Chapter 5

Emergent Agricultural Industry and The Nature of its Manpower Needs

V. A. OYENUGA
Professor of Animal Science (Rtd.)
University of Ibadan.
Ibadan.

I. Introduction:

It is a great honour to be invited to deliver The Third in the series of Annual Lectures instituted by the Faculty of Agriculture of this illustrous Uniersity. It is in keeping with the tradition of world renowned Universities, periodically to open their doors to someone from outside the particular university to examine and discuss some of the subjects topical to the progress of learning and relevant to the solution of some of the material problems that may be-set the community the University is set up to serve.

Our responsibility in agriculture, as an organised University discipline, is in the area of high-level manpower training for the solution of the nation's agricultural and related bioscience problems. University graduates in agriculture, must be scientifically and technologically soundly equiped, both in theory and farm practice, intelligent, committed and devoted to the solution of the problems besetting their community and must be imbued with the zeal, confidence, and leadership ability dedicated to the solution and execution of Nigeria's agricultural programmes.

This famous Faculty of Agriculture has been making outstandng, worthy and relevant contributions to the solution of the many scientific, technological, economic and educational problems of the nation in fulfilling the second important functions of the University. These activities must be further advanced and extended to meet and satisfy the expanding material needs of our people for food and other agricultural raw material. While it is

your responsibility to endeavour to make the scientific break-through, to raise the level of technology and of agricultural productivity, to the extent available funds and facilities permit, it is the sure responsibility of those who plan and administer the affairs of the nation to mobilize and ensure the application, in agricultural production, of the available level of technology on a national scale: to give the needed incentive to farmers for raised agricultural production; to ensure even distribution of the available food material to consumers and to adjust, allocate and distribute the available financial resources equitably and in proportional needs of the various sectors of Nigerian economic production.

II The State of Food and Nutrition

Food is the raw material with which the organic body of man and beast alike is built. The pin-size fertilized egg in the female multiplies and grows rapidly into the baby size at birth, due, almost entirely, to the food substances supplied by the mother and converted to the body material of the developing child. The continued growth processes of the baby after birth into human-hood depend entirely upon food supplies and, in a way regulated by the particular inherited genetic characteristics of the person, the quantity and quality of food consumed, determine the health and efficiency of man.

Health, labour productivity and efficiency depend more on the food we eat than upon any other single factor in hygiene. Food provides the material needed for repairing the body and for regulating its many activities. Food, therefore, is the first necessity of material life and constitutes one of man's fundamental needs.

In a real sense, the whole sum of man's activities, the successful fulfilment of a nation's needs, and the continued creation of new needs that play so important a role in a nation's progress towards true civilization, orderliness and happiness of society, depends largely on the extent to which the basic requirements for food are met. This is a fundamental truth we in Nigeria and in Africa cannot afford to ignore if we are ever to build and maintain a stable, democratic and progressive society in which political stability and social unrests are to disappear.

The Nigerian food situation is serious, indeed very precarious. A fairly large proportion of our human population, as never before, have become hungry and are in a state of permanent food scarcity and starvation. Not that we had at any time since we attained political sovereignty, been able, as a nation, to feed our population adequately, but the tragedy of our present situation is that the food supply position, in relation to our national food

needs, instead of gradually improving, had so rapidly deteriorated that, even with massive importation of cereals and other foodstuffs, a perceptible number of our citizens, within the past twenty years, have become physically and mentally sick, due largely to insufficient nutrient supplies and the complexities of life, which emanate from a poorly ordered society, to the extent that some streets in some of our cities are disgracefully littered with beggars, sick persons and occasionally with dead bodies!

In previous years, our supplies of energy food sources, given reasonably even distribution, appeared adequate, with under production of protein foods, particularly those from animal sources. The position today is that both energy and protein food sources are equally short and expensive and are beyond the purchasing power of the average Nigerian wage earner. In consequence, a growing percentage of Nigerian population suffers from inadequate daily intake of dietary energy and are also malnourished. Under- and mal-nutrition place heavy constraints on human potential and on his actual productive power.

