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ANALYSIS OF TRANSPORTATION AND DISTRIBUTIONAL PROBLEMS OF AGRICULTURAL PRODUCTS MARKETING IN SUB-SAHARAN REGION. AN APPLICATION TO KOLANUT.

By

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ABSTRACT

This paper is concern primarily with the analysis or transportation and distributional problems facing agricultural product marketing in Sub-Saharan region of the World and with emphasis on Kolanut in Remoland, Ogun State Nigeria while the profess solutions mentioned by the respondents were also analysed. **1.1**

INTRODUCTION

Distribution is a critical marketing function of conding to Oyedijo (1996) and it deals with how to move products from the product stothe consumers. It is a common view in sub-Saharan region in general and distributional problems of products meant for consumption has contributed significantly to the high rate of inflation, high selling price and the socio-economic hardship as well as product wastage, low productivity and high production and marketing cost according to Aloba (1986), Ajiboye (1988, 1994), Ipingbemi (2001).

Despite the fact that adequate and efficient transportation is an important aspect of modern agricultural production, marketing and distribution system, it is not without its own associated problems. This paper will therefore focus on the problems facing agricultural products marketing in the developing world but with more emphasis on the Kolanut farmers and traders in Remoland, Ogun State, being one of the most important kolanut producing areas in Nigeria and sub-Saharan region of the World according to Odugbemi (1992) and Udo (1978). It is generally tend to be indigenous to West Africa and of more than Forty varieties but four are very someon and widely subtinated.

(1980). These are cola acuminate aka kola of social and traditional significance known as "abata" refer to as 'gbanja or goro' nuts, cola vertiaillata and cola anomala while the first three have relevance for the kolanut trade in Nigeria. Southwestern Nigeria produces about 100,000 tonnes, Ghana (14,000 tons), Ivory coast (14,500 tons) and Sierra leone (4,000 tons) of kolanut annually according to Komolafe et al (1979) and Udo (1978). The bulk of the Kola is traded within West Africa where it is consumed mainly by eople living in the Savana and desert areas while a small amount is exported to Europe and North America.

Remoland is one of the four major divisions of Ogun State, Nigeria with population of 427,058 (FGN) and it is made up of three local government areas which are Ikenne, Remo North and Sagamu with population figures of 113,735,59,911 and 253,412 respectively according to Federal Government of Nigeria Gazettee (2007).

This paper is therefore divided into four sections with the present constituting the introductory aspect. Section two deals with the analysis of the transportation and distributional problems facing agricultural products and section three focuses on preferred solutions and section four conclude the paper.

1.2 ANALYSIS OF TRANSPORTATION AND DISTRIBUTIONAL PROBLEMS OF AGRICULTURAL PRODUCTS. A CASE OF KOLANUT

The method of investigation for this study was essentially both descriptive and analytical in nature. The primary data was gathered through the use of questionnaires. 100 respondents each were randomly selected among the Kolanut farmers, traders and transporters which represents 20% of the registered kolanut farmers, 10% of the registered kolanut traders and 25% of registered transporters respectively. The analysis of the data collected were based on simple statistic approach supported by a series of tables showing percentage distribution of some variables while the spearman's Rank Correlation Coefficient (r²) was used to test the relationship between the ranking of the distributional problems and the ranking of solution. For the rank analysis, the variables seriously agreed, mildly agreed and not agreed were given these values namely 1,0.5 and 0 respectively which was used in calculating the rank by multiplying them with the number agreeable to the variables and then sum up.

Despite the fact that adequate and efficient ransportation is an important aspect of modern agricultural production, marketing and distribution system, it is not

without its own associated problems. This section of the research focuses on the analysis of the transportation and distributional problems faced by the kolanut farmers and traders in Remoland and also preferred solutions.

