A Comparative Assessment of Sustainable Livestock Extension Service Delivery in Benue and Nasarawa States, Nigeria

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ABSTRACT--- ***A survey was conducted in 2005 to assess Sustainable Livestock Extension Service Delivery in Benue and Nasarawa States. The population of this study consisted of all livestock extension policy stakeholders, and due to the enormity of this population , a sample size of 220 respondents was selected using purposive, snowball and simple random sampling techniques. Data for this study were collected mainly from primary sources through the use of a well structured questionnaire. The collected data were analysed using descriptive statistics such as frequency distribution tables, and percentages , as well as inferential statistics such as Kruskal Wallis(H) test, Mann-Whitney(U)test and Ranked correlation coefficient(rho).It was found that there is a significant difference between Benue and Nasarawa States(U1=22.5.>0) in terms of the commonest species of Livestock kept and that there is a significant difference between Benue and Nasarawa States (H.cal.10.3>X^2-Tab.7.81) in terms of sustainable livestock extension service delivery. Besides, it was found that funding of livestock extension service delivery has been unsustainable in Benue(R2=12.0) and Nasarawa(R4=12.5) States, and that majority of livestock farmers in Benue(72.7%) and Nasarawa(63.6%) States had been obtaining their sources of agricultural information from extension agents. Finally, there was a strong relationship(rho=0.9) between Benue and Nasarawa States in terms of implementation of key operational extension policy measures. It was recommended that cost sharing should be adopted by the three tiers of government ,commercial banks , oil and gas companies and the private sector in funding of our Unified Agricultural Extension System(UAES), development of the 141 grazing reserves earlier mapped out in the Northern parts of Nigeria and implementation of Sedentarisation livestock policy, and putting in place a sustainable policy framework akin to that of Tertiary Education Trust Fund(TETF) and the Smith Lever Act of May 8,1914 that established the Co-operative Extension Service(CES) in the USA, to ensure adequate funding of livestock extension service delivery in Nigeria in general and Benue and Nasarawa States in particular with a view to ensure sustainable livestock extension service delivery and transformation of agriculture in this country.***

Keywords---- Comparative, assessment, sustainable, livestock, extension service, delivery.

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1. INTRODUCTION

Livestock production provides employment opportunities to many people and it is a source of protein intake in the diet of many average Nigerians(Age et al., 2008). Livestock products such as meat , eggs and milk are a source of animal protein and income to farmers. According to Imoh (2000), about 28 per cent(68g) of estimated minimum protein requirement for an average Nigerian adult per day should be obtained from animal sources. Surprisingly, however, only 7.5g is derived from animal sources(Ositelu, 1981). This development is worrisome and as such all concerted efforts are needed to mitigate this ugly trend with a view to enhancing livestock production in Benue and Nasarawa States. According to Age et al.(2008), Nigeria`s inability to feed her ever increasing teeming population with adequate calories and proteins remains one of her greatest challenges today, in spite of the fact that she possesses superfluous human and material resources in livestock development. This ugly situation calls for sustainable livestock extension service delivery in Nigeria in general and Benue and Nasarawa States in particular.

The livestock industry according to Bukar et al.(1996), is second to crop sub-sector of agriculture in terms of its contributions to the development of agricultural sector. According to these scholars, livestock is a source of high quality animal proteins, primarily in the forms of meat, milk and eggs. In addition, animal skins

can be cooked and consumed or processed into leather by leather industries for the manufacture of shoes, bags, footballs and belts. More so, cattle , horses ,camels and donkeys are used for traction and transportation. Besides, many people keep livestock as a symbol or sign of prestige or wealth in most of our Nigerian communities . Livestock can be given out to visitors as gifts, especially during important ceremonial occasions. In Benue State, Tiv people use pig as part of the bride price. Livestock dung can also be used as a source of farm yard manure, while by-products such as blood and bones can be prepared into blood meal and bone meal, respectively and used in compounding livestock feeds.

