

RESEARCH ON RURAL INTEGRATED DEVELOPMENT AND FOOD
PRODUCTION IN THE GUINEA SAVANNAH ZONE OF NIGERIA.

by

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1. Introduction.

During the current second development decade, emphasis on programming and planning for economic growth is being gradually shifted towards rural development. The component variables that ought to merit our attention in this shift of emphasis are rural population, rural employment, rural income, increased rural productivity, modernized rural landscape, rural social welfare, etc. To tinker with these variables as a means of attaining a rural-integrated development and/or economic growth that will yield Panet's positive-sum benefits poses unique problems in the face of very deep ignorance or serious lack of adequate knowledge of the rural areas in almost all the less developed countries (LDC's). To be more precise, we know so little about the level of employment, unemployment, underemployment in rural areas and how the inhabitants allocate their time. We lack adequate information about the capital and labour profiles, the structure of income distribution, the residence of decision-making power, the socio-cultural framework of current level of food production based on given levels of technology, and what actually makes rural people "tick".

Coming nearer home, and looking at the rural landscape in Nigeria, we find conditions much more magnified than the generalized pattern depicted above. For instance, appendix table 1 shows that the 1963 census figures in Nigeria indicate that the urban population of the country ranges from 6 to 51 percent among the states, but of a national average of 19 percent of the total population. Apart from Lagos State (27.84%) and Western State (48.96%), the rural population in the other states of the federation varies from 80.28 to 94.04 percent of the total population with a national average of 80.78 percent. This high figure attests the exclusively rural nature of the Nigerian population.

In appendix table 2, we have presented estimated population of Nigeria from 1963-1972 both aggregate and by states. This table shows that in 1972, there will be about 70.9 million people in Nigeria. The land areas of the states are: Benue-Plateau 38.9, East-Central 11.3, Kano 16.6, Kwana 28.7, Lagos 1.4, Mid-Western 14.9, North-Central 27.1, North-Eastern 105.3, North-Western 65.1, Rivers 7.0, South-Eastern 11.2, and Western 29.1 thousand square miles. The number of persons per square mile in 1972 will be BP 132, EC 813, KO 442, KA 105, LS 1,354, MW 216, NC 191, NE 94, NW 112, RS 280, SE 412, and WN 415. On the aggregate, with a land area of 356,700 square miles, Nigeria

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will have about 199 persons per square mile in 1972. Considering the fact that as much as 80 percent of the population will be living in rural areas, we need to examine this structural component a little more than we have hitherto done.

In appendix table 3, we present data on the estimated urban population of Nigeria based on some simplistic assumptions for the period 1963-1972. Using some rather crude and aggregated information on urban and nonfarm employment, we can estimate the number of people employed in 1968 at 50,176 in metalliferous mining, 3,306 in coal corporation (assuming a reactivated colliery employing the 1963 work-force), 20,959 in railway corporation, and 86,916 in industry. This makes a total of 161,357 (or 0.161 million) out of an estimated urban population of some 13.397 million. We have not included government ministries, schools, hospitals, and corporations. If we conjecture that when this omitted number is added, the result would be about 1.500 million. This figure would be about 11.19 percent of urban population and 2.38 percent of the countries total population in 1968. About 42.97 percent of Nigerian population in 1963 census is of 0-14 years age bracket while about 4.31 percent is in the 55-75 (and above) years age bracket. These figures subtracted from the total, leave 52.72 percent as potential labour market population.⁽¹⁾ If we assume, for lack of any precise information and as a consequence of the civil war that this percentage is maintained in 1968, 1969, 1970, 1971 and 1972, the potential labour market population of Nigeria for these years are estimated to be 33.206, 34.203, 35.229, 36.285, and 37.374 millions respectively. The urban components of these figures, which include both male and female, are estimated to be 7.046, 7.429, 7.829, 8.244 and 8.678 millions respectively. If we recall that 1.500 millions are earlier said to have paid employment in 1968, then we would have had, in that year, 5.546 million people in the self-employed plus unemployed group in urban areas of Nigeria.

To examine the rural landscape situation much more closely, we present in appendix table 4, estimates of rural population in Nigeria from 1963 to 1972 as the simple difference between total and urban data respectively presented in tables 2 and 3. Once again, this table is highly revealing of the magnitude of Nigeria's rural population. Appendix table 5 has been compiled to present a comparative picture of estimated rural and urban population for the period 1963-1972 in percentage terms, so that we can better appreciate the relationships. Recalling our earlier calculations of labour market population, the rural labour market population in Nigeria for the years 1968, 1969, 1970, 1971 and 1972 may be roughly estimated to be about 26.160, 26.774, 27.400, 28.041, and 28.696 millions respectively. These figures which include male and female represent the group of self-employed, underemployed and unemployed that we normally direct our tools of analysis towards in attempts to solve their problems. This is a sizable lot to be neglected in the development process. For example, if we add the urban and rural components of this group for the year 1968, in view of the fact that most of the towns regarded as urban have rural-based occupations, we have an estimated figure of 31.706 millions. This is 95.48 percent of the labour market population in that year.

We should realize, however, that these calculations are crude estimates which I am fully convinced are subject to considerable and/or significant under-estimation. It should also be realized that estimations of this kind

(1) F.O.S., Annual Abstracts of Statistics, 1969, Lagos, Nigeria.

do constitute an area in which our knowledge situation is at the very best a conjecture and/or guess-work. From these comments, we can conclude that the horizon of our ignorance of the rural landscape of Nigeria spans such important subjects as (i) problems of rural employment and development, (ii) factors responsible for the current state of our rural landscape, (iii) the parameters of the structure and performance of enterprises in the rural economy, (iv) the needed changes to stimulate progress with respect also to how, and how much in men, money, and materials can we successfully bring about desired changes for increased food production (v) what approach should we choose as between political and ecological-edaphic regions or boundaries in modeling implementing changes, and (vi) how do we measure the positive-sum benefits resulting over time.

2. The Current State of Knowledge.

Whatever definition of unemployment we hold as a frame of reference will determine the state of our knowledge about the level, problems, and solutions to unemployment, increased productivity, and substantial increases in food production. Two basic definitions of unemployment in the labour market have been advanced by Thorbecke.⁽²⁾ First is the definition of unemployment as that part of the labour force which is involuntarily unemployed. This concept has been employed by governments for census purposes and has been responsible for most of our misdirected thoughts about the problem. Second is the definition as the comparison of labour resources required to produce a given output to the available man-power expressed in man-days or man-hours over the production period, which is usually one year. This meaningful approximation of unutilized labour resources includes the unutilized labour resources of those who are partially employed in addition to the involuntarily unemployed. This definition enables us to employ the utilized labour resources as a yardstick for the assessment of foregone opportunity to earn income and thereby seek ways and means of improving the living standards of millions of individuals who are operating at the subsistence level. But, unfortunately, by sticking to the first definition, we have unwittingly circumscribed our knowledge situations and narrowed the full-information capacity of our research endeavors.