Among the transportation problems associated with the effective distribution in the study areas as recognized by the 300 respondents are shown in Table 1 are the seasonality in the use of the roads, high cost of transportation, inadequate and irregular supply of transport facilities, high fuel price, poor condition of roads, poor transportation and communication systems and inaccessibility of some parts of the kolanut producing areas while the distribution and marketing problems are inadequal and absence of organized modern markets, inadequate storage facilities, inadequate modern terminal facilities, inadequate credit facilities, inadeque a security facilities at the markets and the various collecting centres as well as the inadequate experience and trust worthy personnel to serve as middlemen and women. These problems have however affected the quantity of kolanut production and marketing since they are not quite sure of the transportation of the products out of the producing areas while they have lost lot of revenue as a result of high rate of wastage and poor storage facilities which over production and poor transport system have caused. This has however reduced the patronage of some of the producing areas by the kolanut traders and middlemen for the purchase of kolanut.

TABLE 1 Ranking of the distributional problems of Kolanut production

| Distribution Problems | Strongly Agreed | Mildly Agreed | Not Agreed | Total | Score Total | Rank |
|---------------------------------------|--------------------|------------------|------------|-------|----------------|------|
| Inadequate infrastructural facilities | 76 | 2.1 | 0 | 100 | 88 | 5 |
| High cost of transport | 96 | 04 | 0 | 100 | 98 | 1 |
| Inadequate transport facilities | 93 | 07 | 0 | 100 | 96.5 | 2 |
| Inadequate storage facilities | 70 | 30 | 0 | 100 | 85 | 6 |
| Inadequate terminal facilities | 60 | 20 | 20 | 100 | 70 | 8 |
| Inadequate credit facilities | 84 | 16 | 0 | 100 | 92 | 3 |
| Inadequate security facilities | 62 | 26 | 12 | 100 | 75 | 7 |
| Inadequate marketing facilities | 77 | 23 | 0 | 100 | 88.5 | 4 |
| Inadequate personnel | 47 | 35 | 18 | 100 | 64.5 | 9 |
| TOTAL | 660.73 | 185, | 50%(6%) | 900 | 757.5 | |
| MEAN | 73 | 21 | 06 | | | |
| STD | 15.6 | 9.6 | 9.8 | | | |

The problem of inadequate and lack of transport facilities such as vehicles plying the routes, good motorable roads etc were seen as a very serious problem by all the respondents as shown in Table 1 among the constraints facing kolanut production and marketing as 93% and 7% seriously and mildly agreed to this while it ranked second with 96.5. There was the general opinion that the roads within the study area are fairly okay but not well maintained and this has affected the production, distribution and marketing of kolanut within and outside the region and therefore the roads needed an urgent attention from the governments in order to further boost the production of kolanut in this region. In related atmosphere, the problem of poor accessibility due to lack of bridges, low, narrow and badly constructed bridges as well as poor road development of some producing areas of the study area has encouraged the use of head porterage in transporting the kolanuts to the markets and collecting centres. This however has reduced the number of kolanuts that can be carried at a particular time and this has also resulted in a lot of spoilage which has discouraged the farmers in producing more kolanuts. Nevertheless, the exercise of walking and carrying goods on head as emphasized by Ajiboye (1994) as being energy sapping, time wasting and relatively unrewarding, support the need for efficient transportation facilities which will allow the people that are engaged as porters to use the better part of their time and energy in some other more gainful areas of agricultural activities.

The seasonality of some of the roads in the study area is also a problem to the effective distribution of kolanut. Many of the roads are impassable at some specific period of rainy season when they are often swept away by flood, full of pot holes and death traps as well as very muddy, slippery and vehicles liable to get stocked in the mud which reduce the already poor accessibility problem of the area. With this poor road condition many of the kolanut as well as other agricultural products will not be possible to evacuate and thereby resulting in total wastage, loss of man's hour and labour and a very poor return on investment. It was a common sight to observe heaps of valuable agricultural products rotting away after the farmers have tried unsuccessfully to evacuate and to sell them.

The irregular supply of transport facilities such as vehicles to ply the roads and their seasonality are another problem given by the respondents as facing the effective distribution and marketing of kolanuts. 93% of the respondents strongly

agreed to this and 7% mildly agreed. This problem was ranked second with total score of 96.5. Due to the scarcity of vehicles and their services, many of the products cannot be transported to the market while farmers and/or their families have to spend days/weeks on the road side in an attempt to dispose of their produce or get to transport them to market. A lot of unconventional methods such as head-porterage and wheeled carts are used which does contribute very little or nothing to distribution processes of kolanut.

