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The Green Revolution Programme in Nigeria Some Observations

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Abstract

The Green Revolution Programme of the Federal Government of Nigeria seeks to solve both the problems of the worsening food situation in the country and that of the ailing agricultural sector in general.

This paper draws attention to a few factors that might hinder the achievement of these goals. The factors include the overt commitment to large-scale mechanized farming, unequal benefit to be derived in society, absence of cost/benefit analysis of the programme, lack of clarity/probable mutual inconsistencies in the goals sought to be achieved, absence of local mass participation, the emphasis on state direction, and proliferation of authority to execute the programme.

It is concluded that since over 70% of Nigerians belong to the rural sector, and since the rate of absorption of the labour force into industry is extremely low thereby aggravating the problem of unemployment, it is imperative to generate more purchasing power in the rural sector by concentrating development efforts on small-holdings. A few suggestions to guide future policies are also given.

Introduction

The Nigerian economy is basically agricultural with agriculture contributing about 65 percent of the Gross National Product (GNP) and employing over 70 percent of the total labour force. However, the contribution of agriculture to GNP has declined considerably over the years. This is not unconnected with the enormous contributions of the petroleum industry and the concomitant 'Oil Boom Euphoria' of the last decade culminating in the neglect of the agricultural sector.

The declining productivity of Nigerian agriculture is attested to by the ever rising prices that have to be paid for the locally produced food items and increasing food imports. In 1971, ₦87.9 million was spent on food imports. This rose to ₦232.0 million in 1975 and soared to about ₦420.1 million in 1976. One billion naira has been given

as a conservative estimate for 1981. Overall food demand has been growing at a rate of 3.5% per annum due to the combined effects of population and income growth. Food production, though increasing in aggregate quantity, has been growing at the rate of about 1.0% per annum thus creating the food gap. In the cash crop sector, it is common knowledge that the production of Nigerian major export crops has declined significantly so much so that the country has now turned net importer of some of such crops e.g. palm oil. The foreign exchange contributed by agricultural production went down from 66% in the mid 1960s to 60% in the early 1970s and to about 20% in the late 1970s (Akinbode, 1981).

The Green Revolution Programme

The Green Revolution Programme (GRP) was launched in April 1980 to boost agricultural production and ensure that Nigeria can become self-sufficient in respect of basic foods in five years, and return to its pre-eminent position as an agricultural exporting country in seven years.

Before the GRP similar agricultural development programmes had been launched. They included the National Accelerated Food Production Programme (NAFPP) launched in 1972; the Operation Feed the Nation (O.F.N) launched in 1976; the establishment of Commodity Boards in 1977 to handle major Nigerian Crops; the promulgation of the Land Use Decree in 1978 to protect the rights of all Nigerians to land; the establishment of the Nigerian Agricultural and Co-operative Bank Limited (NACB) in 1973, and the institution of the Agricultural Credit Guarantee Scheme (ACGS) in 1977. Both the NACB and the ACGS were the instruments with which the Government planned to reduce the financial problems of farmers. They, along with a good number of the other programmes/institutions, formed an integral part of the GRP.

Some 401 agro-service centres for the effective delivery of inputs and marketing, storage, processing and transfer of technology have been built by the Federal Government for use in all the states of the Federation. Programmes for boosting the production of rice, maize, sorghum, millet and cassava, have been, or are being launched. The National Seed Service with centres in Ibadan, Kaduna, Jos etc. was strengthened to enable it to work at full capacity in providing the seeds required. Farmers are being assisted in land clearing and in the procurement of agricultural machinery at subsidized rates.

In addition to the foregoing, effort has been made to bring nearly 160,000 hectares of land under irrigation through the creation of

River Basin Development Authorities (RBDAs). There are also the World Bank assisted programmes, the Integrated Agricultural Rural Development Pilot Programmes otherwise known as ADPS' and the Agro Industrial Development Scheme. These were introduced during the Third National Development Plan Period in pursuance of the Federal Government's adopted strategy of integrated rural development approach in meeting the goal of agricultural and rural development. Also, under the GRP, cocoa, oil palm rubber, cotton and groundnut planting and rehabilitation programmes were being executed while the expansion of livestock, fisheries and forestry projects were being vigorously pursued.

