

WHAT DISEQUILIBRIA ? PEOPLE, LAND AND FOOD IN NIGERIA

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Modernizing Malthus

The World Bank « views population assistance as its highest priority in Africa » (World Bank 1986 : 6). It identifies « population control » as the most important problem facing Nigerian agriculture (World Bank 1987 : 1, 27). Who is to control whom is not stated. It offers neither argument nor evidence to support this self-evident fact : the association between the growth in population, the increasing scarcity of land, the degradation of the environment, and the fall in their per capita supply of food appears to be so obvious that it is taken for granted. Since the 1960s, the World Bank's solution has been to reduce the birth rate and to promote yield-enhancing technologies to raise agricultural productivity. (Williams 1981a) In the 1980s, it linked this diagnosis to a fashionable revival of the central obsession of colonial agricultural policies — environmental degradation (World Bank 1986 : 19, 24-7).

The World Bank's 1989 study, *Sub-Saharan Africa*, notes at the outset that « Africa must grapple with two major trends : explosive population growth and accelerating environmental degradation. » (World Bank 1989 : 4) The need to limit population recurs as a refrain

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Les spectres de Malthus

throughout the study, and is identified as the main cause of environmental degradation :

The pressure of population is causing desertification to accelerate, because it forces people and their livestock farther into the marginal grassland. The productive capacity of land is falling because of shorter rotations, soil erosion and overgrazing. Growing population also raises the demand for fuelwood and cropland, and the resulting deforestation increases runoff and erosion, lowers ground water levels, and may further reduce rainfall in arid areas... (World Bank 1989 : 22)

The solution is to modernize agriculture :

Without agricultural modernization the result is rapid desertification, deforestation, and loss of vegetation cover. With sound practices and technological innovations Africa might eventually accommodate several times its present population. But this will take time, and, meanwhile high population growth spells disaster. (World Bank 1989 : 40-41)

These passages repeat the same message : more people ; less land ; lower productivity ; less food for everyone. The fecklessness and ignorance of the poor is the source of their own suffering. (World Bank 1989 : 44) To save themselves, they must adopt the contraceptive and agricultural technologies on offer from the international aid agencies.

The World Bank's « population assistance » is clearly primarily intended to restrain the growth of population rather than to allow women greater control over their own lives. (cf. Hartmann 1988) The World Bank's 1986 report, *Population growth and policies in Sub-Saharan Africa*, emphasises the need to remove restrictions on the use of injectable contraceptives and sterilization (World Bank 1986 : 41-42) — methods which may be most effective in administering programmes to control population because they depend least on women taking responsibility for themselves.

Demographic change

While the rates of fertility, births and population growth have been falling elsewhere since the 1960s, they have continued to rise in all the Sub-Saharan African countries to date except, from a very high level, Zimbabwe. (World Bank 1986 : 8-9) The Bank explains this by generalising common social, economic and cultural factors across the very different societies of the continent. Thus : « In Africa, the prevailing

young age at marriage for women, the frequency of polygamy, an unequal work burden between the sexes, and the low educational levels of women all combine to perpetuate the low status of women. » (World Bank 1986 : 39) « Traditional cultures place a premium on high fertility », perhaps in response to such « age-old facts » as the importance placed on children as a source of labour and of security. At the same time lengthy breastfeeding and sexual abstinence after a birth have been diminishing. (World Bank 1986 : 11-12)

According to the World Bank, the view that « land [is] abundant and labour [is] scarce is simply an illusion shared by most Africans. Expanding opportunities for parents to invest in education « are beginning to erode the traditional benefits of large families ». However, support from « extended families », and government provision of « free or highly subsidized schooling and health care » means that parents « do not themselves pay all the costs of childraising ». Further, in many African countries, women bear the heaviest costs of bearing and rearing large families, including greater maternal, infant and child mortality, but it is men who decide to have them — which brings us back to « traditional culture ». (World Bank 1986 : 41, 12, 19)

Two models are combined. The first is of the incomplete exposure of a « traditional » society to the influences of « modernity » ; the second is of many people making apparently rational decisions — but with perverse social consequences since they do not bear, or even observe, the costs of these decisions. The logics of these models may be contradictory. The World Bank has committed itself to « encourage expansion of basic health services, female education, and other development programmes that generate demand for small families. » (World Bank 1986 : 6) But if the government bears most of the costs of these services, individuals may continue to breed in disregard of the true costs of their decisions. Improved health services may reduce the very high rates of primary and secondary infertility in many parts of Africa, and thus increase the birth rate. (World Bank 1986 : 11, 53) Better health services and education for women may contribute more to reducing child and infant mortality than to curbing fertility.

The World Bank's generalised analysis of African demographic tendencies ignores the complex and varied historical processes which have shaped the rise, fall, and age — and gender — distributions of populations, and their patterns of settlement and migration during the periods of the slave trades, colonial conquest and colonial rule. (Kuczynski 1948, 1949, Cordell and Gregory 1987) History is replaced by the stylised transition from tradition to modernity. Thus « age-old facts » are used to explain relatively recent changes. Geography is simply ignored. There is no mention of the marked differences in patterns of fertility and rates of population growth within African

countries, or any analysis of contemporary differences in the rates of population growth between one country and another. Estimates aggregated at national, even continental, levels obscure the variations which we need to identify if we are to begin to understand the complex demographics of African societies.