A good number, who manage to live, do so at the brink of starvation and weakened resistance, become easily susceptible to attack of otherwise resistible diseases and premature death. There are incontrovertible evidence everywhere, therefore, in support of the assertion that, as a nation, we have so far failed to feed ourselves reasonably satisfactorily due to under production and to poor and faulty distribution machineries of the available food.

And yet Peoples Republic of China feeds her vast population of some 1,000 million people. Japan, with a population density of 310 per square kilometre (800 persons per square mile) is able to decently feed her population. The Soviet Union, with a vast proportion of her territory covered by deserts and tundra conditons, is able to feed her teeming population. So are the countries of Socialist Republic of Eastern Europe, the countries of Western Europe, Australia and Oceania. The United States of America produces so much food, feed and fibre surplus to her population needs, that she exports grains to the rest of the world as well as sending food aids to areas of the world in distress or in need of foods.

Table 1
Nigerian Gross Domestic Product and the comparative contributions of Petroleum and of agriculture, livestock Forestry and Fishing to G.D.P. between 1973/74 and 1981 at 1973/74 Factor Cost (1)

Year	Total G.D.P. (Nmillion)	Total contribution from Agriculture etc (Nmillion)	%	Contribution from crude petroleum (Nmillion)	%
1973/74	11,223.62	3371.46	30.03	1823.12	16.24
1974/75	12,194.54	3718.44	30.49	2037.67	16.71
1975/76	12,500.45	3348.95	26.71	1576.27	12.61
1976/77	13,744.27	3307.11	24.06	1873.11	13.63
1977/78	14,749.15	3502.94	23.76	1898.00	12.87
1978/79	13,966.93	3218.72	23.04	1731.03	12.39
1979/80	14,618.43	3135.05	21.45	2016.29	13.79
1980/	14,874.29	3067.70	20.63	1855.89	12.48
1981	14,571.51	2982.48	20.47	1266.75	8.69

(1) FOS: Nigerian Gross Domestic Product and allied macro – aggregates 1973/74—1981

III. Food Production Rate: The Food Crisis

The economic activities of Nigerians, contrary to popular belief, have been growing slowly, in real terms, between 1973/74 and 1981. This fact appears to be borne out by the Gross Domestic Product values at 1973/74 factor cost in which price fluctuation effects were eliminated as shown in Table 1. The artificial boom created by petroleum which appears superficially to have stimulated economic activities, has in actual fact, slowed down the real basic growth of economic activities during this period. For example, G.D.P rose by 29.8 per cent between 1973/74 and 1981, an over-all average annual growth of only 3.3 per cent. There was a drop of 5 per cent in G.D.P in 1978/79 compared with that of 1977/78, an increase of 1.75 per cent between 1979/80 and 1980 and a drop of 2 per cent in 1981 compared with 1980 values.

Agriculture, livestock forestry and fishing contributed the greatest percentage of G.D.P throughtout this period, at 1973/74 factor cost. It will, however, be observed from table 2 that since 1973/74, the value of food, agriculture and forestry production activities as reflected by the G.D.P at 1973/74 factor cost has been declining in relative terms to the growth of other sectors of the national economy. This annual decline was due primarily to the downward trend in the crop production sector activities. Contribution of the crop production (agriculture) sector between 1973/74 and 1981 at 1973/74 factor cost decline from ₦2,226.97 million in 1973/74 to ₦1,724.10 million in 1981, an average annual decline of 2.5 per cent. On the other hand, livestock and fishing sectors, sources of annual protein, increased from ₦872.56 million in 1973/74 to ₦1035.11 million in 1981, an average annual increase of 2 per cent.

Generally it has been estimated that the actual growth rate of food production in Nigeria between 1961 and 1981 varied between a half per cent (0.5%)[1] and one per cent (1.00%)[2] per year.

Population, during the same period, grew at an annual rate varying between 2.5 and 3.0 per cent, while food demand, due to the combined effect of rise in population and rising living standard and higher purchasing power of some sections of the population, increased at a rate varying between 5.00

(1) Food Policy issues and Concern in Sub-Sahara Africa: International Food Policy Research Institute 1981, p. 5.