In spite of the versatility of livestock sub- sector, its per capita productivity seems to be degenerating in recent times. Perhaps , it could be due to high population explosion , or poor policy environment that is unfavorable to the livestock sub –sector , or it could be that the livestock extension service delivery is faulty. According to Williams and Williams(1984),if the country wants to substantially increase the protein level in her people-s diet , then a more dynamic and aggressive livestock extension policy that has a vital role to play in livestock production should be put in place ,considering the fact that it is the responsibility of extension service to disseminate improved technologies in livestock husbandry and management to livestock farmers apart from forming a link between research stations and farmers.

1.1. Purpose and objectives of the study

The broad objective of this study is to assess sustainable livestock extension service delivery in Benue and Nasarawa States. The specific objectives of the study are to: 1.identify the commonest species of livestock kept in the study areas.,2.determine the sources of agricultural information to livestock farmers in the study areas., 3.compare the level of sustainable livestock extension service delivery in the study areas.,4.determine the level of satisfaction with extension service delivery in the study areas., and 5. determine the relationship between Benue and Nasarawa States in terms of implementation of key operational extension policy measures.

1.2. Statement of hypotheses of the study

Based on the specific objectives of the study, the following null hypotheses were empirically stated and tested:

i. There is no significant difference between Benue and Nasarawa States in terms of sustainable livestock extension service delivery; and
ii. There is no significant relationship between Benue and Nasarawa States in terms of implementation of key operational extension policy measures.

2. METHODOLOGY

This study covers Benue and Nasarawa States in the North Central Zone of Nigeria. Benue State was created in 1976 out of the former Benue- Plateau State, Nigeria. The State lies between longitude 7^{o} and 10`East and latitude $6^{o}$ 25` North and 8^{o} 8'North of the equator .Nasarawa State on the other hand was created in 1996 out of the erstwhile Plateau State. The State lies between longitude 7^{o} 10 and 9^{o} 20`East of the Guinea Savanna and latitude $8^{o}$ 10` North of Guinea Savanna(Bello, 2004). The State like Benue State is an agrarian State, with about 70 per cent of the populace involved in agriculture.

The population of this study consisted of all the livestock extension policy stakeholders in the study areas. However, a sample size of 220 respondents was selected using purposive , snowball and simple random sampling techniques. The following stakeholders were selected: Livestock/Agric .Commissioners , Federal , State and Local Government Directors of Livestock, Senior staff of Federal, State and Local Government Ministry of Agriculture, Local Government Council Chairmen, Extension staff and livestock farmers. Data for this study were garnered mainly from primary sources using a well structured questionnaire .The collected data were analysed using descriptive statistics such as frequency distribution tables, mean, and percentages as well as inferential statistics such as Kruskal Wallis (H), Mann Whitney(U)test and ranked correlation coefficient(rho).

3. RESULTS AND DISCUSSION

3.1 The commonest species of livestock kept

Table 1(b) shows that there is a significant difference between Benue and Nasarawa States(U1=22.5>0) in terms of the commonest species of livestock kept by farmers. It shows that in Benue State the commonest species of livestock kept are Poultry(R1=13.5) ,goats(R1=11.5),swine(R1=10.0)and dogs(R1=7.0) , while in Nasarawa State the commonest species of livestock kept are Cattle(R2=13.5), sheep(R2=11.5), poultry(R2=9.0) and goats(R2=8.0). The

disparity here stems from the fact that cattle and sheep are generally best reared by the nomadic Fulanis in Nasarawa State and other Northen parts of Nigeria, since that is their major occupation .On the other hand, small ruminants such as goats and non-ruminants such as poultry, swine and dogs are better reared by the sedentary arable farmers in Benue State ,most of whom are good at mixed farming and therefore integrate arable farming with rearing of small ruminants and non-ruminants that do not involve nomadism. Besides, Nasarawa State because it is dominated by moslems, swine production and consumption are regarded as taboos ,hence fewer number of swine kept by non-moslem farmers.

