IOSR Journal Of Humanities And Social Science (IOSR-JHSS)
Volume 24, Issue 3, Ser. 8 (March. 2019) 29-34
e-ISSN: 2279-0837, p-ISSN: 2279-0845.
www.iosrjournals.org

Infrastructural, Institutional and Human Capacity Requirements for the E-Wallet System of Input Distribution in Okpokwu Local Government Area, Benue State, Nigeria

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Abstract: The distribution of subsidized inputs to farmers in Nigeria has been an enduring problematic over the years. Various policy experiments in this regard have ended up by-passing the intended beneficiaries and distorting the market. Under the Growth Enhancement Support Scheme (GESS), the e-wallet system was introduced to ensure that subsidized inputs are delivered to farmers. Since it is an ICT-based intervention, its impact is dependent upon the availability of certain infrastructural, institutional and human capacity elements. The study aimed at assessing the availability of these elements in a typical Nigerian farming community. The study utilized a cross-sectional survey design with a structured questionnaire administered to a sample of 90 respondents. The results showed that access to steady electricity was low at 7.8%. Ownership of handsets was very high at 92.2%, but only 24.4% had access to good GSM network signals; 67.8% of the respondents had to travel for more than 3km to input collection centres. On the whole, only 41.1 were able to redeem their inputs through the e-wallet system. It was therefore concluded that the elements required for the desired impact of the e-wallet system are inadequate, and some policy measures were suggested to boost the status of these elements.)

Date of Submission: 11-03-2019 Date of acceptance: 28-03-2019

I. INTRODUCTION

An Overview of Nigerian fertilizer subsidies reveals a lack of consistency in government fertilizer policy over time (Salman, 2015). Such changes often represent attempts to redress the problems endemic to the fertilizer sector in Nigeria. These include product unavailability, leakages and inefficiencies surrounding the fertilizer subsidy programmes. Adebayo, Babu and Rhoe, (2009) pointed out that policy is defined as a form of directed action which indicates as clearly as possible what one wants to achieve, how one wants to do it, and how much time will be taken to achieve the set goals. As posited by Naswem, Daudu and Ejembi, (2008), the effectiveness of any intervention in agricultural and rural development is predicated on a well thought- out, stable policy.

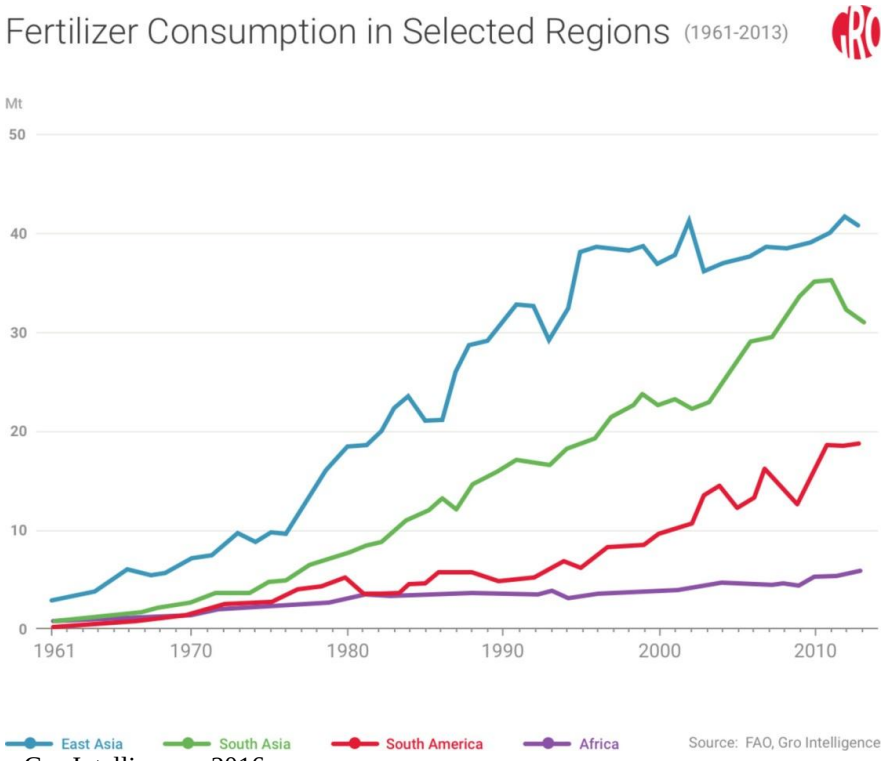
Nigeria's agricultural input regime over the years has been characterized by corruption, inefficiency and policy somersaults. In 1976, fertilizer subsidy rates at the state level was at 25-50%, State governments in Nigeria procured fertilizers independently and distributed the fertilizers through sales agents and the Agricultural Development Programmes (ADPs) (Nagy and Edum 2002; Nmadu and Amos, 2009). From 1976-1986, subsidy rates at the Federal level was at 28-83%, Federal Government Centralized procurement and distribution to State depots. By 1987-1991, States became responsible for procuring fertilizer which was a substantial subsidy due to (SAP) Structural Adjustment Programme. (Liverpool-Tasie and Takeshima, 2012). Fertilizer Consumption increased constantly up to 1993.