The high cost of transportation which is as a result of the factors mentioned and discussed above as well as the constant increament of the prices of petroleum products by the Federal Government of Nigeria was mentioned by the transporters interviewed and this has also contributed negatively to the movement and distribution as well as the marketing of kolanut in the study area. These problems combined have increased the transport fare between the years which many of the kolanut farmers, traders and middlemen cannot afford and where they can afford they could not even get the vehicles to get them to their destination since many vehicles are off the roads because of the general economy, high maintenance cost of their fle vehicles and the very poor condition of the roads which has therefore affect stribution network of kolanut in the study the score total of 98 with 98% and 4% of area. This problem was ranked the respondents seriously and = eed to it as a problem.

Other problems associated with the effective distribution of kolanut production as shown in Table 1 included the inadequate and lack of storage facilities. 70% and 30% of the respondents seriously and mildly agreed to it as a problem. Kolanut is a crop that have a high degree of perishability and the amount of care needed for their processing, packaging and transportation as well as the small units of demand by the lower order distributors and consumers required a well storage facilities by the farmers, traders and the middlemen and women. But only very few of them have good storage facilities and could store for a longer period under any condition as this study shown. This therefore cause the farmers to sell all their kolanuts if they could during the harvesting seasons. This however create glut in the kolanut market and hence the price tend to fall with a consequent reduction in the income of the farmers which is already within subsistence level. The traders and the farmers would be encouraged to increase kolanut output if they are endowed with adequate storage facilities.

not be co

The problem of inadequate marketing facilities as well as absence of granized market for kolanut experienced by the traders and the farmers alike is also given as a factor affecting the effective distribution of kolanut in the study area as Table 1 revealed. It was ranked fourth with score total of 88.5. The necessary modern market facilities needed for the kolanut products were not available despite the fact that this is a main crop in the study area. There are little or no effort made to provide the market facilities by the authorities while the farmers and kolanut market women on their parts were not well organized and stable enough to fight the monopolistic market of the Hausa kolanut dealers. If however, the facilities were provided and the farmers as well as the kolanut traders could be well organized and stable they would be able to market the kolanut easily within the local markets and their income would be increase while the kolanut production, distribution and marketing would further be developed by investing more and thereby increase their productivity.

Inadequate credit facilities which Odugbemi and Ajiboye (1998) shows as being the most important determinant of the quantity of kolanut a buyer can purchase as well as the price a consumer buy or a producer sell a given quantity of kolanut at a particular time is a serious problem facing kolanut distribution and marketing in Remoland as identified by the respondents and shown in Table 1. This problem was ranked third among the problems with score total of 92. It is quite difficult for individual farmers and traders to obtain loans for kolanut production and marketing because of their poor economic conditions and inability to provide the necessary collateral security which the banks often required before giving loans while many of them go to the local money lenders to borrow using their farms and properties as collateral security. Nevertheless, friends and extended family members, maste apprentice system and principal-agent system as well as the membership of collateral societies do assist financially.

Inadequate and oor transport and communication system in the kolanut distribute trade is also mentioned as a very serious problem by the respondents in the study area. The inadequate and crude communication and transport facilities especially in the rural kolanut producing areas pose great obstacle to the development of kolanut distribute trade. Distribution network of kolanut can only be carried far and wide through the creation of an effective, modern transport and communication and this improvement in transport and communication should

not be concentrated only within the urban centres of Remoland but efforts should be made to ease the transport problems associated with the rural kolanut producing areas which will widen the market and also create room for specialization.

Insecurity at the markets and the various collecting centres is also one of the problems identified by the respondents as Table 1 shows and ranked seventh with score total of 75. The insecurity of the life of the driver, the vehicle and kolanut when in transit to the destination market is also contributing to the problem of kolanut distribution and marketing in the study area. There were not enough security posts and men to handle the security of market centres as well as no thorough control of the safety and security of the life and goods and where there are security men, they are often not well equipped with necessary equipments. However, with the help of the trading associations and the local government councils this problem has been reduced especially in Sabo-Offin market, Sagamu.