Table 1(b): MANN-WHITNEY ANALYSIS OF THE COMMONEST SPECIES OF LIVESTOCK KEPT BY FARMERS IN BENUE AND NASARAWA STATES(N=220)

STATES:		Benue		Nasarawa	
S/NO.	Species of livestock	Frequency	R1	Frequency	R2
1	Cattle	2	1.0	110	13.5
2	Swine	90	10.0	15	3.0
3	Sheep	30	5.0	100	11.5
4	Goats	100	11.5	70	8.0
5	Poultry	110	13.5	85	9.0
6	Rabbits	10	2.0	20	4.0
7	Dogs	40	7.0	30	5.5
	U1=22.5 >0	N1=7	R1=50.5	N2=7	R2=54.5

Source: Field survey(2005)

3.2 Sources of Agricultural information

Table 2 reveals that in the control of pests and diseases of livestock and marketing of livestock products, majority of livestock farmers in Benue(72.7%) and Nasarawa (63.6%) States had been obtaining their sources of Agricultural information from Agricultural extension agents.

This finding was confirmed by Adebayo(1997), who stated that Agricultural extension agents in many developing countries have uncritically adopted extension approaches used in the United States of America(USA): the trickle-down, betting on the strong, progressive farmers or contact farmers' approach". This scholar believed that agricultural information would diffuse from Agricultural extension agents and selected farmers to others within the same social system. Further studies conducted , however, have shown that people in traditional societies have little regards for progressives and therefore tend to follow local or opinion leaders or power actors or legitimisers, who are more conservative but more homophilous in their communication of agricultural information(Adebayo,1997).

Table 2: DISTRIBUTION OF RESPONDENTS ACCORDING TO SOURCES OF AGRICULTURAL INFORMATION ANDBODIES CONTACTED IN SELECTING BREEDING STOCK (N=220)

STATES:	Benue		Nasarawa	
Sources of information	Frequency	Percentage	Frequency	Percentage
2.Television	1	0.9	0	0.0
3.Phone call(GSM)	0	0.0	0	0.0
4.Print media	1	0.9	5	4.5
5.Agricultural extension agents	80	72.7	70	63.6
6.Family/Friends	10	9.1	15	13.6
7.Posters	0	0.0	0	0.0
8.Cooperatives	10	9.1	15	13.6
9.Churches/mosques	6	5.5	5	4.5
Sub-total (a)=	110	100.0	110	100.0
Bodies contacted				
10.Veterinary personnel	10	9.1	25	22.7
11.Cooperatives	25	22.7	10	9.1
12.Marketing agents	0	0.0	5	4.5
13.Extension agents	75	68.2	70	63.6
Sub-total (b) =	110	100.0	110	100.0

Source: Field survey(2005)

It was also found that in the selection and procurement of improved breeding stock and general livestock management ,majority of livestock farmers in Benue(68.2%) and Nasarawa(63.6%) States had been contacting Agricultural extension agents. Besides, it was found that while22.7% of Benue livestock farmers had been contacting

Cooperatives, 22.7% of their counterparts in Nasarawa State had been contacting Veterinary personnel (Table 2).This implies that most of the traditional farmers would communicate more effectively in the diffusion- adoption process with those on the par of socio-economic propinquity. It was therefore, not surprising when majority of livestock farmers in both States were found to had contacted Agricultural extension agents in the selection, procurement of improved breeding stock and general livestock management practices.

3.3 Level of sustainability of livestock extension service delivery

Table 3 shows Kruskal Wallis analysis of the level of sustainable livestock extension service delivery in Benue and Nasarawa States. It reveals that there is a significant difference in the level of sustainable livestock extension service delivery between Benue and Nasarawa States(H.cal.10.3>X 2-Tab.7.8 at 0.05 level).It also shows that in both Benue (R2=12.0) and Nasarawa (R4=12.5) States, funding has been found to be unsustainable for quite some time. Swanson (1996) stated that the most difficult and challenging policy issue facing livestock extension service delivery today is how to serve a sustainable or stable source of funding research and extension. According to Tito (1996),in order to cut down government budgets, many policy makers have the impression that public extension is both expensive and a drain on the governments' limited resources .At the same time further research studies conducted in both developed and developing countries indicated that the returns to extension expenditures are high. It should be noted that since the withdrawal of the World Bank from funding of agricultural extension activities in Nigeria some years ago, many States of the federation including Benue and Nasarawa States have been finding it extremely difficult to adequately fund research and extension.