Looking through the information available to me, the state of knowledge on the Nigerian rural landscape as revealed by research results can be divided into five areas of previous and current research efforts. The first⁽³⁾ is the rural economic surveys conducted by the Federal Office of Statistics. Apart from the serious quarrels one can pick up with these surveys on issues of methodology, sampling procedures, representativeness of samples, etc., an examination of the questionnaire used in the surveys will convince researchers that they were not designed to provide meaningful answers to the burning issues of rural development and needed food production. The surveys are designed to

(2) Thorbecke, E., "Unemployment and Underemployment in Latin America"; (Mimeo) paper prepared for the Interamerican Development Bank, 1970.

(3) F.O.S., Rural Economic Survey of Nigeria: Farm Survey (i) 1963/64, and (ii) 1964/65, Lagos, 1966.

"measure and interpret relative changes in the rural economy through the collection of reliable data from 'a representative sample of rural households' from sample villages. The main items of information provided relate to household characteristics; area under cultivation by farmers; size of the farming households; yield estimates of principal crops; data on farming pattern of Nigerians; domestic livestock and agricultural price." (Reference 3).

This quotation/extract speaks for itself on the issue of the inadequacy of these surveys to provide meaningful answers to the problems of concern to us, apart from the fact that the form and publication of the reports are, to be frank and candid, such that they can hardly be used for planning rural employment rural development, and increased food production.

The second is rural consumption and urban consumer surveys that have been and are still carried out by the F.O.S. First, the retail food prices reported normally deal with urban food prices and hence less reliable for rural inferences. These urban surveys apply only to wage earners, thereby leaving more than 90 percent who are in the self-employed and unemployed pool untouched. The rural consumption surveys lack representativeness of samples with respect to areas in each state and they are usually based on the amount of food consumed without any orientation to occupational structure, source distribution of the components of the food basket, income position/distribution of the household surveyed, the degree of rural self-sufficiency, relation of food basket to labour/work productivity and health, etc. The purpose of the rural consumption surveys, as explained in personal communications with the statistician in charge, is to facilitate a computation of the amount of food consumed as a means of reconciling rural production and consumption. Here again, we have an annual exercise that is grossly incapable of providing valid answers to problems of rural labour market, rural development, and enhanced increases in food production.

Third is the series of ILO surveys on man-power problems, the labour market, and overall unemployment problems in Nigeria. Once again, the man-power studies have been essentially directed to technical/skilled, semi-skilled and unskilled labour requirements insofar as they affect urban centres, industrial establishments, service establishments, government ministries, and institutions of higher learning in the country. I am yet, as of now, to come across any studies relating these to the country's rural landscape in terms of exits and entries of labour. The ILO survey⁽⁴⁾ reported for Western Nigeria was conducted with the purpose of testing the degree of rural employment in the pilot area. It is no wonder that the report came outright to confirm the usually low unemployment situation in all the rural areas of Africa by citing the open unemployment rate of 1.90 percent. Mueller and Severing,⁽⁵⁾ who supervised this pilot project, write in support of the strategy of employment promotion through rural development as follows:

(4) ILO, Socio-Economic Conditions in the Ifo, Otta, and Iloro Districts of Western Nigeria, Lagos, Nigeria.

(5) Mueller, P., and K. H. Severing, "Employment Promotion and Rural Development: A Pilot Project in Western Nigeria," International Labour Review Vol. 100, No. 2, Aug., 1969, pp. 111-130.

"In the pilot area, and presumably in many other rural areas of Nigeria, the over-riding problem is one of low productivity and underemployment in all sectors of the rural economy. Even the relatively small group of people described earlier as 'openly unemployed' are mostly a product of changed aspirations and dissatisfaction with locally available opportunities. The majority of them would be able to earn at least a subsistence wage in agriculture and often depend on their relatives to support their status of job seeker. For this reason, rather than concentrate funds on creating new employment for this limited number of unemployed school leavers, rural development policy should aim at improving the performance of farmers, craftsmen and apprentices already at work. A tangible contribution from rural areas to Nigeria's economic development and increasing employment opportunities can only be expected in the longer run from increased productivity and accelerated growth of income per head in the rural private sector."

Whilst one cannot quarrel with this statement, the pertinent questions are: (1) Does the survey provide such a comprehensive capital, labour, and employment profiles of the enterprises undertaken by individual families in the pilot area? (2) Does it provide sufficient information on the socio-cultural and dynamic factors precipitating migration? (3) Does it provide us with the true nature of income distribution by occupation and age-groups to justify these conclusions? and (4) Is the pilot area, which is about 30 miles from Lagos and Ikeje industrial estates, typical of all rural areas in Western Nigeria, let alone capable of being generalized to all rural areas in Nigeria and Africa? I guess not. One would, in addition, need to examine the questionnaire and the raw data from this survey before one can make any further comments. One vital conclusion at this stage is that this pilot area is atypical of all rural areas in Western Nigeria.

Fourth is the industrial surveys undertaken by the Federal Ministry of Trade and Industries in conjunction with the F.O.S. The purpose of these surveys is to facilitate an assessment of the worthwhileness of industrial establishments in Nigeria. The works of Kilby⁽⁶⁾, Olayide⁽⁷⁾, FOS⁽⁸⁾, Callaway⁽⁹⁾, Laurient⁽¹⁰⁾ and others have been carried out in the area of

(6) Kilby, P., Industrialization in an Open Economy: Nigeria, 1945-1966, Cambridge University Press, New York, 1969.

(7) Olayide, S. O., A Survey of Agro-Industries in Lagos and Western States of Nigeria. Unpublished Survey Report. University of Ibadan, 1969.

(8) F.O.S., Surveys of Manufacturing Establishments in Nigeria, 1967 and 1968. Lagos, Nigeria, 1969.

(9) Callaway, A., Nigerian Enterprise and the Employment of Youth: A Study of 225 Businesses in Ibadan (Mimeo) Unpublished report, 1971.

(10) Laurient, C.K., Agro-Industries in Nigeria, CSNRD 25, Lagos, Nigeria, Aug., 1968.

6

industrial surveys with varying objectives. They have, as a result, not been tailored to rural integrated employment and development objective in an "agri-business" framework. Hence, this area of research needs to be redesigned and rescheduled since the present state of information is not fully capable of providing the answers and correct parameters that we need.

