

# Contribution of Shell Petroleum Development Company (SPDC) Agricultural Extension Programme to Farmers in Oil Producing Areas of Delta State, Nigeria

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## ABSTRACT

*The strained relationship between Shell Petroleum Development Company (SPDC) and host communities led SPDC to embark on agricultural extension services programme. Based on this, the study examined the contribution of this programme to farmers in the oil producing areas of Delta State. Simple random sampling technique was used to select four agricultural zones out of eleven zones based on SPDC structure. Proportionate sampling technique was used to select 122 respondents. Data collection was done through interview schedule which were subjected to descriptive and inferential statistics. Findings show that 53.3% of the respondents were within age range of 45 and 54 years, majority (76.7%) were male, 74.2% were married while 65.0% had one form of education or the other. All the farmers were aware of SPDC agricultural extension programme and 57.5% of the farmers participated in training and dissemination of information. Majority (85.8%) benefited from cassava stems, 85.8% pineapple suckers and 85.0% plantain suckers. Low benefit was recorded on tractor services (15.0%) and fishing net (21.7%). Farmers' attitude towards SPDC agricultural programme was generally favourable. There is a significant relationship between sex ( $\chi^2$ ; 27.928,  $p \leq 0.000$ ), education ( $\chi^2$ ; 24.150;  $p \leq 0.000$ ) and contribution of SPDC agricultural programme. There was also a significant relationship between awareness ( $r = 0.268$ ;  $p \leq 0.003$ ), participation ( $r = 0.252$ ;  $p \leq 0.005$ ) and the contribution of SPDC agricultural programme. Extension contact should be increased and farmers should be encouraged to form into groups in order to enhance their access to other inputs such as tractor.*

**Keywords:** SPDC, Farmers, Agricultural input activities, Awareness, Participation

## INTRODUCTION

The Shell Petroleum Development Company (SPDC) is the largest oil and gas exploration and production company in Nigeria. The SPDC main policy is to minimize the impact of operations on the environment and is sensitive to the needs and concern of host communities (SPDC, 1996). SPDC being the oldest company in the region with long years of experience in community development programmes revised its policy in 1998 to reflect the overall statement on health, safety, environment and communities (SPDC, 1999). Contrary to this main policy thrust, the SPDC business focus of exploratory activities and exploitation of hydrocarbon have brought the spillage of crude oil to host communities. The villagers are exposed to continuous gas flaring which results in air pollution with poisonous gas such as carbon monoxide, carbon dioxide and ozone depleting gases. Also Halons (oil waste)

destroy both land and crops, thereby exposing the soil to constant erosion and loss of soil fertility. The oil spillage that gets into the streams and rivers kills aquatic creatures and hinders fish farming. According to Akpabibibo (2001) as a result of oil exploration activities, the agricultural land of the region has been devastated with no use for agricultural activities. These communities also, lack necessary infrastructural facilities and basic amenities such as pipe-borne water, good roads, electricity, schools, modern market etc. The neglect of these development programmes for the areas resulted in bitterness by the inhabitants Akpan (2005).

The resultant effect of this, spurred SPDC to shift attention from company's policy of community assistance to community development. Emphases have also been shifted from ad-hoc clustered projects in the communities to improved income generating and sustainable

projects. The promotion of enduring agricultural programmes have become one vital process of achieving these goals as 80% of the community inhabitants are involved in agricultural activities such as arable cropping, tree cropping such as rubber, oil palm etc, fishing and rearing of livestock. Therefore, emphasis was placed on agricultural extension services as a means of developing host communities through deliberate and articulated network of supplies of farming inputs and technical services. Nwuola (1999) stated that the essence of SPDC's Agricultural Extension Programme in the host communities was to build capacity through a more effective, enduring and sustainable agricultural technology transfer and an agricultural extension module that is expected to improve quality of life in these communities. The objectives of SPDC agricultural extension services include; improving farming techniques, developing and distributing disease resistance and high yielding varieties of crop (input distribution), encouraging crop diversification through the introduction of new ecologically and economically viable crops, training and dissemination of information on post harvest utilisation, stimulating the development of small agro-industries in the host communities etc. In achieving these objectives, certain strategies were put in place such as research and seed multiplication centres, input distribution, cooperative and socio-economic activities. Effectiveness of SPDC extension services according to Oyaide (1999) can be seen from the high rate of adoption of SPDC technical advice, increase in farm sizes and changes in standard of living of SPDC contact farmers. To ascertain this achievement, it is important to assess from the farmers perspective, the impact of SPDC agricultural extension services with input distribution acclaimed as a key method employed to help in alleviating the problems faced by host communities to enhance increased agricultural production and improved standard of living of the farmers.