(2) 4th National Development Plan (1981–85) p. 76.

and 7.00 per cent per annum during the same period, resulting in widening production/deficit gap.

Nigerian national agricultural production, therefore, has stagnated within the past twenty years. With an annual growth rate of one per cent or below in agricultural production, it is not surprising that the economic growth of this country has similarly stagnated. The pace of real economic progress in any country, is to a very large extent, governed by the pace of its agricultural progress. Agriculture, in its widest sense, lies at the very heart of economic progress and the potential which its development offers is the main spring of economic strides.

In addition to serving as sources of food materials, agriculture is the spring board for the real industrial take off of a country. Industrialisation, which takes off essentially with the processing of agricultural raw materials is the technological application of machinery and engineering to the processing of agricultural and forestry materials and as long as those processng rely largely on imported raw materials, so long will the foundation of such industrialisation remain shaky.

The widening production-deficit gap could only be met, even if partially, by importation of food and agricultural raw materials, the extent of which is limited by the foreign exchange capacity of the country and the proportion of the foreign exchange segment devotable to agricultural and food materials.

It is shameful and an indefensible evidence of negligence, improper planning and poor management ability for a developing country, endowed with considerable land and human resources like Nigeria, to have to depend on massive importation of food and agricultural materials in order to feed and service her population. That has been Nigeria's position with the past ten years. From about 1975 until now, Nigeria shifted from the position of net exporter to that of net importer of food and agricultural crops, due to her neglected and stagnated agriculture.

Between 1961 and 1965, Nigeria imported a total of 123,000 metric tons of food materials, principally in the form of cereals and, simultaneously exported a total of 824,000 metric tons of agricultural produce in the form of ground-nut, cocoa, etc., making Nigeria a net expoter of agricultural produce to the extent of 701,000 metric tons. By 1975, however, her position in this regard became reversed. Her importation of food materials had far outstripped her exports in this commodity sector. By 1977 her food importation had gone up to 787,000 metric tons principally in the form of cereals and non-cereal materials, as against the export of 70,000 metric tons in agri-

cultural and food materials, bringing a trade deficit of 717,000 metric tons in the agricultural and food commodity sector for the country. In 1978, Nigeria spent ₦1,027 million of foreign exchange to buy food to augment her local production for her rapidly increasing population and she received, in return, ₦444.69 million on sales of agricultural produce, giving her a negative trading balance of ₦582.418 million This deficit position persisted from 1979 to December, 1983. For example, the amount of foreign currency spent on the purchase of food materials between January and June 1980 was approximately ₦599 million and the value of export of agricultural raw material was ₦136 million or 22 per cent of the value of food imported. If this trend had been allowed to continue, local production of food and agricultural products would have deteriorated beyond repair. In this connection, slump in the crude petroelum market which seriously reduce the ability of Nigeria to pay for large imports, has thus served as a blessing in disguise. The resulting serious adverse balance of payment and the dwindled Nigeria's foreign reserve position, although brought great hardships to the economic position and the peopleof the country, it has helped to call attention to the need for prudence in our foreign trade position. It has also led to food crisis and to crisis in the manufacturing, industrial and agricultural sectors of the national economy.

Reasons for the Crisis

The main cause of the food crisis was due to the very slow growth in the level of agricultural technology. The labour intensive and unattractive traditional method of agricultural production has not changed substantially even now No genuine effort has been made to enable farmers to effect the necessary transition from traditional to modern technology. Crop yields continue to be low, due to low level technology and insufficent or low input. Agriculture has for too long been starved of infrastructure, adequate financial resources, services and incentives. The rural-urban migration leave fewer farmers, most of them with archaic traditional production methodology and with advancing age, to produce food for rapidly increasing urban dwellers. The menace of chain of middlemen (women) distributors, tends to keep prices low to producers and high to consumers, while in many cases, the cost of agricultural and production input is usually high for the farmer. Plans for agriculture were indeed made and considerable publicity and noise made on the agricultural slogans. However, their execution were inefficiently and inconsistently pursued and sometimes, as was the case

during the Second Republic, highly politicised. Many of the leading political leaders within the ruling party or parties, for example, exploited the opportunity to make fortunes for themselves and for their parties rather than pursuing genuine business in the implementation of plans in the so-called "Green-Revolution" programme.