The estimates for African countries in 1983 cited in the 1986 report offer scant comfort for the World Bank's diagnosis or policies. Kenya, Zimbabwe and Ghana, which have the highest contraceptive use and the most effective systems for providing contraceptives, claim the lowest infant mortality rates. However, they also have the highest population growth rates and between them include the highest crude birth rates and total fertility rates of all the countries cited. (World Bank 1986 : 8-9, 42, 53) These are not the societies where early marriage for women, or polygyny and the other stereotyped attributes of rural African culture are most prevalent. Indeed polygyny seems to be associated with lower rather than higher rates of fertility. The highest rates of population growth among African countries and, in some cases, among regions within countries (Koponen 1986 : 47 ; Lockwood 1989), are associated with relatively good health and educational services and/or with rising prosperity, especially in rural areas. These apparent simple relations among cross-sectional observations may well obscure complex patterns of change ; they do raise doubts about the simple associations presumed in the World Bank models.

While some parts of Africa have long had dense concentrations of people relative to the resources available, most have been relatively sparsely populated. People have thus been able to migrate to new places to grow crops and graze livestock. Denser populations reduce the unit costs of transport and marketing and of providing roads and services, and expand demand for local produce. Rising population may thus be of cumulative benefit in many places, as the World Bank explicitly recognises. However, in the case of Africa, these potential benefits of population growth are all discounted. (World Bank 1986 : 21-3) Africans are presumed to lack any indigenous capacity to adapt to the challenges posed by rising pressure of population and the need to feed an expanding urban population. There is no recognition of how, over the last century, African farmers have raised their productivity in different ways — growing both higher-value crops, such as cocoa, and less labour-intensive crops, such as maize or cassava, adopting new tools and methods of cultivation, working longer hours (especially by women) and extending the areas under cultivation.

The World Bank rightly recognises that demographic changes clearly have important ecological and economic implications. They ought therefore to examine them more seriously. The extremely high rate of population growth in Africa places severe strains on the capacity of

societies and of governments to meet the consequent demands for health services, education and jobs. More people make additional demands on natural resources. However, the nature, extent and impact of these demands will depend on what they produce and how they produce it. The World Bank reports do not consider the diverse consequences of population growth rates under various circumstances, or the scope and the limitations of people's capacities to alter and adapt to them ; only the importation of contraceptive and agricultural technologies can save Africa from the Malthusian trap.

Environmental consequences

In *Sub-Saharan Africa*, the same story of population growth causing environmental degradation is told to represent countries across the Continent, without considering the great differences in their population densities, rainfall and vegetation, combinations of crops grown, or patterns of settlement and migration, either within or among African countries. No distinctions are drawn between pastoralists and cultivators, nor between capitalist farms and peasant smallholdings. The ecological consequences of mechanized farming and chemical fertilizers, and of dams, tubewells, and irrigation projects are passed by. Little attention is paid to the past and present appropriation of land, fuel, and other indigenous and imported resources by large-scale farmers, mining companies, timber exporters, industrial firms, state officials and wealthy consumers. (World Bank 1986 : 25) Certain economic activities (beer-brewing, tobacco curing) make more intensive demands on fuel-wood than others ; some require the cutting back of forest, others need its protection. People will be forced to cultivate marginal land and forests or denude their locations of trees where they are excluded from other lands or lack access to alternative sources of fuel. The various complex conditions which lead to environmental degradation and food scarcity are obscured by the reiteration of a simple, linear progression.

The 1989 report reduces African agricultural practices to two — slash and burn agriculture and nomadic livestock raising. (World Bank 1989 : 895) These were once appropriate but rapid population growth means that they are no longer suitable. The solution is to introduce new technologies :

The necessary productivity gains can come only from technological change. This will involve a more intensive use of chemical and organic inputs, the integration of livestock into farming systems to use animal power and manure, the introduction of new higher-value crops, better irrigation methods, hand tools and crop storage techniques ; and improved

animal and crop husbandry. (World Bank 1989 : 90 ; see 60, 95-100, World Bank 1986 : 3, 37)

The authors of the World Bank study ignore many other strategies which African farmers (and African pastoralists) have adopted over hundreds of years to cope with their environment, including permanent cultivation of manured land, terracing of hillsides, control of pests, adapting rice-cultivation to different sources of water. African farmers often combine different forms of land use — intensive/extensive, permanent/shifting, upland/floodplain, agriculture/stock rearing — to make the best use of their resources. (Richards 1983, 1985) Generalized descriptions of African farming systems ignore both their complexities and their variations.

African farmers have adopted and adapted new crops and agricultural technologies for centuries. The 1989 study recognizes that attempts to « introduce technology into Africa in the past 30 years have been disappointing. » (World Bank 1989 : 95 ; see Heyer, Roberts and Williams 1981) The costs of inputs, and of labour, have been too high, the technologies have been inappropriate, yields have been disappointing. Soil conservation programmes have required women and men to provide unpaid labour without generating commensurate increases in incomes. The authors note the technical, economic, and environmental, virtues of multicropping but continue to recommend technologies adapted to sole-cropping. (World Bank 1989 : 60, 100) The World Bank typically refuses to admit its own involvement in these failures, and its responsibility for the debts they leave behind. The blame is placed on their partners, African governments. The Bank does not ask whether the whole approach of exporting chemical and mechanical technologies might be inappropriate. Instead, they recommend more of the same.

