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Guide to Contributors

Contributions are invited from all over the world, and especially from African (and non-African) scholars working in African universities and research institutes. Articles are accepted in both English and French, and although CODESRIA can arrange for translation where necessary, it would be appreciated if authors could make their own arrangements for this. The average length suggested for an article is 4,000 to 6,000 words, with occasional exceptions of up to 10,000 words. Notes on African universities, research institutes, research projects, and reports on recent conferences or meetings are also welcome. These will be published in CODESRIA's bi-monthly *Newsletter*.

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Editorial Note

In the first issue of *Africa Development* we published three articles on the general theme of the New International Economic Order. This was our contribution to the debate and discussion that took place in Nairobi during the meeting of UNCTAD IV. Professor Samir Amin, Director of IDEP (African Institute for Economic Development and Planning) who contributed one of the articles in the first issue, attended the UNCTAD meeting in Nairobi. In a brief article in this issue, he summarizes his observations on the topics debated and on the unsatisfactory (from the Third World point of view) outcome of the meeting. He states clearly the kind of conclusions being drawn by Third World countries and which hopefully will be discussed at the Colombo meeting of heads of states of the non-aligned countries in August.

In this issue we also have four articles dealing with some of the most important problems of African development. The deterioration of environment and the food problem of the Sahel, a detailed study of import substitution policy in Senegal, the clearly wrong and costly policy of blindly using capital intensive technology in industrialization in Ethiopia, and on the sensitive issue of political integration in Africa. All the articles are based on solid research and we hope that they will contribute to serious discussion on these different but important aspects of development in Africa.

ABDALLA S. BUJRA
Editor

Desertification and Man in the Sahel

Jeremy Swift*

1. Introduction

The disaster of the years 1968–1973 was the culmination of two parallel processes which had increasingly dominated life in the Sahel in recent decades: the destruction of the environment and the marginalization of the region's peasant farmers and nomadic pastoralists. These two processes are a part of the complex framework of political economy and political ecology of resource use in the Sahel, and if tragedies are to be avoided in the future this framework must be analysed and understood. Conclusions based on short-term ecological analyses will lead only to short-term ecological remedies, which will re-establish the *status quo*, preparing the way for another disaster in the next serious drought.

In economic development we have short memories. Famine and ecological destruction are not new in the Sahel. In the sixteenth century the inner delta of the Niger was part of the Songhai empire. Efficient organization of agriculture, of communications and of trans-Saharan trade brought peace and prosperity. Although there are records of several plague epidemics, there are none of famine (Cissoko, 1968). This prosperity came to an end with the conquest of Songhai in 1591 by a Moroccan army. Throughout the seventeenth and eighteenth centuries the area was fought over by competing groups. Famines were recorded every 7 to 10 years during the seventeenth century, every 5 years during the eighteenth century. Timbuktu, in the sixteenth century a prosperous commercial town and a famous centre of learning with perhaps 80 000 inhabitants, was reduced in the early nineteenth century to a miserable village of some 12 000 people. Since there is no reason to suppose that drought was any less frequent during the Songhai empire than in the next two centuries, it appears that drought alone was not the main cause of famine; the historical record can only be explained in terms of different forms of economic and political organization.

Concern about environmental destruction is not new either. A forest belt to contain the Sahara was first suggested by Stebbing in the 1930s, and the issue of Sahelian environmental degradation debated at length by the Anglo-French Forestry Commission (Stebbing, 1937; Aubréville, 1973; Jones, 1938; Anglo-French Forestry Commission, 1937).

2. Land Use in the Sahel

The most important features of the Sahelian environment, from the point of view of a peasant farmer or a nomadic pastoralist, are the scarcity of resources, and the high risk involved in exploiting them, because of large seasonal and annual variations in rainfall and river flow. Rainfall is spatially and temporally unreliable, varying by more than 30 per cent from the long-term mean, with large daily differences in places only 5 km apart. Plant growth is poor and unreliable. Irrigated agriculture is not possible with traditional technology outside the main river valleys. Reasonably reliable rainfed agriculture is only possible south of the 500 mm rainfall line, although some millet and sorghum cultivation takes place as far north as the 220 mm line depending on soil conditions and local drainage. In good years, some cultivation of sand dune hollows and wadi flood zones takes place up to the desert borders; in bad years, large areas of Sahel are without successful cultivation at all, exploited with difficulty only by nomadic herdsmen. Toupet has calculated in Mauritania that the difference between the position of

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the 100 mm isohet in 1941–1942 and in 1951–1952 amounted to an area of 340 000 km², or 31.5 per cent of the total area of Mauritania. In some years this land provides reasonable pasture for nomadic pastoralists, in others almost nothing (Toupet, 1972). The traditional land-use systems of peasants and pastoralists in the Sahel are adapted to the extreme difficulty of making a reliable living in such variable conditions.

A brief description of Serer agriculture gives an idea of the sophistication that has been attained in these difficult conditions. The Serer are peasant farmers inhabiting western Senegal in the region between Thies, Diourbel, Kaolack and the coast (Lericollais, 1972). The Serer country has soils of mediocre quality, and irregular rainfall with an annual mean of around 760 mm. The high human density (80–100 people per square kilometre) is the result of successful maintenance of soil fertility by systematic use of cattle manure, by conserving useful trees and by crop rotation with regular fallows.

The Serer carefully select useful trees, particularly *Acacia albida*, which returns organic matter to the soil and thus increases the yield and protein composition of millet. Each tree improves 100–300 square metres, and 10–15 per cent of the land is thus fertilized. *Acacia albida* seed pods are valuable forage for livestock and enabled the Serer to keep large herds close to the village. Traditional Serer agriculture concentrated on millet and domestic animals. The fertility of short-cycle millet fields close to the houses was maintained by spreading domestic refuse and by letting cattle pass through and manure them during the dry season; the fertility of the large fields of late millet beyond was maintained by fallows every second year, when they were grazed and manured by village herds.

The pastoral land-use systems of the Sahel also show a variety of styles and some successful adaptations to a difficult environment. There are a number of features, however, which distinguish them from agricultural systems. The food products of a pastoral economy—milk, butter and cheese—are not readily stored, and for a part of every year most pastoralists rely on millet and dates. The need to acquire grain led many pastoral societies into close relationships with sedentary farmers, by whom dairy products, manure and animal traction were exchanged for millet and the right to graze animals on stubble in the dry season. Pastoral economies are also extremely vulnerable to loss of animals from drought, disease and, until recently, from raiding. Such loss of productive capital means much more immediate destitution than for the farmer who loses one harvest but still has his land for the next season.

The fact that pastoralists are more concerned with protecting themselves from these risks than with making an immediate profit determines a number of salient features of nomad economic strategies (Swift, 1975). Three are relevant here:

(a) flexibility in managing animals so as best to exploit a varied vegetation; this is accomplished by herding several species of domestic animals, each with its own economic and ecological characteristics. Pastoralists commonly spread risk by herding sheep and cattle, which sell well but need lots of grass, water and labour, and camels and goats, which sell less well but which can survive very bad conditions. Goats in particular are able to survive a drought and can breed again rapidly, thus producing milk five months after the first good rain. Various combinations of these species give Sahelian pastoralists a flexible range of economic strategies to follow according to the needs and conditions of the moment;

(b) a second important feature of traditional herd management strategies was the accumulation of large herds above those needed for immediate subsistence in good years. This habit has given rise to misunderstanding and talk of cattle worship. It is nothing of the sort. As several researchers have pointed out (e.g. Gallais, 1967; Swift, 1973), large herds are the adaptive response of a subsistence economy to the demands of a difficult and variable environment; among other virtues, large herds enable food to be stored 'on the hoof' and make it possible for a network of reciprocal gifts and loans of animals to be set up between families, which serves as insurance against individual disaster. Pastoralists use animals surplus to immediate subsistence needs to build social relationships which can be turned back

into food in time of need;

(c) a third characteristic of Sahelian pastoral economies is their relative lack of success in regulating grazing pressure. The variability of rain and pasture, and the need for flexibility in management, makes any precise attribution of land to a particular group of pastoralists difficult. Some efforts at control of grazing have been made by Sahelian pastoral societies, the most successful being that of Cheikhou Ahmadu in the inner Niger delta in the nineteenth century. Here a sophisticated code of rules governing grazing, access to pasture and pasture reserves was set up, and persists to this day, although under pressure of modern developments it is now breaking down (Daget and Ba, 1955; Gallais, 1967). But this was exceptional and among other Sahelian pastoral societies there is no record of detailed land organization systems of this sort. Grazing land is generally considered the property of the clan, other clans not being permitted to graze without permission. Among the Tubu in northern Chad for example, legends record that the ancestor of each clan 'marked out his pastures' on arrival in the Tibesti, but these rights are claimed simply as priority in pasture and water use, not as property rights (Chapelle, 1957). In fact, even if a clan has complete jurisdiction over the pasture of one particular area, members of that clan may still overgraze. The problem of limiting use of common property resources to an ecologically correct rate of exploitation is at variance with group interest and a solution can be found within the framework of a strong political power, such as that of Cheikhou Ahmadu, able to impose limitations on the individual in the interest of the collectivity.