#### **METHODOLOGY**

This study was carried out in the Agricultural zones of oil producing areas in Delta State. Delta state was created in August 27, 1991. The state is located within longitude 50<sup>o</sup> and 60<sup>o</sup> East and latitude 50<sup>o</sup> and 30<sup>o</sup> East. It is bounded in the north-west by Edo state, north east by Enugu and Anambra states, south-east by Rivers state, south and west by Atlantic Ocean (Bight of Benin). The land area is estimated at 22,159 square kilometers.

The population of Delta state according to 1992 Census was put at 2,570,181. The state is one of the largest producers of crude oil in Nigeria. The major occupation of the people is farming other income generating activities they engage in are tailoring, hunting, trading and carpentry (Akpotor, 1992).

The population of the study is made up of contact farmers located in the SPDC areas of operation in Delta state. Simple random sampling technique was used to select four agricultural zones out of eleven agricultural zones in Delta state. The zones were Bomadi, Sapele, Oben and Ekakpamre with 24, 36, 34 and 28 contact farmers respectively using proportionate sampling technique to give a sample size of 122. However, only one hundred and twenty (120) interview guides were good for analysis resulting in a response rate of 98.4%. Data was collected through interview schedule on socio-economic characteristics of the respondents, awareness of SPDC programme and participation. Farmers attitude towards SPDC agricultural extension input distribution was measured on a five-point likert scale of strongly agree, agree, undecided, disagree and strongly disagree with a 5,4,3,2 and 1 respectively for positive statement and reverse order for negative statement. Respondents score was computed and mean was used to categorise their attitude into favourable and unfavourable. Both descriptive and inferential statistics were used to analyze the data.

#### **RESULTS AND DISCUSSION**

##### **Respondents' personal characteristics**

The results in Table 1 indicate that 76.7% of the respondents were males, while 23.3% were females. Thus majority were male capable of performing hard task associated with agriculture. The result however negates the popular belief that more women engaged in farming work than men in the area. Furthermore, it was found that 53.3% were between 45 and 54 years of age, 33.4% were between 55 and 64 years, 7.5% were between 35 and 44 years while 5.8% were older than 64 years. It could be said that a larger percentage fell within the active years as far as farm operations are concerned. The result also shows that 74.2% were married while about 25.8% were widowed, divorced or separated. None of the respondents was single. This implies that sex had influence on the impact of SPDC agricultural extension input distribution programme because majority were males who have lots of family and social responsibilities to meet. Education increases

individual's involvement in any organization as a criterion to decide level of participation in any programme that will be of benefit. Number of married respondents could be justified by values placed on marriage through religion, customs and tradition in the area. Large percentage (44.2%) of respondents maintained an average household size of 7-9 while few (10.0%) maintained a household size of 9 and above. Primary occupation of respondents may be the motivating factor towards having large household size in order to provide labour required for the activities. Respondents were predominantly Christians (85.8%) with 5.0% being Muslims and 9.2% Traditionalist, The few Muslims among the respondents were likely to be migrants.

Furthermore, result in Table 1 shows that 35.0% had no formal education while 61.7% had one form of education or the other ranging from primary, tertiary and adult literacy education. The high literacy level can enhance their participation in the programme and enhance a better understanding of the initiative programme. The result conforms to the study of Akpotor (1992) and Orhro (1995) that there is generally broad distribution of literate farmers in the Niger-Delta region. This finding would be an advantage for extension activities since level of education is a factor that affects level of adoption of technology (Okunlola and Alfred (1998). Majority (85.8%) of the respondents were into farming and fishing while 7.4% were into trading, tailoring and crafting. This result justified the study area as a predominantly agrarian community as also reported by Oyaide (1999) and the necessity for SPDC to embark on various programmes to develop agriculture in the area.

Also, Table 1, findings indicate that 65.8% of the respondents earns less than ₦36,000 per annum while 28.0% earns between ₦36,000 - ₦72,000, 6.7% earns between ₦72,001- ₦108,000 and 1.7% earns more than ₦108,000. The low income of majority of the respondents might be as a result of small farm size and pollution of the soil by gas flaring from SPDC. Also, the water bodies in these communities might have been polluted by oil spillage which may not enable them to produce above what is domestically consumed while the leftovers were offer for sale, thus depicting low earning.