The inadequate terminal with nodern and necessary facilities for the use of vehicles used by the traders to the traders to the kolanuts within and outside the study effective transportation, distribution and area is also a problem fawas ranked eight in table 1 as 60% of the marketing of kolanuts. This load transporters according to Onakomaiya respondents seriously agree. (1975) who have faster and beaute antilated vehicles, provide personalized door to door service, mutual trust and security between shippers and motor transporters, sales at stopping stations on the journey and flexibility in routing with the attendant possibility of greater profits and who often carry messages from one trader to another are often patronized. However, these drivers and means of transportation that really matter in the kolanut distributive trade are not well taken care of because of the inadequate and lack of terminal facilities. Many of them packed anywhere because of this inadequacy and where there are terminals, they would make their stay a comfortable one.

The inadequate infrastructural facilities in the study area was seen as a serious problem by 76% of the respondents as shown in Table 1 and ranked eighth with the score total of 88. This has greatly affected the distribution and marketing of kolanuts. At the markets, the power supply is irregular, water supply is inadequate and the telephone network is horrible where these facilities exist. For example, at

Sabo market, Sagamu withen make business transactions very difficult and expensive

The problem of inadequate skilled, experienced and trustworthy personned to engage as agents and assembler-processors is also a problem to the distribution and marketing of kolanus as Table 1 shows and was fanked ninth with score total of 64.5 while a lot of people are directly and indirectly involved in the trade However the successful marketing of kolanus requires some acts especially in the northern bart of the country and anyone who does not have an accurate and up to date information, knowledge and ability of the trade will be at a great disadvantage compared with the experienced Hausa wholesalers in the northern part of Nigeria from the overall analysis of the distributional problems facing kolanus production in the study area as shown in Table 1, 73% of the respondents strongly agreed to the problems and \$1% of them which agreed while the remaining of did not agree to zome of the problems especially that of inadequate personnel security and summing a zome of the problems especially that of inadequate personnel security and summing a zome of the problems especially that of inadequate personnel security and summing a zome of the problems especially that of inadequate personnel security. and

EBANAS OF SOLUTIONS TO THE DISTRIBUTIONAL PROBLEM!

From the analysis of the solution to the distribution problem of kolanus which the respondents ranked according to their tevel of acceptance it could however be observed from the table? that IGN of the respondents strongly agreed to the solutions. 19% mildly agreed and SN of them did not agree to the solution especially in the provision of personnel, security lacilities as well as storage and terminal tabilities.

Table 2 Ranking of the solution to the distributional problem of kolanut

| Solution to the Problems | Strongly Agreed | Mildly Agreed | Not Agreed | Total | Score Total | Rank |
|-----------------------------------|--------------------|------------------|------------|-------|----------------|------|
| Provision of infrastructural | 75 | 25 | 0 | 100 | 87.5 | 5 |
| facilities | | | | | | |
| Provision of good motorable roads | 100 | 0 | 0 | 100 | 100 | 1 |
| Availability of vehicles | 92 | 08 | 0 | 100 | 96 | 2 |
| Provision storage facilities | 70 | 20 | 10 | 100 | 80 | 7 |
| Provision terminal facilities | 72 | 27 | 01 | 100 | 85.5 | 6 |
| Provision credit facilities | 81 | 19 | 0 | 100 | 90.5 | 4 |
| Provision security facilities | 63 | 27 | 10 | 100 | 76.5 | 8 |
| Provision modern marketing | 90 | 10 | 0 | 100 | 75 | 3 |
| Provision of personnel | 45 | 33 | 22 | 100 | 61.5 | 9 |
| TOTAL | 688(76%) | 169(19%) | 43%(5%) | 900 | 766.5 | |
| MEAN | 76 | 19 | 5 | | | |
| STD | 16.7 | 10.6 | 8.7 | | | |

However, from the calculation and testing of the relationship between the distributional problems faced by the farmers and traders of kolanut and the solution to them using the Spearman Correlation Coefficient (r²) as shown in appendix I, it showed the value of 0.87 which is considered high according to Makintosh rule of thumb, thus meaning that there is a high positive correlation between the two pairs of data. Hence the null hypothesis is rejected and the alternative hypothesis is accepted, that is there is positive relationship between the ranking of distributional problems and the ranking of the solutions.