Fifth is a series of enterprise surveys of the farm management research calibre that have been carried out by the various Ministries of Agriculture in Nigeria, the Universities, and other research institutions. Government Ministries surveys have been largely directed to the cash/export crop economy of the country as a means of improving performance thereby ensuring increased productivity that is commensurate with high revenues in the form of "forced taxation" on commodity exports. In the last six to seven years, farm management surveys have been carried out by the Rural Economics Research Unit (RERU) under the directorship of Dr. Norman at the Zamaru Campus of the Ahmedu Bello University, Zaria, Nigeria. The data on input-output structure of peasant mixed farming enterprises have not taken full account of time and resource allocations to supplementary on-farm and off-farm enterprises. The research has been directed towards understanding the structure and productivity of mixed peasant farming and cannot in its present form be used for analyzing problems of integrated rural development in a meaningfully detailed manner.

At the University of Ibadan, we have been engaged in studies similar to Norman's, but with a much broader framework. In 1968, Ogunfowora began a farm management study of the government Farm Settlements (arable and perennial crops) with a view to assessing the possible income structure of the current level of inputs and technology under an optimal enterprise combination which makes use of primary-complementary-supplementary enterprises in the farm plan. Originally intended as a doctoral dissertation, the results have been published as journal articles. Three papers have come out of this study. The first article attempted to highlight the potential role of farming in the food production sector by designing two models which attempt to (a) characterize peasant family farm operating entirely on semi-subsistence basis, and (b) characterize a family farm with a commercial orientation in the sense that labour living and capital borrowing constitute unique parts of the model. Both solutions, using linear programming, reveal a wide range of possible and considerably improved income opportunities through efficient combination of enterprises.⁽¹¹⁾ The second paper⁽¹²⁾ attempted to provide answers to the problem of planning an efficient farm organization which could achieve the dual objective of providing adequate income for settlers and their family and be self-financing within a short-time period of three years. Using a poly-period dynamic programming technique, the results show that this is feasible and can be attained at high levels of income under

(11) Ogunfowora, O., "A Linear Programming Analysis of Income Opportunities and Optimal Farm Plans in Peasant Farming," Bulletin of Rural Econ. & Sociology, Vol. 5, No. 2, 1970, pp. 223-250.

(12) Ogunfowora, O., "Optimum Farm Plans for Arable-Crop Farm Settlement in Western Nigeria: A Poly-Period Linear Programming Analysis," Nigerian Jour. Econ. & Social Studies, Vol. 12, No. 2, July, 1970, pp. 205-224.

the current technology. The third paper⁽¹³⁾ uses recursive linear programming to integrate annual enterprises with perennial crops using Ago-Owu Tree Crop Farm Settlement as an example. The results show that the inclusion of supplementary enterprises will not only reduce the total amount of loans required, but will also ensure self-supporting farm business after the fifth year of production. It has been claimed before the study began that the government had been spending an average of \$56,000 per annum for maintaining Ago-Owu Settlement even after the ninth year of establishment. The current analysis from the study now shows that such an annual expenditure could be eliminated if the government introduces the production of supplementary crop enterprises into all the essentially tree-crop settlements. On this score, the rate of drop-outs in settlement farming will drop to zero, and as a result of the demonstrated and higher farm income possibilities, the settlements may be said to be conveniently capable of increasing its employment and income opportunities to young school leavers by about three to five times its present population of settlers.

Also at the Ibadan University, our second group of farm management studies on enterprise basis has been directed by Olayide, and are intended as topics for M.Sc. thesis and/or journal articles. The first was a small-sampled farm management survey of peasant farmers in the derived savannah belt of Western Nigeria -- a zone where tree-crop farming is not economic. The resulting data for the three delimited sub-zones have been put to LP analysis. The results show that under efficient combination of enterprises, peasant farmers in these sub-zones could have net incomes higher than those of cocoa farmers in the same state and that this is a zone to which employment generation and promotion in farming for food production could be expected.⁽¹⁴⁾ Individual farm enterprises were then designed for surveys in various parts of the Western State. Completed studies in these series include maize crop enterprise by Akinwumi,⁽¹⁵⁾ poultry egg-producing enterprise by Olowe,⁽¹⁶⁾ tobacco production enterprise in a large-scale commercial plot of a private farmer by Ogunfowora and Olayide,⁽¹⁷⁾

(13) Ogunfowora, O., and Earl O. Heady, "An Integration of Short-Term Farm Enterprises with Perennial Crops: An Application of Recursive Programming to a Tree Crop Farm Settlement in Western Nigeria," Journal Paper J. 7069 of the Iowa Agricultural and Home Economics Experiment Station, Project 1558, 1971. (To be published).

(14) Olayide, S. O., S. O. Olowude, and S. A. Oni, "Application of Linear Programming to Farm Planning in Developing Countries: A Case Study of Arable Farming in Western Nigeria," AAASA Journal, Vol. 1, No. 1, 1971, pp. 28-34.

(15) Akinwumi, J. A., Economics of Maize Production in Oyo Division of Western Nigeria (Unpublished) M.Sc. Thesis, University of Ibadan, Dec., 1970.

(16) Olowe, M. O., Economics of Private Commercial Egg Production in "Ondo Circle" of Western Nigeria (Unpublished) M.Sc. Thesis, University of Ibadan, Sept., 1971.

(17) Ogunfowora, O., and S. O. Olayide, "Assessment of Economic Efficiency in Flue-Cured Tobacco Production: A Case Study of the River Valley Estate Mixed Farming Project," Nigerian Agri. Journal, Vol. 6, No. 1, April, 1969, pp. 3-10.

9

broiler enterprise by Olayide and Ogunfowora,⁽¹⁸⁾ (Agent of \$2,800.00 from the University of Ibadan Senate Research Grants Sub-Committee has been provided to conduct this broiler experiment on a fairly large scale, and is being undertaken as a Master's Thesis project by one of my graduate students), and saw-milling as avenue for absorbing seasonal unemployment by Falobi.⁽¹⁹⁾ Budget limitations and current exhaustion of budget have led to curtailing the envisaged comprehensive horizons of these studies, which have now received modest support from the Rockefeller Foundation as part of research support to the Department of Agricultural Economics & Extension, University of Ibadan.

Summarizing, the known available state of knowledge presented in this section, leaves serious gaps in the body of knowledge that we urgently require for a meaningful assessment and planning of rural development, employment, and increased food production in Nigeria. The sample space is, to all intents and purposes, too small for any meaningful and definitive generalization. The studies reviewed have generally not been planned and carried out in the hollistic framework required for a rural-integrated enterprise approach to purposefully additive research that will provide us with a real picture of the rural landscape. What we have now amounts to an entirely blurred caricature of segments of the picture of our rural landscape. This contention emphasizes the need for a comprehensive enterprise-approach to research of our rural economy, based on ecological-edaphically directed production regions in each of the states of the Federal Republic of Nigeria. It is also my contention that this research should be carried out on arable crops and other rural-based enterprises and trades, in order to be capable of providing answers to current and future policy questions.

3. Policy Questions in Rural Integrated Development Research.

Having discussed in this great detail the state of our knowledge of the rural landscape, we should stop to ask the question: What policy issues or questions will this research ask or shed light on? These will include such issues as:

1. What can we do about the problem of rural income, employment, and wealth?
2. What sort of information do we need to realistically solve the problem of food shortages in the country?
3. Is the rise of well over 30 percent in food prices likely to continue and if so what can we do about it?