Nor have they considered the environmental consequences of their own strategies. The World Bank has promoted the expansion of yellow maize cultivation which is more demanding of soil nutrients and less drought resistant than sorghum. Chemical fertilisers replace lost nutrients ; unlike organic fertilisers they do not build up the productivity of the soils. Mechanical land clearing for irrigation dams, roads and large-scale farming exposes soils to wind erosion. *Sub-Saharan Africa* appends passages to warn about the dangers of environmentally-damaging irrigation and settlement projects, of destructive logging, and of noxious chemicals and pollutants, and the need for incentives and sanctions and thorough project appraisal to deter them, but makes no mention of the failure of World Bank projects and appraisal reports to take account of likely environmental damage. (World Bank 1989 : 90, 100-103)

Governments are rightly advised to adopt exchange rate policies which promote exports ; they must do so, immediately, if they are to

service their debts and pay for essential imports. However, this will have environmental costs. Tree felling is a quick way of making money and of earning foreign exchange. Increasing production of export crops and of food to meet the consequent expansion of demand will bring more land, including some forest areas, under cultivation. The World Bank recognises the need to reduce, reschedule and repurchase debts (World Bank 1989 : 177-8) — after all they cannot be repaid. However, abolition of external debts, including those owed to the World Bank, may be necessary to revive African economies and reduce the import constraints which exacerbate the tendencies of governments, in collusion with businessmen, to pursue environmentally damaging policies.

World Bank projects consistently privilege large-scale farmers. They are politically influential, easier to reach than smallholders, and responsive to advice from project officials. Capitalist farmers exemplify agricultural progress. (World Bank 1989 : 137) *Sub-Saharan Africa* does not consider the consequences for food production and for the environment of the appropriation of land for large-scale farms, plantations, ranches, and irrigation schemes. They displace farmers and pastoralists, may exclude them from using floodplains, and force them to cultivate more marginal and forest land. The claims of large-scale farmers are not limited to land and water. They typically require a supply of cheap labour, and privileged, and usually subsidised, access to imported inputs, public services and product markets. (Williams 1988a) The rich and powerful may spend their money and use their influence to acquire the lion's share of a country's limited resources — thus excluding the poor from access to kerosene, or water supplies, or school books or pharmaceuticals. The opportunity costs of the use of resources by the rich falls on poorer people.

Protecting property rights

The World Bank argues that

Where property rights are well defined and the market for land is functioning well, private landowners or public managers are likely to resist degradation of their property to protect its long-term value. But where resources are held in common and traditional rules have broken down..., individual users of the resource have very little, if any, incentive to conserve it. (World Bank 1986 : 25)

Individual property rights are no guarantee against soil mining. Capitalists treat land as a source of profit. They may invest in maintai-

ning the fertility of the soil ; they may also exhaust an area of land to maximise short-term profits, which can be reinvested in acquiring land elsewhere, or outside agriculture. Only farmers who continue to depend on access to their own land to cultivate or gaze stock need to concern themselves with maintaining its productivity. They need to be able to secure their rights to use the land, singly or jointly with others ; this does not have to depend on individual ownership or legal title.

The virtues of exclusive rights to property and the vices of communal access are used to justify the enclosure of rangelands for commercial ranching, or creating game reserves, and damming river waters for irrigation scheme. Pastoralists are confined to grazing blocks, which cut them off from seasonal water and pastures ; forced to reduce their herds or made to settle to a fixed abode and cultivation of land. However, transhumant pastoralism is better adapted than capitalist ranches to make continued use of the fluctuating resources of arid areas with uncertain rainfall. Farmers settled on irrigation projects make more sustained demands on limited water and fuelwood than pastoralists they displace. (Raikes 1981 ; Kelly 1986 ; Anderson and Grove 1987)

Colonial governments claimed jurisdiction over the allocation of land, or even rights of ownership over it. They conferred individual title in different forms on settler farmers and companies. African's rights to land were generally restricted to the allocation of « communal » lands under « native law and custom », or to the precarious occupation of land as tenants or squatters in return for labour services, rents or shares of their crop. Property rights provided the legal foundations for the dispossession and expulsion of producers, and their stock, from lands which they farmed, grazed and lived on, and the extinction of their claims upon it. Policies to protect the soil from erosion by imposing conservation programmes on farmers through the « Native Authorities » provoked bitter hostility against chiefs and governments throughout southern and east Africa. (Lonsdale 1968 ; Throup 1987 ; Anderson and Grove 1987 ; Beinart 1984, 1989)

In the 1950s, the Kenyan government, confronted by the Mau Mau rebellion, adopted the Swynnerton Report (Kenya 1954) which planned to expand smallholder production and protect the soil by registering title to consolidated plots. Once holdings had been consolidated, they could not legally be sub-divided below an « economic » size. Those without sufficient land to provide for their needs would work for wages on their neighbours land and on settler farms. The problems of Kikuyu agriculture — land, soil conservation and productivity — would be solved without challenging the rights to settler farmers to monopolise large areas of fertile land. Land continues to be divided among heirs in disregard of legal registration. The Swynnerton Plan opened the way to an expansion of smallholder production — after large areas had been

transferred from settler farmers. (Sorrenson 1967 : 220-236 ; Heyer 1981 ; Cowen 1981)

The 1989 World Bank study follows the logic of the Swynnerton Plan that « Agricultural modernization combined with population pressure will make land titling necessary. » The authors recognize the need for caution in carrying through the « transition to full land titling », pending which « traditional tenure systems need to be codified » (as if this had not been a continuing concern of colonial « native administration »). Further, they argue, systems have to be found for adjudicating between « legislated » and « customary » rights in land. (World Bank 1989 : 104) This last comment reveals the real issue : whose claims to land are to be recognised ? whose rights are to be enforced ? Registration of title to land may not only extinguish the rights of women in respect of land (World Bank 1989 : 103), but it also allows those with access to state power and legal forms to impose their claims to land, whether derived from inheritance, purchase or allocation by a community's authorities, at the expense of others.