3. Population

In the case of both pastoralists and peasant farmers, the relationship between human exploitation and resources depends on the size of the population and the state of its technology. In West Africa, technology has remained relatively simple; there are none of the highly advanced irrigated agricultural techniques found in South-East Asia. Without an advanced indigenous technology, the main means of adjustment between people and resources in West Africa has always been a limitation of population growth, sometimes by the brutal fact of mass starvation or death from epidemics, but more often more unobstrusively through mechanisms which kept overall population size low in relation to resources and controlled the rate of growth. Indeed before the present century it is not certain that the population of West Africa was growing at all in the long term (Caldwell, 1975).

Peasant and pastoral populations are still highly sensitive to immediate environmental conditions. Mortality rates among Senegalese peasants, for example, vary from month to month and from year to to year, according to shortages of food or disease outbreaks. As a result of general improvements in communications, an end to raiding and warfare, and some economic advance, however, death rates have fallen among peasant populations and for the last few decades there has been a speeding up of population growth.

Among pastoral populations, the situation is much less clear. It is widely believed that nomad populations have also been increasing rapidly for some time, leading to pasture degradation and desertification; there is, however, no good demographic evidence to support this belief. On the contrary such figures as exist seem to show a different picture, indicating: (a) that nomadic pastoral populations have low rates of natural increase of population compared to neighbouring agricultural peoples (b) that these low rates of increase are the result of a combination of low birth and high death rates; (c) that pastoralists have low rates of completed fertility, high rates of female sterility and high ratios of men to women (Swift, 1976). These figures suggest, in pastoral societies in the Sahel, that social control of population (through late and unstable marriages, for example) leading to low birth rates, combined with some emigration into agriculture, commerce and urban life, provides a flexible mechanism allowing the pastoral population to be kept relatively low to match available resources.

4. Ecological Equilibrium of Traditional Land-use Systems

We are now in a position to reach tentative conclusions about the relationship between traditional economic systems and the land in the Sahel, in particular to see whether there was ever an ecological equilibrium between man and land. It should be said at once that the idea of equilibrium, in the sense of a static balance of forces, derives from biological thought and does not find much favour among social scientists. Although many African peasant or pastoral cultures show relatively stable forms of ecological adaptation to particular sets of environment conditions, there is and can be no such thing as a 'climax' human society or culture.

The traditional Serer system of village agriculture described earlier is an example of a successful adaptation; slow population growth over time led to a gradual intensification of farming. Measures to conserve soil fertility, particularly the use of cattle manure and the selection and protection of useful trees, made possible by complete village organization and control of its lands, have permitted some of the highest population densities in West Africa without apparent signs of environmental deterioration. Other cases, such as the Dogon country, or Hausaland in northern Nigeria, where high population densities without environmental degradation have been made possible by mixed farming and soil improvement practices, could have been equally well cited. Such cases suggest that under conditions of population stability or slow growth, where villagers were able to control their own lands and work out a flexible and orderly land-use system, long-term conservation of the environment can be ensured.

The case of traditional pastoralism was somewhat different. As has been suggested above, for reasons which are logical in the context of the Sahelian environment and the level of available technology, traditional herding strategy was to maximize herd size without regard for immediate environmental consequences. However, the pressure of this sort of pastoral nomadism on the environment was probably quite slight. There was a fluctuating relationship between pastures and herds, with regular drought, animal diseases and shortage of pasture acting as ecological checks and balances which kept human populations (already controlled by their own demographic peculiarities) and grazing pressure within bounds in the long term. Local damage was done to the environment and there would be some erosion around dry season wells (especially since in the summer rainfall regime of the Sahel rain arrives in violent storms with high winds at a time when there is no grass cover), but the wide spacing of wells and the movement of pastoralists away if overgrazing became severe provided automatic checks to severe or widespread environmental destruction. In these circumstances, it would be incorrect to talk of a stable ecological equilibrium between pastoralists and the environment; there was however a dynamic equilibrium, the main elements of which were demographic controls on pastoral populations, flexible herd management strategies, movement, and the external controls of pasture shortage, disease and war.

5. Changes in the Last Half-Century

The relatively successful ecological adjustment between some peasant farming societies, such as the Serer, and some pastoral societies to specific environmental conditions have been under increasing strain from a number of separate but related causes since early this century. There is no evidence for consistent climatic or environmental changes since that date; the changes to be described are principally in economic, social and political fields.

In the case of Serer agriculture, early attempts to modernize led to a number of unforeseen consequences (Lericollais, 1972). Introduction of simple machines reduced labour 'bottlenecks' but also led to greater peasant indebtedness to pay for the machines; this made higher production and more intensive cultivation necessary. Cultivation of peanuts as a cash crop, in order to raise tax money, led to important changes. Peanuts soon took over a large part of the village lands; this transformed the

crop succession and reduced the amount of land in fallow. As fallow grazing decreased, village herds were obliged to go further away to find food; cattle no longer manure the fields and have to be replaced by commercial fertilizer. This was partly successful, but again increased village indebtedness.

With the spread of a cash economy, money gradually entered the traditional exchange of goods and services. The purchasing power of Serer peasants rose at first with increasing peanut cultivation, but has been eroded by declining terms of trade. The peasant finds himself in a rising spiral of indebtedness and obliged to cultivate more land. Fertility of land declines as the old conservation measures are abandoned. Farmers emigrate in search of new land or jobs in towns. The traditional Serer agricultural system is breaking down; living standards continue to fall and the Serer countryside, once a model of environmental conservation, is being rapidly degraded.

Among pastoral societies comparable changes have taken place. Modern interventions such as well digging and animal disease control reduced the traditional ecological checks of pasture shortage and epizootic disease. The result was a rise in total herd numbers, although probably not in animals per nomad family; new wells meant that dry season overgrazing was now spread over much larger areas of pasture. Dry season reserve pastures in the river valleys have been lost to agriculture. These consequences have stemmed in part from a single-sector approach in which individual technical 'bottlenecks', such as water shortage or animal disease are relieved without regard for the wider ecological network of interconnections by which the different parts of the social and ecological system are related to each other. Administration, too, is fragmentated along technical lines, sector by sector, so that animal disease is the responsibility of one department, water policy of another, the market price for food grains of a third.

But other processes are also at work, augmenting the effects of these ecological and technical changes. Since the beginning of the century economic policy has been influenced by the view that pastoralists hoard livestock because of an unhealthy love of cattle; the aim has been, by high taxation, to force a part of these animals onto the market to the benefit of the national economy and of the pastoralists themselves who would thus participate in economic exchanges. But, as has already been pointed out, the subsistence pastoral economy has as its aim survival, not profit, and its objectives are not at all compatible with those of a market livestock economy; the beginning of a transition from one to another has reduced the ability of pastoralists to exploit a difficult environment with an adequate safety margin.

Comparable changes took place in the exercise of traditional political power. The French conquest at the turn of the century set in motion a process by which political power was transferred from many small competing local sources, based principally on a fluctuating balance between traditional ethnic organizations, to a central bureaucratic organization. This transfer had important economic and ecological consequences. The new central governments were inevitably less responsive to local conditions, including local ecological conditions, than previous locally-based power had been; bureaucratically appointed people are not subject to local pressures (their constituency is the bureaucracy itself, located in the national capital) and so can remain unresponsive to the actual needs and conditions of local people and of the environment. Control over many aspects of natural resource use and conservation became vested in the machinery of central government, and land users increasingly lost real power to make decisions concerning their land. For a number of years they did well out of the increased security, better communications and technical improvements such as the new wells. But they were losing ecological and economic flexibility; they were being forced into a market economy and their own self-help mechanisms were breaking down. The natural environment was being used more intensively, in a less ordered and controlled manner, allowing little margin for variations in rainfall or the pasture's limited capacity for self renewal. Increased desertification and increased susceptibility to famine were the consequences of these long-term trends in the Sahel.

