

INTEGRATED RURAL DEVELOPMENT IN NIGERIA :
AN ASSESSMENT OF WORLD BANK ASSISTED PROJECTS

Développement rural intégré au Nigéria.
Une évolution de projets recevant l'aide de la Banque Mondiale

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RESUME

Cet article examine dans quelle mesure un projet patroné par la Banque Mondiale a pu augmenter à la fois la productivité agricole et le bien-être dans le milieu rural. De fait, l'étude tend à montrer que le monde agricole se libère difficilement de ses systèmes de production traditionnels. L'utilisation des engrais a toutefois permis une augmentation de la production, notamment en ce qui concerne le maïs.

Une première enquête a été menée en 1975, avant que le projet de la région de Funtua ne devienne opérationnel. Elle a montré que plus de 70 % des agriculteurs étaient prêts à adopter l'utilisation des engrais chimiques et 15 % seulement l'usage de la charrue tractée par des boeufs.

Cette enquête préalable a fait apparaître les problèmes suivants :

- a) l'absence de revenus suffisants pour l'achat de charrues,*
- b) le manque de compétences dans cette technique nouvelle,*
- c) un réseau de distribution déficient,*
- d) des services de maintenance insuffisamment développés,*
- e) un plan parcellaire inadéquat du fait de la fragmentation excessive.*

Une seconde enquête a été conduite dans la même région pendant la saison 1980-1981. Si l'on avait enregistré une augmentation de la production, les modifications de structure nécessaires, tant sur le plan social que sur le plan économique, n'avaient toutefois pas été réalisées par le projet. En matière de propriété foncière par exemple, seule la faculté de certains à acquérir de plus en plus de terrains, s'était manifestée.

Le plus grand reproche qui puisse être fait à un tel type de projet est son impuissance à mettre sur pied une structure qui soit à même de mobiliser les paysans dans

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le but d'augmenter la production et surtout d'atteindre à un développement effectif.

ABSTRACT

This paper examines the extent to which rural development projects sponsored by the World Bank have raised agricultural productivity and increased rural welfare. The study reveals that rural producers in the areas covered by the projects are still caught in the web of traditional production relations, but through the application of fertilizers marginal gains have been made in crop production, particularly as regards to maize.

A pre-project survey of the Funtua region in 1975 revealed that chemical fertilizers had already become acceptable to over 70 % of the farming population even before the World Bank Project became operational. With regards to the adoption of ox-ploughs, however, the study revealed that only 15 % of farmers were adopters by 1975. The key problems indentified by that study included :

- a) lack of adequate financial resources with which to purchase ox-ploughs,*
- b) lack of technical expertise to handle the new technology,*
- c) poor distribution channels for ox-ploughs,*
- d) lack of good and regular repair services at accessible points,*
- d) inappropriate land tenure systems, especially the problem of land fragmentation.*

The second part of the paper presents the findings of another case study by the author in the 1980-1981 season. This latest study reveals that in the Funtua region some gains have been made in agricultural production. However, the project has failed to bring into being profound social and economic changes that may very well be crucial to any success in rural development. In the area of land ownership, it appears that the Funtua project has only succeeded in sharpening the differential ability of individual farmers to acquire more land.

The paper concludes that perhaps the single most important failure of the Funtua project was the inability of the project management to build a solid organizational framework for mobilizing the farmers for sustained agricultural production and rural development.

INTRODUCTION

The objective of this study is to investigate how rural development projects launched during the last five years in Nigeria through World Bank assistance, have affected the quality of life of various sections of the rural population and with what results. The intention is to identify those policies and development strategies which have

enabled the rural poor to better the quality of their lives and to cope more effectively with changing socio-economic conditions.

It would appear that the Federal Government has accepted the ongoing World Bank-assisted integrated rural development projects as models for transforming Nigeria's rural areas. According to the Director of the Federal Department of Rural Development, "the Federal Government has decided to extend the rural agricultural development programme to all the 19 States of the Federation and the capital territory of Abuja. Feasibility studies were therefore commissioned early in 1980 in order to prepare suitable projects for those States not already involved in the programme", (1980, p. 2). By April, 1980, there were seven such projects in full operation at Funtua, Gusau, Gombe, Ayangba, Lafiya, Bida and Ilorin. Table I shows the areal coverage, estimated number of farming families and the date of commencement of each of these projects. Figure 1 shows the regional distribution of these projects.

Project	State	Area (km ²)	Estimated No of farming families	Date of commencement
Funtua	Kaduna	7,500	88,000	Nov., 1974
Gusau	Sokoto	4,000	62,000	Nov., 1974
Gombe	Bauchi	6,450	65,000	June, 1975
Ayangba	Benue	13,150	125,000	Nov., 1977
Lafiya	Plateau	9,400	48,000	Nov., 1977
Bida	Niger	16,500	124,500	Nov., 1979
Ilorin	Kwara	11,775	120,000	Feb., 1980

Tab. I : Nigeria : Operating integrated rural development projects, 1980. Source : Federal Ministry of Agriculture, Department of Rural Development, Agriculture and Rural Development : five year progress, Lagos, 1980, p. 4.