(18) Olayide, S. O., and O. Ogunfowora, "Optimal Timing in Broiler Production: An Economic Analysis," Bulletin of Rural Economics & Sociology, Vol. 5, No. 2, 1970, pp. 277-297.

(19) Falobi, S. O., Economics of Lumber Production and Distribution and Employment Possibilities in Farming Communities of Western Nigeria (Unpublished) M.Sc. Thesis, University of Ibadan, Dec., 1971.

4. How can we programme and implement policies for satisfactory levels of food production under rising population growth rates and economic development?
5. What necessary adjustments both structural and resource-oriented will be needed to stimulate increased food production and modernize farm operations to minimize the drudgery of farm business?
6. What package approach of improved production practices for the "essential grains" will be economically feasible in this food-producing zone?
7. What would be the level of resource demand and how can resource supplies be tailored to meet demand for efficient allocative process?
8. What would be the optimal size-scale relationships for food production under given levels of technology/mechanization?
9. What would be labour, employment income, and migration as well as capital profiles?
10. How can we assess the level of optimal developmental investments for effective and efficient food production policies commensurate with integrated rural development?
11. How do we organize the data-gathering basis and procedures for efficient information systems for continuing and/or perennial planning purposes?

Looking at these important policy issues, we cannot but make some more comments on the usefulness of our current level of information in providing answers if any to these questions. Seriously and unfortunately too, previous research efforts in the country have been largely focused on the technical and economic aspects of the commodity exports crops economy. It was felt that the food production section was capable of taking care of the food and fibre needs of the country. The level of inadequate information from F.O.S. surveys was partly responsible for this erroneous contention. Furthermore, the consortium research report on rural development in Nigeria⁽²⁰⁾ was completely inadequate in answering any of these policy questions on food production and integrated rural development. Apart from the studies of Okurume⁽²¹⁾ and Gusten,⁽²²⁾

(20) Johnson, G. L., et al., Strategies and Recommendations for Nigeria Rural Development in Nigeria 1967-1985, CSNRD 33, 1969.

(21) Okurume, G. E., Foreign Trade and the Subsistence Sector in a Peasant Economy (Unpublished) Ph.D. Dissertation, Yale University, Aug., 1970.

(22) Gusten, R., Studies in the Staple Food Economy of Western Nigeria. (Unpublished) Manuscript, Munich, 1967.

there is no reliable report capable of providing the necessary and sufficient information for answering those policy issues. The current food problem led the National Agricultural Development Committee to ask Olayide and his group to prepare a Food Balance Sheet for Nigeria. This group ran into the problem of lack of information as amply shown in their report.⁽²³⁾ This lack of necessary and sufficient information rang through the recent "National Seminar on Agricultural Development in Nigeria". In addition to recommendations of active planning of package approach to the production of essential grains, especially rice and maize, the seminar seriously recommended basic research into the structure and economics of food production in Nigeria. It even requested the Federal Government to request the F.O.S. in cooperation with the various Ministries of Agriculture to carry out a comprehensive agricultural census in Nigeria by or before 1963 so that the next planning exercises could be based on dependable information.⁽²⁴⁾

Having said this much about the policy questions which the proposed basic research is capable of answering, we can now state the specific objectives of this research. These are:

1. To examine the resource supply and demand structure of food production in the Guinea or Derived Savannah Belt of Nigeria by focusing attention on the essential grain crops (rice and maize) which governments are attempting to promote in this zone.
2. To assess the integrated enterprise combination, intercropped and sole-cropping approach to the economics of producing these crops.
3. To diagnose the extent of nonfarm employment and income on production activities and on size-scale relationships.
4. To assess the important economic factors influencing labour profiles in, net flow of labour into and possibilities for increased employment opportunities in food production.
5. To assess the consumption patterns of farm families and the extent to which these affect levels of marketable surplus and size of farm and off-farm operations.
6. To study the existing organisational structure of food production and assess the extent to which it can be modified to stimulate increased commercial-oriented food production.
7. To develop a survey procedure and research questionnaire which can be integrated with and/or incorporated into the current inefficient structures used by F.O.S., so as to facilitate a perpetuation of an efficient and reliable data-gathering machinery for subsequent plan formulations and revisions in Nigeria's agricultural sector.

(23) Olayide, S. O., Dupe Olatunbosun, and E. O. Idusogie, A Quantitative Analysis of Food Requirements, Supplies and Demands in Nigeria, 1968-1985, (Technical Report to the N.A.D.C.), July, 1971. (To be published).

(24) National Agric. Seminar, Summaries of Proceedings and Recommendations on Food Crops and Pastures, July, 1971. (Ibadan).

8. To use the input-output data obtained from this study as the reliable basis for analyzing decisions affecting resource input combinations and ratios in efficient food production policies for this region of Nigeria.
9. To use the input-output data for deriving investment possibilities in current programmes, modernization/new package programmes, service programmes, and organizational programmes, that the states and Federal Governments of Nigeria might want to pursue in stimulating increased production of the essential grains in this zone.
10. To use the research as a basis for training enumerators and graduate students for future services in government ministries in Nigeria.

4. Rural Integrated Development Research.

With the policy questions and the specific objectives of this research in mind, let us discuss the specific components of the research. A research that is capable of providing valid answers to issues of policy of the type we have raised in the last section needs to be comprehensive in scope. It also needs to survey in a fairly detailed fashion the economics of on-farm and off-farm activities of the various households in the sample survey. The "complete enterprise" undertakings of the farm families will provide us with realistic input-output data to prepare income, capital, labour, and employment profiles of the area. The six major components will now be discussed briefly.

First, it should involve a precise and comprehensive delineation and categorization of all rural occupations into the farming, services, community activities, crafts, manufactures, trades, etc. Then the various possible enterprises under each occupation should be listed in detail. On the basis of this we can categorize enterprises as primary, complementary, supplementary and competitive enterprises based on theoretical and situational relationships as shown below.

Basis Enterprise		Supplementary Enterprise	Complementary Enterprise	Competitive Enterprise	Others
Farmer 1	Maize	Yams, Millet Poultry	Sorghum Cowpeas	Crafts Trading	Community Off Season
Farmer 2	Rice	Maize, Poultry	Cowpeas	"	"
Farmer 3	Tobacco	Maize, Cotton	Cowpeas	"	"

This aspect is the most basic information that has to be covered on a situational questionnaire basis and may be called "Series A". It should cover as many families in the sample areas as possible, if near complete enumeration cannot be attained. The results will provide us with ample information of what people are doing, when they have been doing it, the number engaged in it, the income structure, the operator's opinion of what he would do under certain changes in prices, credit facilities, subsidies, etc. In other words, apart from a comprehensive information and data-gathering job, "Series A" will include questions of a "producer panel" approach to estimation of "surrogate" supply functions for output, labour, employment, etc.