6. Lessons for the Future

Population projections for the six Sahelian countries, based on conservative assumptions about changes in vital rates (an increase in life expectancy at birth of 5–10 years, a decrease in crude death rates from the low 30s to mid 20s per thousand, and a stable birth rate in the high 40s per thousand) suggest that there will be an extra 17 million people by the year 2000. Making no allowances for migration and assuming no intensification of pastoralism is possible, their probable distribution is shown in Table 1.

TABLE 1

POPULATION PROJECTIONS FOR THE SIX SAHELIAN COUNTRIES
(in millions)

		1975	*2000*
Total population		25	42
Urban population		2.5	8
Rural population:	sedentary farmers	20	31.5
	nomads	2.5	2.5

Source: Caldwell (1974).

In fact, migration to the coastal cities of West Africa is likely to increase. But, if the Sahel is to be more than a convenient breeding ground for cheap labour for coastal industries and a producer of low cost calves for fattening elsewhere, substantial development will be needed for both peasant farmers and pastoralists. This development will have to avoid the pitfalls of earlier development policies outlined above; new policies will have to have the twin aims of improving subsistence food production, and stopping and reversing desertification. The achievement of these two aims is closely linked and depends on pursuing integrated economic, social and ecological strategies.

It has been suggested above that, in the Sahel, economic stagnation or recession and ecological destruction have been the result of the way in which Sahelian subsistence economies have been increasingly moved towards a market economy in which they occupy the most peripheral position. They are also a result of the way in which centralized bureaucratic power has replaced local sources of power, and the way in which fragmented modern science has been unable to grasp the ecologically integrated nature of traditional ecosystems. These research findings have important policy implications; they suggest a need for Sahelian governments to break with past development models imported from the exterior and to invent, on the basis of ancient and modern African experience, a typically Sahelian style of development firmly rooted in the traditional techniques, experience and wishes of the peoples of the Sahel. The essential role of development of this sort would be to reduce dependence on other people and to return to land users themselves control over important decisions concerning their economy and their environment. Only people who have this power are safe from famine and, in the absence of very strong governments with powerful means (unlikely in the Sahel) only people who have responsibility for their own land will conserve its resources in the long-term. The role of government should be to provide the framework within which such policies can be worked out.

Some general guidelines can be suggested. The most important is to create a framework of social and economic organization which gives marginal peasant and pastoral societies the capacity to define their own objectives and to compete for the means to achieve these objectives with other more powerful interests within the national bargaining process. An improvement in the real economic position of these populations means increasing security and self-sufficiency in food production, including a stored surplus for drought years. Flexibility in food production needs to be safeguarded; in the case of pastoralists this means, for example, encouraging a diversification in flocks used by pastoralists for different purposes beyond the usual cattle and sheep. Increased integration of agriculture and pastoralism at

the level of small production units should also be encouraged. Overall economic strategies and technologies should be chosen with a view to encouraging a tendency towards a more equal distribution of income, wealth and employment. Long-term security needs to be protected by systems of food crop or herd insurance schemes. Only when measures like these have put subsistence food production on a secure base should development programmes be concerned with cash crops or livestock for export.

Ecologically, a framework of spatial organization needs to be created which restores responsibility and control of users over their own land, and combines this with simple conservation measures. In the case of peasant farmers, the aim might be to facilitate the use of animal manure from village herds or from neighbouring pastoralists' herds. On pasture lands, the most feasible course might be the attribution of exclusive grazing rights to a defined collectivity with an organized pattern of grazing control, based perhaps on rotational use of water through wells which were opened and closed in turn in order to distribute grazing in an ecologically satisfactory manner. Provision could be made within this framework for conservation of wild plant and animal communities and genetic resources. Exploitation techniques should be based on simple improvements of traditional techniques which can be understood and controlled by participant peasants and herdsmen, which are well adapted to local ecological conditions, and which do not require expensive imported material inputs and skills to run.

It seems probable that the organizational framework most able to meet these diverse requirements is of a cooperative sort; in particular, cooperatives of nomadic pastoralists, although successful elsewhere, have not been tried yet in the Sahel. But whatever the form adopted, it seems likely that the solution to the twin problems of famine and environmental destruction in the Sahel lies not in huge, technically advanced and expensive projects imposed by increasingly powerful central governments and international aid agencies and aimed at tying the Sahelian economies into a regional and global economic system in which they will always be the least powerful, but instead in technological modesty, decentralized decision making and local self-sufficiency with reduced dependency at all levels on the outside world.

7. Summary

The main contribution of social science research to land-use planning in the Sahel should be to understand the political ecology of resource use, and the related processes of environmental and marginalization of peasant and pastoral populations.

Traditional peasant societies, such as the Serer of Senegal, often set up sophisticated land-use systems which ensured soil protection and fertility by protection of useful trees, manuring by cattle and long fallows. Pastoral societies were less successful in conserving their immediate environment, because of their economic strategy of accumulating herds to safeguard subsistence and because of their inability to solve the problem of restricting use of common pasture resources; but the scattered distribution of wells and movement by pastoralists made overgrazing a local problem only.

Peasant population growth was until recently low, but has recently started to increase due to modernization. Pastoral populations were probably always low in relation to resources, with slow growth rates even now. Traditional socio-economic methods of population control and emigration provided a flexible method of adjusting pastoral populations to available resources.

Recent changes have upset traditional peasant and pastoral land-use systems. Monetization of the economy, taxation and some types of technological innovation have led to an intensification of cropping and a breakdown of traditional agricultural organization and conservation practices. In the Serer countryside the result is environmental degradation. In the pastoral areas technical, economic and political changes have reduced the ability of pastoralists to exploit a difficult environment safely and have led to increasing desertisation.

These conclusions suggest that new, specifically Sahelian, styles of development are needed which reduce peasant and pastoral dependence on the outside world, and return to land-users themselves control over the important decisions concerning their economy and environment. The role of government should be to provide the frameworks within which such new policies can be worked out. The solution to the twin problems of famine and environmental destruction in the Sahel may lie in technological modesty, decentralized decision making and local self-sufficiency with reduced dependency on the outside world.

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The Policy of Rice Import Substitution: the Case of the Senegal River Valley and Delta

Mahamadou Maïga*

I. Introduction

The basin of the Senegal river stretches from Guinea (30 800 km²), through Mali (155 000 km²) Mauritania (75 600 km²), to Senegal (72 400 km²) and covers a total of 333 800 km², or 12.3 per cent of the total surface area of the four countries combined (2713 million km²). It is generally divided into an 'Upper Basin' (233 000 km²) and a 'Valley' (148 000 km²) and the dividing line crosses Bakel (Senegal), 820 km from the river mouth. The 'Upper Basin' covers more than one third of the area of the Fouta Djalon as well as the entire administrative region of Kayes in Mali. The 'Valley' stretches through the River administrative region in Senegal (the departments of Dagana, Podor and Matam), through some administrative districts of the departments of Bakel and Kédougou (the Eastern Senegal administrative region) and through some districts of the administrative regions of Rosso, Aleg, Kaedi and Kiffa in Mauritania.

The French colonial administration displayed an early interest in the development of the Senegal river basin and, in October 1938, established the MAS (Mission d'Aménagement du Sénégal), whose task it was to undertake studies on development possibilities, formulate projects, supervise future works and develop cotton growing for export.

Until the eve of World War II, the MAS concentrated its activities mainly on the Valley to the almost total exclusion of the Upper Basin which specialized in groundnut production. During World War II, the failure of cotton growing and the deteriorating food situation in the colony led the MAS to abandon cotton production and concentrate on rice farming instead.[1] That is the reason why, in 1945, two engineers employed by MAS, Peltier and Delisle, drew up a vast rice development project for the Senegal river which was to cover 50 000 hectares. The first rice scheme to be developed by the MAS at Richard Toll was seen as the implementation of stage one of the Peltier/Delisle Plan for integrated development of the whole Delta area.[2] The work on developing a rice scheme covering 6000 ha at Richard Toll started in 1949 and was completed in 1957 as follows:

1944	experimental rice scheme covering	120 ha
1946/49	experimental rice scheme covering	600 ha
1949/53	first crop centre covering	1500 ha
1953/57	completion of the rice scheme covering	6000 ha

This experiment in mechanized rice farming, which continued until 1971, ended in failure. The experts put this failure down to technical, economic as well as financial reasons and generally blame the following factors:

(a) insufficient, or neglect of, levelling of the land
(b) lack of maintenance of agricultural machinery
(c) incompetence among certain groups of staff and insufficient supervision of staff; unsuitability of some equipment
(d) delays in sowing and other crucial cropping operations
(e) the appearance of wild rice

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(f) wear and tear of the canals and draining ditches
(g) damage to crops by birds and livestock
(h) poor management of the rice scheme
(i) a too abrupt Senegalization of company officials in 1960/61; a too frequent turnover of members of the Managing Board of the company, particularly of Managing Directors
(j) the artificial support enjoyed by the rice scheme (subsidies, cash advances, etc.).[3]

In 1959/1960, on the eve of independence, the only rice scheme to have been implemented in the Delta was that of Richard Toll; in other words, only 6000 ha out of the 50 000 ha planned for the region under the MAS project. This failure can be explained partly by the very strict profit-earning criteria to which the project was subjected and partly by the fact that the colonial administration concentrated almost exclusively on the groundnut producing region (in the colony) which benefited from gigantic infrastructural investments and also achieved impressive rates of economic return.[4]

Since independence, rice consumption has been growing steadily in Senegal for the following reasons:

(a) an increase in the population and a high rate of urbanization
(b) changes in people's food habits—a tendency to prefer rice to millet
(c) expansion of single cash crop (groundnut) farming, with the result that peasants who specialize in groundnuts are obliged to buy their rice.