The sources of funds for the integrated rural development projects in Nigeria are shown on table II. The estimated total cost of the seven fully operational projects is ₦ 315.3 million of which 40 % (about 181 million US dollars) are expected to flow as loans from the World Bank. The Federal Government is to provide about ₦ 63.2 million, leaving the rest to State Governments. The investment period for each project is supposed to be five years when World Bank staff are involved in establishing such projects. After this period, each project is supposed to be turned over to the respective State Government and relevant Local

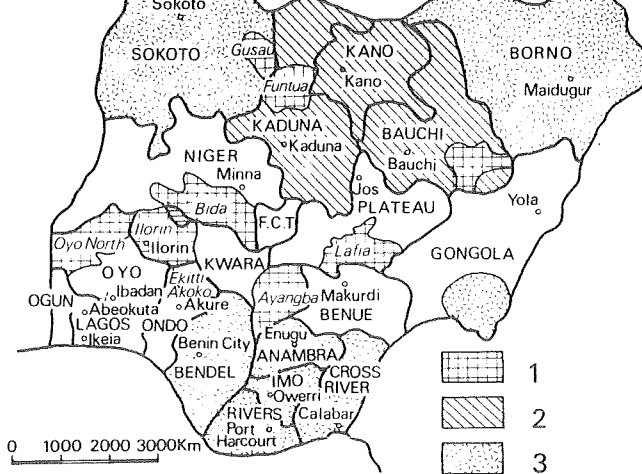


Fig. 1 : Agricultural and rural development projects of Nigeria. 1 : on-going projects; 2 : appraised projects; 3 : under preparation.

Governments. The assumption, of course, is that by the end of the investment period each project should be able to stand on its legs and to be self-sustaining under local management.

According to policy guidelines, the main purpose of these projects is to raise agricultural productivity and to improve the welfare of the rural population through raising farmer's income and diffusing new tech-

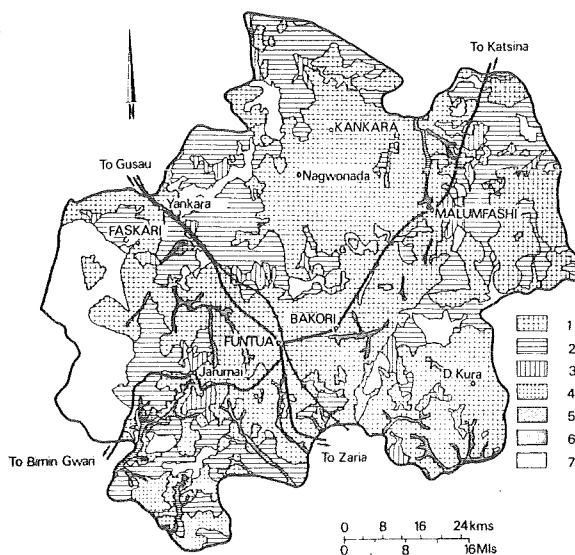


Fig. 2 : Present land use of Funtua agricultural development project (Kano state). 1 : densely settled; 2 : moderately settled and largely rainfed arable cultivation; 3 : scattered arable cultivation; 4 : forest reserve; 5 : intensive *fadama* farming; 6 : scattered *fadama* farming; 7 : rough grazing areas.

nology. The projects also aim at overcoming the key obstacles to rural development through the creation of infrastructure such as roads, farm service centres seed multiplication farms, dams and markets as well as the provision of such inputs as fertilisers, insecticides, new seeds, sprayers, ox-ploughs and tractors at accessible points to the rural population.

Project	Total planned expenditure (N'million)	World Bank approved loan (N'million)	Fed. Govt. allocation (N'million)	State Govt. commitment (N'million)
Funtua	39.0	19.3	9.0	10.7
Gusau	30.6	12.7	9.0	8.9
Gombe	30.7	14.0	7.9	8.8
Ayangba	64.0	23.3	9.0	31.7
Lafia	52.6	18.0	9.0	25.6
Bida	61.8	15.3	10.3	36.2
Ilorin	36.6	18.0	9.0	9.6
Total	315.3	120.6	63.2	131.5

Tab. II : Sources of funds for the integrated rural development projects in Nigeria. Source : Federal Ministry of Agriculture, op. cit., p. 6.

This study focuses on the Funtua project, being the oldest and the most "successful" so far according to progress reports by the Federal Government. Since the Funtua project has now passed into the second phase, it was thought appropriate to assess its impact on the rural economy and society of the Funtua region.

CHARACTERISTICS OF THE FUNTUA REGION

Since the central purpose of this study is to assess the extent to which the rural economy of the Funtua region has been transformed by the World Bank sponsored Agricultural Development Project, it is important to analyse the socio-economic characteristics of the region as a background setting to the study.

The Project Area covers some 7.500 square kilometres of largely good arable land with isolated inselbergs. The area comprises the districts of Bakori, Faskari, Funtua, Kankara and Malumfashi in Funtua and Malumfashi Local Governments of Kaduna State, Northern Nigeria (Fig. 2).

Comparatively, it is a densely populated area with an average density of about 101 persons per square kilometre. As shown in table III, the total population was 759,216 people in 1980 with over 127,000 farming families. The settlement pattern of the area is predominantly rural in character comprising *Unguwa* settlements; *Kauye* - settlements (villages) and *Gari* - settlements (towns).

District	No of families	No of farmers	Total population
Bakori	27,480	36,491	164,880
Faskari	11,886	15,784	71,316
Funtua	37,101	49,266	222,606
Kankara	19,267	25,587	115,602
Mulumfashi	30,802	40,903	184,812
Total	126,536	168,031	759,216

Tab. III : Population of Project Area.

Very densely settled area include those around Malumfashi, Yargoje, Kankara, Bakori, Funtua, Maska, Mahuta, Danja and Dabai. Land holdings in the densely settled areas range from 1.0 to 3.0 acres per person; whilst land holdings in the sparsely populated areas range above 6.0 acres per person. Because of the fragmented nature of land-holdings and the settlement pattern, there is not always a rational relationship between the location of settlement and land-holdings. Fragmentation of land-holdings has proved to be one of the obstacles to effective mechanization in the area, since individual holdings are usually scattered and unconsolidated.