From all indications, the G.R.P. is an integral part of government development strategy. The programme is not only aimed at furthering agricultural and rural development but also at laying the foundation for industrial development. Thus, in an address delivered by a top government functionary (Olaifa, 1980), it was stated:

"The Green Revolution Programme is not just an Ad Hoc food production campaign . . . . . The Green Revolution Programme covers the work of four Federal Ministries which are being integrated into comprehensive Rural Development Programme designed to improve the lot of peasant farmers". It can also be inferred from statements in official documents that the concern with the Green Revolution is to lay the foundation for an industrial revolution[1].

While the major focus of government involvement is to be in the form of promotional activities aimed at increasing the output of small holders, equal attention and encouragement are also to be given to the establishment of large-scale farms either by private entrepreneurs or commercial firms. The government for its own part will establish one large-sacle farm at least 4,000 ha in each of the nineteen states of the Federation through the National Grains Production Company. It will also hold equity shares in purely commercial ventures with the private sector, and participate indirectly in the following spheres:

(a) the provision of agricultural inputs.
(b) the provision of loans and credit facilities.
(c) the provision of incentives for the attraction of private entrepreneurs and large commercial interests.

The provision of agricultural inputs was mainly geared towards the encouragement of smallholder producers. To this end, a sum of ₦972 million was set aside in the Fourth National Development Plan. About

1/ The guidelines to the fourth National Development Plan did point out that "Agrarian Revolutions precede industrial revolutions".

half of the amount is to go into the purchase of fertilizers with the rest to be spent on other inputs such as tractors and other implements, the setting up of model farms and the training of extension workers.

The provision of loans and credit facilities were meant to take care of the financial requirements of both smallholders and large farms. The main avenues for the disbursement of these funds are the NACB and commercial banks. Commercial banks have been directed under the Federal Government ACGS to allocate 6.8% of their loanable funds for agricultural purposes at 6% interest (a rate much lower than the current rate charged on all other loans). The ACGS was given an allocation of ₦20 million in the fourth Development Plan. The NACB was also encouraged to give more loans to individual farmers in addition to its major concern . . . the provision of loans to co-operatives. It was allowed to grant loans up to ₦5,000 to ordinary farms "On demand" (New Nigeria, 1981).

Incentives for commercial firms going into large-sacle production include income tax relief for pioneer enterprises, duty-free imports of farm machinery and the provision of an additional investment allowance of 10% to enable losses to be carried forward. Agricultural production and processing were rescheduled from Schedule I to II in the Nigerian Enterprises Promotion Decree thus providing added incentive for foreign commercial enterprises with an interest in agricultural projects.

The rural development aspect of the GRP has as its major programmes, the ADPS and the Accelerated Development Area Programmes (ADAS). Both were aimed at providing improved services in the form of an integrated package to existing small holder farming communities with the objective of increasing productivity, raising farmers' incomes and bringing overall socio-economic development in the rural areas. (West Africa, 1981). This programme in rural development is to be carried out through the construction of feeder roads, dams, provision of water supply and the encouragement of livestock production. A sum of ₦2343.2 million was earmarked for the scheme in the Fourth National Development Plan. The World Bank serves as the main technical cum financial partner to the Government in the rural development aspect of the GRP. Apart from a loan of $580m already granted to the Nigerian Government in pursuit of the programme, a further $349 million was recently given for agricultural projects in Bauchi and Kano States, and a water project in Anambra State. The World Bank is also involved in the Agro Industrial Development Scheme concerned with offering a wide-ranging programme of assistance designed to implement the Nigerian Food Production Plan 1981–1985. The Agro-

Industrial Development Scheme started in June 1981 as part of a World Bank assisted programme in conjunction with the Federal Government of Nigeria represented by the Federal Department of Rural Development.