By 1997 – 1999, there was a deregulation of fertilizer sector and subsidy rates became 0%, this was due to growing fiscal burden since 1986 due to SAP The period between 1999 – 2011 witnessed the reinstatement of the Federal Pan – territorial subsidy, with states providing their own subsidies, and subsidy rate was between 25 – 75%.(Nagy and Edun (2002)

The Growth Enhancement Support Scheme (GESS) was introduced in 2012 to ensure that resource-poor farmers – the target beneficiaries of government input subsidies were reached by the subsidies. In the past subsidized inputs were hijacked by powerful middlemen with political connections, thus by-passing the intended beneficiaries who were condemned to purchase the inputs at very exorbitant rates at the black market (FMARD, 2011). The Growth Enhancement Support Scheme is powered by a mobile commerce network operator,

CellulantNigeria. In this system, the farmer receives an e-voucher via his/her GSM handset as a text message and receives subsidized inputs on presenting the voucher to a designated input vendor (FESPAN, 2012). Each farmer is entitled to 2 bags of 50kg fertilizer subsidized by 50% under the scheme which have been observed to be grossly inadequate (Amurtiya *et al*. 2018).

Successive governments in Nigeria have embraced a policy of subsidizing agricultural inputs as a strategy of supporting the resource-poor farmers' access to crucial inputs to boost productivity (Binuomote and Odeniyi, 2016). The most critical of these inputs is fertilizer, the consumption of which is among the least in Africa. At 10.9 kg/ha, Nigeria's fertilizer use is below the African average of 16kg/ha (World Bank, 2014). Figure 1 shows that Africa ranks the least in terms of fertilizer consumption among the developing regions.



Source: Gro Intelligence, 2016

Figure 1 Fertilizer Consumption in Selected Regions

The fertilizer subsidies in the country have been fraught with fraud, discrepancies, and inefficiencies. Government at all tiers have been spending a lot of money on farm inputs which were not reaching the intended beneficiaries (smallholder farmers) and thus, had limited impact on the national food output. The GESS which takes advantage of the GSM technology is the Nigerian government's response to this challenge. The successful implementation of the programme is however dependent on the adequacy of key elements including infrastructure, institutions and human capital.

The study is concerned with assessing the structures, institutions and human capacity that are on ground to make the e-wallet system succeed. As a result, the study will attempt to answer the following research questions:

i. What infrastructures are available in the study area?
ii. What are the institutions in place for the e-wallet in the study area?
iii. Is there sufficient human capital in the study area to efficiently use the e-wallet system?
iv. What is the extent to which the farmer's access input through the e-wallet?
v. What are the constraints facing farmers in the utilization of the e-wallet in the study area?