Second, it should take account of resource allocation to all the enterprises undertaken by each family in the sample areas, through the use of "Series B" questions. This series will make use of household list sheet, labour record sheet, employment record sheet, income-wages-expenditure record sheet, time allocation record sheet, and consumption record sheet. These sheets will be filled on weekly basis for each sampled household during the sample survey year. The results from such a comprehensive survey, when analyzed, will be capable of satisfactorily providing us with the much needed information. These will include (1) validating or invalidating underemployment, based on the allocation of time with respect to measures of hours of work, (2) the productivity of time, (3) the income elasticities of demand for "leisure" in unproductive and time-intensive commodities, and for "work" in productive and other goods-intensive commodities, (4) transportation component of time in length and modes of movement to work, and (5) division of labour within sampled households.⁽²⁵⁾ In addition, we shall obtain information which will enable us to derive input-output coefficients for the various enterprises, as well as draw labour, employment, income, capital, and other resources profiles that will facilitate derivation of optimal conditions under the given level of technology.

A third component is the scale of enterprise and the employment generating capacity, which we shall call "Series C". Here, we have to ensure that our sample is representatively inclusive of all possible size components of the various enterprises in the sample areas. If it is not, we would have to devise a separate stratified small sample studies for detailed analysis of scale relationships. This is necessary since "full employment" in rural areas is intricately intertwined with the resilience of the scale of enterprise at the current level of technology to take in more workers at fairly attractive income levels, or the capacity for economically efficient expansion of scale to take account of more job opportunities. Data from these should enable us to test such functional relationships as: EQ.1. $TC_i = f(H, E)$ where TC_i (for $i = 1, 2, \dots, n$) is the total cost of the enterprise, H is the size or scale of enterprise, and E is the level of employment. Furthermore, the information from series A, B, and C will enable us to estimate and test the simultaneous relationships in the labour market, illustrated by the following equations in implicit forms:

EQ.2. $W_c = W_c(N_a, N_u, N_p, K, V)$
EQ.3. $N_a = N_a(P_s, P_a, P_u, P_h, W, K, M)$
EQ.4. $P_h = P_h(H, C, Y, E, F_s, S_r)$

where

- W_c = work capacity
- N_a = amount of labour available
- N_u = amount of labour utilizable
- N_p = level of labour productivity
- K = index of enterprise capacities competing for labour
- V = other specifiable and/or non-specifiable variables
- P_s = sex distribution of rural population
- P_a = age distribution of rural population
- P_u = size of unproductive population as measured by people under 15 years and above 55 years as well as the disabled
- P_h = index of health of the rural population

(25) Becker, G. S., "A Theory of the Allocation of Time," Economic Journal Vol. 75, Sept., 1965, pp. 493-517.

- W = rural/urban wage rate index
- M = net immigration of labour as the difference of entry minus exit
- H = index of health facilities as measure by the size of hospitals, clinics, medicine stores, dispensaries, maternity and child welfare clinics, etc.
- C = climatic factors, including unique aspects of micro-climatology
- Y = level of rural family income
- F_s = rural household family size
- E = level of general education
- S_r = index of rural infrastructural facilities as measured by annual local government expenditures in such services

Fourth, based on comprehensive production function studies, linear programming analysis, and supply function studies as well as rural consumption expenditure/demand studies, we shall be able to obtain "Series D" data. These data will enable us to develop sub-routine computer simulation programmes for rural employment. This employment component should be a complete model in its own right and it should have specified policy variables that apply to employment generation, promotion, etc. The component should enable us to simulate employment levels over time and should be capable of being incorporated into the simulation model of Nigeria just as the beef-milk production component of the model recently developed for Nigeria ⁽²⁶⁾ if and when the Nigerian government adopts the simulation model and decides to use it as a planning tool. However, the proposed sub-component on rural employment and income will enable us to assess capital investments in employment generation and/or promotion projects as well as in overall rural development projects. In other words, it will provide us with valuable planning information on innovations and modernization alternatives of rural development. When such information is supplemented with information called from areas where the introduction of small-scale, intermediate-scale and large-scale technology have been applied to food production, we have valid bases for assessing investment spending and measuring progress.

Fifth, we shall need to incorporate studies based on obtaining information pertinent to the socio-cultural as well as organizational framework of the rural food production systems in the survey area. This calls for the inclusion of the type of questions that rural sociologists and human ecologists are interested in. This component we shall call "Series E" questions.

Sixth, I am fully convinced that most of the problems of the lack/slowness of the adoption of innovations, unresponsiveness to change, uncontrolled/uncontrollable rural-urban migration, near universal detesting of rural occupation by school leavers, etc., have been due to the utter lack of information about psychological and attitudinal dispositions to certain forms of work, and how these can be tinkered with to precipitate drastic changes, or how changes can be meaningfully incorporated in the socio-psychological and cultural framework. The sixth component of our integrated enterprise approach to rural research on employment and development will be made up of "Series F" questions. These are the questions of the form that psychologists are interested in for studies of

(26) Manetsch, T. J., et.al., A Generalized Simulation Approach to Agricultural Sector Analysis with Special Reference to Nigeria. Michigan State University, East Lansing, Michigan, June 30, 1971, 569 pp.

causal and attitudinal relationships in employment and work. The data from this series will be subjected to "factors analysis" procedures to obtain factor loadings and/or communalities which should guide us in areas for concentration of policies for guiding rural employment and development.

5. Methodology of Research

The method of data and information gathering will be through sample surveys, in view of the fact that there is an utter lack of rural enterprise records and accounts in all the rural areas of Nigeria. Sample surveys, to be precise, do constitute an acceptably convenient technique for measuring specific economic and social situations and/or the effects of a particular programme of work in quantitative terms. To use the results for comparison of areas and groups of rural enterprise units as well as for lucid definitions of parameters in the areas investigated, in addition to generalization for the rural "space" of a territory or country, the sample design has to be appropriate and truly representative. In addition, the sample size will need to be varied, depending on the needs of the study. It must be stressed, in this connection, that sample surveys are essentially based on past conditions and are, therefore, scarcely applicable in long-term projections of future trends. Added to this contention of inapplicability to long-term projections is the fact that the most representative sample may even conceal the impact of changing circumstances under the established average which frequently eliminates differences of substantial importance. According to Jacoby,⁽²⁷⁾ the usefulness of sample surveys is generally limited by their inflexibility in view of the fact that their design has to be fixed in advance and cannot be adjusted to new elements in the situation as they are discovered in the course of the investigation. These limitations probably diminish from the usefulness of the previous surveys that have been carried out with a different orientation and for the solution of different problems. They do not, however, prevent us from adopting this tool for data gathering for the problems with which we are faced since no other source is available. It must be stressed, however, that these limitations necessitate the need for periodic up-dating based on new surveys and new sample designs.