Indigenous forms of tenure do not necessarily preclude people from cultivating, renting, buying and selling land. They may protect people's access to land, albeit imperfectly, from individual aggrandisement, whether by outsiders or by members of local communities. Communal land may be appropriated by local chiefs and politicians or allocated to their cronies. Land titling entails considerable administrative costs and social disruption. In Kenya it was initiated during the Emergency, when the Kikuyu had been moved off their lands into villages. Land titling defines and protects some people's rights. It may render some people's claims to land insecure, and exclude others from access to the resources they have hitherto enjoyed.

Exclusion from land denies people one of the means of providing for themselves, and may force them to cultivate or graze their cattle on marginal soils and cut down trees for fuel. They are then blamed for causing soil erosion. A serious study of the impact of population growth on land and on food production needs to examine the distribution of land and other assets. Registration of land title is on the World Bank's agenda ; redistribution of land clearly is not. (World Bank 1989 : 38)

Nigeria

Population growth rates are usually derived from successive census figures. No such figures are available for Nigeria. Estimates of the Nigerian population are therefore based on projecting hypothetical population growth rates from the census of 1951, the only serious count of the Nigerian population, or from the successively inflated census estimates of 1962 and 1963. Subsequent census returns reflect the rival

claims of states and regions for electoral advantage and state revenues. They are political phenomena, not demographic evidence. We do not know the total population of Nigeria. Nor do we have any measure of the changes in the distribution of the population among the different states, among rural areas and between rural and urban areas.

A plethora of estimates have been offered by Nigerian and international agencies of the production of staple foods in Nigeria. They are inconsistent with one another, and known trends of weather and prices. All are implausible, and offer estimates of total production and rates of growth which are certainly far too low. These estimates all suggest that food production has grown less rapidly than population over the last two decades. But since neither the levels of food production nor of population are known, we cannot draw any firm conclusions about the relations between them.

Population growth

Before 1951, colonial population estimates did not rely mainly on counting people. The official estimate of the Nigerian population in 1931 was 19,9 million. After reviewing all the available sources, Kuczynski concluded that « the population was probably not under 18,500,000 and not over 22,000,000 », and that « the population increased very little, if at all, in the first quarter of this century, and that it increased somewhat but probably less than 10 per cent in the following 15 years. (Kuczynski 1948, 1:2, 762) Little could be said with any confidence about fertility, or the mortality of infants, children or adults. Such evidence as was available suggested that the total fertility rate was low and varied from one area to another.

Kuczynski suggests that, in Lagos, « the birth-rate declined considerably in the first two decades of this century » ; « it would have been about 28 in 1930-31 as well as in 1918-20. » However, registered births in Lagos increased from 3,458 in 1931 to 7,240 in 1944, implying a more rapid rise than the area's population. (Kuczynski 1948 : 660-1) The Medical Census of 1930-32 found that the mean number of live births for women over 40 varied between 3.0 and 4.8 for four districts in the southern provinces, two of them in Southern Cameroon which was then administered as part of Nigeria. (Kuczynski 1948 : I, 677-681)

The levels and distribution of population in pre-colonial Nigeria were significantly affected by the diverse impacts of capture of slaves and the trans-Atlantic, trans-Saharan and domestic slave trades (Mahadi and Inikori 1987, Richards 1983 : 6-8), by political developments, by changing patterns of trade, and by the incidence of diseases. Population densities and rates of reproduction, and pressures on land resources, were generally low but varied considerably from area to area.

Mortality was high in colonial Nigeria as a result of endemic and of epidemics diseases, the latter including small-pox, cerebrospinal meningitis, influenza, plague, and sleeping sickness. Endemic and epidemic diseases of humans such as guinea-worm, bilharzia, and yaws, and of cattle such as rinderpest and trypanosomiasis affected agricultural productivity and levels and distribution of livestock. (Kuczynski 1948 ; Richards 1983) Colonial medical officers attributed variations in fertility (and high infant mortality) to the differential spread of venereal disease and of access to protein in the diet. Polygyny, and lengthy periods of breast-feeding and sexual abstinence after birth, constrained the birth rate. However, the 1935 *Report of Northern Provinces* foreshadows the recent World Bank analysis :

The notoriously prodigal habits of the Tiv farmer combined with abnormal fecundity in the clans occupying the area have resulted in the farming of every inch of land, so that it is hardly surprising that the area is now almost entirely bare of trees. (Cited Kuczynski 1948 : I, 683)

Neither the predominantly low rates of fertility and population growth, nor the variations among the demographic patterns of different regions, correspond to the World Bank's image of a « traditional » culture.

It is likely that the rate of population growth began to rise between the wars, increased in the 1940s, and continued to expand after that, as the proportion of women of child-bearing age increased. The 1951 census counted 30.4 million Nigerians (31.1 million including Southern Cameroon) ; allowing for undercounting the Nigerian population may then have been about 32 million. If Kuczynski's estimates for 1931 are right, the rate of population growth for the period 1913-51 was around 2.3 per cent p.a. The population must have grown more rapidly than Kuczynski assumed in the 1930s, and further increased in the 1940s — unless all the estimates for 1931 were far below the mark.