Inherent Problems of the GRP

Over-ambitious/unrealistic Target

It is Government's stated objective to close the food gap by 1985. The magnitude of this task can be appreciated by glancing through Table 1 which indicates the extent to which different growth rates in domestic supply meet this objective. For crops and crop products, a compound growth rate of 6.6% per annum would be necessary. For livestock products, it would be 11% per annum. Combined overall growth rate would be 6.75% per annum. Growth rates of this magnitude have rarely been achieved (see Final Report, Food Strategies Mission, 1980). Comparative statistics for a range of other countries are presented in Table 2. From the table, it can be seen that an overall compound growth rate of 3–4% per annum is the maximum that could be realistically expected. This in itself would be an uphill task when compared with current growth rate of 1% per annum and would require massive effort by government.

It would also appear that in setting this target of self-sufficiency in food by 1985, the Government failed to take into consideration the fact that a sudden increase in production cannot be attained overnight. New programmes are bound to face financial and administrative constraints and will need to be phased accordingly. Considerable institutional reforms and expansion of rural infrastructural facilities might become necessary, and will take time to accomplish. There is also the human factor to grapple with since growth rate is not merely a function of technology, government investment and institutional reforms, but also a function of the response from the farming sector.

Another fallacy in the Government set target is the inherent idea that food demand expressed in grain equivalents will be completely satisfied by 1985. Expressing food demand in grain equivalent though analytically useful, is grossly misleading in reality as demand for different food items in the local food basket is commodity specific and the elasticity of substitution can be extremely low. A good example already given in the report of the Food Strategies Mission is that of wheat which is a major import items. This commodity cannot in the short term be produced in any significant quantity in relation to gross de-

TABLE 1: EFFECTS OF DIFFERENT DOMESTIC PRODUCTION GROWTH RATES ON 1985 FOOD IMPORT

	Domestic Production Growth (1980–85)	Gross Demand	1980 Domestic Production Millions Grain Equivalent	Imports	Gross Demand	1985 Domestic Production '000 tons Equivalent	Import
A	Crops and Crops Products	18620	16000	2620	23125		
	1% per annum					16815	5310
	2% per annum					17665	4460
	4% per annum					19465	2260
	6% per annum					21410	715
	8% per annum					23510	
B	Livestock Products	895	620	275	1060		
	75% per annum					645	415
	2% per annum					685	375
	4% per annum					755	305
	8% per annum					910	150
	12% per annum					1095	
C	Crops And Livestock	19515	16620	2895	23185		
	1% per annum					17470	5715
	2% per annum					18350	4835
	4% per annum					20220	2965
	6% per annum					22240	945
	8% per annum					24420	

SOURCE: Food Strategies Mission, Federal Ministry of Agriculture. May 1980.

TABLE 2: COMPARATIVE AGRICULTURAL PRODUCTION GROWTH FIGURES FOR VARIOUS COUNTRIES (1970–71)

Country	Average Annual Growth in Production (%)
Ethiopia	0.7
Zaire	2.2
Malawi	4.3
India	4.1
Pakistan	1.8
Kenya	2.9
Indonesia	4.2
Zambia	2.1
Ivory Coast	3.5
Israel	6.6
Japan	3.0

SOURCE: World Development Indicators IBRD June, 1979

mand. A literal interpretation of self-sufficiency by 1985 would therefore mean that demand for such item is completely met internally or totally choked off. Neither of this is realistic and it merely shows that sufficient homework has not been done.

Commitment To Large-Scale Mechanized Farming:

The GRP lays very strong emphasis on farm mechanization which invariably implies the availability and use of tractors and modern equipment in large-sacle farming units. The emphasis laid on mechanization can be seen in the fact that about half of the amount devoted to inputs is going into the purchase of tractors and implements[2]. The commitment to large-sacle farming is also evident in the fact that incentives are provided for commerical firms going into large-scale production and the fact that agricultural production and processing have been moved from Schedule I to II of the Enterprises Promotion Decree

2/ For example, out of ₦103 million allocated for rice production in the country ₦60 million is to be spent on the provision of farm machinery (Punch, 22 July, 1981).

to encourage participation by foreign commercial enterprises to 60% of the equity shares in any joint agricultural projects. Similarly, heavy investment in large irrigation projects have been made through the River Basin Development Authorities (RBDAS). It was in fact envisaged that by 1985, irrigation will be available for about 160,000 ha from various RBDAS' projects. This is in contrast to the experience of the last two decades during which the area under traditional irrigation scheme increased from 120,000ha in 1958 to about 800,000ha in 1978 through the effort of the farming communities (Nigerian Agriculture sector Review, Vol. III paper 6). This is a positive evidence of Government's commitment to large-scale schemes even when there are no demonstrable benefits or superiority of such shemes over small-sacle schemes.