The broad objectives of the study were to determine the infrastructural, institutional and human capacity requirements for the e-wallet for input distribution in Okpokwu Local Government Area of Benue State. The specific objectives include to:

i. Identify the various types of infrastructures available in the study area;
ii. Identify the institutions in place for the e-wallet in the study area;
iii. Assess the adequacy of the human capacity to efficiently use the e-wallet system in the study area
iv. Determine the extent to which farmers obtain inputs through the e-wallet system
v. Identify any contstraints faced by farmers in the utilization of the e-wallet

II. METHODOLOGY

The study was carried out in Okpokwu Local Government Area of Benue State located between Latitude 7^0 3' 48 North and Longitude 8^0 12' 34 East. The local government was created out of the former Idoma Native Authority in 1976 and derives its name from the River Okpokwu. Its headquarter is located at Okpoga. Okpokwu Local Government Area has a population of 731 square Kilometers and a population of 176, 647 (National Population Census, 2006). Okpokwu Local Government Area is one of the local government areas that make up the Zone "C" geopolitical zone otherwise known as Benue South West Senatorial district.

Okpokwu is bounded to the North by Ohimini Local Government, to the South by Isi-uzo Local Government Area of Enugu State, to the East by Ado and Otukpo Local Government Areas, and Ogbadibo Local Government Area to the West. The local government is predominantly inhabited by the Idoma speaking tribe of Benue State, it has twelve Council wards namely; Amejo Eke, Ingle, Okpale, Okonobo and Ugbokolo in Edumoga district; Ichama ward 1and Ichama ward II in Ichama district; and Okpoga Centre, Okpoga North, Okpoga East and Okpoga west respectively for Okpoga district.

The vegetation in the area is mainly a transition between the deciduous rainforest of Eastern Nigeria on the Southern part of the local government and the grassland savanna towards the North. The economic activities of the people in this area include farming, fishing, trading in goods and provision of services. Agriculture is the mainstay of the people's economy with local tools and agricultural products produced in varying degrees across the local government area. Agricultural products produced in commercial quantities in the area include palm oil, palm wine, baskets and brooms. Citrus fruits are also found in large quantities all over the local government area. Other crops include: yams, guinea- corn, maize, soybean, millet, sesame, pepper, groundnut and cassava which is exported in form of finished goods (garri) to neighbouring States and Cameroun.

Ninety farmers were selected from the 12 Council wards. Seven from each of the Edumoga district and eight from each of the wards in Ichama and Okpoga, farmers were randomly selected from each of the Council wards in the study area. Structured questionnaire was administered to respondents and descriptive statistics were used to analyze data generated.

III. RESULT AND DISCUSSION

Availability of Relevant Infrastructure

Table 1 shows that an overwhelming majority of the respondents relied on public power supply for their electricity needs. And 92.2 percent stated that power supply was unsteady. Power is needed to keep handsets charged, and where there is not steady electricity, the effectiveness of the GSM technology would be compromised. Results in the table also indicate a high rate of handset ownership but handsets would be useless if they are not powered on. Table 1 also shows GSM network signals are moderately strong, and should be considered adequate, but the poor electricity supply would render it ineffective in the implementation of the e-wallet system of inputs distribution.

Table 1: Access to Relevant Infrastructure

Variable	Frequency	Percentage (%)
Source of power		
National Grid	86	95.6
Private Generator	4	4.4
Total	90	100
Steady Electricity		
Yes	7	7.8
No	83	92.2
Total	90	100
Ownership of handset		
Yes	83	92.2
No	7	7.8
Total	90	100
Mobile Signal Strength		
High	22	24.4
Medium	46	51.1
Low	22	24.4
Total	90	100

Source: Field survey, 2014.

Available institutions for input distribution

Table 2 show that a majority (71.1%) of respondents does not have access to redemption centers for collection of inputs, This implies that there are few redemption centres in the study area. Since redemption centres are the fulcrum of GESS, their inaccessibility poses a serious challenge to the implementation of e-wallet system.

Table 2 also reveals that the majority (84.4%) of respondents lack network providers' offices close to them, while (15.6%) have network providers. The table also shows that (92.2%) of respondents have phone selling/repair points while (7.8%) do not have phone selling/repair points in their ward. On distance to the nearest redemption centres for the collection of inputs, Table 2 shows that 21.1% of respondents live more than 6km from the nearest redemption centres; 46.7% live 3 – 5km from redemption centres, and 32.2% live 1 – 2km from their redemption centres.