There is a good correlation between population density and intensity of cultivation. The densely settled areas are also intensively cultivated. About 54.3 % of the total area (or some 1,019,520 acres) is intensively cultivated. Areas of moderate intensity of cultivation cover 23.1 % or 432,160 acres; areas of low intensity of cultivation cover 3.8 % of the total area or 73,320 acres; while zones of no cultivation cover only 3.9 % of the total area or 73,920 acres.

Figure 2 presents the existing land-use pattern of the project area. Major land-uses in the area include rainfed arable cultivation, covering over 70 % of the project Area; arable *Fadama* (foodplain) farming for the production of vegetables, sugar cane and potatoes; and areas mainly used for rough grazing, fuel supplies and forest reserves.

From the point of view of a spatial investment strategy, the choice of this densely populated and intensively cultivated region would not only facilitate the spread of benefits to thousands of farming families but would ensure the success of the project.

ADOPTION OF AGRICULTURAL INNOVATIONS

The choice of the Funtua area was also strategic from the point of view of readiness by farmers in the area to adopt relevant innovations. Historically, the Funtua-Malumfashi area was a frontier region between the ancient emirates of Katsina and Zaria. The area is largely inhabited by essentially progressive *Maguzawa* farmers and pastoral Fulani. Studies have shown that *Maguzawa* farmers are not only hardworking and resourceful, but innovative. According to Professor MURRY LAST, *Maguzawa* have been "recognised as good farmers, good family men and good fighters. They have maintained not only a separateness over centuries but also a successful economy which is now richer than that of their more integrated neighbours, despite the heavier taxation imposed on them ..." (1980, p. 2). Generally, *Maguzawa* have tended to believe that the less they saw of government the better off they were. Indeed in their folk tradition, the "good old days" are located in the 1910's and 1920's, i.e. between the dangerous days of tribal warfare and the more recent period of encroaching big government, a brief spell when new lands were being opened up in frontier zones.

However, as Murry Last clearly points out, their "isolationist rationale did not, of course, mean they resisted all innovation. Far from it. Indeed *Maguzawa* houses seem the most experimental ..., with new architectural styles and materials ... Agriculturally, they have adopted oxen and ploughs; they are experimenting with new seeds, etc... They teach each other literacy; they keep modern drugs. Many of the men have travelled, less it seems for work than for exploring the big towns, and they bring back new ideas and new skills. Indeed their readiness to innovate is an important factor in their economic success", (1980, p. 4).

Before the commencement of the Funtua Agricultural Development Project by the World Bank, a survey of patterns of adoption of agricultural innovations was carried out by the author, (GANA, 1980). The survey placed emphasis on identifying any socio-economic, cultural or technical constraints to the effective adoption of such agricultural innovations as the ox-plough and fertilizers.

Intensive questionnaire surveys were conducted with the aid of trained field assistants to cover the five districts of Bakori, Faskari, Funtua, Kankara and Malumfashi. To ensure good spatial coverage samples were taken from each of the 78 village areas within the Districts. Sample sizes were determined with reference to the number of tax payers in each village area, since it was thought reasonable to assume that most of such tax payers would be farmers. At the end of the field investigations about 3,500 completed questionnaires were collected, but only 2,542 were found to have been properly completed. Subsequent computer analysis of the data was therefore based on the returns of 2,542 respondents.

The results presented in table IV would indicate that by the time of the field survey in 1975, fertilizers had already become acceptable to over 70 % of the farming population in the Project Area. For instance of the 859 respondents on the adoption of fertilizers, 662 (or 77 %) had effectively adopted.

District	No of respondents	No of adopters	% of total	Non-adopters	% of total
Bakori	281	252	89.7	29	10.3
Faskari	132	65	49.2	67	50.8
Funtua	144	94	65.4	46	34.6
Kankara	49	43	87.8	6	12.2
Mulumfashi	253	208	82.2	37	17.8
Total	859	662	77 %	198	23 %

Tab. IV : Adoption of fertilizers. Source : Field Survey (July-August, 1975).

Analysis of the declared sources of first information about fertilizers revealed the importance of traditional methods of communication and the influence of neighbourhood effects. For instance, 66 % of the respondent said they heard about fertilizers from either villages heads or compound heads. This group is followed by agricultural extension workers (17 %) then the radio (7.6 %) (Tab. V). Farmers in the Funtua area were quite familiar with radio programmes on agriculture, particularly young farmers. The older farmers relied more on village heads, compound heads and agricultural extension workers.

Up to 1964 the rate of adoption of fertilizers in the area was rather slow. From 1966 to the time of the survey in 1975 the rate of adoption was comparatively rapid. Indeed by 1975 the use of fertilizers had become quite common in the study area. Field investigations revealed that even non-adopters were aware of the usefulness of fertilizers by

Source of information	No of adopters	Per cent of total
Village and Compound Heads	436	66
Agric. Officer/Extension Worker	113	17.0
Radio Programmes	50	7.6
Relative/Field/Neighbour	33	4.9
Market Place	14	2.1
Enquired about it myself	12	1.8
Agricultural show	4	0.6
Read about it	0	0.0
Total	662	100

Tab. V : Sources of first information about fertilizers. Source : Field Survey (July-August, 1975).

1975. Non-adoption by a small proportion of farmers was largely attributed to the scarcity of fertilizers and lack of money to purchase small quantities available at that time at almost prohibitive market places. Other reasons for non-adoption included the effects of drought and lack of experience in the application of fertilizers to different types of crop. The results of the survey, however, clearly revealed that a substantial proportion of the farmers in the study area had adopted fertilizers by 1975. The major complaint by farmers during the survey was the acute shortage of fertilizers. Farmers were prepared to travel long distances to obtain fertilizers.