Since rice production in Senegal is insignificant in relation to demand, it is obliged to import ever-larger quantities of rice from abroad.[5]

TABLE I

TOTAL AVAILABILITY AND IMPORTS OF WHITE RICE BETWEEN 1960 AND 1974 (in 1000 metric tons)

	1960	1962	1964	1966	1968	1970	1972	1974
Imports	102	135	168	183	188	119	170	207
Total availability	158	190	255	249	226	220	240	250

Confronted with such a catastrophic dependence on overseas countries for foodstuffs, the river states opted for a policy of rice import substitution by adopting and implementing modern rice farming projects. In Senegal, a number of such projects are now in the process of implementation: three in the Casamance region, financed by the European Development Fund (FED) and the French Central Economic Cooperation Fund (CCCE); one project for growing rain-fed rice in eastern Senegal financed by the FED and the CFDT (Compagnie Francaise pour le Développement des Fibres Texiles); as well as the rice farming projects on the left bank of the Senegal river, both in the Delta and Valley areas. In this article I shall confine myself to rice farming experiments carried out in the Valley and Delta of the Senegal river.

II. Experiments in Developing Rice Farming in the Delta and Valley of the River Senegal

A. The S.A.E.D. rice scheme (left bank)

The development of the Delta, which began during the colonial period with the practice of controlled submersion, was continued by the OAD (the Autonomous Delta Organization), set up in 1960. The OAD developed more than 3000 ha and, in 1964, commissioned the MAS to build an 85 km long dike with walls bordering on the left bank of the river in that part of the Delta lying between St. Louis and Rosso. This laterite earth dike controls the inflow of flood water into the Senegalese part of the Delta and was intended to enable the OAD to develop 30 000 ha of rice fields under controlled submersion.

The OAD, however, was never invested with the status of a body corporate and, because it had no financial autonomy, it failed in the task. It was dissolved and replaced, on 20 January 1965, by the SAED (Corporation for the Development and Exploitation of the Delta Lands), an industrial commercial company administered by a board made up of the representatives from various ministries and operating under the auspices of the Ministry of Rural Development.

The SAED intervenes on several levels.

On behalf of the state, it is responsible for:
pre-development studies
execution of the work (dikes, roads, miscellaneous maintenance)
supervision and training of peasants and cooperatives
settlement of immigrant families in the perimeter
community facilities (schools, dispensaries)

On behalf of the peasants, it is responsible for:
the water situation (irrigation and drainage)
supplying fertilizers and seeds
carrying out mechanized cropping techniques
threshing of the harvest
collection of paddy

On its own behalf, the SAED:
purchases and transports the paddy
processes paddy into white rice
would be responsible for possible future operations under state control.

The task, then, of the SAED is to train and organize the peasants for the production of paddy with a view to reducing Senegal's dependence on abroad for foodstuffs.

(i) *Infrastructure and organization of production* The SAED has experimented with four water-control systems in rice plots on a mounting scale of complexity, from 'primary' to 'gravitational secondary' to 'secondary with water pumping' to the 'tertiary' system.

Before the completion, in 1964, of the peripheral dike which follows the river bank for 85 km, it was impossible for people to settle on the *oualo* (land which is inundated yearly when the river floods). At that time, there were only 25 villages with 13 895 inhabitants in the whole Delta area (including the Upper Delta). The SAED development programme, however, required more manpower than was readily available on the spot and that is why, after having completed the dike, the Corporation built five new villages (between 1965 and 1967) in which 5543 persons from neighbouring regions were settled. In 1968/69, the total population of the Delta (including the Upper Delta) had risen to 19 438 persons in 3340 families, i.e. slightly less than six persons/family.

The Senegalese state, which owns all the land in the country since the adoption of the Legal Instrument of 17 June 1964, has granted land to the SAED in the Delta area. The SAED, in turn, grants land to the farming cooperatives it has established; these cooperatives do not own their holdings, they merely enjoy a simple right of user.

(ii) *Agricultural production* The increase in acreage tilled by SAED cooperatives has been as follows:

year	1965/66	1966/67	1967/68	1968/69	1969/70	1970/71
hectares	6 300	9 300	10 250	9 750	10 700	10 012

Not all the acreages tilled were actually sown either for pedological or other reasons (salinity in certain basins, certain members of the cooperatives refusing to sow on high-lying parts). Acreages sown or cropped represented between 80 and 100 per cent of land under cultivation. Because of a lack of water control in the plots during the drought period 1965–70, a high proportion of fields were lost during those five seasons. Harvested acreages represented 94 per cent of those sown in 1965/66; 90 per cent in 1966/67; 84 per cent in 1967/68; 80 per cent in 1968/69; and 73 per cent in 1969/70.

From 1963 to 1972, paddy production and yields evolved as follows:[6]

TABLE 2

SAED: FARMED ACREAGES, PADDY PRODUCTION, YIELDS AND MARKETING OF PADDY, FROM 1963 TO 1972

year	area (ha) ploughed	sown	harvested	production (in m tons)	yield m tons/ha	marketing (in m tons)
1963/64	2 000	2 000	2 000	—	—	990
1964/65	3 100	3 100	2 800	—	—	1 100
1965/66	6 300	6 300	5 900	11 800	18.6	5 000
1966/67	9 300	9 300	8 300	22 000	18.0	8 450
1967/68	10 250	9 650	8 450	15 000	16.0–17.7	6 100
1968/69 [a]	9 750	8 800	800	1 000	1.1–12.5	516
1969/70	10 700	9 096	9 096	17 000	18.7	10 927
1970/71 [a]	10 012	10 012	6 337	10 200	10.0–16.0	3 000
1971/72 [a]	10 500	9 500	7 400	16 800	10.0–22.7	8 000

Note: (a)=years of insufficient rainfall (150 mm, 148 mm and 50 mm respectively).

The figures on yields are approximate and sometimes calculated in relation to acreages sown and at other times to acreages harvested. The production in 1966/67, 1967/68 and 1969/70 was average, but that of 1968/69 was very low, as was production in 1970/71 and 1971/72. In 1970/71, 4000 ha were lost (150mm of rain in three months) and in 1971/72 2100 ha were lost (50mm of rain in three months). However the use of pumping made it possible to save 63 per cent of acreages in 1970/71 and 80 per cent in 1971/72.

(iii) *The SAED's prospects between now and 1980* The original objective of the SAED, i.e. to develop 30 000 ha of the Delta into fields under controlled submersion at the rate of 3000 ha per annum, has not been achieved. By 1971 only 10 000 ha had been developed and a further 16 300 ha are expected to be developed before 1980 which is the final year of the Delta development operation. Moreover, paddy production has not exceeded an annual 17 000 metric tons (except in 1966/67) as shown by the tables below, and the SAED's contribution to reducing the food deficit in Senegal is negligible.