In addition, the influence of the moral and cultural degeneration, decadence, indiscipline and laxity, which has gradually but widely invaded and eaten deeply into Nigerian national life within the past fifteen years, has not been without its effect on the productive ability of Nigeria, including that of her farmers. With the oil boom has grown a general tendency for excessive love for making quick, hot money, senseless wealth accumulation and reckless comfort and over-indulgence; renunciation of sense of honesty and probity in public life among the general leadership. Activities that required hard work become unattractive. Labour productivity, already low, dropped lower still. Dishonesty, cheating and stealing became the cleaver means of making money and progress. The traditional Nigerian culture of love, respect and mutual trust are fast disappearing. Life and property are no longer safe on the high way or at home. Public services and utility, including infrastructures like energy, water and communications have rapidly deteriorated and this situation has become an accepted part of Nigerian life Multi-millionaries and billionaries emerged like mushrooms within short periods out of awards of contracts of public services and distributive trade. Many people both in the urban and rural areas aspire equally to have the good things of life just as quickly as other have done and farming in any form does not lead to any of these newly discovered roads.

Table 2
Percentage contribution of agriculture, livestock, forestry and fisheries to G.D.P. between 1973/74 and 1981

Year	Contribution (%)	Year	Contribution (%)
1973/74	31.02	1978/79	24.69
1974/75	30.44	1979/80	22.74
1975/76	28.11	1980	22.22
1976/77	25.31	1981	22.88
1977/78	25.19		

Source: FOS: Nigerian Gross Domestic Production and Allied Macro-Aggregates 1973/74–81 Vol. 1 No. 1 April 1982

IV Future Food Needs

Future Nigeria's minimum demand for food is unlikely to be lower than its current rate of 3.00 per cent per annum (1984–85) and it is estimated at 3.2 per cent per annum by the year 2,000 A.D. Production rate by 1981 was put between 0.5 and 1.00 per cent per annum. Food production growth rate, therefore, must be significantly increased to meet rising market demands due to population increase and rising income. The gap between demand and supply has been put at 4 million tonnes of grain equivalent by 1985 and 16 million tonnes by 2000 A.D.

Similarly current required growth rate of meat (1984/85) is 8.3 per cent per annum and by the year 2000 A.D. 9.2 per cent per annum. Present production rate by comparison is 1.9 per cent per annum. In the case of eggs estimated annual growth rate required to meet current demand (1985) is 7.9 per cent and by 2000 A.D. 9.3 per cent as against present production rate of 3.0 per cent per annum.

As already indicated, even with the present rate of importation of 1.5 million tons of foodstuffs annually[3] to supplement the present local production, we are still short of meeting our minimum food needs, as many of us are inadequately fed. Besides, the amount spent on this importation imposes considerable strain on our foreign exchange position. Therefore Nigeria has to make great efforts to raise her food production substantially, at least three times its present production level, within the next few years.

Without going into details of the statistics, it has been estimated that unless the present rate of production is substantially increased, Nigeria will, by the year A.D. 2000 have to import 40 per cent of her domestic food crop needs, 60 per cent of her eggs, 80 per cent of her meat and 90 per cent of her milk needs.[1] This will not be a rational policy choice because of the competing other areas like machinery, manufacturing and other aspects of industrialisation. Besides, the foreign exchange payments for food purchases can be exceedingly high during periods food supply is short in the international market, quite apart from the undesirability of a sensible country having to depend heavily on external sources forher major food needs. The need for massive increase in the production of food and feed now and in the future projected to 2000 A.D. is very essential for this country.

Other agricultural materials like cotton, ground-nut, cocoa, palm produce, rubber, coconut, coffee etc, as well as Timber and other forest products are equally important and their production must be substantially increased to feed our industrial machines and for export.