It was however, found that Staff returns(R1=18.0 and R3=18,0),Staff training(R1=12.5 andR3=18.0),Public service information(R1=12.5 andR3=18.0) had been sustainable in both Benue and Nasarawa States .Swanson (1996) stated that frequent changes within extension system such as being transferred from one government agency to another(staff returns), directly impact negatively on organizational effectiveness. According to Tito(1996), such instability is costly in the sense that staff that are trained are poorly utilized and opportunities for improved productivity are foregone. In Nigeria in general and Benue and Nasarawa States in particular, agricultural information dissemination is still free, although a lot of people are of the opinion that privatization and commercialization of agricultural information in order to save public funds on extension activities should be adopted. With the current level of poverty in Nigeria, particularly among peasant farmers , privatization and commercialization of agricultural information may not succeed ,and if it does, it may worsen effectiveness of diffusion and adoption of agricultural innovations.

Table 3 also shows that end users in both Benue(R1=18.0)and Nasarawa(R3=15.0) States are always being sensitized and organized to take on their activities themselves. According to Swanson (1990) as cited by Age et al. (2006), Extension policy in some countries has been successful in preventing disruptive and destabilizing changes. That is the more reason why for more than 80 years, the United States of America(USA) has followed with flexibility ,the 1914 Cooperative Extension Service(CES) put in place by the Smith Lever Act of May 8, 1914., and for almost 50years, Japan has followed its Extension policy of a joint undertaking of the National Government and prefectural government for the past 40years. In these countries, Agricultural Extension is recognized as having contributed significantly to increased agricultural productivity and national development. In Nigeria where there are frequent changes in government policies as a result of frequent changes in governments for one reason or the other, sustainability of agricultural extension system is adversely affected. This could be discernable from the transitory evolution of agricultural extension systems over the years starting from the Lugardian Extension System through Ministry of Agriculture Extension System, University-based Extension System., Agricultural Development Projects (ADPs) Extension system to the present Unified Agricultural Extension System. All these changes had evolved over the years and are a pointer to unsustainability of agricultural extension service delivery in Nigeria in general and Benue and Nasarawa States in particular.

Table 3: KRUSKAL WALLIS ANALYSIS OF THE LEVEL OF SUSTAINABLE LIVESTOCK EXTENSION SERVICE DELIVERY IN BENUE AND NASARAWA STATES(N=220)

STATES:	Benue (N=110)				Nasarawa(N=110)			
Level of sustainability	Sustainable		Unsustainable		Sustainable		Unsustain.	
Variables	Freq.	R1	Freq.	R2	Freq.	R3	Freq.	R4
1.Funding	10	8.5	100	12.0	10	8.5	100	12.5
2.Staff returns	105	18.0	5	3.0	105	18.0	5	3.0
3.Staff training	100	12.5	10	8.5	105	18.0	5	3.0
4.Freeinformation	100	12.5	10	8.5	105	18.0	5	3.0
5.Organization of end-users	105	18.0	5	3.0	102	15.0	7	6.0
H.cal.10.3> χ^2-Tab.7.81		Σ R1=69.5		Σ R2=35		Σ R3=77.5		Σ R4=27.5

Source: Field survey(2005)

3.4 .Level of satisfaction with livestock extension service delivery

Table 4 shows Kruskal Wallis analysis of the level of satisfaction with livestock extension service delivery among livestock farmers in Benue and Nasarawa States. It shows that H.cal.(8.0)>X^2-Tab.(7.81) at 0.05 level of significance. This implies that there is a significant difference in the level of satisfaction with livestock extension service delivery among livestock farmers in Benue and Nasarawa States, with the exception of messages ,which were delivered satisfactorily to all livestock farmers in the study areas. It was however, found that training on livestock production was unsatisfactory in Benue State(R2=37.5) in terms of availability of training facilities but quite satisfactory(R3=37.5)in Nasarawa State. Table 4 also reveals that training on record keeping in both States was unavailable (R2=44.0 and R4 = 32.0), inaccessible (R2 =49.0 and R4=27.5) and unauthentic (R2 = 49.0 and R4 = 27.5).