The high rate of adoption created such an effective demand for fertilizers that when the Funtua project started supplying fertilizers on a large scale in 1976 there was a ready market. The quantity of fertilizers sold jumped from a mere 9 metric tons in 1974/1975 to 18,366 metric tones in the 1977 farming season.

Since the application of fertilizers to crops is a relatively simple technique, the rate of adoption bears no relationship at all with educational levels. The survey also revealed that farmers were taught

how to apply fertilizers by a variety of people, including agricultural extension workers, district heads, village heads, compound heads, neighbouring fellow farmers, school teachers, friends and relatives. Some of the problems encountered by farmers related to inability to apply fertilizers in the right proportions; difficulties in obtaining sufficient quantities of fertilizers; obtaining fertilizers in good time, especially at isolated locations; the problem of wind erosion during dry spells; and rapid crop damages owing to shortage of rainfall.

Although the ox-plough was introduced to farmers in this area since in the early 1930, the adoption rate has been relatively slow compared with the adoption of fertilizers. As shown in table VI, of the 1983 respondents with regard to the ox-plough, only 256 or 15.3 % were adopters by the time of the survey in 1975. In other words, 82.7 % of the sample were non-adopters (Tab. VI).

District	No of respondents	No of adopters	% of Total	Non-adopters	% of Total	Estimated income of farmers (per capita)
Funtua	321	75	23.4	242	76.6	₦ 1,081
Kankara	351	77	22.0	255	78.0	1,555
Malumfashi	243	29	12.0	214	88.0	863
Faskari	382	40	10.5	341	89.5	838
Bakori	386	35	9.1	339	90.9	492
Total	1,683	256	15.3	1,391	82.7	

Tab. VI : Adoption rates for the ox-plough, (1975). Source : Field Survey (July-August, 1975).

The key problems revealed by the survey included :

- a) lack of financial resources with which to purchase the technology,
- b) lack of technical expertise to handle the new technology,
- c) poor distribution channels for new tools,
- d) lack of good and regular repair services at accessible points,
- e) inappropriate land tenure systems, especially the problem of land fragmentation,
- f) increasing lack of young helpers on the farm in some districts such as Funtua and Malumfashi.

For instance, in response to a question on reasons for not adopting the ox-plough, the following reasons were given :

Reasons	No of respondents	% of total
Lack of money	1,003	72.1
Difficulties in obtaining plough	164	11.8
Lack of bulls	81	5.8
Lack of expertise in using ox-plough	76	5.5
Lack of helpers	54	3.8
Old age	8	0.6
Others	5	0.4
Total	1,391	100.0

Tab. VII : Reasons for failure to adopt the ox-plough. Source : Field Survey.

Since the field survey in 1975, ploughs and bulls have become more available through the Farm Service Centres. The problem of inadequate financial resources has also been slightly reduced through loans to farmers.

The two case studies presented above indicate the ability of rural producers to adopt technical innovations as long as such innovations are economically feasible, culturally adaptable and technically viable. The adoption of fertilizers was found to be rapid since its applications is simple and compares closely with the traditional system of applying manures. The adoption of the ox-plough on the other hand has been comparatively small because of economic and technical problems. Given the favourable attitude of farmers to innovations, the initial successes by the project in distributing large quantities of farm inputs to farmers are not surprising. The project was established at the peak of the adoption of fertilizers when a number of farmers were prepared to travel long distances to purchase fertilizers. Once the rural producers became convinced of the usefulness of fertilizers the stage was set for its massive adoption.

It is significant to note that the major constraint to the adoption of the ox-plough was lack of money with which to purchase bull and ploughs.

The Funtua Project appears to be founded on a simple philosophy, that of grafting on to the existing rural socio-economic system those vital inputs and basic infrastructure which it lacks to be able to raise agricultural productivity and the quality of life. Instead of radically transforming the existing modes of production, the project was planned to provide essential services and inputs to the existing system of production.

The operational strategy, therefore, consisted of the establishment of a network of Farm Service Centres, (Fig. 2), for the distribution of such inputs as fertilizers, insecticides and ox-ploughs to farmers; and the building of a spatial network of rural roads to create accessibility to Farm Service Centres and markets. Conceptually, the project was designed not to radically transform but to provide essential supporting services and inputs required for the productive functioning of the existing system.

Perhaps the most important technological innovation brought into being by this project is the adoption of a spatial approach to planning for rural development. "This approach pays special attention to the spatial distribution of settlements within a rural project area and organises them in terms of a hierarchy of central places for ensuring efficient delivery of services to the numerous farmers within the area", (MABOGUNJE, 1981, p. 4). For instance, an integral part of the Funtua Project is the provision of a spatial network of Farm Service Centres located at central villages which have over the years proved to be important focal points for the rural population. The 72 Farm Service Centres form the crucial base of the hierarchy of centres to facilitate the distribution of fertilizers, ox-ploughs, insecticides, sprayers and associated equipment to farmers. Extension services and credit facilities were also to be made available at the Service Centres for ease of accessibility to farmers. Above the level of Farm Service Centres are District Development Centres with Development officers charged with the responsibility of co-ordinating the activities of staff at the level of Farm Services Centres. At the apex of the system is the project Headquarters at Funtua with various administrative, financial and technical sections. This hierarchical organization was aimed at efficient management and effective provision of essential services to farmers.

The second major technological component of the project relates to the design and construction of a network of rural roads to facilitate the distribution of inputs and the evacuation of agricultural produce to markets. Most of these roads have been constructed along watersheds to reduce maintenance costs.