The original 1962 census discovered 42 million Nigerians, of whom 49 per cent were in the Northern Region. Extraordinarily sharp increases were registered in the Eastern Region. The total was corrected to 52 million in order to protect the North's political majority of electoral constituencies, and inflated in the subsequent 1963 census to 55.7 million, which political compromise remains the basis for « official » estimates for Nigerian population. The 1973 census produced a total of 79.8 million. It was designed to secure for the four most northern states the majority of the population which previous figures had vouchsafed to the six states of the former northern region. It was declared null and void in 1975 by the Murtala government. All that can be said with any

confidence is that the Nigerian population increased considerably since 1951, though nothing like as fast as the census estimates presumed. The World Bank's arbitrary estimate of a growth rate of 3.3 % in 1983 places Nigeria in line with a number of other African countries, but well below the highest rates in Africa. Realistic guesses would probably be of a total population close to 45 million and 60 million for 1963 and 1973 respectively. The Nigerian population is likely to be close to 100 million in 1989, give or take 10 million.

There has been considerable migration to urban areas. The major commercial, industrial and administrative centres like Kano, Lagos and Port Harcourt have expanded dramatically. So have numerous other towns, notably the capitals of the 21 states. There has also continued to be a complex and extensive migration of people among rural areas, responding to and also changing the unequal pressures of rural populations on land and water resources. The migration of people, from rural to urban, and from rural to rural areas may be the critical demographic influence on patterns of demand for, as well as production of food.

Expanding agricultural production

During the colonial period, peasant farmers emerged as the predominant class of rural producers. They massively expanded agricultural exports of cocoa, groundnuts, palm produce and cotton. Government established a state monopoly over the main produce exports during the second world war. The marketing boards taxed export crops heavily. Nevertheless, in the mid-1960s Nigeria was the world's largest exporter of groundnuts and palm produce, and its second largest exporter of cocoa. In the 1970s, the prices offered for these crops by the marketing boards had fallen dramatically in relation to alternative economic opportunities, including production of staple grains and the sale of groundnuts and palm oil to the domestic market. Marketing board purchases and exports of these crops fell, in some cases to zero. (Williams 1981b ; 1985) In 1986, the government devalued the naira and abolished the commodity marketing boards, which produced a sharp increase in prices of Nigeria's export crops, and led to an increase in cocoa and cotton production.

Most palm produce is collected wild often by migrant specialists. Cultivated « dwarf » palms provide only a small share of Nigeria's production. World Bank-funded projects to rehabilitate cultivated oil palm production after the civil war were expensive failures. Farmers moved to the forests of Western Nigeria to plant cocoa. They employed seasonal migrant labourers as well as local people for wages to supplement their own labour resources. As trees aged and yields declined, so the centre of production moved eastward. An ambitious World Bank

programme to finance the cutting out of old trees and the planting of high-yielding hybrids failed to reverse the decline in exports, owing to low prices and the high labour costs of establishing the new trees. (Clarke 1979) The sharp increase in the naira price of cocoa in 1986 led to increased application of pesticides and improved weeding and harvesting. Prospects for renewed planting depend on farmers' confidence about future prices of cocoa, at a time of declining world prices in dollars.

In the most northern states, groundnuts and cotton have lost ground to grains since the civil war. This is partly the result of changes in relative prices of crops and of the lower labour demands of grain production. In the 1970s, climatic changes and competition for land have caused pastoralists to seek grazing further south ; their cattle trample cotton fields, which are harvested later than food grains. The spread of education and of the seclusion of women has made it more difficult to find cheap labour. The drought of 1972-74 and the outbreak of rosette disease led to a precipitous fall in groundnut production ; cultivation of the groundnuts for the domestic market has moved further south to areas free of rosette infection. (Clough 1986).

The expansion of export production increased the market for purchased food in urban, as well as in rural, areas. Peasant farmers and livestock owners proved capable of expanding production throughout the colonial period to meet these requirements, albeit with disruptions, fluctuations and time lags caused by droughts and by sharp increases in demand. Food was distributed across vast distances between rural areas and from rural to urban areas by networks of traders in food crops and livestock.

The expansion of food production was made possible by an extension of both the labour time of rural producers and of the areas they cultivated, as well as by an intensification of production on some lands. Farmers continued to grow a variety of crops, often intercropped on the same plots, to meet their dietary needs, diversify their risks and even out the demands on the soils nutrients and their own labour time. They combined cultivation of rainfed uplands and of floodplains. Hausa farmers intensified production on manured lands ; Igbo farmers used mulches to intensify cultivation of compounds close to their homes. Some areas specialised in production of relatively high-value crops such as yams, cowpeas, or rice, for distant markets. In many areas, yams gave way to cassava (manioc) which has lower demands for labour and does not have to be harvested during a short season. Hoe agriculture, which is protective of soils, continued to predominate except for crops like cotton and grains where ploughing relaxed seasonal labour constraints. (Hill 1972 ; Lagemann 1977 ; Richards 1983)

Farmers and pastoralists migrated to places with lesser population densities or more fertile soils. They moved southwards from the arid zones on the fringe of the Sahel and the closely-settled areas around the great northern cities. People migrated from densely-populated southern Igboland to towns and cities throughout Nigeria, but also eastward to rural areas. Large numbers of young men migrate seasonally to undertake wage labour ; local and migrant farmers engaged in wage labour as a means to supplement their own farming activities.