TABLE 3

THE SHARE OF SAED'S PADDY PRODUCTION IN REGIONAL AND NATIONAL TOTAL 1965–1970 (in metric tons)

	1965/66	1966/67	1967/68	1968/69	1969/70
National production	122 265	125 324	134 549	58 232	139 900
River region production	27 478	38 101	38 064	11 947	30 094
SAED production	11 812	22 065	15 453	1 000	16 650
SAED/National production (%)	9	17	11	1.7	11
SAED/River region production (%)	42	57	55	8.3	55

TABLE 4

THE SAED's CONTRIBUTION TO THE AVAILABILITY OF WHITE RICE, 1965–1970 (in metric tons)[7]

	1965/66	1966/67	1967/68	1968/69	1969/70
Production	79 000	81 000	88 000	38 000	91 000
Imports	203 000	170 000	154 000	188 000	159 000
Availability	282 000	251 000	242 000	226 000	250 000
SAED	7 700	14 300	10 000	630	11 000
SAED/Availability (%)	2.7	5.6	4.1	0.2	4.4

The SAED's failure to achieve its production target can be explained chiefly by climatological factors (lack of rain) and the inability to control water (irregular river floods), which in turn explain the disenchantment of the cooperative peasants, discouraged by an unpredictable and costly rice single-crop agriculture. In order to overcome the problems of controlled submersion, the SAED adopted, from 1969, a system of secondary and tertiary schemes which ensured complete control of water in the plots (although control of the river flood was not achieved since the regimen of the Senegal river had not been regulated and cropping in the rice basins always depends on floods). In practice, the adoption of secondary and tertiary systems raised new problems intrinsic to rice cropping, the appearance of casual weeds, red rice and parasites, that can only be eliminated by regular crop rotation which presupposes intensive rice farming. Confronted with these problems, the SAED adopted, in 1971, a complete programme of intensified rice farming, aimed at improving the existing tertiary system, and agronomic research (experimentation with short-cycle, high-yield varieties, crop diversification, weed control, the use of fertilizers, agricultural machinery and modern cropping techniques, a seeding programme). The programme is designed to produce 63 800 metric tons of paddy by 1980 on 16 300 ha (of which 3400 will have two annual crops) and a yield of 35 quintals/ha on the improved acreage.

The success of the rice intensification programme will depend on the internal water control on the plots and, especially, on external control, i.e. of the flood of the river Senegal. The latter can be achieved with the construction of the Maka-Diama dam (near St. Louis) which will regulate the flow of the river into the Delta and allow for two crops a year since fresh water would be available all year round.

The success of the programme will also depend on which peasant organization formula is chosen. That of peasant cooperatives used between 1965 and 1970, has proved to be a failure for the following technical reasons: non-control of water in the plots, four successive years of rain shortage, problems of access to certain plots, problems of weeding in large sheets of water, invasion of wild rice, too small an acreage per worker. The result was stagnation or a drop in yields and the cooperatives fell into debt. However, the failure of the cooperatives formula cannot be entirely explained by these technical problems; it is the underlying philosophy which is at the root of the failure.

The cooperatives were allowed almost no initiative; the members were underemployed (40 working days/ha) and their tasks consisted solely of sowing, weeding and harvesting, the actual tilling being carried out by the SAED's caterpillar tractors and other machinery. The basic problem, therefore, is the introduction of rice monoculture without water control. Unless water can be controlled, the peasants cannot make a living from the extremely unpredictable rice farming. Their disenchantment is logical—it is irrational to be underemployed and in debt when working in a modern form of farming that is as unpredictable as traditional after-flood agriculture.

That is why the SAED, in 1971, adopted its programme for intensified rice farming and gradual control of water in the plots and also replaced the cooperative system by one of producer groups, which gave more initiative to the peasants in the farming work.[8] Thanks to the gradual control of water, brought about by an improvement in the tertiary system, by a rigorous selection of the members of the producer groups, by far-reaching supervision and by the high degree of initiative the producers were allowed in carrying out the farming work and handling the irrigation equipment, these groups are

achieving positive economic and financial results, are able to pay off their debts and obtain credit for new equipment. This new policy made it possible to increase working time from 45 days/ha (under the cooperative system) to 90 days/ha, to increase yields from 18 to 32 quintals/ha and to raise the net income of the producer group in the Boundoum dam from 16 140 CFA francs/ha under the old co-operative system to 38 425 CFA francs/ha (in 1971).

Irrespective, however, of the higher income earned under this new farming system, a peasant who works no more than 90 days/ha is still underemployed for the rest of the year. In order substantially to increase their incomes and discourage them from resorting to 'traditional' activities during the off season, it is necessary to introduce crop diversification in the Delta area. The SAED has made provision for this development in its programme. But such diversification will not be possible without the introduction of two annual crops, which, in turn is not feasible without access to fresh water all the year round. Hence the need to construct the Maka-Diama dam. The higher productivity of the peasants, who would be working for most of the year, would perhaps allow the SAED to achieve its production target for 1980.

B. The O.A.V. rice scheme (left bank)

The task of developing the Senegal river Valley was assigned to the OAV (Autonomous Valley Organization), established by Public Decree of 22 May 1961. The goals of this corporation, whose head office is in St. Louis, were:

to develop waste land or abandoned land in the Valley
to work in liaison with specialized technical services to build the structures indispensable to the development of the rice basins
to provide technical assistance to the population in the Valley
to contribute to the rural development of the Valley.

The original objective of the OAV was to promote semi-mechanized small-scale rice farming in the Valley. The first Development Plan of Senegal (1961–1964) instituted a change in the OAV's initial working formula and proposed that the basins be converted for producing and increasing seeds, and large funds were to be earmarked to the OAV for this purpose. However, financing was not obtained for the programme and, from the 1962/63 season, the OAV went in for extensive rice cropping by adopting a formula of village farming and controlled submersion. The OAV development system comprised:

a large surrounding dike
one or two structures to control the flow of the flood into the basins and to limit its entry below a certain threshold
small floodbanks to distribute water at different levels and to protect the basins against excessive water.

The work carried out included: (a) an initial stage of building or improving existing dikes and small floodbanks, constructing bridges, tilling rice basins, ploughing, dividing the land into plots and distributing fertilizers and seeds; (b) a crop season proper, from sowing (seeds were broadcast at the rate of 120 kilos/ha) to harvest, as well as checking dikes and small floodbanks. The peasant producers were organized in cooperatives in the entire area covered by the OAV. In 1967/68, there were 4519 peasants organized into 23 cooperatives.[9]

(i) *Technical results obtained by the OAV* From 1962 to 1969, the trends in acreages under rice cultivation were as shown on table 5.

This table clearly shows that the actual acreage farmed never exceeded 1253 ha, although 3300 ha are arable for rice. Only during the 1968/69 crop season did the acreages cropped represent 55 per cent of arable acreages, the percentages during other crop seasons varying between 19 per cent to 38 per cent annually.

TABLE 5

TRENDS IN ACREAGES UNDER RICE CULTIVATION BY RICE BASIN, 1962–1969 (in ha)[a]

Locality	1962/63	1963/64	1964/65	1965/66	1966/67 by tractor	1966/67 by hand	1967/68 by tractor	1968/69 by hand	1968/69 by tractor	1968/69 by hand
Saldé	185.8	185.8	184	65	105	20	—	137	(c)	—
Pété-Galoya	91.35	91.35	174	200	182	—	—	194	(c)	—
Méry Mboumba[a]	38	38	173	212	55	—	59	15.5	(c)	36.5
Madina	111	111	160	160	160	—	160	—	—	160
Guédé	150	150	245	273	273	177	173	227	273	250
Niangab			20	65	38.25	40	38	150	—	188.25
Total tilled by tractor	576.15	576.15	956	975	813.25		530		273	
Total tilled by hoe						237		723.5		634.75
Total tilled	576.15	576.15	956	975	1 050.25		1 233.5		907.45	
Total arable	3 000	3 000	3 300	3 300	3 300		3 300		1 650	
Total tilled/ total arable (%)	19	19	29	29.5		32	38		55	

Notes: (a) dike extended towards Méry in 1964.
(b) dike built in 1964.
(c) the dikes at Saldé, Pété-Galoya and Méry were breached during the 1967 flood and had not been repaired in 1968.

The main obstacle to improving the economic activity in the OAV rice basins was inadequate water control which was the result of the practice of controlled submersion. When using this technique, the rain is responsible for germination, whereas the plant grows with flood water from the river, the flow of which into the fields is regulated by a system of dikes and small floodbanks.

But the Senegal river Valley is situated in a Sahelian climatic belt with insufficient and highly irregular rainfall, and it is the volume, regularity and periodicity of rain which condition the volume of acreages tilled and the germination of the seed. In fact, if the rains come too early the result might well be a reduction in acreages tilled; if they come too late, the rice has to be sown late; if they come at intervals interspersed with short drought periods, the rice may have to be sown again; if the rains are too heavy the low-lying parts of the basins may be flooded too soon. The crucial factor for the growth of the plant is the height of the flood. If it is too low, the fields ploughed and sown will not be flooded, the plant will not grow sufficiently and the harvest will be low. If, on the other hand, the flood is too high, the dikes and small floodbanks will be submerged, the plants drowned and there will be no harvest at all.

Certain errors were also committed in the design of the technical structures themselves; the surrounding dikes (78 km) were too long in relation to the acreages dammed (6883 ha) and the acreages suitable for rice farming (3300 ha) were too small in relation to the acreages dammed. Moreover, the structures were designed to hold back floodwaters up to a level supposedly only reached one year in ten, but this level was in fact attained both in 1961 and 1964 and even surpassed in 1965.