The construction of dams for adequate supply of water for livestock and small scale irrigation projects constitutes the third component of the technological package to be transferred to Funtua region. It is interesting to note that such dams were primarily designed to provide water for livestock and not really for human consumption. Associated with water development are soil conservation measures undertaken within the catchment areas of dams.

The fourth technological component relates to agricultural development, and comprises

- a) the development and expansion of seed multiplication centres for the provision of adequate supplies of improved and high-yielding varieties of seeds,
- b) the provision of appropriate labour-saving devices including land preparation machinery, ox-ploughs, tractors, spraying machines, chemical fertilizers, herbicides and insecticides,
- c) the provision of effective extension services to facilitate the diffusion of innovation,
- d) the provision of adequate marketing facilities,
- e) the provision of short-term loans to farmers for the purchase of inputs and equipment.

It is important to note that different institutional frameworks and training programmes had to be provided to execute the vital aspects of the project.

The design of organizational frameworks to mobilize farmers may be identified as the fifth technological component. As shall be discussed later in this paper, this critical component failed to receive the serious attention it deserves. Failure in this sphere is likely to profoundly affect the continuity of the project after the investment period of five years, after which the Work Bank is supposed to pull out.

A final technological component relates to a management and evaluation system that is very strongly field oriented. The Project Management Unit comprises the following operational sections :

- a) Administrative section,
- b) Finance section,
- c) Technical services section,
- d) Credit services section,
- e) Market services section,
- f) Engineering services section,
- g) Evaluation Unit.

The core of the Funtua project approach is thus the determination to raise agricultural productivity and rural incomes through a package of integrated investments to cover the provision of physical infrastructure, agricultural supporting services, and the effective distribution of inputs through intensive management. Instead of drastically altering the existing spatial and institutional modes of production, the strategy is to raise productivity through the provision of essential inputs and appropriate technology.

CASE STUDY

The main objective of this case study is to investigate how this rural development project launched in 1975 has affected the quality of life of various sections of rural population and with what results. Specifically, this objective includes an assessment of :

- a) the extent to which the project has helped to raise rural productivity and farm incomes,
- b) what has been its impact on rural welfare,
- c) how far it has encouraged greater participation by the rural population in their own development;
- d) what special features are likely to be abiding and to make for a more self-reliant rural economy.

The methodology for this case study required the collection of wide-ranging sets of data. Three strategies were adopted for this purpose. The first was the collection of secondary data on the situation in the project area as a whole. This comprised information on the farming households, their socio-economic structure, their demographic characteristics; crop production patterns and the social relation of production. Fortunately, the project itself had collected considerable amount of data on these and other related issues which were made available.

The second strategy of data collection relates to a detailed questionnaire survey of farming households in Danja, Maska villages. The village of Danja has a population of 22,470 in some 3,745 farming households whilst Maska has a population of 6,090 and some 1015 farming families.

Three sets of questionnaire were used in the study. The first (Form RD.1) was used to compile an inventory of assets and services bought or received by farming households since the project started. The second (Form RD.2) was designed to appraise the impact of the project on agricultural productivity, household incomes and rural welfare. The third strategy of data collection was through field observations and informal interviews with selected household heads and village heads. Such interviews were designed to identify such factors as the role of women in the development process and the degree of participation of the rural population in their own development.

ANALYSIS OF PROJECT IMPACT

Impact on agricultural production

The primary goal of the Funtua project was the achievement of significant growth in productivity and total production. Therefore, an important aspect of evaluating the impact of the project is to look at its achievement with respect to growth in crop production. As table VIII reveals, the project expected the area grown to sorghum to decline as a result of an anticipated shift to cotton production. Total production was to be sustained through widespread adoption of improved sorghum. What happened, however, was that despite the widespread adoption of maize, the hectareage planted to traditional sorghum tended to increase slightly. It is interesting to note that much of the farmland formerly planted to cotton was diverted to cereal production. The average yield of sorghum improved only marginally, because the extreme popularity of maize as a new crop resulted in relatively little interest being generated for improved sorghums. Total production was thus sustained through total hectareage planted instead of through improved seeds as planned.

In the case of millet, project experts soon discovered that it was not readily responsive to fertilizer applications. Since it was not possible to develop improved varieties in the time available for project implementation, production has remained steady over the period.

	AREA CULTIVATED ('000 Ha)					YIELD (kg/Ha)					PRODUCTION ('000 TONNES)				
	1976-7	1977-8	1978-9	1979-80	A.E.*	1976-7	1977-8	1978-9	1979-80	A.E.*	1976-7	1977-8	1978-9	1979-80	A.E.*
Sorghum	219.9	201.5	220.8	226.5	91.2	848.9	660.2	897.7	910.9	1,060	186.6	133.0	196.0	206.4	96.8
Millet	94.0	60.5	71.8	72.0	55.0	688	535	839	840	800	54.7	32.4	60.3	60.5	(48.0)**
Maize	5.1	10.5	15.9	30.8	32.5	643	1,265	1,483	1,857	2,000	3.3	13.3	23.6	57.3	65.8
Cotton	61.4	65.7	49.8	29.8	99.1	523	242	341	406	600	32.1	15.9	17.0	12.1	59.7
Groundnuts	13.2	22.0	20.2	16.0	35.3	646	489	409	720	790	8.5	10.8	8.3	11.5	27.7
Compeas	16.4	11.6	13.5	17.5	5.0	155	132	184	200	670	2.5	1.5	2.5	3.5	3.3
Peppers	5.0	3.2	4.0	5.5		1,506	1,510	1,575	1,636		7.5	4.8	9.0	9.0	(4.0)**
Rice	14.9	10.3	4.9	5.0		524	408	531	560		7.8	4.2	2.8	2.8	(5.0)**

Tab. VIII : Crop production in the Funtua Project Area, 1976-80. * Appraisal estimate, ** not estimate in appraisal report. Source : FADP, All hectareage and yield figures are calculated in sole crops equivalent.

