of extension activities, effective management of the linkage systems, high prioritization of inter-agency linkages, and other constraints identified in the study should be addressed to enhance organizational relationship among the extension agencies and the sub-systems.

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