**TABLE 1**  
**Distribution of respondents by their personal characteristics**

Characteristics	frequency (n=120)	(%)
<b>Sex</b>		
Male	92	(76.7)
Female	28	(23.3)
<b>Age</b>		
35-44	9	(7.5)
45-54	64	(53.3)
55-64	40	(33.4)
65 and above	7	(5.8)
<b>Marital status</b>		
Single	-	(-)
Married	89	(74.2)
Widowed	17	(14.2)
Divorced	6	(5.0)
Separated	8	(6.7)
<b>Educational level</b>		
No formal education	42	(35)
Primary education	19	(15.8)
Secondary education	8	(6.7)
Higher education	24	(20)
Adult literacy	23	(19.2)
Other	4	(3.3)
<b>Religion</b>		
Christianity	103	(85.8)
Islam	6	(5.0)
Traditional	11	(9.2)
<b>Household</b>		
1-3	25	(20.8)
4-6	29	(24.2)
7-9	53	(44.2)
9 and above	12	(10.0)
<b>Primary occupation</b>		
Farming/fishing	103	(85.8)
Trading	4	(3.3)
Tailoring	1	(0.8)
Crafting	4	(3.3)
Others	8	(6.7)
<b>Income per annum</b>		
Below 36,000 naira	79	(65.8)
36,000-72,000 naira	31	(25.8)
72,001-108,000	8	(6.7)
108,001 and above	2	(1.7)

#### **Awareness of SPDC agricultural extension input distribution programme by farmers**

Table 2 indicates that all respondents were aware of SPDC's agricultural extension input distribution programme. Meanwhile cassava stem had the highest level of awareness (86.0%) followed by pineapple suckers (83.3%). Others with high level of awareness include cowpea seed, oil palm seedling, fertilizer distribution as well as fishing net with each constituting 78.3%. However, seed yams had the lowest level of awareness (63.3%). Highest level of awareness of cassava stem among respondents could be due to the fact that *gaari*

which is a food derived from cassava is a major staple food in the area. Consistent with this result is the finding of Oyaide (1999) that revealed about 80% of the farmers grows cassava in Niger Delta area. Aside this, the area is a riverine and fishing is also a major occupation there hence the awareness of fish fingerlings and fishing net distribution among the respondents. More than awareness is the benefit which the respondents derived from the programme. The results reveal that 85.8% benefited from cassava stem, also 85.8% benefited from pineapple suckers distribution, the same percentage benefited from the technical advisory services rendered by the company while 85.0% got plantain

suckers aside 72.5% that got maize grain, oil palm seedling (72.5%), seed yams (53.3%) and so on. The implication is that the input distribution programme of SPDC cut across many livelihood activities of the respondents which make it possible for respondents to benefit from the programme. Meanwhile, respondents did not derive much benefit from tractor services (15.0%), cowpea seed distribution (24.2%), fish net (21.7%) and fertilizer distribution (40%). The implication is that some of the essential inputs particularly fish net is lacking thus SPDC needs to intensify effort on the distribution of this material to enhance livelihood activities of the people in the area.

**TABLE 2**  
**Awareness of SPDC agricultural extension input distribution programme**

Awareness on specific SPDC agricultural input distributed	Aware	Not aware	Benefit derived	
			Yes	No
Cassava stem	103 (85.8)	17 (14.2)	103(85.8)	17 (14.2)
Seed yams	76 (63.3)	44 (36.7)	64 (53.3)	56(46.7)
Pine apple suckers	100 (83.3)	20 (16.7)	103(85.8)	17(14.2)
Plantain suckers	82 (68.2)	38 (31.7)	102(85.0)	18(15.0)
Maize grain	82 (68.3)	26 (21.7)	87(72.5)	33(27.5)
Cowpea seed	94(78.3)	26(21.7)	29(24.2)	91(75.8)
Oil palm seedlings	94 (78.3)	38 (31.7)	87(72.5)	33(27.5)
Fertilizers	94 (78.3)	26 (21.7)	48(40.0)	72(60.0)
Fish fingerlings	94 (78.3)	26 (21.7)	52(43.3)	68(56.7)
Fish net	94 (78.3)	26 (21.7)	26(21.7)	94(78.3)
Poultry birds	82 (68.8)	38 (31.7)	99(82.5)	21(17.5)
Rice grain	94 (78.3)	26 (21.7)	65(54.2)	55(45.8)
Technical advisory services	94 (78.3)	26 (21.7)	103(85.8)	17(14.2)
Tractor services	91 (75.8)	29 (24.2)	18(15.0)	102(85.0)
Agro chemicals	90 (75.0)	30 (25.0)	60(50.0)	60(50.0)

\*Multiple responses

**Respondents’ participation in SDPC agricultural extension input distribution programme**

Table 3 shows that respondents participate regularly in all activities except on harnessing resources which majority (55.8%) never participated. Respondents mostly participated in training and dissemination of information (66.7%), improved farming techniques (51.7%) and post harvest utilisation of farm produce (59.2%). This could be attributed to the value

placed on these activities by the respondents. Low participation of respondents in some activities for example research and seed multiplication (32.5%), developing and distribution of improved varieties (33.3%) may be attributed to the submission of Ekong (1988) that participation depends mainly upon the nature of the task. More so, those activities with low participation were more of trained agricultural extension work and researchers than farmers.