1.4 CONCLUSION

One obvious fact that can be drawn from the findings of this study is that there are serious transportation and distribution problems which has greatly affected the production level of the farmers and the distribution and marketing of agricultural products. The flow of agricultural products from the producing areas to consuming areas has been beset with a number of problems as observed in this study which must be critically looked into. However, this paper has shown further that an effective and efficient transportation is very important in the distribution and marketing of agricultural products while it must conform with the concept of just in Time which states that a right product must be at the right place at the right time and at a right price.

effective distribution and marketing of kolanut in Remoland since it is a backbone of any distributive trade while Kohl and Uhl (1985) identified it as a facilitative service which involved both the physical distribution and the economy bridge designed to facilitate the movement and exchange of kolanut from the kolanut farmer to the traders and finally to the consumers.

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APPENDIX I

Calculating with spearman's rank correlation coefficient 'r' to test the relationship between the constraint to the effective distribution and marketing of kolanut and the facilities and the solution mentioned by the respondents.

| Constraint and solution to | X | Υ | X1 | Y1 | d | d |
|---------------------------------|------|------|----|----|---|----|
| Distribution | | | | | | |
| High cost of transport | 88.5 | 87.5 | 5 | 5 | 0 | 0 |
| Inadequate transport facilities | 98 | 100 | 1 | 1 | 0 | 0 |
| Inadequate storage facilities | 96.5 | 96 | 2 | 2 | 0 | 0 |
| Inadequate terminal facilities | 85 | 80 | 6 | 7 | 1 | 1 |
| Inadequate credit facilities | 70 | 88.5 | 8 | 6 | 2 | 4 |
| Inadequate security facilities | 92 | 90.5 | 3 | 4 | 1 | 1 |
| Inadequate marketing facilities | 75 | 70.5 | 7 | 8 | 3 | 9 |
| Inadequate personnel | 88.5 | 95 | 4 | 3 | 1 | 1 |
| TOTAL | 64.5 | 61.5 | 9 | 9 | 0 | 0 |
| MEAN | | | | | | 16 |
| STD | | | | | | |

X = Constraint to the effective distribution and marketing of kolanut.

Y = Solution to the constraint as mentioned by the respondent

 X_1 and X_2 = Rank of X and Y respectively

d = difference between the ranks

Null Hypothesis: There is no positive correlation between the constraint and solution to effective distribution and marketing of kolanut.

Alternative Hypothesis: There is a positive correlation between the constraint and solution to effective distribution and marketing of kolanut.

Level of significant is 1%

Formula = 1-
$$\frac{6[d^2]}{i^2 - 1}$$

Where $d^2 = s^2$ nation of squares of the difference between them

n = number c Airs of data = 9

substituting t formula
$$r^2 = 1 6 x 16$$
 $9^3 9$
 $= 1 - 96$
 $729 9$
 $= 1 -96$

The value of r varies form +1 indicating perfect positive correlation to 1 indicating perfect negative correlation. Therefore, with the r value of 0.87 as calculated above, it can be said that there is a high positive correlation between the two pairs of data. Hence, the null hypothesis is rejected and the alternative hypothesis is accepted.

However, to test the probability of the occurrence of the relationship by chance, the students "t" test is used.

Formular
$$r = \underline{n-2}$$

 $1-r^2$
Where $r = 0.87$ and $n = 9$
Substituting the formula $1-(0.87)^2$
 $= 0.87$ 9.2
 $1-0.76$
 $= 0.87$ 7
 $= 0.87$ x 5

Degree of freedom (df) = 9-2=7

The 't' value in statistical table u. Aff at 1% significant level is 2.99. Therefore, since the calculated 't' value is a second 1% (0.01) significant level, this indicates that there is low less than one chance in thousand that the relationship has occurred by chance.