Large areas of northern Nigeria are vulnerable to periodic droughts. The most severe, such as the great famine of 1913-14 or the Sahel drought of 1972-74, affected the whole region. In 1913-14, farmers responded to the arrival of the railway in Kano by increasing production of groundnuts for the newly expanded market, thereby worsening the shortage of food. In 1972-74, imports ensured that food was generally available ; the problem for many was lack of money or of other means of obtaining it. (Apeldoorn 1981 ; Watts 1983) During the civil war, millions suffered from the scarcity and high price of food within the « Biafran » enclave.

Extension and intensification of cultivation, and migration of people into new areas, which have made possible the expansion of agricultural production for both export and domestic markets, have placed pressure on natural resources. Scrub bush and forests have made way for arable and tree crop cultivation. Rising population from migration and natural increase have reduced the range of trees which can provide food as well as fuel. Large game and most small game have disappeared from heavily populated areas of the country. Outmigration and intensification of production have not fully relieved the pressures of increasing population on the available land and fertility of the soil in arid and densely-populated areas. The symbiosis of pastoralists and cultivators began to give way to competition for scarce land resources. Farmers and pastoralists have not only changed their environment, they have also had to adapt to climatic and demographic, as well as to economic changes, and to infection of plants, stock and humans by diseases. However, the combination of expanded production, rising population and extensive migration has not exhausted Nigeria's soils. In most rural areas, access to markets and labour resources are more critical to expanding production than the availability of land. The rural areas faced with the greatest pressure of population on land are in many cases still the same as they were fifty years ago. (Forde and Scott 1948)

Solving the food crisis

In the 1970s, Nigeria's oil revenues rose sevenfold and so did government spending and urban employment and population. Rising

incomes and the pressures of urban life stimulated changes in the patterns of preferred food consumption and increased demand, notably for wheat bread and rice, but also for meat, dairy and poultry produce, for maize and for vegetable oils. Government exchange rate policies discouraged export production and cheapened the costs of imports. Imports, including food imports, soared and food prices generally rose even more rapidly than other prices. Government committed huge revenues to a series of projects and campaigns designed to increase food production.

Some of the increased demand was met by imports but most food consumed by Nigerians continued to be produced in Nigeria. Grain production expanded considerably in the northern states after 1974, partly at the expense of cotton and groundnuts, to meet urban and rural demand in Nigeria and the Republic of Niger. Because supply could not be increased immediately to keep pace with rising demand, food imports and food prices continued to rise during the 1970s. However, food prices levelled off in 1980, and again in 1985.

The military governments of the 1970s alternately raised and lowered tariffs on rice and maize, to encourage production, and to lower urban food costs. They banned rice imports as they left office. Their civilian successors preferred to use licences to control imports, and then allowed government to monopolise the import of rice, creating lucrative opportunities for corruption, patronage and profits. In turn, their military successors banned the export of food thus limiting the market in Niger.

In 1986, the devaluation of the naira raised the price of imported food and other commodities, including agricultural inputs. It thereby sharply increased local food prices, and raised the costs of import-dependent large-scale farming and ranching relative to peasant farming. The abolition of the Grains Marketing Board deprived capitalist farmers of an assured market for their surplus crops. Large-scale agricultural output consequently fell in 1987, but the new policies have offered subsidised niches to large-scale farmers.

Imports of rice and maize were banned in 1985, of day old chicks and vegetable oils in 1986, and of wheat in 1987, in order to discourage consumption of, and encourage local substitution for, imported grains. Food exports were briefly allowed, indeed encouraged, under the structural adjustment programme, but then banned to keep prices down. Predictably, import and export bans have created scope for smuggling. Nigeria has the largest population of any country where the main staple foods are sorghum, millet, and root crops, rather than the main internationally traded foods such as maize, wheat and rice. Consequently, Nigeria has come under severe diplomatic and economic pressure from

the USA and the World Bank, apart from the demands of local flour milling and poultry interests, to lift its bans on food imports.

Oil revenues paid for massive irrigation projects, fertiliser subsidies, and the Agricultural Development Projects (ADPs) directed by the World Bank. They also subsidised the development of large-scale poultry and maize farming and commercial ranching. These programmes increased Nigeria's debts and dependence on imports, and contributed rather less to agricultural production than they cost.

The demands of large-scale irrigation projects exacerbate water shortages in drought years. They cannot rely in all years on receiving enough water to meet their own requirements. Irrigation schemes have failed to bring much of the land they appropriated under irrigation, and have blocked the supply of water for the cultivation of floodplains and for the irrigation of river banks downstream. They have disrupted rainy-season farming to make way for irrigated farming in the dry season. Mechanical levelling of land for irrigation canals, and mechanical cultivation methods expose the soil to wind and water erosion. Dams and canals have contributed to the spread of water-borne diseases. Project managers have been unable to enforce their rules and impose their preferred crops on farmers, nor have they been able to make their own officials carry out their duties. Consequently, costs are high, yields are low and uncertain. Large-scale irrigation schemes have deprived many farmers of their land and houses without adequate compensation. Others have let out their land because they cannot afford the costs of irrigated farming. Some resettled farmers have benefitted from access to irrigated land and other means of production at high cost to the state. So have military and civil officials, project staff, local businessmen and aristocrats. Irrigation projects have intensified pressure on land and dependence on imports rather than enhanced Nigeria's capacity to produce food. (Andrae and Beckman 1985 ; Wallace 1980, 1981, Palmer-Jones 1984, 1987 ; Adams 1987).