The technicians, then, designed and built the OAV structures on the basis of incorrect flood predictions. The practice of controlled submersion and the poor design of technical structures could not fail to lead to mediocre production results.

(ii) *The failure of the OAV production programme* To all intents and purposes, the OAV management never drew up any medium-term plan and often failed even to plan ahead for one year at a time. During the 1967/68 crop season, for instance, there were problems about ploughing the fields. The organization which usually carried out the ploughing work for the OAV had let them down at the last moment and the management was obliged to call upon the office of Agricultural Services to find a solution. In the end and after many discussions with private firms in Dakar, with the SAED and with the Centre for Reproducing Seeds of the Subdivision for Mechanical Tools of the Ministry of Public Works, the SAED was finally commissioned to do the ploughing. All this naturally led to a delay in executing

the work, which only started on 1 August instead of being completed by the end of June or at the latest mid-July.

The seeding projections were generally not achieved by the OAV management, for it depended on outside suppliers; the seeds were delivered late by the Centre for Reproducing Seeds at Richard Toll and by ONCAD (Office National de Coopération et d'Assistance pour le développement). The seeds were often of a poor quality (containing a high proportion of red rice) and were distributed late to the peasants.

Since the OAV management had no financial prerogatives and depended entirely on the financing body in Dakar it was unable to solve the immediate and urgent financial problems because administrative red tape involved far too much delay. The OAV management limited itself to carrying out administrative and financial tasks. There was practically no technical supervision of the peasants (the only technician was the company director, an agricultural engineer, who lived in St. Louis, far from the OAV plantations). The supervision was provided by regional services (the Centres for Rural Expansion), whose work covered many areas and which could therefore not provide regular supervision of the cooperative rice farmers.[10]

(iii) *Failure of the OAV cooperative system* The cooperative system imposed on the OAV peasants, as in other regions of Senegal, was unsatisfactory from their point of view and, hence, did not provide an incentive to work. The first problem arose from the distribution of plots to the peasants. This was done haphazardly and was not conducive to efficient work. The peasant, well knowing that he would no longer be working the same plot the following year and not knowing which plot he would be working next, could see no advantage in the proper upkeep of either this or any other plot. If a peasant was unlucky enough to be allocated a badly situated plot, he had no one to complain to if he had too much water (low-lying parts of the basin) or no water (high-lying parts).

This method of distributing plots, then, meant that the peasants had no incentive to provide proper care of the crops, nor to supervise or maintain the dikes, which were often damaged during the dry season by livestock passing through on their way to the river for water.

All these factors combined—the long drought from 1966 to 1972, the highly irregular river floods during the same period (the hazards of controlled submersion), poor administrative and financial organization of the OAV, the absence of a medium-term programme, the lack of supervision of the peasants, the poor technical design of structures, the inefficiency of the cooperative system, the irrational distribution of plots to the peasants—to ring the death knell for the OAV, whose plantations are now being farmed by the SAED. The latter has, in the past few years, drawn up a programme of tertiary systems in certain fields.

III. The Conditions and Consequences of the Rice Import Substitution Policy

In order to reduce the food shortage and dependence on foreign countries for foodstuffs, the river states have adopted a policy of rice import substitution, which has resulted in total dependence on foreign capital and multinational corporations. This fact emerges clearly from an analysis of the various operations required for the production of white rice.

A. Technical studies and special surveys of the Valley and the Delta

The various preparatory technical studies and surveys were carried out entirely by foreign public or private firms with foreign public or private capital:

Hydrological surveys were undertaken by the BCEOM (Bureau de Coopération et d'Etudes d'Outre-

Mer), the Société Grenobloise d'Etudes et d'Application Hydrauliques (SOGREAH) and ORSTOM (the French office for scientific and technical research overseas),

Climatological and rainfall studies were carried out by ORSTOM,

Land and mapping surveys were carried out by the French National Geographic Institute, the SEGECOT company, the SAET, the Muller Office and the United Nations (Project for the Hydro-Agricultural Study of the River Basin),

Pedological surveys were undertaken by the Société Centrale pour l'Equipement du Territoire (SCET); by the Institute for Tropical Agronomic Research and Food Crops (IRAT) and by the Agricultural Studies and Development Company (SEDAGRI) under subcontract of the FAO,

Studies on hydro-agricultural schemes were carried out by SCET and the United Nations (Hydro-agricultural Study of the River Basin) under subcontract,

Agronomic studies were carried out by IRAT,

Studies on human settlements in the Delta were made by the CROS mission, those on fishing by the Centre technique Forestier et Tropical (CTFT) and those on animal husbandry by the IEMVT (Institut d'Elevage et de Medecine Vétérinaire des Pays Tropicaux).

B. Hydro-agricultural schemes

The rice scheme at Guédé, the first experiment in modern rice farming in the Valley, was initiated by the colonial administration between 1939 and 1943. The MAS built the surrounding dike and canals and installed the pumping station.

The rice scheme at Richard Toll was also started by the colonial administration, with funding by FIDES (Fonds d'Investissement pour le Developpement Economique et Social) mainly relying on money supplied under the French budget. With a view to capitalist industrialization in the agricultural sector (total mechanization and introduction of the wage-earning system), the colonial administration imported all the technology required to set up the rice scheme in Senegal. It was also necessary to import the technology for the scheme structures and general equipment (earthwork equipment, protection dikes, pumping and draining-off station, floating equipment, transport) as well as for infrastructural work (roads, land improvement, housing for foreign cadres, etc.). Total investments for the 6000 ha scheme at Richard Toll by FIDES came to 3000 million CFA francs in 1956, or around 500 000 CFA francs/ha developed.

Technology also had to be imported by SAED to introduce into its basins first primary, then secondary and finally tertiary systems. For these:

(a) the cost of the primary system (peripheral dike and water intake and outlet structure) totalled 850 million CFA francs

(b) the cost of the secondary gravitational system 59 700 CFA francs/ha over 8460 ha, i.e. more than 407 million CFA francs

(c) the total average cost of a perimeter operating on the secondary gravitational system (to which must be added the cost of the primary system) in 1969/70 was 137 300 CFA francs/ha

(d) the total cost of building the three pumping stations at Diawar, Ronq and Thiagar was higher than 260 million CFA francs (in 1969), the average cost, when broken down per station, being 24 100 CFA francs ha on a total of 10 735 ha of developed land

(e) the cost of secondary systems with pumping totalled 161 400 CFA francs/ha

(f) the cost of the tertiary system reached 151 000 CFA francs/ha in 1970 on the 185 ha developed in the North Boundoum rice scheme.

Total investments in the SAED perimeter had reached more than 3175 million CFA francs by January 1971, mainly financed by the FAC (The French Aid and Cooperation fund), or the equivalent of 350 000 CFA francs per developed hectare (on a total of 9096 developed hectares).

Total investments planned by the SAED (hydro-agricultural infrastructure, supervision and tech-

nical assistance, research and miscellaneous, agricultural machinery, subsidies to cover deficits) for the period 1971–78 will reach 3251 million CFA francs, of which 1874.8 million would be provided by the FAC and the balance by the Senegalese government (1646.15 million) in the form of subsidies.

C. Soil preparation in the rice fields

In order to carry out tilling or puddling work, mechanical traction equipment had to be imported. In the old rice fields in Richard Toll, which were wholly mechanized, all ploughing equipment was imported. In the SAED scheme, where tilling and puddling was totally mechanized before 1971, tractors were imported (continental caterpillar tractors and tractors with Ferguson wheels) as well as MacCormick ploughs.

In the SAED plantations, it was only after the failure and termination of the cooperative system (which allowed very little initiative to the settlers) and the adoption of the system of peasant producer groups in 1971, that the peasants started to use draught animals for ploughing. However, this practice is not widespread and imported machines are still generally used for ploughing.

D. Levelling and construction of small floodbanks

In its plan to improve the tertiary system and water control, the SAED has modified the contours of the plots and regulated them so as to avoid shifting of soil and to achieve water planes of the desired depth. Thus, one and the same plot may, according to acreage, contain several contour levels spaced 10 cm apart.

Basic levelling and rough grading work is carried out with machinery borrowed from the Public Works Ministry (graders, compactors and vibratory rollers, etc.) and with equipment belonging to the SAED (Cormick offsets); the final details and finishing (after ploughing and puddling or spraying) are done with levelling drags (floats) and a landlever. All this equipment has to be imported into Senegal.