**TABLE 3**  
**Extent of Farmers' Participation in SPDC Agricultural Extension Input Distribution Programme**

Extension activities	Regularly	Occasionally	Rarely	Never
Training and dissemination of information	80 (66.7)	10 (8.3)	16 (13.3)	14 (11.7)
Handling of farm produce to enhance value	56 (46.7)	24 (20)	15 (12)	25 (20.9)
Post harvest utilization of Farm produce	71 (59.2)	15 (12.5)	20 (16.7)	14 (11.7)
Crop diversification	53 (44.2)	33 (27.5)	20 (16.7)	14 (11.7)
Improved farming techniques	62 (51.7)	13 (10.8)	31 (25.9)	14 (11.7)
Developing and distribution of improved varieties	40 (33.3)	35 (29.2)	20 (16.7)	25 (20.9)
Organizing farmers into Cooperatives	50 (41.7)	25 (20.8)	31 (25.9)	14 (11.7)
Development of small scale Agro-industries	62 (51.7)	24 (20.0)	20 (16.7)	14 (11.7)
Research and seed multiplication	39 (32.5)	36 (30)	20 (16.7)	25 (20.9)
Harnessing resources	14 (11.7)	19 (15.8)	20 (16.7)	67 (55.8)

\*Figures in parentheses are percentages

#### **Farmers' attitude to SPDC agricultural extension input distribution programme**

Table 4 indicates that the farmers' attitude mean score was 3.3 and farmers were favourably disposed to adequacy of SPDC agricultural input ( $\bar{x}=3.97$ ), crops early maturity ( $\bar{x}=3.95$ ), the crops are labour intensive ( $\bar{x}=3.9$ ) and increase income from inputs ( $\bar{x}=3.7$ ). Farmers showed favourable but a weaker disposition to statements, that are marginally above the actual mean such as the inputs don't increase the farm size ( $\bar{x}=3.5$ ), easy management of inputs ( $\bar{x}=3.43$ ), while they showed unfavourable disposition to statements that are below the actual mean such as the inputs are disease and pest resistant ( $\bar{x}=2.72$ ) and the inputs increase the farm size ( $\bar{x}=2.43$ ). The result implies that the attitude of the farmers to innovations depends on their level of involvement at all stages of the programme. Meanwhile, since respondents had favourable attitude to most of SPDC's activities compared with those that they had unfavourable disposition; thus, their attitude can be generally described as being favourable. It implies that activities that promote peoples' welfare will elicit the enthusiasm and whole-hearted participation of the stakeholder as stated by Anyanwu (1992). Hence, people's participation in planning, execution, utilisation and assessment of the programme designed to improve their welfare play a significant role in

people's attitude formation in order to pool well-being and favourable disposition from them.

#### **Respondents' personal characteristics and contribution of SPDC agricultural extension input programme**

The Chi-square analysis on Table 5 tested relationship between personal characteristics of the farmers and the contribution of SPDC agricultural extension input distribution programme. Results show that sex ( $\chi^2 = 27.928$ ,  $p = 0.000$ ) and education ( $\chi^2 = 24.150$ ,  $p = 0.000$ ) of the respondents had significant relationship with contribution of SPDC agricultural extension input distribution programme. This implies that sex had influence on the contribution of SPDC agricultural extension input distribution programme because majority were males who have lots of family and social responsibilities to meet. Education increases individual's involvement in any organization as a criterion to decide level of participation in any programme that will be of benefit.

Pearson Product Moment Correlation result on Table 6 tested the relationship between age, income, farmers' awareness, farmers' participation and the impact of SPDC agricultural extension input distribution programme. Results reveal significant relationship between farmers' awareness ( $r = 0.268$ ,  $p = 0.003$ ), farmers' participation ( $r = 0.252$ ,  $p = 0.005$ ) and contribution of SPDC activities. Farmers' awareness is a great community entrance skill, determinant of the adoption and impact/contribution of any developmental

programme while farmers' participation is an essential, active solicitation and engagement in programme development and implementation thus the more the participation, the greater the contribution/impact. These findings validated

Oladele (1998) submission that the ultimate end of farmers' participation in linkage services is to increase production, and the need to ensure food security.