Table 4: KRUSKAL WALLIS ANALYSIS OF THE LEVEL OF SATISFACTION WITH LIVESTOCK EXTENSION SERVICE DELIVERY IN BENUE AND NASARAWA STATES (N=220)

STATES:	Benue (N=110)				Nasarawa(N=110)			
Level of satisfaction	Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory	
Messages	Frequency	R1	Frequency	R2	Fequency	R3	Frequency	R4
1.Contact with changeagents	100	44.	10	9	90	37.5	20	15.5
2.Accessibility	98	41.0	12	12.0	79	29.0	31	24.0
3.Utility(easiness to use)	105	49.0	5	4.0	90	37.5	20	15.5
4.Relevance	100	44.0	10	9.0	90	37.5	20	15.5
Training on livestock production								
5.Availability	20	15.5	90	37.5	90	37.5	20	15.5
6.Appropriateness	80	32.0	30	21.0	80	32.0	30	21
7.Accessibility	30	21.0	80	32.0	30	21.0	80	32.0
8.Authenticity(accurate and uptodateness)	100	43.5	10	9.0	105	49.0	5	4.0
9.Utility	107	52.0	3	1.0	90	37.5	20	15.5
Training on record keeping								
10.Availability	10	9.0	100	44.0	30	21.0	80	32.0
11.Accessibility	5	4.0	105	49.0	40	25.5	70	27.5
12.Authenticity	5	4.0	105	49.0	40	25.5	70	27.5
13.Utility	100	44.0	10	9.0	105	49.0	5	4.0
H-cal.8.0> χ^2-Tab.7.81	ΣR_1	403	ΣR_2=	285.5	ΣR_3	439.5	ΣR_4	249.5

Source: Field survey(2005)

According to Adegeye and Dittoh(1982),farm records are an important tool in farm management because they inform the livestock farmer where his money goes and where it comes from. Besides, farm records inform the livestock farmer about the profitability or otherwise of his different enterprises. There is therefore, a gross need for

agricultural data at both the micro and macro levels, since it is the micro data that form the basis for the macro data , just as the macro data usually influence decisions at the micro level. According to Age et al. (2006),the fact that most of the livestock farmers in Benue and Nasarawa States have low level of education and lack technical-know-how ,calls for concerted efforts by the Agricultural extension agents or Subject matter specialists(SMS) to educate them on record keeping .This will no doubt enhance their capacity building.

3.5. Key operational extension policy measures adopted

Table 5 shows that there is a strong relationship(rho=0.9) between Benue and Nasarawa States in terms of key operational extension policy measures adopted in implementing the Unified Agricultural Extension System(UAES).It was found that both States were commonly implementing the following extension policy measures: Decentralized extension service (R1=2.0,R2=2.0),Cost-sharing (R1=2.0,R2=2.0), Continuous training and visit (T&V) (R1=2.0,R2=2.0), Working with all classes of farmers(R1=4.5,R2=2.0), Multiple extension teaching methods (R1=4.5, R2=5.0), Research – Extension – Farmer linkages (R1=6.0,R2=6.0) and Demand-driven extension(RI=7.0,R2=7.0). The implication here is that since both States are contiguous and are located within the same geopolitical region- North Central Nigeria, it is not surprising that they are sharing many things in common including implementation of key operational extension policy instruments.