The ADPs in Gombe, Kano and Sokoto states funded tubewells and pumps to promote small-scale dry-season irrigation for vegetables. After devaluation and the ban on wheat imports in January 1987, wheat prices increased more than eight times. State governments subsidised half the cost of pumps, seeds, and fertilisers. Kimmage (1989) emphasises that small-scale irrigation has enabled wheat production to expand very rapidly — from 15,000 tons in 1985 to 70,000 tonnes in 1988, and perhaps twice that in 1989. Floodplains have been committed to irrigated wheat production, displacing tomatoes, peppers and other crops. Uplands are irrigated for dry-season wheat production, without fallow periods. Large areas of scrub bush have been cleared and levelled for irrigated wheat production. Kimmage predicts that this will lead to rapid and severe erosion of the soil and decline in soil nutrients. Pastoralists

are excluded from dry-season grazing areas, causing numerous confrontations between farmers and graziers, some of them fatal.

The main achievements of the Agricultural Development Projects (ADPs) were to build rural roads and small dams, and to distribute high-yielding maize seeds and heavily subsidised fertilisers to farmers at a high administrative cost, and to commit state governments to debts they had no prospect of repaying. The main consumers of yellow maize were battery-farmed chickens. Maize is less drought-resistant than sorghum or millets and more demanding of soil nutrients. Fertilisers were distributed with little regard to their long-term impact. Small dams provided accessible water to animals and people. They may have reduced the risks of enteritis, but increased the incidence of malaria, bilharzia and guinea worm. The ADPs concentrated on trying to increase agricultural production, with scant regard for their environmental consequences. (Beckman 1987 ; Clough and Williams 1987 ; Williams 1988).

Although their main concern was to promote smallholder agriculture, the ADPs contributed to the growth of large-scale capitalist farmers. The most prominent are retired generals and urban-based « overnight » farmers ; some of the most successful are rural-based farmer-traders. They benefitted from privileged and subsidized access to bank loans, tractors, fertilisers and other chemicals, tubewells, and, briefly, to the Grains Marketing Board in times of low market prices for maize.

Capitalist farmers acquire large areas of land which they farm extensively, often with little knowledge of or regard for the local environment. They have often cleared land with earth-moving equipment designed for road construction. They use tractors to plough large areas to cultivate a single crop, to try and make up for their low returns per hectare by savings on labour costs and avoiding the careful management which multi-cropping requires. The World Bank 1987 *Agricultural sector report* implied that all the crops for which they made estimates can be produced more cheaply by manual cultivation than with machines, or even oxen. Nevertheless, the *Report* takes it for granted that « expanding farm size... is part of the modernisation process which should be encouraged. » (World Bank 1987 : 22) It assumes that land can be made available to large-scale farmers in relatively land-abundant areas, particularly in the « Middle Belt » states. However, peasant farmers have been migrating to find land in these farming frontiers for decades. Appropriation of land by capitalists will exclude resident and migrant smallholders from access to land in future. Conflicts with pastoralists seeking access to grazing land have already broken out. In Muri, Gongola State, the appropriation of land for large-scale ranches has provoked bitter resentment among local people.

Capitalist farmers typically make less intensive use of the land, at greater environmental cost than small farmers. However, the *Agricultural sector report* argues that farmers will protect soil and water resources best on land they are allowed to own. They recommend « the implementation of new land rights laws, together with fair compensation measures, to help free hectareage for economic exploitation. » (World Bank 1987 : 29, also 147) So they seek to solve the ecological problems created by large farmers by making it easier for them to acquire property in land.

During the colonial period, the government of Northern Nigeria claimed legal ownership of the land, whose allocation was administered by the Native Authorities. In southern Nigeria, land rights were regulated by « native law and custom ». Both systems prevented land being used as mortgageable property, but did not prevent people from acquiring land by purchase and passing it on to their heirs. The Northern Nigerian Land Tenure Law of 1962 and the Federal Land Use Decree of 1978 both claim exclusive ownership of the land to the state, and create provision for registration by state and local government authorities of a Certificate of Occupancy. These laws provide a legal foundation for governments to expropriate land, for public purposes or for private use, without having to pay for the value of the land but only for improvements — which may be zero for arable farmers. They also create opportunities for officials to enrich themselves and enable people with access to the registration procedures and officials to acquire exclusive rights of occupation, ignoring the manifold claims which others may have on that land. Legislation threatens rather than secures the rights in land of the majority of people, and confers rights only on a privileged few. (Francis 1984 ; Andrae and Beckman 1987)

What disequilibria ?

The ratios of population to land, and consequently to food production, are often invoked to explain problems of food scarcity and hunger. This neo-Malthusian approach ignores historical experience and abstracts from variations in social structures, and in demographic patterns. The growth of population must have important consequences for people's access to land, incomes and public resources. Their impact will depend on what is produced, how it is produced, and how it is distributed. Its implications for different people will vary according to their class situation and their gender.