Both mechanization and large-scale irrigation have attendant problems which have implications for productivity increases in Nigeria. Most farmers cannot afford the cost of mechanization despite the heavy government subsidy. A large proportion of the Southern States fall within the rain forest belt where there are big trees and shrubs. These have to be stumped before farm machinery could be used. When the cost of stumping is added to the already high cost of machinery itself, the cost of mechanization will almost be higher than the benefits that would accrue from the exercise. Moreover, the nature of the land tenure system makes successful implementation of mechanization policy near impossible. Land is highly fragmented as a result of the tenure system which guarantees everybody a right to earn a living from the land. Over and above these are the burdensome foreign exchange requirements of mechanization and the dearth of local expertise for carrying out maintenance and repairs. Mechanization could also lead to water logging and erosion of top fertile soil if not carefully done. Large-scale irrigation as envisaged in the RBDAS is bedevilled with same type of problems. These are issues to which the Government has failed to give adequate thought.

The preceding apart, it has been emphasised by distinguished Economists (e.g. Hunter, 1969; 1970) that it is far from clear whether the policy of promoting large-scale farming in an effort to gain economies of scale and reap the advantages of mechanisation, and as a means of harnessing the energies and ambitions of entrepreneurs as a dynamic of progress, is to the longer term advantage of the national economy in a primarily agricultural economy. This point can best be appreciated by reference to the Japanese and Mexican economies (Johnston, 1967). The contrast between the Japanese and Mexican approach to agricultural development lies in the fact that the increase in farm output and productivity in Japan resulted from the widespread introduc-

tion of improved techniques by the great majority of the farmers whereas in Mexico, a major part of the impressive increases in the post-war period have been the result of extremely large increases in production by a very small number of large-scale, highly commercial farm operators. Thus, the bulk of the nation's farmers have been largely by-passed by economic progress to the extent that the Mexican economy is sharply divided between a relatively affluent sector engaged in modern industry or in the commercial subsector of agriculture, and a large back-water still eking out an existence in semi-subsistence agriculture.

Quite apart from the waste of potential enterprises among small scale peasant farmers and the social cleavage such a policy may cause, there are strong economic arguments for a more equal distribution of incomes. Due to a policy of backing the successful, it is quite possible for development to get to a point where industrialisation can proceed no further unless a mass market can be created for it. However, a mass market can only be created for it by enfranchising economically the disenfranchised masses. In most parts of Latin America, economic development has reached this point (Balogh, 1965). Carrol (1967) has made the same point that "the present state of gross inequality in income is a serious obstacle to accelerated economic growth". He went further to say: 'What seems to matter most for growth dynamics is the capability of reform to insure the widest possible diffusion of opportunities in lines with the distribution of potential talent.....".

Another major disadvantage of capital intensive agriculture is that it could limit the growth of small scale industries which would have provided diversification and non-farm employment for the masses in the rural years. Such small-scale industries played an important part in Japanese growth (Johnston op. cit). As late as 1956, nearly half of the manufacturing labour force in Japan was reported to be working in small enterprises of less than 30 employees. Several factors contributed to this Japanese pattern of development. Many of the traditional products manufactured by the small-sacle labour intensive industries remained in strong demands; andmany of the new farm implements that were widely used were manufactured by such enterprises. Organisational arrangements such as sub-contracting between large scale enterprises and small factories or even household workshops were a major factor in making it possible for the latter to expand as efficient and viable firms utilizing techniques appropriate to the factor proportions obtaining in the country. The spread of transport facilities and the availability of electric power in rural areas were also of great importance in facilitating the type of development.

Another useful illustration similar to the above is the development of small firms and workshops making small pumps and diesel engines for small tube well equipment in Western Pakistan. According to Johnston, the small-sacle, rural based industries were not only important in providing increased non-farm employment, but also made available farm inputs at much lower capital costs and smaller foreign exchange content.