Table 5: DISTRIBUTION OF RESPONDENTS BASED ON KEY OPERATIONAL EXTENSION POLICY MEASURES ADOPTED IN BENUE AND NASARAWA STATES(N=220)

STATES:	Benue (N=110)		Nasarawa(N=110)			
Policy measures	Frequency	R1	Frequency	R2	d	d^2
1.Working with all classes of farmers	100	4.5	110	2.0	2.5	*6.25*
2.Decentralization of extension services	110	2.0	110	2.0	0.0	0.0
3.Demand-driven extension	60	7.0	50	7.0	0.0	0.0
4.Research-Extension-Farmer linkages	80	6.0	60	6.0	0.0	0.0
5.Multiple extension	100	4.5	90	5.0	-0.5	0.25
6.Coordinated & integrated extension	3	12.0	2	13.0	-1	1.0
7.Institutional arrangements	4	11.0	5	10.0	1	1.0
8.Piloting innovative extension approaches	8	10.0	4	11.0	_1	1.0
9.Continuous monitoring &evaluation	40	8.0	35	8.0	0.0	0.0
10Strategic planning	20	9.0	10	9.0	0.0	0.0
11.Cost sharing	110	2.0	100	4.0	2.0	4.0
12.Continuous training &Visit(T&V)	110	2.0	110	2.0	0.0	0.0
13.Privatization &Commercialization of extension services.	1	14.0	1	14.0	0.0	0.0
14.Outsourcing of extension services	2	13.0	3	12.0	1.0	1.0
rho=.0.9					$\Sigma d^2 = 14.5$	
t-cal.56.85>t-Tab.1.782						

-Source: Field survey(2005)

Table 5 also reveals that sophisticated extension policy measures such as Privatization and Commercialization of extension services (R1 = 14.0, R2 = 14.0), Outsourcing (R1 = 13.0, R2 = 12.0), Institutional arrangements (R1=11.0,R2=10.0), Piloting innovative extension approaches (R1=10.0,R2=11.0) were sparingly implemented or non-existence in Benue and Nasarawa States .This implies that Nigeria being one of the less developed

countries of the world wallowing in abject poverty is not ripped for these sophisticated extension policy measures, hence Benue and Nasarawa States cannot be an exception.

4. CONCLUSION AND RECOMMENDATIONS

4.1 Conclusion

Albeit livestock production provides employment opportunities to many people and is a veritable source of animal protein intake in the diet of an average Nigerian., a source of income to many farmers and a source of organic manures as well as labor, it appears sustainable livestock extension service delivery is lagging behind in Benue and Nasarawa States. Sustainable livestock extension service delivery is indispensable and a sine qua non for effective dissemination or communication of agricultural innovations to livestock farmers. In this study, it was found that funding of livestock extension service delivery was unsustainable in Benue and Nasarawa States., there is a significant difference in the species of animal kept., there is also a significant difference between Benue and Nasarawa States in terms of the level of satisfaction with sustainable livestock extension service delivery ., and finally it was found that there is a strong relationship between Benue and Nasarawa States in terms of the key operational extension policy measures adopted in implementing the Unified Agricultural Extension System.

4.2 Recommendations

Based on the findings of this study, the following recommendations are germane to this work:

i. Training of livestock farmers on record keeping: This should be included in the extension activities of Agricultural extension agents in order to enhance capacity building of livestock farmers. In this regard, livestock farmers are supposed to be trained on how to keep daily records of all activities that take place on their farms such as vaccination and treatment of diseased animals, payments and receipts including Bank account records.
ii. Cost sharing of extension services: Funding of extension services should not be left in the hands of the government alone ,considering the huge budgetary allocations involved. In this regard, the cost of funding research and extension services should be shared among the three tiers of government, commercial banks, oil and gas companies, industries and other well to do individuals of this country.
iii. Putting in place a sustainable policy framework: Efforts should be made by the National and State Houses of Assembly to put in place a stable policy framework akin to that of the Smith Lever Act of May 8,1914 that established the Co-operative Extension Service (CES) in the United States of America that is still in existence today .When this is done, it will help in no small measures in circumscribing the frequent changes in Nigerian agricultural extension systems, which had been in transition since the advent of the Lugardian Extension System up to the present UAES. and
iv. Development of the 141 grazing reserves earlier mapped out in the Northern parts of Nigeria and implementation of sedentarization livestock policy to enable Benue farmers adopt cattle and sheep production. By so doing, even arable farmers in Benue State can rear cattle and sheep without pastoralism or nomadism ,which is charactearized by destruction of growing crop plants, causing of hard pans and incessant communal conflicts between the nomads and arable farmers in the study areas.

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