Maize production provided the real success story for the Funtua Project in the area of crop production. As table VIII indicates, phenomenal progress was achieved since the introduction of improved varieties in 1976. It is significant to note that maize production was virtually non-existent in the Funtua area up to 1976. In that year, some 11,350 farmers were encouraged to plant maize. Yield per acre in 1976 was only 643 kg. However, by 1979 the number of maize growers in the Project Area had risen to 51,657, and the yield per hectare had increased to 1,857 kg, representing a three-fold increase. Maize has now become an established foodcrop in the Project Area, but the vast increase in production has created marketing problems. Maize marketing has been further affected by government policy on maize imports at subsidized prices. Locally produced maize cannot, therefore, compete in price with the imported grains.

It is significant to note that in sharp contrast to maize, cotton production has declined sharply during the project implementation period. Poorly organised marketing system in the past and low profitability coupled with high labour requirement has forced farmers to switch production factors to more profitable crops. Both vastly improved marketing facilities provided by the project and sustained campaigns to revive cotton production have failed to persuade farmers to devote substantial attention to cotton. Most farmers have failed to adopt spraying insecticides as a means of increasing cotton production. The sprayed area remained more or less static over the period despite the free issue of insecticides to farmers in 1979. The number of spraying farmers increased only from 960 in 1976-77 to 1,796 in 1977-78 and then dropped to 1,450 in 1979-80.

The situation with groundnuts, the other traditional export crop, was only slightly better. Production and yields fluctuated widely during the five-year period. The crop remained unpopular among largescale farmers due to its high labour requirements and the fact that market prices for ungraded nuts have been consistently higher than the gazetted price for shelled nuts. Therefore, the future prospects for groundnuts depends to a large extent on government pricing policy.

Pepper production showed an encouraging increase both in yield per hectare and in total production. The production of local varieties of cowpeas also showed some striking increases.

Rice production during the five-year period showed a sharp slump, largely as a result of massive importation of cheaper foreign rice.

Table IX indicates the cash implications of these crop production achievements. It is important to emphasize that revenue accruing to the farmers in the project area in respect of six major crops amounted to some ₦* 141.4 million in the 1980-81 season alone. With a total of approximately 88,000 farming families, this works out at about ₦ 1607 per family. Clearly, this is a significant achievement, although it would have to be viewed against the background of total expenditure by the project and the levels of production before the project came into being.

Crop	Area cultivated (in Ha)	Total production (in '000 tons)	Price per tonne (in ₦)	Value of total production (in ₦'000)	Value of production per hectare (in ₦)
Sorghum	213,750	240.6	325	78,201	366
Millet	60,000	45.1	385	17,359	289
Maize	39,847	71.3	315	22,472	564
Cotton	38,750	28.7	385	11,066	286
Groundnuts	19,200	17.1	552	9,460	492
Cowpeas	19,500	4.0	958	2,819	145
Total	391,047	406.8	-	141,377	362

Tab. IX : Cash value of major crops produced, 1980-81. Source : Evaluation Unit, FADP, May, 1981.

The final column of table IX reveals the vast superiority of maize compared to any other crop in terms of gross returns per hectare. At an average of ₦ 564 per hectare, maize output is 54 % more profitable than sorghum, the most important traditional foodcrop, and is 97 % more profitable than cotton, the traditional export crop of this region. This underscores the immense attractiveness of maize as an innovation for farmers in the project. The decision of farmers to shift production factors from cotton to maize is, therefore, economically rational.

Impact on land acquisition

Analysis of case studies of Danja and Maska villages revealed that one of the most decisive ways in which the project has had impact on farming communities has been in terms of sharpening the differential ability of individual farmers to acquire more land. From 1976 to 1980,

* ₦ : naira, currency of Nigeria.

some 138 (or 68 %) of the 204 heads of farming families interviewed, claimed to have acquired more lands for farming activities. Table X shows the different methods of acquiring land in the two communities. It is remarkable that the traditional system of land allocation through *gado* (inheritance), is closely followed by acquisition through outright purchase. The fact that 40.7 % of respondents depended on this allocation mechanism indicates a heightened degree of commercial consciousness and of growing monetization of the economy of these villages.

Methods of acquisition	No of farmers	% of sample total
1. Inheritance (<i>Gado</i>)	85	41.7
2. Purchase (<i>Saye</i>)	83	40.7
3. Gift (<i>Kyauta</i>)	35	17.2
4. Pledge (<i>Jingina</i>)	29	14.2
5. Loan (<i>Aro</i>)	9	4.4
6. Lease (<i>Haya</i>)	6	2.9
7. Share-cropping (<i>Kashimuraba</i>)	3	1.5
8. Other	5	2.5

Tab. X : Methods of acquiring additional land in Danja and Maska villages, 1976-80. Source : Fieldwork, 1980-81.

Impact via infrastructural development and the provision of inputs

During the survey of Danja and Maska villages, farmers were asked if they had direct knowledge of such project activities as distribution of agricultural inputs (fertilizers, insecticides, ploughs, tractors, sprayers, etc ...); construction of roads, farm service centres and dams; and the provision of extension services. Some 14 % claimed they had no knowledge of the project. Seventeen per cent knew of only the sale and distribution of inputs; 29 % of only the infrastructural development and 8 % of only the extension services. Another 12 % knew of both inputs and infrastructural development, 4 % of the infrastructural and extension services whilst 11 % knew of all three.