It cannot be overemphasised that the nature of the strategy pursued for developing the agricultural sector will have a strong influence on the success of efforts to encourage a dual pattern of industrial development. With the increasing commercialization of agriculture, a developing country's farm sector will make increasing use of purchased inputs. To the extent that this demand is directed towards relatively simple and inexpensive implements which are within the technical capabilities of small-scale decentralized industries, the growing market for farm requisites can provide a strong stimulus to industrial expansion. A more capital intensive agricultural expansion path not only requires scarce capital and foreign exchange but means that the growing commercialization of agriculture, does not lead to the sort of dynamic interaction between agricultural expansion and development of rural-based industries that can contribute to more rapid growth of non-farm employment as well as more rapid growth of nation product.

Nigeria can turn the growing demand for farm inputs such as animal feed, fertilizer, and other crop protection chemicals into spring boards for economic development. The consumption of fertilizer which is expected to play a major role in the GRP (60% of the incremental food production is expected to be due to fertilizer use) has increased rapidly from 7000 metric tons in 1970/71 to 86,000 in 1979/80 (Table 3). Despite this growth, fertilizer consumption per hectare of cropped land in Nigeria was only 3.1kg in 1978 compared to a world average of 68kg (F.A.O., 1979). This suggests enormous potential for local production. Present trends in fertilizer supply in Nigeria (Table 4) also shows that there is a tremendous gap between local consumption and local production; and this gap is being filled by an ever rising importation. This observed gap may in fact be wider as could be inferred from various studies showing supply and distribution problems as constraints to fertilizer in Nigeria (Falusi, *et al.* 1975; Wells *et al,* 1975). This is obviously an area where local production on small scale can be encouraged.

Another area where local production on small scale can be encou raged is that of animal feed which has as its major inputs, maize. Solicited demand for maize has been estimated to be only about 17% on the average (Unpublished Report of the Technical Committee

TABLE 4; TRENDS IN FERTILIZER SUPPLY (METRIC TONS) TO NIGERIAN AGRICULTURE 1970–1980

Year	Domestic Production	Imports	Total Supply	Annual Change	Percentage Annual Change
1970	–	28.1	28.1	–	–
1971	–	38.2	38.2	10.1	36.0
1972	–	75.7	75.7	37.5	98.2
1973	–	61.0	61.0	–14.7	–19.4
1974	–	84.0	84.0	23.0	37.7
Third Development Plan Period					
1975	–	154.0	151.0	67.0	79.8
1976	21.6	207.0	228.6	77.6	51.4
1977	20.5	299.5	320.0	91.4	40.0
1978	17.3	189.0	206.3	–113.7	–36.0
1979	35.0	394.3	429.3	223.0	108.1
1980	N.A	500.0[a]	500.0	70.7	16.5

a/ Planned Import

SOURCE: Federal Office of Statistics, *Nigeria Trade Summary* (Various issues) 1980 Figures from the Fertilizer Procurement Unit Federal Ministry of Agriculture and Rural Development Lagos, Nigeria.

of the University of Ife Commercia l Farm Limited, 1982). This suggests that availability of unfulfilled demand which new feedmill enterprises can profitably exploit in addition to unsolicited demand and extra markets to be created by future expansions in the poultry industry.

The actual process of production in agriculture is said to be characterised by an almost complete absence of scale economies, at least beyond a one or two-man labour force. "Land, Livestock and working capital tend to be highly divisible with little, if any more than a proportionate drop in productivity with decline in farm size; thus these inputs are unlikely to provide economies in increased scale of operation or diseconomies in decreased scale" (Mellor, 1966). It is also true that in general, the supportive institutions for farming have

greater economies of scale than the direct process of production. Thus, if supportive services could be independently organized and provided to the small farm holders, they are most likely to be abie to compete effectively with large scale farms/plantations.

Inadequate Rural Infrastructure

Rural infrastructures consist of physical, social and institutional forms of capital which aid rural residents in their production, distribution and consumption activities as well as enhance the quality of rural life.