V Organisation of Agricultural Production

In the early fifties, some 90 per cent of our working population were involved, one way or the other, with the production of our agriculture and food raw materials in the rural areas. As the towns and cities became more attractive, with modern amenities, more dignified, less labour intensive and more lucrative employment with an increasing proportion of the youth getting educated and technically skilled, migration from rural to urban areas became intensified. Gradually the proportion connected with agricultural occupation reduced to about 75 per cent and now 60 per cent of our labour

(3) The Crop Subsector in the 4th National Dev. Plan, 1981–85 p. 2.

(1) Food Policy Issues and Concern in Sub-Sahara Africa (Loc cit).

force is estimated to be engaged in agriculture and related occupations.[4] This proportion is certain to shrink further still with advancements in the growth of the national economy, education, skill and industrialisation. This process, in a growing population, with industrial advancement and sophistication, rising living standard, greater demand for food and agricultural raw materials, will continue to exert greater pressures on agricultural production and production methods.

As agricultural production methods advance, fewer hands will be required to produce the increasing quantities of the nation's food. In the more materially advanced countries with technological agriculture, for example, the United States of America, less than 4.00 per cent of that country's labour force are now engaged in the production of food considerably in excess of the country's needs. This is only possible with the massive application of technological energy and other inputs on a massive scale into the agricultural practice. A few examples will bring out this properly. Average farm holdings in Nigeria vary between less than 1 and 1.2 hectares, compared with about 110 hectares in USA. Less than one out of 1000 farmers use tractors in Nigeria compared with an average of 1-43 tractors per farming population in USA. Nigerian farmers use about 26.6kg of fertilizers per hectare of Nigeria's farming land in contrast to 152kg/ha in USA. An average farmer in Nigeria earns ₦175.00 per annum compared with ₦4000.00 in USA.

The persistence of individual, peasant farming methods, equiped with ancient tools and skills, which still prevail today in our system, will require continued involvement of a high proportion of the active labour force in agricultural production. This is not feasible in a country where industrialisation is taking off and, which, when properly developed in turn, should aid agricultural development.

For these reasons, the organisation of agricultural practice in Nigeria should rapidly veer away from the age-worn, pre-independence, peasant farming system with smallholdings, relying predominantly on human energy, as source of power. While plans and programmes which aim at fashioning small tools and the use of other inputs for raising the efficiency of individual farmer should continue, for the benefit of those who, for one reason or the other, remain loyal to the system, planning for rapid agricultural produc-

(4) The Crop Subsector in the 4th National Dev. Plan, 1981–85 (Loc Cit).

tion should realistically be directed towards bigger holdings and large scale farming where available modern inputs can be conveniently applied for greater efficiency in the production system.

Already large-scale modern approach had started to show in our farming system. According to the Federal Office of Statistics,[5] the proportional contribution of large scale farming to total agricultural production rose from 2 per cent in 1973/74 to 27 per cent in 1981. Some of these were in poultry farming where the proportional contribution of modern poultry farming were as follows:

			%
1973/74	—	1976/77	5
1977/78	—	1978/79	10
1979/80	—	1981	28

Nigeria's emergent agricultural industry, therefore, applies to the transformation of subsistence, peasant, small, individual less than one hectare farm unit as described above to bigger holdins. These could be in the form of:

1. *Co-operative farms* involving the encouragement of existing and future small scale farmers to form viable co-operatives to benefit from the advantages of large holdings.
2. *Large Scale Government Farms* if they can be made to be viable and profit oriented.
3. *Commercial plantations* by limited liability companies and individual persons in the area of tree and economic crops agriculture.
4. *Commercial Ranches* in the area of cattle, sheep and goats, also by limited liability companies and individuals with the necessary resources.
5. *Large Scale Intensive* farming in livestock, involving:

   (i) Feedlots
   (ii) Dairy Commercial Farms
   (iii) Intensive Piggeries.
   (iv) Intensive poultry keeping for eggs and table bird production.

(5) Nigerian Gross Domestic Product and allied macro-aggregates 1973/74—1981.

6. *Intensive farming* to produce vegetables and horiticultural crops for the large scale production of nutritious and hygienic vegetables and fruits.