During the twentieth century, peasant farmers and traders in Nigeria expanded the production, and the distribution for sale, of food to meet the increased demand which resulted from the expanded production by peasant farmers of crops for export, and from the increase in rural and

urban populations. This was made possible by extensive migration from densely populated or relatively arid areas, or from towns, to more fertile or sparsely populated, or to forested, areas. There are evidently ecological costs to the continued expansion of cultivation and the reduction of forested areas and grazing lands. Nevertheless, the rural areas with the greatest pressure of population are in many cases still largely the same as they were 50 years ago.

In the 1970s, export production fell, and food imports soared. Food production continued to expand, particularly in the north. Since 1986, cocoa and cotton production have begun to recover, and irrigated wheat production has expanded. Pressures on the environment have been intensified by the massive expansion of gravity and tubewell irrigation, mechanized cultivation and the application of artificial fertilisers, which have facilitated the emergence of a subsidized class of large-scale farmers. In order to conserve the soil and protect land in a situation of rising population and demand for crops, land should be left in the hands of smallholders who use it more carefully, knowledgeably, and effectively than most capitalist farmers. Governments should not encourage large-scale farming, either directly, or indirectly by subsidising the costs of machinery and chemicals or by selectively protecting the markets for crops favoured by large-scale farmers.

Since the Structural Adjustment Programme was adopted in 1986, staple foods have continued to be expensive. The fundamental problem is not the capacity of Nigeria's farmers to produce food, nor the rising number of people to feed. It is rather the adequacy of the incomes of many people, especially wage and salary earners, to meet their food and other consumption needs, intensified by the unequal distribution of resources within households. There was no alternative to the adoption of a structural adjustment programme if Nigeria is to balance its export earnings to its priority import needs. But whereas the lion's share of the benefits of the fiscal profligacy of the past accrued to those with access, through the state, to scarce imports and foreign exchange at official prices, the costs of the government's Structural Adjustment Programme fall predominantly on wage and salary earners and on urban petty commodity producers.

Nigerian agriculture has been characterised by, and has responded to, a variety of disequilibria. Indeed, that is how patterns of production and distribution respond to changes in supply and demand in a market economy. State interventions have typically exacerbated disequilibria or created new sources of disequilibrium rather than helped to resolve them. The inadequate access to food and other commodities faced by many Nigerians originates in the inequalities in assets and incomes which successive regimes have created and intensified.

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What disequilibria ? People and food in Nigeria

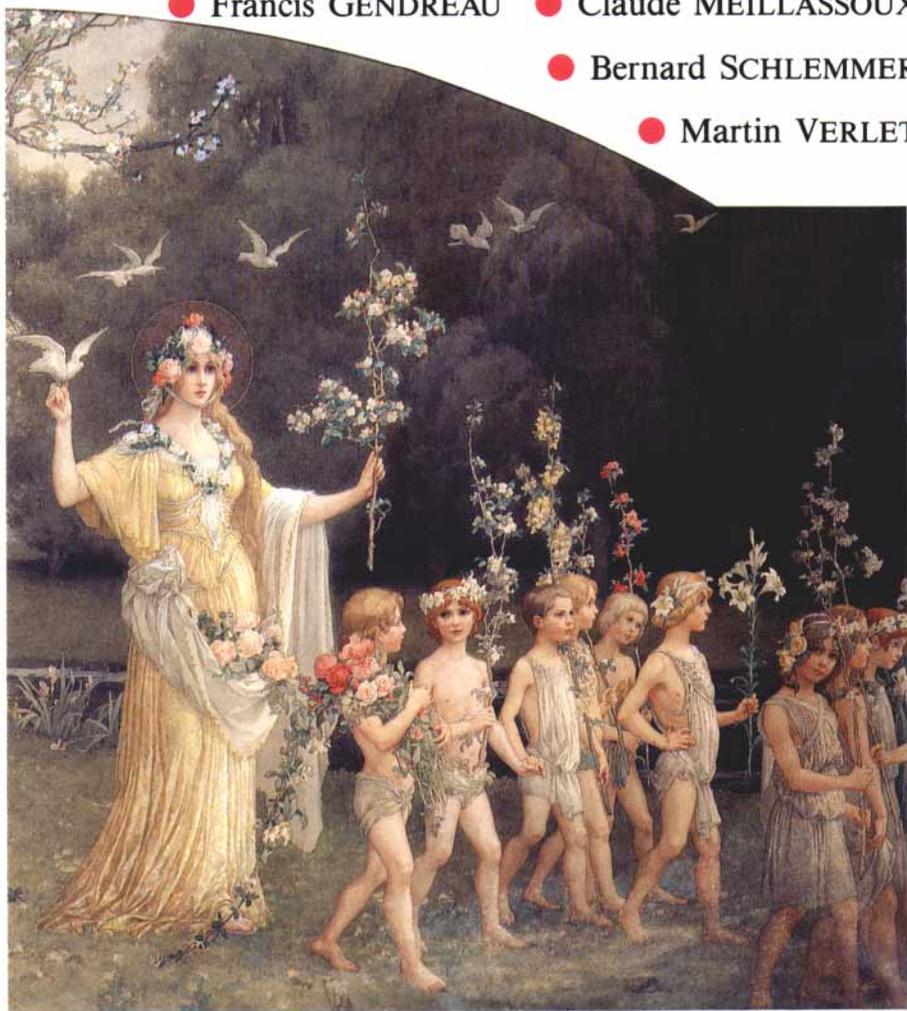
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Les spectres de Malthus

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