To balance the shortcomings of the Sample survey, we shall (1) collect administrative, experimental and intelligence records where available, (2) undertake individual case studies, (3) conduct typological field investigations, (4) carry out observations by trained observers, and (5) conduct opinion tests through individual interviewers at village and district levels as a means of providing corrective parameter checks to the six components of the survey work discussed in the last section.

(27) Jacoby, Enrich H. Evaluation of Agrarian Structures and Agrarian Reform Programmes: A Methodological Survey, FAO, Rome, 1966, pg. 37.

We shall need to concentrate our field of investigation on a regional approach that is based on ecological delimitations so that the results could give a "true" picture of the situations in the main geographical and type of enterprise areas of the country. A list of villages in each of the seven broad ecological zones (or sub-ecological zones) of the country will be compiled, and random samples of study villages obtained from this list. From the sampled villages, we shall obtain random sample of producers/households so as to represent the most interesting types by size, occupation, resources, cropping systems, and levels of technology, through a situational familiarization study lasting 2-3 months. Then the families/households will be subjected to the detailed studies based on the six-component format discussed earlier.

During the year-long study, we shall concentrate on (1) direct observations of rural enterprises unemployment patterns in the sense of visual inspection and periodically administered situational questionnaire approach, and (2) direct approach of interviewing households and workers in a comprehensive record-sheet coded survey in the representative and delimited ecological/sub-ecological zones of the country. We should be cognisant of the fact that one single survey is grossly incapable of successfully encompassing or embedding the complex typology of rural enterprises and labour supply-demand patterns within a national framework. The rural enterprise research and work-load approach will, among others, take into account (i) specific crop production enterprises, (ii) specific livestock enterprises, (iii) specific forestry and fishery enterprises, (iv) purchases and sales of inputs and outputs of the various enterprises, (v) home consumption and dwelling maintenance jobs, (vi) community and societal jobs, (vii) relatives and neighbours' rotatory and other jobs, (viii) local farm-related craftwork such as weaving, spinning, mat-making, carving, basketry, etc., (ix) non-farm related crafts such as carpentry, brick-laying, pottery, smithing, mining, etc., (x) local services work such as road repairs, health centres, etc. (xi) local petty trades and/or store-keeping jobs, and (xii) other off-season non-agricultural jobs available and/or possible.

In adopting this methodology of research, we are guided by the fact that for a meaningful integrated approach to rural development to be carried through successfully, the planning must make use of reliable information and also take into account all the important conditions obtaining at the outset. Such beginning conditions include production, distribution of wealth and income, the legal and socio-cultural framework, government services, private economic activities, the current stage of agricultural productivity and the potential for raising it. These contentions are supported by the report of a recent FAO Symposium on "Institutions for Integrated Rural Development held in Rome, June, 1971. (28)

(28) FAO. FAO/SIDA Symposium on Agricultural Institutions for Integrated Rural Development, Rome, June 21-27, 1971. (Mimeo Report) FAO/SWE/TF 48, 1971. 36 pp.

6. The Survey Area

The precise area to be covered in this study is the Guinea or derived Savannah Belt of Nigeria as will be found in Western, Kwana, Mid-Western, Benue-Plateau North-Western and North-Eastern States. In other words, our "universe" comprise the derived savannah areas lying in these states and in which food production activities are being planned for such essential grains as rice and maize. We are firmly convinced that this zone constitutes areas of sparse population and holds great promise for rural food production, employment opportunities, handsome farm incomes and substantial net immigration.

Furthermore, our small-sample study of this zone in Western State has convinced us that the zone can become the most efficient food belt of Nigeria and that with valid data we can establish the fundamental basis for a rural integrated development of the zone, minimize resource commitments in research efforts both technical and economic and provide the sound framework for a successful package approach to integrated rural development in the zone. In order to be meaningful, the sample size that spans six states with different ethnic compositions has to be moderately large. A sample size of 2,000 to 3,000 farm families in the whole area ought to be our target. If we have sufficient funds we could possibly increase the sample size. To decrease it to below 1,500 will not be ideal.

7. Personnel and Budget

To implement the proposal developed in this memorandum, we shall require trained field staff whose minimum qualification will be the West African School Certificate (WASC) or the General Certificate of Education (GCE) or the Government Class Four Certificate (GC4). Many of these trained field staff will be permanently stationed on the field and each one is supposed to handle between 50 to 75 households, whilst a few who satisfy the requirements of having passed in mathematics in their certificate examinations will be retained at the headquarters and trained as analysts as well as data compilers and processors to handle the weekly inflow of data from the field assistants. The field assistants and the analysts will be under the direct supervision of a technical officer whose minimum qualification will be a B. Sc. (Agric.) degree with honours in agricultural economics.

In addition, graduate students near or at the thesis stage of their Masters degree programmes will be assigned to supervising and collecting data and information on specific enterprises. They will use appropriate tools for the analysis of the specific enterprise information and generate M. Sc. Thesis out of the results. Each, in cooperation with the project directors will present a comprehensive report based on specified format for the enterprise information that was assigned to him and on which he has worked for about 1.25 years he was on the project.

The Senior Staff Directors of the project will present an aggregated annual report of the surveys. At the end of the project period of about five years, all the results will be aggregated into a comprehensive report on "possibilities for rural employment and development in Nigeria: an enterprise approach". In Appendix Table 6, we present a summarized job description of the staff required for the implementation of the research proposal.

17

On the question of budget, experience has shown that survey researchers can be very expensive. On the other hand, for a truly comprehensive study, we need a family sizable staff and equipments, especially those that will facilitate mobility. If we assume that a coverage of about 1,000 - 1,500 households in each year survey for "series B" and other questions, we shall need between 20-30 field assistants. Working on a minimum of 20 field assistants and other staff specified in appendix table 6 as well as needed equipments, I have prepared a tentative budget. This is presented in Appendix Table 7. The staff salaries have been based on the new wage structure recently prepared by Adebo's team and already accepted by the federal military government.

If we are interested in a larger sample size, the budget can be adjusted upwards depending on the funds at the disposal of the team to which this proposal is being submitted. The equipments are highly indispensable. It is possible to recover some of the monies spent on these, based on an estimation of their salvage values at the termination of the research. I have not made any such estimations.