Rural roads constitute perhaps, the most important infrastructure in the structural transformation of Nigerian agriculture. Contributions of rural roads to agricultural and rural transformation would include: accelerated delivery of farm inputs; reduced transportation costs, enhanced spatial agricultural production efficiency (due to specialization), enhanced effectiveness of public policy. Roads improve the structure, conduct and performance of rural markets. Efforts to accelerate food production will encounter serious marketing and distribution bottlenecks if rural roads remain seasonal and grossly inadequate. Despite the preceding, Cross River State with the highest density of road coverage has a total of 371.52 metres per Km^2 while Borno State with the least density, has 45 metres per Km^2 (Idachaba *et al*, 1981).

Government storage operation has similarly been largely ineffective for intra-seasonal stabilization of supplies and prices. The established storage capacity is an insignificant proportion of production and market supplies. On input storage, there is a wide range in the coverage of the rural sector ranging from a walking radius of an Agro-Service Centre of 10.74km in Imo State to 34.60km in Borno State. Thus, there are wide disparities in the accessibility of Agro-Service Centres across states.

The provison of adequate social infrastructures like health care delivery system and education are also necessary adjuncts to agricultural development. Debilitating diseases reduce farmers' ability to perform energy intensive operations. Factors influencing health in the rural areas include the source of drinking water, house type, environmental sanitation, personal hygiene, nutritional status and literacy levels. In a study of seven villages in Oluyole Local Government Area of Oyo State, it was found that 43.60% of the villagers obtained their drinking water from covered wells; 32.33% from open wells; 21.80% from streams/rivers while only 2.26% obtained pipe-borne water (Ezenwane, 1976). 36.84% of villagers had the wells of their houses

cemented while 66.17%, slept under the same roof with their livestock. On waste disposal method, it was found that only 7.5% of the villagers had pit latrine while the remaining 92.48% simply resorted to the bush. About 71% of farmers in these villages reported loss of working days as a result of illness. Average number of days lost per farmer range from 3.0 to 279.3 man days. The spatial density of hospital in Nigeria ranges from one hospital per 415 km^2 in Lagos to one per 9716 km^2 in Borno State. This means that every citizen in Lagos State could have access to one hospital within 9.767 km walking radius while for Borno State, the walking radius would be 55.55 km.

Average per capita supplies of pipe-borne water for those states where data sre avilable range from 0.01 in Amabra to 939.10 in Oyo State with wide disparities in available water supplies both within and across states. Generally, there is gross inadequacy of rural electricity supplies. In Oyo State, one of the better served states, 12 villages in 7 Local Government Areas have electricity. In Kaduna State, only five of the 14 Local Government Areas have, and their supplies range from 1.04 Kw to 23.46 Kw per 1,000 of the population. In Bauchi, only four of the 16 Local Government Areas have supplies which again range from only 0.21 Kw to 1.23 Kw per 1,000 of the population. (Idachaba *et al*, 1981).

The preceding paragraph shows that wide urban-rural disparties exist in the distribution of available health and public utility infrastructures. These have acted as a great stimulant for the observed massive rural-urban drift especially of the youth. They have also contributed to the common feature of agricultural extension services in the country with is its thin and poor coverage.

Promotion of Inequality

As rightly pointed out by Tyoden (1981), the beneficiaries of the Green Revolution Programme are the country's budding bourgeious group . . . . . prominent among which are the army officers who have turned capitalist farmers upon retirement. . . .". This new breed of farmers have much easier access to the available inputs heavily subsidized by government due to their social connection. Because of their much easier access to the available farm credit, they have the capacity to respond rapidly to the new technology. Aided by the recently promulgated Land Use Decree, they are buying many peasant farmers out of their traditional free-holds in order to increase their individual holdings to take full advantage of government subsidized inputs such as fertilizer, tractors and irrigation water. The bulk of the rural population will continue to wallow in abject poverty since they lack the necessary skill

and the 'quid pro quo'. They cannot avail themselves of the opportunities for the development of large-scale, mechanized farms and also they cannot make any qualitative improvements on their small holdings since the agricultural inputs to be provided by government are biased towards large-scale production. A lot of these farmers, in fact, have not heard about the Green Revolution Programme. Meanwhile a handful of well-connected Nigerians have become millionaires overnight through fertilizer contracts – fertilizer that may not reach the farmers at all. Thousands of tonnes of fertilizer have been reported to have wasted away for lack of adequate storage facilities and faulty Government input logistics. The wisdom in adopting a programme that enables a few individuals who have some wealth or power (social privilege) to sail ahead leaving most of their neighbours stuck in the rut of subsistence is questionable from the stand point of egalitarianism and from the point of view of the overall strategy for national development. Instead of being an instrument of social change, the Green Revolution Programme in Nigeria is becoming a weapon of social repression which could also lead to social tension.