E. Direct sowing and transplanting

In the mechanized scheme at Richard Toll, sowing is done in lines with imported tractor-drawn seed drills. In the SAED plantation, seeds are broadcast, but this is often followed by mechanical turning under. In its rice farming intensification programme, the SAED introduced transplanting techniques in some plots; this is generally considered superior to direct sowing and consists of raising young plants in nurseries and then transplanting them into the rice fields. In carrying out its policy of rice import substitution, the Senegalese government depends on foreign suppliers for seeds, although this dependence is gradually being reduced with the production by the SAED of Savoigne seeds.

F. Care of the plants and manuring

Between sowing (or transplanting) and harvesting, the plants are nursed and developed by (a) irrigation and draining, (b) plant pest and disease control, (c) control of casual weeds, and (d) manuring.

Control of casual weeds (grasses and sedge) can be either preventive (using seeds free from weeds, careful soil preparation in the basins, weeding and maintaining the canals and the edges of the rice fields) or remedial (sowing pre-germinated seeds under water, continued submersion of the plants under a layer of water which prevents the growth of casual weeds, or pulling up weeds by hand after sowing). Remedial control may also consist of the use of chemicals, such as chemical herbicides (soda, potassium and amine salts, esters).

In the SAED basin, because there is a shortage of manpower, weeding is done chemically, using manual spraying machines strapped to the back, carried over the arm or by power-driven spraying machines. Senegal depends on foreign countries also for the supply of chemical herbicides and spraying machines.

Plant pest and disease control is carried out through disinfection of the soils and seeds, by spraying

and powdering the rice fields, by the use of antibiotics and by sufficiently high doses of fertilizer. These, again, are chemical products which are usually imported into Senegal.

Manuring is used to make up for soil deficiencies and to increase fertility, to compensate for the loss of mineral elements during harvesting and to modify the chemical composition and nutritive value of the grain. Use is made either of natural organic manure or mineral fertilizers (nitrogen, phosphorus, potassium, lime, etc.). Mineral fertilizers used in the rice fields in the Valley and the Delta are manufactured at M'Bao (sulphuric acid, phosphoric acid, superphosphates and compound fertilizers) and by the SIES (Senegalese Industrial Fertilizer Co.) which was established mainly with foreign capital (special loan from the FAC, loans from the European Investment Bank, the International Finance Corporation, the Central Economic Cooperation Fund, etc.).

G. Harvesting and threshing of the paddy

In the old Richard Toll rice scheme, combine harvesters were used for harvesting and threshing. These are large, expensive machines capable of carrying out several operations simultaneously such as cutting the stalks, gathering together the harvest, transporting and supplying the 'threshing' part of the machine, threshing, separating paddy from husks, cleaning the paddy as well as temporary storing and sacking of clean paddy.

In the SAED plantations, harvesting is done either by peasants using sickles or by combine harvesters; threshing is also done by hand on the spot or mechanically by combine harvesters. These extremely costly machines are imported into Senegal (especially from Italy).

H. Milling the rice

The rice is husked and whitened in fully equipped rice mills in the Delta of the Senegal river. The two rice mills at Richard Toll were built in 1956 and 1967 respectively. The SAED built one rice mill at Ross-Béthio in 1969. All three mills are equipped with silos for storing both paddy and white rice.

TABLE 6

THE PROCESSING AND STORAGE CAPACITY OF THE DELTA RICE MILLS

Location and type of installation	*year of construction*	*processing capacity -paddy (in m tons)* per hour	per year [a]	*storing capacity (in m tons)* of paddy	of rice
Richard Toll					
Guineti type	1956 [b]	7.0	22 000	8 000	1 200
Schule type	1967	2.5	8 000		
Ross-Béthio					
Schule type	1969	6.0	19 200	5 000	800
Total		15.5	49 200	13 000[c]	2 000[d]

Notes: (a) the mills are in operation 16 hours/day, 20 days/month, 10 months/year.
(b) totally renovated in 1971.
(c) total storing capacity for paddy, with three lots a year, is 40 000 metric tons/annum.
(d) total storing capacity for white rice, with six lots a year, is 12 000 metric tons/annum.

The industrial centre at Richard Toll (rice mill built in 1956) cost 286 785 million CFA francs in 1956, whereas the mill and the silo at Rosso-Béthio cost 147 115 million CFA francs in 1969. All the technology for building and operating these rice mills was, and continues to be, imported into Senegal.

I. The difficulties of implementing the import substitution policy

The fact of having adopted a rice import substitution policy, which implies dependence on foreign capital and multinational corporations, imposes economic, financial and technological conditions

on the river states which they are entirely powerless to influence in any way:

the cost per developed hectare in the rice plantations is too high
the need to import technology which is generally costly, poorly adapted to local conditions and which tends to deteriorate rapidly
the need to import certain indispensable inputs and spare parts for the machinery and equipment
use of expensive foreign technical assistance.

The rice producing companies have not succeeded in controlling these external factors, which combine to raise costs significantly. Because of these constraints and the lack of water control in the plots (which cannot be achieved without the construction of a storage dam on the river), and because of underemployment of the peasants, rice production in the Valley and the Delta is, in fact, of minor importance.

TABLE 7

PADDY RICE PRODUCTION IN SENEGAL AND IN THE RIVER REGION, 1969–1974
(in 1 000 metric tons)

	1969	1970	1971	1972	1973	1974
Senegal as a whole	58.3	155.9	90.5	108.2	36.7	64.3
The River region	12.0	14.2	20.0	27.9	6.5	9.8

Source: Statistics supplied by the Senegalese Statistical Office.

TABLE 8

PRODUCTION OF WHITE RICE IN SENEGAL AND IN THE RIVER REGION, 1969–1974
(in 1 000 metric tons)

	1969	1970	1971	1972	1973	1974
Senegal as a whole	37.9	101.3	58.8	70.3	23.8	41.8
The River region	7.8	9.2	13.0	13.1	4.2	6.3

Note: Calculations made on the basis of 1 metric ton of paddy rice corresponding to 650 kilos of white rice.

Management problems for these rice-producing companies are such that the cost of producing white rice in the Delta and Valley is generally higher than the purchasing price of imported rice (especially from Asia). Table 9 gives a rough estimate of the cost of producing paddy in the Valley and Delta, an estimate that must be highly approximate because no documents are available and the rice producing companies do not apply very strict accounting systems.

TABLE 9

APPROXIMATE COSTS PER METRIC TON OF PADDY PRODUCED IN THE VALLEY AND DELTA OF THE RIVER SENEGAL (in 1970 CFA francs)

Scheme	Farming costs per ha[a]	Yield (in tons/ha) real[b]	potential	Cost of producing real	potential
SDRS (Richard Toll)	60 000–75 000	2.4	3.0–4.5	25 000–31 000	13 000–25 000
SAED	30 000–32 000[c]	1.6	2.0–2.5	19 800–20 000	12 000–16 000
COLONAT (Richard Toll)	25 000–30 000	2.0	2.5–3.5	15 000–17 000	8 500–14 000
GUEDE	25 000–30 000	2.0	2.0–3.0	12 500–15 000	10 000–12 000

Source: R.D. Hirsch, 'La riziculture dans les Etats de l'OERS', p. 40.
Notes: (a) financial costs only.
(b) average 1965–70; official yields for Guédé are very optimistic.
(c) the financial outlay for peasant members of the co-operative is only between 10 000 and 12 000 CFA francs, but if costs borne by the SAED as well as subsidies are included, the total is very high.

The cost of producing milled white rice in the rice schemes at Richard Toll has always been higher than the purchasing price for imported rice. Whereas the price (CIF Dakar) for which the OCAS

has been buying imported broken rice has varied from 22.78 CFA francs/kilo in 1965 to 34.14 in 1968 and 28.01 in 1970, the average cost of producing white rice by the company out of the mill has varied between 35.9 and 66.8 CFA francs/kilo. The average producing price between 1967/68 and 1970/71 was 45.7 CFA francs/kilo. In order to save the company from competition that would be fatal, the Rice Stability Fund subsidized it as long as the price of imported rice was low by setting a comparatively high price to the consumer (the retail price of broken rice was set at 45 CFA francs/kilo).[11]

However, the rise in world prices for rice cut down the resources of the Stabilization Fund and the government was no longer prepared to give artificial financial support to the rice producing company at Richard Toll, which was finally dissolved on the 31 December 1971. The cost of milled white rice from the SAED mill in Ross-Béthio was as high as 40 CFA francs/kilo in 1971 and thus also higher than the purchasing price of imported rice. This meant that the SAED also needed financial support from the State.

