HEVEA SEEDS COLLECTION AS AN ALTERNATIVE SOURCE OF INCOME FOR POVERTY ALLEVIATION: A CASE STUDY OF RUBBER RESEARCH INSTITUTE OF NIGERIA (RRIN) NEIGHBOURING VILLAGES.

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ABSTRACT

The study examined Hevea seeds collection as an alternative source of income for poverty alleviation in Rubber Research Institute of Nigeria (RRIN) neighbouring villages. Simple random selections of 45 respondents from three rubber growing communities were served with structured questionnaire. Data collected were analyzed using descriptive statistics and general entropy class of measures. Results of the analysis indicated that respondents are very young and active. Hevea seeds collection involved both males and females and they are educated. Respondents sourced their Hevea collection from RRIN plantations. Middlemen are the major buyer of their Hevea seeds as such collectors are faced with low price and lacked adequate information about the price of Hevea seeds. A kilogram of Hevea seeds sold for N100, savings from their little earnings was able to improve their living standards and alleviate their poverty level. Furthermore, the general entropy class of measure analysis recorded significant difference in income and expenditure among respondents. It is therefore recommended that activities of middlemen should be checked by Government, so that respondents will have better prices for their seeds collected. This will encourage both the old and the young to be involved in Hevea seeds collection. Adequate and timely information about Hevea seeds price should be provided by the Government through recommendation from Rubber Research Institute of Nigeria.

Keywords: *Hevea* seeds, income source, poverty alleviation, Nigeria.

INTRODUCTION

Natural rubber (*Hevea brasiliensis* Muell Arg) is a tree that could grow up to 25 m tall and it takes 6 – 7 years to mature and belongs to the family *Euphorbiaceae*. Production statistics indicated that Nigeria has a total of 247,100 hectares of land under natural rubber cultivation where over 70% are owned by small -scale farmers (Delabarre and Serier, 2000; Aigbekaen *et al.*, 2000). Rubber seed oil (RSO) is obtained from the rubber seeds. The oil is semi – drying and as a result, it has wide applications in the manufacture of products such as alkyd resin used in paint industries, fat – liquor used in leather industry, soap and cosmetics, printing ink, chain lubricant and in the production of putty. Large quantity of rubber seeds abound in the country for commercial production of the oil. About 50,000 metric tonnes of the seed are estimated to be produced annually in the country. Rubber seed oil is already replacing linseed oil, which is currently been used in the manufacture of alkyd resin used in paint industries, fat – liquor used in leather industry, soap and cosmetics, printing ink, chain lubricant and in the production of putty. Linseed oil is imported and enormous foreign exchange would be saved by investing in the

production of rubber seed oil in the country. (Raw Material Research and Development Council, 2009). Proximate analysis revealed that both defatted and undefatted rubber seed meal contain acceptable levels of protein, crude fibre, soluble minerals and vitamins. There is an indication that rubber seed meal is a worthy source of protein for livestock feeds (Erhuanga, 2008). Seed collection can therefore enhance income of collectors and alleviate their poverty.

World Bank (2004) defined poverty as a condition of insufficient resources or income where in its most extreme form is the lack of basic human needs such as health services, education, drinking water etc. The distribution of extreme poverty by occupation category further revealed that agriculture and forestry contributed the highest percentage (64.7%) of national poverty in Nigeria. This millions of small scale farmers are entrapped in self- reinforcing cycle of poverty, low income leading to low savings which in turn leads to low investment and consequent low consumption, low health status, low productivity and eventual persistence of poverty (World Bank, 1996). Social indicators which include illiteracy level, health, nutritional status, housing, water, sanitation and access to credit reveal the incidences, depth and severity of poverty in Nigeria. These indicators are compressed into Human Development Indicators (HDI) as reported by Zanna (2000) and Salvia (2007).