Absence of Cost-Benefit Analysis

According to the Minister for Agriculture, Alhaji Yahaya Gusau (Gusau, 1981), the programme is billed to cost ₦9 5 billion which is quite a lot of tax payers' money. One would expect that before such a collosal sum is committed, several alternative means of achieving the same goal would have been considered and ranked on the basis of social cost and benefit before finally selecting that method that yields the highest benefit at the least cost to society. By way of illustration, one can take a critical look at the Government irrigation policy. Government is now undertaking heavy investments (involving substantial foreign exchange content) in creating major irrigation projects through River Basin Development Authorities in spite of the fact that in the last two decades, the area under traditional irrigation has increased by leaps and bounds by the efforts of the farming communities themselves (with, little or no foreign exchange content). With proper cost benefit analysis, taking into consideration all relevant monetary and non-monetary costs and returns, it might have been discovered that the country is better off just encouraging and assisting in the improvement of small-scale schemes. In adopting large-scale strategy, a number of factors which are crucial to the success of the scheme seem to have been overlooked. These factors can be conveniently lumped together under two main headings namely, management capacities and factor endowments. Unnecessarily large scale of operation stretch the limited

administrative capacity of each project. This could lead to formidable task of co-ordination especially where the project involves several sites or locations and multiple production activities plus the training of several thousand potential settlers. Also the projects could be so highly capital intensive that shortage of capital delays the achievement of projected establishment rates with consequences for returns. As a matter of fact, the whole concept of the Green Revolution Programme based as it were on the introduction of new high-yielding varieties (HYV) and the technological and socio-economic changes in agriculture which would be produced, could still have been subjected to some cost-benefit analysis. Many of the requirements of the new technology such as know-how, fertilizers, pesticides and machinery have to be imported at exorbitant foreign exchange costs to Nigeria. Such costs could have been carefully weighted against the possible benefit in increased output. There is no evidence that this procedure was adopted before embarking on GRP.

Lack of Clarity in Goal

The GRP aims not only at improving the feed production situation, but also at achieving integrated rural development. As pointed out elsewhere (Oyatoye, 1980), an important contributory factor to failure of most Government projects in agriculture is the confusion or lack of clarity in goals to be achieved with consequent attendant problems for successful implementation. The three most important objectives of agricultural policy as often stated have been: (i) the improvement of total food supplies and qualitatively, of nutrition; (ii) a substantial rise in farmers' incomes largely by the development of a full – market economy; (iii) growth and diversification of employment. Although these three objectives are closely related, strong emphasis on one or another tends to result in somewhat different policies, hence the need to be specific about objectives or goals sought. Conflicting perception of goals result in a situation where compromise decisions result in the achievement of no goal whatsoever. Thus, it is the height of self-deceit to hope to achieve the twin goals of improving local subsistence and integrated rural development by the same action programme. These two goals may not be necessarily mutually consistent. To deal with the problem of improving local subsistence may necessitate neglecting the long term need for specialization and achieving integrated rural development; whereas, emphasizing integrated rural development may tend to play down the risks both of famine and unemployment. If the problem is tackled from the standpoint of providing employment for the teeming masses, there is the risk of favouring inefficient labour

intensive projects which will possibly delay structural changes in farm size and in the use of machinery. Thus, it is not enough to enumerate goals. Where such goals are mutually exclusive, a choice must be made between them; trying to achieve both, invites failure.