**TABLE 4**  
**Distribution of respondents' attitudinal disposition to the contribution of SPDC agricultural extension input distribution Programme**

	SA	A	U	D	SD	N R	Mean
SPDC agricultural inputs are Adequate	24 (20)	76 (63.3)	12 (10)	8 (6.7)	-	-	3.97
SPDC inputs increase your productivity	12 (10)	45 (37.5)	-	63 (52.5)	-	-	3.05
SPDC inputs increase your income	12 (10)	84 (70)	12 (10)	-	12 (10)	-	3.7
SPDC inputs are environmentally Friendly	12 (10)	62 (51.7)	12 (10)	22 (18.3)	-	12 (10)	3.23
The inputs are disease& pest Resistant	12 (10)	31 (25.8)	-	65 (54.2)	12 (10)	-	2.72
The crops require less labour	12 (10)	90 (75)	-	6 (5)	12 (10)	-	3.7
The crops mature early	24 (20)	81 (67.5)	-	15 (12.5)	-	-	3.95
The inputs are easy to manage	-	80 (66.7)	12 (10)	28 (23.3)	-	-	3.43
The inputs increase your farm size	26 (21.7)	-	12 (10)	70 (58.3)	12 (10)	-	2.43
The crops are easier to plant	-	80 (66.7)	-	28 (23.3)	12 (10)	-	2.23
The inputs are inadequate	12 (10)	65 (54.2)	-	19 (15.8)	24 (20)	-	3.18
The inputs do not increase Productivity	12 (10)	54 (45)	-	42 (35)	12 (10)	-	3.1
The inputs do not increase your income	12 (10)	55 (45.8)	-	53 (44.2)	-	-	3.22
Inputs are not environmentally Friendly	-	71 (59.2)	12 (10)	37 (30.8)	-	-	3.28
Inputs are not disease and pest resistant	12 (10)	76 (63.3)	-	20 (16.7)	12 (10)	-	3.47
The crops are labour intensive	24 (20)	72 (60)	12 (10)	12 (10)	-	-	3.9
The crops mature late	-	78 (65)	12 (10)	35 (25)	-	-	3.4
Inputs do not increase your farm size	-	78 (65)	24 (20)	18 (15.4)	-	-	3.5
The inputs are not easy to manage	12 (10)	63 (52.5)	-	45 (37.5)	-	-	3.25
The crops are difficult to plant	12 (10)	50 (42.5)	-	45 (37.5)	12 (10)	-	3.05

\*Figures in parentheses are percentages.

SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree, SD = Strongly disagree

**TABLE 5**  
**Relationship between personal characteristics and contribution of SPDC agricultural extension input distribution programme**

Variable	df	$\chi^2$	Significant level	Decision on significance
Sex	1	27.928	0.000	Significant
Marital status	4	5.600	0.231	Not Significant
Religion	2	1.620	0.445	Not Significant
Education	5	24.150	0.000	Significant
House hold size	4	7.570	0.108	Not Significant

**TABLE 6**  
**Relationship between age, income, awareness, participation and the contribution of SPDC agricultural extension input distribution programme**

Variable	r	p (Significant level)	Decision
Age	0.0375	0.684	Not Significant
Income	0.0189	0.838	Not Significant
Farmers awareness	0.268	0.003	Significant
Farmers participation	0.252	0.005	Significant

## CONCLUSION AND RECOMMENDATIONS

The conclusion of the finding indicated that there was high level of awareness among farmers about Shell Petroleum Development Company agricultural activities and considerable awareness concerning various inputs distributed. While there was appreciable level of participation in some Shell's activities it was low in others. The farmers showed favourable attitude to inputs that were paramount which they felt could immediately alleviate their suffering. Hence, the contribution of SPDC extension programme could be said to be positive on the farmers. However, farmers still need an extension programme that would allow them take part in all the stages of any developmental programme. In view of this, it is recommended that;

- SPDC, other oil companies, NGOs and the government should intensify efforts in organizing seminars and trainings for farmers including the youth in the areas of agriculture and small scale agro-allied businesses in order to ensure more participation by the farmers.
- Developmental activities that will satisfy physiological and psychological needs of farmers should be given more attention so that they can have favourable attitude towards the programme.
- Female enterprises should also be targeted in order to encourage more female participation.
- In addition, provision of soft loans targeted to clientele through registered associations on a continuous basis should be embarked upon in order to achieve self-help and curb restlessness in the study area.
- SPDC, other oil companies, NGOs and the government should adopt grass root approach in subsequent developmental programmes in order to achieve a supportive role from the clientele and desired results.

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