Ensuring a thriving agricultural economy is critical for reducing poverty, enabling food security and managing natural resources in a sustainable fashion. Past attempts to alleviate poverty in Nigeria which yielded minimal fruit can be grouped into two distinct eras: Pre – SAP, SAP/Post SAP. Operation Feed the Nation (OFN), Free and Compulsory Primary Education (FCPE), Green Revolution, Low Cost Housing, River Basin Development Authority (RBDA), National Agricultural Land Development Authority (NALDA), Agricultural Development Programmes (ADP), Agricultural Credit Guarantee Scheme (ACGS), Strategies Grain Reserves Programme (SGRP), Rural Electrification Scheme (RES), and Rural Banking Programme (RBP) were all Pre – SAP programmes mostly designed to take care of employment generation, enhancing agricultural output and income, and stemming the rural – urban migration tide. SAP / Post – SAP programmes include: Directorate for Food, Road and Rural Infrastructure (DFRRI), National Directorate of Employment (NDE), Better Life Programme (BLP), People's Bank of Nigeria (PBN), Community Banks Programme, Family Support Programme (FSP) and Family Economic Advancement Programme (FEAP). The Obasanjo regime established the National Poverty Eradication Programme (NAPEP) in 2001, under this scheme such as Youth Empowerment Scheme (YES), Rural Infrastructure Development Scheme (RIDS), Social Welfare Services Scheme (SOWESS), Capacity Acquisition Programme (CAP), and Natural Resources Development Conservation Scheme (NRDCS) and Millennium Development Goals (MDGs) (Ali, 2006).These programmes were geared towards the alleviation of poverty but made little or no impact on the people due to poor implementation. It therefore, becomes pertinent to examine *Hevea* seeds collection as an alternative source of income for poverty alleviation in rubber communities. A case study of Rubber Research Institute of Nigeria (RRIN) neighbouring villages.

OBJECTIVE OF THE STUDY

The broad objective of the study is to examine *Hevea* seeds collection as an alternative source of income for poverty alleviation in rubber growing communities of Rubber Research Institute of Nigeria (RRIN), Edo State. The specific objectives of the study are to analyze the socio-economic characteristics of respondent; identify available markets for *Hevea* seeds; determine

income derived from *Hevea* seeds collection and to determine income distribution among the respondents.

METHODOLOGY

The study was carried out in RRIN neighbouring villages of Edo State. It lies between latitudes 5^0 44' N and 7^0 34' North of the equator and longitudes 5^0 4'E and 6^0 43' East. A sample size of 45 respondents was selected using cluster and simple random sampling techniques. In the first stage of cluster random sampling the population was divided into three villages. The villages were Iyanomo (RRIN), Obaretin and Evbuekpen. In each of the selected villages, a total of 15 respondents were randomly selected. This gave a total of 45 respondents. Structured questionnaire was administered to all respondents, these were filled and returned. Data collected were analyzed using descriptive and inferential statistics. To evaluate whether there is inequality in income and expenditure among respondents, Static Decomposition method using General entropy class of measures were adopted and formulae stated as follows:

Static Decomposition method between group inequalities is given as:

$$Ib = \frac{1}{\alpha^2 - \alpha}\left[\sum_{J=1}^{K} f_i\left(\frac{\bar{y}_i}{\bar{y}}\right)^{\alpha} - 1\right]$$

Where: Ib = between group inequality, α = Parameter which represents the weight given to distance between incomes at different parts of the income distribution, y_i = mean income of each partition, y = mean income of total population and f_j = population share

Static Decomposition method within group inequality using the General Entropy class measures (GE) is given by the formula:

$$IW = \frac{1}{\alpha^2 - \alpha}\left[\frac{1}{n}\sum_{J=1}^{K}\left(\frac{y_i}{\bar{y}}\right)^{\alpha} - 1\right]$$

Where: GE = General Entropy class of measures, IW= within inequality, α = Parameter which represents the weight given to distances between incomes at different levels, n = number of individuals in the sample, y_i = mean income of each partition and y = mean income of total population. The value of GE ranges from o to ∞, with zero representing an equal distribution (all incomes identical), and higher levels of inequality (Datt, 1998) as used by Salvia, (2007).