The programme of work for the five-year duration of work may be briefly enumerated below:

1st Year:	I. Advertisement and Staff employment	2 months
	II. Staff Training for the Job	2 months
	III. Pre-test of Questionnaire and familiarization	1 month
	IV. Series A, E and F questions	6 months
	V. Analysis and Validation	1 month
2nd Year	I. Operating Questionnaire: Series B	12 months
3rd Year	I. Analysis: Series B, C, D	4 months
	II. Thesis Reports: A,B,C,D,E,F	8 months
4th & 5th Year	I. Selected Case Studies: Pretest	3 months
	II. Actual Study: A,B,C,D,E,F,	12 months
	III. Comprehensive Summarization	6 months
	IV. Data Bank and Final Reports	3 months

8. Summary

In this memorandum, I have attempted to cover, in a fairly comprehensive manner, the framework for research on integrated rural development and food production in the guinea savannah of Nigeria. My emphasis has been on obtaining basic input-output data on all the enterprises undertaken by sampled households in the zone. This approach has the unique features of providing us with such valid and meaningful profiles of such variables of importance to rural development and food production as labour, capital, employment, other resources, and income.

The memorandum has tried to assess the problems of rural development and food production with respect to responsible factors, structure of the given rural economy and the needed changes. It has examined the knowledge situation with respect to previous rural economic surveys, ILO surveys, industrial surveys,

18

rural enterprise surveys and the gaps in our knowledge. It has also posed some of the special key policy issues, stated the objectives and outlined the basic components of the research very broadly. The methodology of research, the research areas and the personnel as well as the minimum funding for the first three years was presented. It cannot be over-emphasized that this is the approach which can satisfactorily provide the type of detailed information that we urgently require for rural integrated development planning and for programming increased food production to meet the needs of Nigeria's growing population. Perhaps, it will be best if I conclude this summary with the conclusions of Godwin Okurume⁽²⁹⁾, to the effect that:

".....outsiders who want to assist in Africa's rural development efforts should put a high premium on local involvement. This would enhance their chances of success because experts operating on home base are usually more able than short-term visitors to see things in true perspective, even when they are not technical grants in their fields. There remains a great need for external financial assistance to local research institutes but this assistance should be increasingly directed toward the support of indigenous research efforts. To be really effective, rural development programs must in the long run depend mainly on studies by these indigenous scholars whose interest in the development of their economy is far from mercenary and far more than a passing love affair."

The statement is much more relevant to this proposal which is inextricably interwoven with the development of a sound graduate training at the Masters level in agricultural economics at the University of Ibadan.

(29)

Okurume, Godwin E. "Rural Development Policy in Africa", Africa Report, Nov. 1971. (Dr. Okurume is the Economist for Eastern Africa Department, World Bank).

APPENDIX TABLES

Table 1. NIGERIA: Rural and Urban Population in 1963 (Millions)

States	Population 1963	Population of Towns Greater Than or Equal to 20,000 Persons			Population of Rural Areas	Per Cent of Total
		Number of Towns	Population	Per Cent of Total		
Benue-Plateau	4.009	9	0.356	8.88	3.653	91.12
East-Central	7.228	19	0.879	12.16	6.349	87.84
Kano	5.775	3	0.344	5.96	5.431	94.04
Kwara	2.399	9	0.473	19.72	1.926	80.28
Lagos	1.444	6	1.042	72.16	0.402	27.84
Mid-Western	2.536	6	0.284	11.20	2.252	88.80
North-Central	4.098	6	0.486	11.86	3.612	88.14
North-Eastern	7.793	25	0.883	11.33	6.910	88.67
North-Western	5.734	17	0.580	10.12	5.154	89.88
Rivers	1.545	4	0.249	16.12	1.296	83.88
South-Eastern	3.623	7	0.283	7.81	3.340	92.19
Western	9.488	72	4.843	51.04	4.645	48.96
Total	55.670	183	10.702	19.22	44.968	80.78

Source: Calculated from census near data in Annual Abstracts of Statistics 1969, F. O. S., Lagos, Nigeria.

20

Table 2. NIGERIA: Estimated Population, 1963-1972 (Millions)*

States	1963 ^{1/}	1968 ^{2/}	1969 ^{3/}	1970	1971	1972
Benue-Plateau	4.009	4.547	4.683	4.822	4.968	5.117
East-Central	7.228	8.166	8.411	8.663	8.923	9.191
Kano	5.775	6.520	6.716	6.917	7.125	7.339
Kwara	2.399	2.694	2.775	2.858	2.944	3.032
Lagos	1.444	1.684	1.735	1.787	1.841	1.896
Mid-Western	2.536	2.857	2.943	3.031	3.122	3.216
North-Central	4.098	4.603	4.741	4.883	5.029	5.180
North-Eastern	7.793	8.841	9.106	9.379	9.660	9.950
North-Western	5.734	6.506	6.701	6.902	7.109	7.322
Rivers	1.545	1.739	1.791	1.845	1.900	1.957
South-Eastern	3.623	4.095	4.218	4.345	4.475	4.609
Western	9.488	10.734	11.056	11.388	11.730	12.082
NIGERIA	55.670	62.986	64.876	66.822	68.826	70.891

* The basic assumption is that the rate of growth among the 12 component states of the federation is the same. The calculations are based on personal communications from Prof. Igun (Demographic Statistician), University of Ige, Ile-Ife, Western State, Nigeria, March 1971.

^{1/} 1963 was the census year date.

^{2/} 1968 data are estimated from the census year data at a compounded annual rate of growth of 2.5 percent.

^{3/} 1969 data are estimated from 1968 data at a rate of increase of 3.0 percent. This 3.0 percent growth rate is compounded for estimating the data from subsequent years.

Table 3. NIGERIA: Estimated Urban Population, 1963-1972 (Millions)*

States	1963 ^{1/}	1968 ^{2/}	1969 ^{3/}	1970	1971	1972
Benue-Plateau	0.356	0.495	0.533	0.573	0.615	0.659
East-Central	0.879	1.156	1.233	1.313	1.397	1.485
Kano	0.344	0.519	0.568	0.620	0.674	0.731
Kwara	0.473	0.585	0.617	0.649	0.684	0.719
Lagos	1.042	1.249	1.295	1.343	1.393	1.444
Mid-Western	0.284	0.377	0.403	0.430	0.459	0.489
North-Central	0.486	0.638	0.681	0.726	0.772	0.822
North-Eastern	0.883	1.179	1.259	1.344	1.433	1.525
North-Western	0.580	0.789	0.846	0.906	0.968	1.034
Rivers	0.249	0.315	0.333	0.353	0.373	0.394
South-Eastern	0.283	0.402	0.435	0.470	0.506	0.544
Western	4.843	5.693	5.919	6.154	6.398	6.650
NIGERIA	10.702	13.397	14.122	14.881	15.672	16.496

* Based on data in Tables 1 and 2.

^{1/} Obtained from 1963 census year data as summation of the population of towns with $\geq 20,000$ inhabitants.

^{2/} Obtained from 1968 projections based on percentage increase over the 1963-1968 period of 2.0 percent over and above annual rate of growth compounded for the period.

^{3/} Calculated from 1968 estimate as 0.5 percent annual rate of increase and compounded for subsequent years over and above the natural rate of increase of 3.0 percent. In other words, the urban percentage of population in 1968 is the same as that of estimated 1969 population plus an increase of 0.5 percent (i.e. say $[12.18 + 0.5]$ [1969 paper]).