Absence of Mass Participation

Another important issue centres around the question of participants in the GRP. The emphasis seems to be on Federal Government direction. There has been insufficient consultation between the different tiers of government. The result of this is that the programme seems to be rejected or unwelcome by the State Governments on the grounds that they were not consulted in the policy identification and policy formulation phases. There is currently no format for involving Local Governments in the programme or in any other programme that emanates from the Federal Government for that matter. Unfortunately, this strategy seems to ignore the fact that development is not a process that can be engineered, planned and enforced from above. A cogent argument for decentalization of decision-making as well as of the administration of agricultural development arises from the increased incentive arising from a sence of participation on the part of local agencies and persons. Where such sense of participation is lacking, the end results are costly delays in implementation, half-hearted implementation schedules and sometimes, out right sabottage.

Emphasis on State Direction

Part of the declared intention of the Federal Government under the GRP is to establish one large-scale farm, at least 4,000 ha. in each of the nineteen states of the federation, apart from its heavy involvement in importation of inputs such as fertilizers and machinery. The wisdom in this policy is very much debatable especially when viewed against the background of past records in this direction. More often then not, government investment in state-owned and managed agricultural enterprises have yielded disappointing results due more to factors associated with government decision-making process (Oyatoye, 1980). The public sector has too many structural rigidities to be able to cope with the demands of commercially-oriented enterprises. Agriculture is such an industry where operations performed prior to or after the optimal time, results in lower productivity and the idea of carrying out day-to-day decisions on agricultural projects at a headquarter far-removed from the project with the usual delays and partial/total break downs in communications, would have the effect of increasing costs and lowering returns.

Proliferation of Authority

In the execution of the GRP there has been some diffusion of responsibility. Apart from the Federal Ministry of Agriculture which has overall responsibility for government agricultural policies and programmes, there is also the Federal Ministry of Water Resources under whose aegis the River Basin Development Authorities (RBDAs) are directly placed. Both ministries have different departments charged with responsibilities for agricultural development. For example, the Federal Ministry of Agriculture has nine departments. (For a list of the departments and their functions, see Punch Newspaper of Saturday April 3, 1982).

Similarly, the Federal Ministry of Water Resources has several departments including the Federal Department of Water Resources with responsibility for RBDAs. A cursory look at the various agricultural departments, reveals that generally, functions overlap. The Federal Agricultural Co-ordinating Unit (FACU) was probably set up to take care of such overlaps and possible conflicts of roles. Even with FACU, the co-ordination of the activities of the various agencies and institutions involved in the GRP may make execution a rather tenuous matter.

Conclusion And Policy Recommendations

In this paer, attention has been drawn to a few factors that might militate against the effort to make the Green Revolution Programme the spring-board for attaining both internal self-sufficiency in food supply and the much sought after goal of economic development. The following suggestions are made to guide future policies.

First and foremost, if the benefit of the GRP were to be reaped internally within the economy, required inputs should be such that could be met within Nigeria to avoid a situation where there would be heavy importation from other countries. Otherwise, the country will be losing both in terms of employment generation and the stimulus for industrial expansion and overall development potential.

Secondaly, top priority should be given to the provision of infrastructure in the rural areas. Availability of electric power and other basic social amenities that make life in the rural sector tolerable will go a long way in facilitating the much dreamt of rural integrated development.

Thirdly, Government should be more realistic and plan for what can be realistically managed and achieved. Grandiose projects that get stock midway because of financial and managerial constraints should be done away with. Unnecessary duplications and resource waste should be avoi-

ded by reducing the number of agencies responsible for executing the GRP' Some means must be found for bringing about better co-operation and co-ordination between the three tiers of government to ensure grass root participation in the GRP.

Fourthly, to achieve any incremental production in food supply, it is imperative that a package of necessary incentives and improved technique/ideas be made available to small-holders who willy-nilly, will continue to be the dominant force in production for a long time to come.

Fifthly, unnecessary politicisation of the GRP especially manifest in Ministerial control over fertilizer procurement (with attendant corrupt practices) should be discontinued to give the GRP a chance to be seen by all and sundry as a national venture worthy of support by all patriotic citizens.

Finally, attention is drawn to the superiority of a development strategy that relies primarily on private sector investments. It is urged that rather than supplant private investors, a more constructive role for Government is to identify where existing institutions do not work effectively and where useful Government intervention could improve their working.

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