RESULTS AND DISCUSSION

Socio-economic characteristics of respondents: Table 1 shows the socio economic variables of the respondents. From the table, majority (77.8%) is aged 6 to 15 years. They are very young, active and very happy in collecting rubber seeds because they know that at the end of every each day during the month of July and August they have money in their pockets. Both males (57.8%) and females (42.2) are involved in *Hevea* seeds collection. Furthermore, 77.8% of the respondents are single and very young, only (22.2%) of the respondents are married. Respondents are characterized by large family sizes with a mean family size of 9 people, a source of labour for production activities. They are educated and education has been found to be a catalyst for respondent's record keeping, adoption and productivity. The process of farmers' transformation is made easier when farmers are educated and are likely to take more decisions in the management of farm enterprises. This finding agrees with the work of van den Ban and Hawkins (1996) who reported that there is positive correlation between education and adoption of innovation, and that, an educated mind is able to accept positive change.

Table 1: Demographic Characteristics of Respondents (N=45)

Variables	Number	Percentage
Age (Years)		
6 – 10	14	31.1
11– 15	21	46.7
16 – 20	4	8.9
21 and above	6	13.3
Total	**45**	**100**
Sex		
Male	26	57.8
Female	19	42.2
Total	**45**	**100**
Marital Status		
Married	10	22.2
Single	35	77.8
Total	**45**	**100**
Family size (persons)		
3 – 5	11	24.4
6 – 8	27	60.0
9 & above	7	15.6
Total	**45**	**100**
Education		
Primary school	27	60.0
Secondary School	18	40.0
Total	**45**	**100**

Source: Field Survey, 2010.

Sources of *Hevea* seeds and available market for the respondents: Table 2 shows the sources of *Hevea* seeds and available market. All (100%) the respondents sourced their *Hevea* seeds from Rubber Research Institute of Nigeria. Majority (82.2%) collected 1 – 2kg of Hevea seeds everyday while 53.3% sold the seeds collected everyday and 26.7% of the respondents sold the collected once a week. Middlemen are the major (88.9%) buyer of *Hevea* seeds collected from the respondents. Perceived difficulties faced by the respondents in *Hevea* seeds collection include Low price (71.1%) and lack or inadequate information about the market price (28.9%).

Table 2: Sources of *Hevea* Seeds and Available Market (N=45)

Variable	Number	Percentage
Source of seed collection		
RRIN Plantation	45	100
Total	**45**	**100**
Kg of *Hevea* seeds collected/day		
1 – 2	37	82.2
3 – 4	8	17.8
Total	**45**	**100**
Frequency of sales of seeds		
Everyday	24	53.3
Once a week	12	26.7
Once a month	5	11.1
Once a year	4	8.9
Total	**45**	**100**
Buyers of seeds		
RRIN Main station	5	11.1
Middlemen	40	88.9
Total	**45**	**100**
Marketing problem of *Hevea* seeds		
Low price	32	71.1
No information about price	13	28.9
Total	**45**	**100**

Source: Field Survey, 2010.

Income derived form *Hevea* seeds collection by the respondents: Table 3 shows the income derived from *Hevea* seeds collection. Most respondents (84.4%) sold 1 – 2 kg per day while only 15.6% of the respondents sold 3 – 4 kg per day and the cost of one kilogramme of rubber seed was sold at ₦100.00. Earnings from sales of *Hevea* seeds further showed that 62.2% received

between ₦ 900 – ₦1,500 per annum while 28.9% and 6.7% of the respondents earned between ₦ 1,600 – ₦ 2,200 and ₦ 3,000 and above respectively. Majority of the respondents (84.4%) saved N400 – 899, 6.7% saved N900 – N1, 399 and 4.4% saved N2, 200 and above respectively from the income earned during the *Hevea* seeds collection period. The amount saved by the respondent has gone a long way in alleviating their poverty level in so many ways. This include paying children school fees (48.9%), Christmas saving for food and wares (24.4%), for school sandals and school bags (22.2%) and to start mini-business (4.4%). Result in table 3 also revealed ways by which income derived from *Hevea* seeds collection has improved the standard of living of the respondents, by enhancing their educational standard (73.3%), balance diet for their family (15.6%), solved immediate needs (11.1%).