The response to the question on direct benefits from the project were quite interesting. Table XI indicates the relative importance of benefits received by farmers from the project. In view of the fact that the Funtua project was essentially structured as a delivery service system, the overwhelming emphasis placed on access to physical inputs is not

surprising. To most farmers the project was essentially a supplier of agricultural inputs. Indeed, the main criticism of the project by the State Government centres on the undue emphasis placed on the distribution of fertilizers to farmers.

Benefits	No of farmers	Percentage*
1. Access to physical inputs	176	86.3
2. Provision of extension advice	51	25.0
3. Introduction to new seeds	45	22.1
4. Access to markets & roads	44	21.6
5. Higher productivity & profits	42	20.6
6. Dry season irrigation	26	12.7
7. Others	9	4.4

Tab. XI : Farmers' perception of project benefits. * Note that farmers made more than one response on benefits. Source : Field Survey, 1980.

As table XII reveals, the number of farmers purchasing no fertilizer declined sharply from 1975 to 1979. A gradual shift of importance to purchases of between 1 to 10 bags is noticed up to 1977, after which more and more farmers shifted to buying 11-20 bags a year.

No of bags	1975	1976	1977	1978	1979
0	44	25	13	7	4
1 - 10	71	67	78	78	65
11 - 20	32	46	52	75	97
21 - 30	13	23	31	28	18
31 - 40	23	25	13	2	7
41 - 50	6	4	3	3	2
Over 50	15	14	14	11	11
Total	204	204	204	204	204

Tab. XII : Fertilizer purchases by farmers 1975-1979 (in bags). Source : Field Survey, 1980.

With reference to the use of ox-ploughs, only 14 % of farmers claimed to own an ox-plough compared with 15.3 % obtained during a widespread survey of the entire area in 1975 as reported earlier in this paper. Thus,

there has been no significant increase in the number of those acquiring the ox-plough. Indeed, the results for Danja and Maska villages would suggest a decline in ownership. The common explanation given by most farmers for not owning a plough is their lack of adequate capital; as was the case in 1975 when 72.1 % of farmers gave similar reasons (Tab. VII). Surprisingly, 8 % of the farmers in the two villages claimed to own tractors. The proportion of those who have used a tractor on their farms through the Tractor Hiring service programme rose to 30 %.

Social and economic effects

An important aspect of the current study is an assessment of the Funtua Project from the point of view of impacts on human development. In its conception, the project was essentially based on a commodity approach to rural development, i.e. an over-emphasis on increased crop production as a means of developing rural economies. Thus the project failed to bring into being profound social and economic changes that may very well be crucial to any success in rural development.

For instance, in response to the question : "What changes have you noticed in this village since the beginning of the Funtua Project", 80 % of respondents declared that they have not perceived any social changes brought about by the project. It is possible, of course, to argue that since social changes are more difficult to perceive, this may not be a valid assessment. This objection cannot, however, be sustained because farmers, for instance, noticed who and who were benefiting more from the project - the rich or the poor. It is interesting to note that 87 % of respondents indicated that they would have benefited more from the project if they were richer. Also in response to the question : "Which types of people in your observation benefit most from the project", 66 % of respondent said those that are relatively rich; 31 % said those who are rich and educated; while only 3 % said *talakawa*, i.e. the common peasants. Yet, *talakawa* farmers constitute 86.9 % of farming households in the area (Tab. XIII), while mixed farmers and large-scale farmers form only 9.4 % and 3.7 % of the farming population, respectively.

With reference to local institutions, 82 % of those interviewed said that they do not belong to any cooperative society; indeed only 13 % confirmed their membership of a cooperative society. Only 11 % of respondents belonged to any village Council of Committee; and only 7 % belonged to a District Council. The most important organization at the

Category	Total number	% of total	Average holdings (Ha)
Small-scale farmers	74,264	86.9	3.52
Mixed farmers	8,068	9.4	11.66
Large-scale farmers	3,154	3.7	41.40
Total	85,486	100	5.69

Tab. XIII : Categories of farmers in the Project Area in 1978. Source : Evaluation Unit, FADP.

local level appears to be Political Party branches. For instance, 50 % of respondents declared their membership of a Political Party branch. Even in this sphere, up to 47 % of respondents were not members of any Party. Membership of a cooperative society was assessed by the Project Evaluation Unit to be only 3.1 % of farmers in the entire project area in 1978. The crucial point to grasp, therefore, is that the project failed to pay adequate attention to the vital issue of organizing farmers for rural development. Too much emphasis was placed on the provision of inputs and extension advice to raise agricultural production. The major effect of the failure to build viable institutional frameworks is that within a few months of the World Bank staff pulling out of the project, the level of activity has already declined substantially. It is thus conceivable that in a few years' time even the modest successes obtained in agricultural production would have been lost.

With reference to economic effects, it is interesting to note that most farmers did not link the relatively increasing prosperity in the Funtua region with the project. For instance, 94 % of respondents did not mention increased income levels as one of the changes brought about by the project. The changes most noticed by farmers were project roads, dams, farm service centres and the provision of inputs. In the area of material indicators of change only 3 % of respondents said that they have noticed concrete material changes in their villages because of the project. In other words, material indicators of change were not as salient as the direct effects of the project in the area of provision of inputs, insecticides, etc... Yet, the data gathered on personal possessions indicate a clear increase in material acquisition by farmers.