From the foregoing it emerges that there was a significant deficit in the infrastructure needed for the smooth implementation of the e-wallet system of input distribution in the study area. This has been corroborated by several studies which have consistently identified poor GSM networks and lack of access to handsets and electricity as hinderances to the success of the GESS (Alabi and Adams, 2015; Nwaobiala and Ubor, 2015; Oyediran et al., 2015).

Table 2: Institutional Infrastructure Relevant to E-Wallet

Variable	Frequency	Percentage (%)
Network provider's office		
Available	14	15.6
Not-available	76	84.4
Total	90	100
Phone Sales/repair Shops		
Available	83	92.2
Not-available	7	7.8
Total	90	100
Distance to redemption centres		
1 – 2 km	29	32.2
3 – 5 km	42	46.7
76 km	19	21.1
Total	90	100

Source: field survey, 2014.

Human capacity for the use of e-wallet in the study area

Table 3 shows that the majority (48.9%) of respondents can both make calls and send text messages, while (43.3%) of the respondents can make calls, and (6.7%) cannot make calls or send text messages, also (1.1%) of the respondents cannot read text messages. This implies that the majority of the respondents did not possess the capacity to use the e-wallet system. Results from Table 3 indicate that majority (58.9%) of respondents could not redeem their inputs by themselves through the e-wallet system while (41.1%) could not redeem their inputs using their e-coupons. This is in agreement with the findings of Motilewa et al. (2015) and Nwajieji et al (2013) who reported that low education and ICT skills limited the capacity of farmers to benefit from the e-wallet system of input distribution.

Table 3: Human Capacity Relevant for Participation in The E-Wallet System

Variable	Frequency	Percentage (%)
Usage of mobile phone		
Make/receive calls only	39	43.3
Receive calls only	1	1.1
Voice calls and Messages	44	48.9
None	6	6.7
Total	90	100
Use of e-coupons		
Redeem inputs	37	41.1
Not Redeem inputs	53	58.9
Total	90	100

Source: Field survey, 2014

Constraints facing farmers in the e-wallet system

Table 4 reveals that majority (80.0%) of respondents do not get fertilizers early while (20.0%) received fertilizers early. This shows that distribution is not done in time to meet farmers demands. Table 6 also shows that majority (67.7%) of respondents took more than 5 days to receive fertilizers while (16.7%) of respondents takes about 3-4 days to receive fertilizers, also (15.6%) takes about 1-2 days to receive fertilizers through the e-wallet. Table 4 shows that majority (73.4%) of the redemption centres are crowded while (26.6%) of the redemption centres are not crowded. Apart from infrastructural and human capacity limitations, timeliness of delivery of inputs has been widely reported as a major constraint to the e-wallet system, especially given the seasonality of the predominantly rain-fed farming practiced by majority of farmers in Nigeria (Oyediran et al. 2015.: FEPSAN, 2012)

Table 4: Constraints Facing Farmers in the E-Wallet System

Variable	Frequency	Percentage (%)
Time of distribution		
Early	18	20.0
Not-early	72	80.0
Total	90	100
Days taken		
1-2 days	15	16.7
3-4 days	14	15.6
7-5 days	61	67.7
Total	90	100
Redemption centres		
Crowded	66	73.4
Not-crowded	24	26.6
Total	90	100

Source: Field survey, 2014

IV. CONCLUSION

Based on the findings of the study, it is concluded that even though the E-wallet system of input distribution on paper has the potential to redress the shortcomings of previous input distribution policies, it faces serious infrastructural and human capacity limitations that must be redressed if the policy would achieve the desired objectives. The following recommendations were made:

The Federal Government should work with GSM service providers to design more user friendly handsets which operate in local languages to increase farmers' capacity to operate handsets.

Extension services should incorporate e-wallet education into their programme to enhance participation in the scheme by rural farmers.

The government at all tiers should grant incentives to Mobile phone network providers to upgrade their services in the rural areas to ensure better signal reception.

A public-private partnership arrangement could be arranged to provide solar power generators for farmers to power their phones in off-grid locations.

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Naswem, A.A. " Infrastructural, Institutional and Human Capacity Requirements for the E-Wallet System of Input Distribution in Okpokwu Local Government Area, Benue State, Nigeria." IOSR Journal of Humanities and Social Science (IOSR-JHSS). vol. 24 no. 03, 2019, pp. 29-34.