Table 3: income derived from Hevea seeds collection and purposes (n=45)

Variable	Number	Percentage
Quantity of seeds sold		
1 – 2	38	84.4
3 – 4	7	15.6
Total	**45**	**100**
Income from seed collection (N)		
900 – 1,599	28	53.3
1,600 – 2,299	13	26.7
2,300 – 2,999	1	2.2
3,000 and above	3	6.7
Total	**45**	**100**
Amount saved (N)		
400 – 899	38	84.4
900 – 1,399	3	6.7
1,400 – 1,800	1	2.2
1,900 – 2,100	1	2.2
2,200 and above	2	4.4
Total	**45**	**100**
Purpose of saving		
Children school fees	22	48.9
Christmas saving for food & wares	11	24.4
School sandals and school bag	10	22.2
Start mini business	2	4.4
Total	**45**	**100**
Uses of income		
Enhanced my educational standard	33	73.3
Good food for my family	7	15.6
Solved immediate needs	5	11.1
Total	**45**	**100**

Source: Field Survey, 2010.

Decomposed annual income and expenditure for the determination of inequality between and within respondents (naira) and ranking of general entropy of class measures:

Table 4 and 5 are the annual income and expenditure for the determination of inequality between and within respondents and ranking of general entropy of class measures analysis. The results recorded significant difference in income and expenditure among the respondents. *Hevea* seed collected within group and among group is significant, meaning that, the more the seed an individual is able to collect, the more the income he/she generate and variation in spending differed among respondents. Income derivable from seed collection could reduce poverty level, if used through productive activities like education, farming, petty trading among others.

Table 4: Decomposed annual income and expenditure for the determination of inequality between and within respondents (naira)

Income distribution	No	Total Income	Mean Income	No	Total Exp.	Mean Exp
≤ 1,600.00	28	322250	1151.78	28	4400	157.14
1601 – 2000	13	23300	1792.31	9	3150	350
2001 – 3000	1	2500	2500	6	3300	550
Above 3000	3	10,50	3500	2	2000	1000
Total	**45**	**68,55**	**8944.09**	**45**	**12,850**	**2057.14**

Source: Field Survey, 2010.

Table 5: Rank of General Entropy of Class Measures

Variables	Value
Income	
Mean income of total population	8944.09
Total income	68,550
Population share(Total no of respondents)	45
Income between group (IB)	343.89 S
Income within group (IW)	0.8296 NS
Expenditure	
Mean expenditure of total population	
Total expenditure	2057.14
Population share(Total no of respondents)	12,850
Expenditure between group (EB)	45
Expenditure within group (EW)	280.094 S
	0.861 NS

Source: Field Survey, 2010

CONCLUSION AND RECOMMENDATIONS

Conclusion

The study examined *Hevea* seeds collection as an alternative source of income for poverty alleviation in rubber growing communities of Rubber Research Institute of Nigeria (RRIN). The respondents are very young and active. *Hevea* seeds collection involved both males and females who are educated. They sourced their *Hevea* collection from RRIN plantation. Middlemen are the major buyers of their *Hevea* seeds. They are faced with low price and lack adequate information about *Hevea* seeds collection. The respondents' saving from the little income generated from sales of *Hevea* seeds, helped in no small way to alleviate their poverty.

Recommendations

The activities of middlemen should be checked by Government through the Institute, since the products is from the Institute plantation, so that seed collectors will have better price for their seeds. This will encourage both the old and the young to be involved in *Hevea* seeds collection. To this end, it is recommended that Rubber Research Institute of Nigeria (RRIN) buy directly from the seed collectors to eliminate middlemen, so that they can get good price and earning for the seeds.

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