It is not possible, even if desirable, to discuss these various points within the time permitted in this lecture. Agricultural planners and executors themselves appreciate the fact that Nigerian population and her need for food could no longer be catered for by subsistence mode of agricultural production. The Government National Grains and Root Crop Production Companies were established to meet part of the national need for industrial agriculture. They were mandated to establish farms of 4,000 hectares in each of the 19 States of the Federation on a joint venture vasis with private companies. In addition, about 1500 hectares of grains were established at Mokwa. If they had succeeded in doing this, it would have amounted to the establishment of a total of 77,500 hectares of grains and root crops. But like all Government plans, only a few of these have yet been established and it is not known how economically vilable or successful were those already established. The fact remains that under capitalistic mode of production as obtains in Nigeria, governments do not run commercial companies successfully but particularly more so in Nigeria where production efficiency at the government level is so low.

It is the primary duty of Government to deliberately encourage and boost private investments in farm holdings both in the crop and animal sectors of agriculture, particularly in poultry and pigs industries; to provide and ensure the functioning of necessary infrastructures; provide credit facilities and incentives needed for production and give Pioneer Status to private concerns operating in this field to ensure success. There must be injection of sizeable capital into agricultural production as is done in industry and manufacturing if the nation is to avoid the spectre of famine now and in the near future.

VI. Man as the Vehicle of Production

The necessary transition from subsistence agriculture to modern, technological farming in Nigeria as elsewhere, requires scientific manpower that is technologically competent with the degree of dedication and national awareness essential to effect the change. Therefore agricultural education and training are key factors in the development of agriculture and food and needs to be reoriented and suitably adapted to cope with the new large scale and industrial production to form an integral component of the whole

development process. It is not enough merely to introduce improved crop varieties, an increased and wider use of fertilizers and better farming technique. Our ultimate goal concerns the improvement in the quality of living of Nigerian people both in the rural and urban communities, a complete process which requires economic as well as social issues.

Efforts must continue to be made to unravel the secrets of nature and the machinery and ability to apply such research findngs in agricultural practice. Scientific and technological education and competence are prerequisites to progress in agriculture and other spheres of the national economy.

It is important, therefore, that our Universities with agricultural and related disciplines must continue to play a dynamic part in the expansion of scientific and technological education and its adaptation to industrial agriculture and animal production. The expansion and development of agricultural faculties must be given much higher priority attention than hitherto. The concept that agriculture does not need as much delicate skill and equipment or is of lesser importance than, for example, medicine, must be discarded.

Presently our Universities in this land are undergoing a period of unusual degeneration and decay due to the starvation of funds. It is true that funds are now generally limited due to the national slump situation but it is an inexplicable process of planning, development and administration, for those concerned to have proceeded to proliferate university institutions, when the existing ones are chronically short of funds. In many Nigerian universities today, particularly the well established, older ones, it has become difficult to maintain existing equipments, much of which have degenerated into disuse much less to acquire newsones, and to hold meaningful practical laboratory teaching classes.

It is difficult for a nation to rise above the level of training and skill it gives to its human resources, the most valuable of its resources: and its future competence for standards and economic prosperity is limited by the calibre of its educated leaders.

The university is the crucible within which potential leaders in all walks of life are finally moulded. Therefore, university faculties of agriculture as indeed all other faculties in their respective disciplines, have a special responsibility to contribute to the national development processes, in this case in agriculture. University faculties of agriculture should play greater and more active role in the national development planning and in the estimation of national manpower needs, particularly at a period of change in

the systems of agricultural production such as we are at present passing through.

Similarly faculties of agriculture need to justify the financial resources invested in them by purposeful involvement in national affairs and in determined efforts to ensure that the manpower produced are dedicated, competent and are inbued with true leadership capabilities. Curricular and programmes must be examined from time to time to enable them adapt rapidly to the demands of changing agricultural systems and demands of the economic environment which agricultural graduates are being trained to serve.

It is the responsibility of the universities as centres of learning and a conglomeration of intellectuals of different disciplines to engage in dialogue and controversies with a view to attain objective truth with which to enrich the society being served. But these must not be allowed to degenerate into base, egocentric, inordinate personal ambition, intrigues, hatred and disintegration of what should otherwise be harmonious societies.