Household and personal possessions	Total items in project area		Increase/decrease
	1979-80	1980-81	
Workbulls (trained)	93,395.61	97,335.37	+ 3,939.76
Cows	244,033.71	273,051.36	+ 29,017.65
Sheep	376,093.10	485,652.32	+ 109,559.22
Chicken	750,177.71	883,702.82	+ 133,525.11
Bicycles	119,506.21	123,462.25	+ 3,956.04
Motor cycles	7,531.90	6,147.48	- 1,384.42
Motor vehicles (esp. buses)	1,004.25	2,049.16	+ 1,044.91
Ox-plough	24,604.22	15,368.73	- 9,235.49
Corn milling or grinding machine	1,004.25	512.28	491.97
Room with thatched roof	342,952.72	378,071.11	+ 35,118.39
Room with zinc roof	15,565.93	68,134.76	+ 52,568.83
Iron bed	188,799.73	209,527.21	+ 20,727.48
Radio	67,285.01	86,064.97	+ 18,779.96
Television	-	512.28	-
Sewing machine	5,021.26	5,635.20	+ 613.94
Clock	22,595.71	10,245.82	+ 12,349.89
Wrist watch	105,446.66	128,072.86	+ 22,626.20
N = 126,536 families			

Tab. XIV : Household and personal possessions, 1979-80 - 1980-81. Source : Evaluation Unit, F.A.D.P.

For instance, data gathered by the Project Evaluation Unit in 1979-80 and 1980-81 seasons (Tab. XIV), indicate that there was an increase of over 3,000 bicycles in one year, and an increase of over 1,000 motor vehicles. Houses roofed with corrugated zinc sheets increased by over 52,000 within one year. Other notable increases include the acquisition of iron beds (+ 20,727), radio (+ 18,779); sewing machine (+ 613); wrist watches (+ 22,626), and over 500 television sets which were acquired in 1980.

The current study of the villages of Danja and Maska has confirmed this trend in the rising ownership of material goods. For instance 32 % of respondents owned iron beds; 72 % owned radios; 8 % have recently bought sewing machines; 28 % owned wrist watches.

A complete inventory of shops, transport equipment, services, etc., at Danja revealed that over 27 buses and transport vans have been purchased by farmers between 1977 and 1980. There is therefore an increasing indication of rising wealth in the Project Area.

Possessions	No of farmers	% of total	Bought before 1975	Between 1975-77	Between 1978-80
Iron bed	77	38	34	21	22
Vono mattress	24	12	4	8	12
Sewing machine	23	11	9	5	9
Radio	155	76	47	47	61
Wrist watch	64	31	18	9	37
Table clock	17	8	9	3	5
Bicycle	71	35	22	12	37
Motor cycle	46	23	5	18	23
Horse	12	6	8	2	2
Donkey	24	9	10	6	3

Tab. XV : Household and personal possessions of Danja and Maska farmers, 1980. Source : Field Survey, 1980.

CONCLUSION

The picture that emerges from this study is that of farmers still caught in the web of traditional production relations who are being encouraged to make some marginal gains through the application of agricultural inputs such as fertilizers and insecticides. Gains have certainly been made in increased crop production, especially in the case of maize. As indicated in the last section, most farmers has received some augmentation to their income that they are able to acquire a number of durable consumer goods. These developments, however have not altered the basic characteristics of their lives and the existing production system. Indeed, as MABOGUNJE and GANA (1981) have pointed out : "The project has produced no serious social tension, no dramatic strains and stresses on the web of social relations, no catharsis arising from the birth of a new system of production relations. It was as if government through this project wanted to be only tangentially involved with the rural population", (p. 82).

The Project Management placed much emphasis on making resources available in relatively ample quantities to rural producers. Considerable attention was given to developing the infrastructure of roads, earth dams, farm service centres, markets, demonstration and seed multiplication farms, etc ... A hierarchical network of extension services was established to transfer innovations to farmers. In terms of the provision of resources and physical infrastructure, the project was all so visible and impressive. But there was little evidence that the farmers were really engaged in the whole enterprise. The findings of this study indicate some measure of success in raising agricultural production, but in the sphere of training human resources and building solid rural institutions for promoting self-sustaining development at the rural level, the project has clearly failed. Yet, the development of a strong farmers' organization is a crucial element in any programme of rural development. Such an organization would not only ensure farmers full participation in the rural development process, but they would "give the rural populace the clout they require to protect both their productive and welfare interests", (MABOGUNJE, 1981 b, p. 12).

It would appear that the single most important challenge facing agricultural and rural development in most developing countries today is how to effectively mobilize the farmers for genuine rural transformation. It is relevant to note here that perhaps the most vital of all the radical decisions taken by the Chinese to effect rural development, "was the creation in the commune, the 'production brigade' and the 'production team' of local instruments of joint action which could effectively work within the larger framework of the Chinese economy without losing either their autonomy of decision-making or control over the surpluses their work had built up", (BARBARA WARD in SARTAJ AZIZ, 1978, xii). The creation of such "local instruments" for joint action requires bold political decisions. Hence, we are not surprised that the World Bank experts failed to tackle this crucial issue effectively during the implementation of the Funtua Project.

This critical issue of the design of effective local instruments for the mobilization of farmers to participate fully in the development process is vital and must be politically resolved without further delay. As President NYERERE has rightly argued : "Governments by themselves cannot achieve rural development. They can only facilitate and make it possible. They can only organize help and guide, they cannot do. For

rural development is people's development of themselves, their lives and their environment. The people cannot do it if they have no power", (1979, p. 1360).

From the point of view of this researcher, the World Bank approach to integrated rural development as reviewed in this paper, does not offer Nigeria a viable way forward in the struggle for rural transformation. But the Funtua Project has taught a number of useful lessons. These lessons have been used for the construction of an alternative strategy. The details of the proposed strategy have been presented elsewhere (MABOGUNJE & GANA, 1981). It is hoped that policy makers would find the suggestions in the said research Report useful.

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