Table 4. NIGERIA: Rural Population, 1963-1972 (Millions)*

States	1963	1968	1969	1970	1971	1972
Benue-Plateau	3.653	4.052	4.150	4.250	4.353	4.458
East-Central	6.349	7.010	7.178	7.350	7.526	7.706
Kano	5.431	6.001	6.148	6.297	6.451	6.608
Kwara	1.926	2.109	2.158	2.209	2.260	2.313
Lagos	0.402	0.435	0.440	0.444	0.448	0.452
Mid-Western	2.252	2.480	2.540	2.601	2.663	2.727
North-Central	3.612	3.965	4.060	4.157	4.257	4.358
North-Eastern	6.910	7.662	7.847	8.035	8.227	8.425
North-Western	5.154	5.717	5.855	5.996	6.141	6.288
Rivers	1.296	1.424	1.458	1.492	1.527	1.563
South-Eastern	3.340	3.693	3.783	3.875	3.969	4.065
Western	4.645	5.041	5.137	5.234	5.332	5.432
NIGERIA	44.968	49.589	50.754	51.941	53.154	54.395

* Data obtained as the difference between the data in Tables 2 and 3.

Table 5. NIGERIA: Rural and Urban Population, 1963-1972 (Percentage of Total)*

States	1963		1968		1969		1970		1971		1972	
	R	U	R	U	R	U	R	U	R	U	R	U
Benue-Plateau	91.12	8.88	89.12	10.88	88.62	11.38	88.12	11.88	87.62	12.38	87.12	12.88
East-Central	87.84	12.16	85.84	14.16	85.34	14.66	84.84	15.16	84.34	15.66	83.84	16.16
Kano	94.04	5.96	92.04	7.96	91.54	8.46	91.04	8.96	90.54	9.46	90.04	9.96
Kwara	80.28	19.72	78.28	21.72	77.78	22.22	77.28	22.72	76.78	23.22	76.28	23.72
Lagos	27.84	72.16	25.84	74.16	25.34	74.66	24.84	75.16	24.34	75.66	23.84	76.16
Mid-Western	88.80	11.20	86.80	13.20	86.30	13.70	85.80	14.20	85.30	14.70	84.80	15.20
North-Central	88.14	11.86	86.14	13.86	85.64	14.36	85.14	14.86	84.64	15.36	84.14	15.86
North-Eastern	88.67	11.33	86.67	13.33	86.17	13.83	85.67	14.33	85.17	14.83	84.67	15.33
North-Western	89.88	10.12	87.88	12.12	87.38	12.62	86.88	13.12	86.38	13.62	85.88	14.12
Rivers	83.88	16.12	81.88	18.12	81.38	18.62	80.88	19.12	80.38	19.62	79.88	20.12
South-Eastern	92.19	7.81	90.19	9.81	89.69	10.31	89.19	10.81	88.69	11.31	88.19	11.81
Western	48.96	51.04	46.96	53.04	46.46	53.54	45.96	54.04	45.46	54.54	44.96	55.04
NIGERIA	80.78	19.22	78.78	21.22	78.28	21.72	77.78	22.22	77.28	22.72	76.78	23.22

R = rural

U = urban

* Calculated from the data in Tables 3 and 4.

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Table 6. NIGERIA: Job Description For Staff On Rural Research

1. Field Assistants:
 - I. Stay permanently on the field for the year.
 - II. Conduct comprehensive surveys as directed.
 - III. Complete questionnaire sheets.
 - IV. Send them weekly to headquarters.
 - V. Attend monthly review sessions.

 2. Data Analysts:
 - I. Collect and process questionnaire returns.
 - II. Tabulate and analyze data.
 - III. Compile required parameters.
 - IV. Review with project directors.
 - V. Prepare graphs.
 - VI. Compile data bank in useable form.

 3. Junior Research Assistants:
 - I. Field supervisor of field assistants.
 - II. Sample cross-checks entries.
 - III. Undertakes comprehensive situational questioning.
 - IV. Prepare field reports.
 - V. Arrange conferences as directed by project directors.

 4. Graduate Research Assistants:
 - I. Selected on enterprise project basis.
 - II. Collect and supervise materials on specific enterprise.
 - III. Review existing literature and compile information.
 - IV. Process enterprise data using appropriate tools of analyzers--on the field for 9 months.
 - V. Write Masters dissertation, summarized from the enterprise report document.

 5. Typist-Stenographer:
 - I. Stencil all questionnaires and duplicate them.
 - II. Type all reports, monographs and thesis.
 - III. Type conference materials.
 - IV. Type reports on data bank.

 6. Project Supervisors (Drs. S. O. Olayide, O. Ogunfowora, and D. Olatumbosun):
 - I. Spend 2 days/week on project (1 on field, 1 in office).
 - II. Train all workers.
 - III. Process and check all reports.
 - IV. Supervise thesis.
 - V. Write annual and periodic survey reports.
 - VI. Arrange country and regional conferences.
 - VII. Liaison constantly with overseas directors.
 - VIII. Attend seminars, workshops and conferences on rural development.
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Table 7. NIGERIA: Budget on Rural Research For Three Years

No. Personnel and Rates		1st Year	2nd Year	3rd Year
		<u>£</u>	<u>£</u>	<u>£</u>
20 Field Assistants @ £260 p.a.		5,200.00	5,200.00	5,200.00
3 Data Analysts and Compilers @ £260 p.a.		780.00	780.00	780.00
1 Junior Research Assistant @ £960 p.a.		960.00	960.00	960.00
5 Graduate Research Assistants @ £500 p.a.		2,500.00	2,500.00	2,500.00
2 Typists-cum Stenographers @ £460 p.a.		920.00	920.00	920.00
<u>Equipment (Fixed)</u>				
20 Bicycles	£ 400.00			
2 Desk Calculators	1,000.00			
1 Motor Bike	85.00			
2 Typewriters	120.00			
Weighing & Measuring Equipment	300.00			
1 Jeep Vehicle	<u>1,800.00</u>			
	<u>£3,705.00</u>	3,705.00	-	-
<u>Equipment (Recurrent)</u>				
1 Driver-Mechanic @ £240	240.00			
Gasoline 50,000 miles/yr.	500.00			
Spares & Maintenance	400.00			
Other Equipment Repairs	<u>150.00</u>			
	<u>£1,290.00</u>	1,290.00	1,290.00	1,290.00
Stationeries		1,120.00	1,120.00	1,120.00
Travelling and Out-Station Allowances (All Staff)		4,800.00	4,800.00	4,800.00
Computer Facilities		<u>800.00</u>	<u>1,200.00</u>	<u>1,400.00</u>
		<u>£22,075.00</u>	<u>£18,770.00</u>	<u>£18,970.00</u>

25