IV. Conclusion

The rice import substitution policy opted for by Senegal has not only not reduced its dependence on food from abroad but, what is worse, has increased its structural, economic, financial and technological dependence on the dominant capitalist countries and the multinational corporations, who have a world-wide monopoly of the granting of loans and of the production and marketing of the technology required by the rice growing enterprises in the Delta and Valley of the river Senegal.

The present crisis in the world capitalist system has increased the dependence of the river States which, because of world inflation, have been obliged to buy foreign technology at constantly rising prices while at the same time being confronted with increasing operational costs for their rice companies (more expensive fertilizers, fuel, spare parts, maintenance work in the schemes, equipment, etc.), as well as an increase in the world price of imported rice. They are obliged to continue importing rice since national production is both unpredictable and inadequate.

It is not technically impossible for these countries to succeed, between now and the year 2000, in becoming self-sufficient in food—by intensifying rice farming, introducing short-cycle high-yield varieties and other food crops (wheat, sorghum, maize, black-eyed peas, etc.), by nationalization, intensive supervision of groups of peasant producers, and by constructing a dam in the Delta capable of supplying freshwater all the year round to the rice schemes on both banks of the river. But unless they then break away from a substitution policy financed by foreign capital and multinational corporations, the problems now facing our countries, i.e. the development of 'underdevelopment' and growing marginalization of the overwhelming majority of the people can only be accentuated. And these are problems which cannot be understood in the context of conventional academic analysis but which require a new approach.

Notes

1 It was this very policy of 'developing' the colonies and the almost total concentration on industrial export crops that caused, and worsened, the food shortage in some African countries. In the case of Senegal, for example, the population grew from 1.45 million in 1920 to 3.05 million in 1959, whereas available foodstuffs *per capita* in the country fell from 240 kilos to 145 kilos during the same period. Food imports to Senegal represented less than 7 per cent of available foodstuffs (cereals) in 1920 and almost one-third in 1960. The food shortage has been growing steadily and the situation has been aggravated by the fact that the population doubled in the space of forty years (1920–1960) while cereal imports only rose sixfold during the same period.

2 Nesterenko, 'amenagement de la Vallée du Sénégal et casier rizicole de Richard Toll', MAS, Saint-Louis, 1954. J.C. Giacottino, 'Richard Toll, bilan économique et humaine d'une expérience rizicole', M.A.S., Saint-Louis, June 1961.

3 R.D. Hirsch, 'étude économique du casier rizicole de Richard Toll 1953–1971', Saint-Louis, January 1972.

4 It is well known that the high economic return of the groundnut trading economy throughout the colonial period was achieved by the introduction of economic and non-economic measures aimed at maintaining the renumeration of labour at close to, or even below, subsistence level.

5 R.D. Hirsch, 'la riziculture dans les Etats de l'O.E.R.S. (Organisation des Etats Riverains du Sénégal), Saint-Louis, 1971 (Direction de la Statistique de la République du Sénégal).

6 *Project d'intensification de la riziculture dans le Delta du Fleuve Sénégal*, SAED, 1972, p. 4.
7 Rodts, 'étude économique de la SEAD', Saint-Louis, June 1971. R.D. Hirsch, 'la riziculture dans les Etats de L'O.E.R.S.', op. cit.
8 A.K. Cissokho and G. Raffard, 'les groupements de producteurs dans le Delta du Sénégal', SAED, Saint-Louis.
9 Seyral, 'rapport de fin de mission agronomique', Saint-Louis, March 1970.
10 *Rapport sur la campagne agricole 1967/68*, O.A.V., Saint-Louis.
11 R.D. Hirsch, 'la riziculture dans les Etats de l'O.E.R.S.', op. cit.

Foreign Technology in the Growth of the Modern Manufacturing Sector in Ethiopia 1950–1970

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Introduction

The integration of Ethiopia into the international economy is of recent origin. One aspect of this integration process has been the growth of a modern manufacturing sector on the basis of foreign controlled investments and technology. There appear to have been very few studies of this subject in Ethiopia[1] and, to the best of our knowledge, no study published hitherto has attempted to examine the nature, extent and consequences of the country's dependence on foreign capital and technology. In this paper we offer a quantitative analysis of these issues. The first section describes the main contours of Ethiopia's economic history; in section II we analyse those institutional characteristics of Ethiopia's underdevelopment which have been the framework for the import of technology in the manufacturing sector; section III looks at various dimensions of foreign control, i.e. in the final goods market, in equity holding and management, and in contractual arrangements governing lease or sale of technology; and section IV synthesises the chief components of the foreign exchange cost of technology to Ethiopia.

I

Ethiopia is one of the least developed economies in the world. The great majority of its population is rural, surviving through subsistence agriculture and related home processing activities. At the end of the 1960s annual *per capita* income was about US $65 (only 4 countries reported lower figures)[2]. Modern manufacturing accounted for roughly 5 per cent of GDP, the literacy rate was estimated at some 5 per cent of total population, and the average life expectency at birth was only 39 years. These few indicators underline Ethiopia's contemporary state of underdevelopment but that condition derives from historical factors of an economic and strategic nature.

Almost all countries now regarded as developing had been absorbed into the international capitalist system by the last quarter of the nineteenth century through the mechanism of imperialism. Ethiopia remained, to an important extent, an exception to this rule. Though Italy had colonized Eritrea in 1896 and during the next 45 years built up a network of trade and small-scale production in the area, the process had little impact on the country as a whole. Eritrea constituted only a small part of Ethiopia and largely remained physically, politically and economically isolated from the rest of the Ethiopian Empire. Such relations as existed with world markets took the form of a division of labour according to which a few primary products (almost entirely coffee and animal skins) were exported from Ethiopia, and some manufactures were imported. The economic structure of the country till as late as the 1940s extended little beyond the requirements of administration and defence and the financial support of these essential functions.[3]

The scarcity of raw materials, the inaccessability of large parts of the territory, and the insignificance of the country either strategically or in maritime trade seem to have been among the principal factors which explain why colonial powers did not expand their interests. Apart from a brief period of Italian

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occupation (1936–1941), when there were some externally financed infrastructural investments and military expenditures, little attempt was made to absorb Ethiopia into the international capitalist system until the late 1940s.[4] When this integration did take place after the 1939–45 war, the principal reason, at least initially, appears to have been a non-economic one, namely, the growing strategic importance of Ethiopia to the United States. Over time, however, this geopolitical factor has had a direct and continuing economic effect.

Between 1946 and 1972 the total value of the inflow of military and non-military resources from the United States and from international organizations (mainly the World Bank Group) was approximately E$1.8 billion (US$715 million). Of this total, United States military aid, under the United States-Ethiopia military agreement of 1953, accounted for E$468 million (US$187 million). This figure was equal to nearly half of all military aid authorized by the United States to underdeveloped countries in Africa in that period. Obligations and loan authorizations by the United States Government totalled E$754 million (US$298.3 million) and loans by international organizations (mainly the World Bank Group) E$573 million (US$229.2 million).[5]

The foreign public loans (i.e. from governments and international institutions) up to 30 June 1970 were used for the following purposes: infrastructure 59.5 per cent; transportation 13.4 per cent; industry and mining 10.7 per cent; banking and financial institutions 9.9 per cent; agriculture 3.8 per cent; and miscellaneous purposes 2.7 per cent.[6] It seems, therefore, that the great majority of these loans have been used to develop the conditions for eommodity production rather than to stimulate such production directly. The infrastructure for commodity production was not the only sector for investment in Ethiopia, nor were foreign loans the only source of capital—but in both cases these elements were important ones in determining the pace and direction of economic growth.[7]

Over the period 1954 to 1969 the investments wrought significant changes in the Ethiopian economy. First, with regard to domestic output and employment, there was a 1.8 times increase in gross domestic product; more than a doubling of gross fixed capital formation; a six-fold rise in value added in the modern manufacturing sector; a 2.3 times rise in employment in that sector; and an increase of some 2.6 times in labour productivity in modern manufacturing. Second, a pronounced alteration of infrastructure occurred with a ten-fold increase in the use of electricity and petroleum, a 50 per cent rise in the volume of freight carried by the railway system, and a growing demand for semi-skilled and skilled labour reflected in a 3- to 4-fold expansion of enrolment in secondary and higher education. Third, the nature of international economic transactions affecting Ethiopia was transformed. On current account, the growing significance of modern manufacturing and investments in particular generated marked changes in the composition of imports. For instance, although imports as a proportion of GDP hardly changed at all between 1954 and 1969, imports of intermediate and capital goods expressed as a proportion of total imports increased from 45 per cent to 63 per cent. On capital account, whereas in 1954 the inflows of foreign long-term capital (public and private) and outflows for the service of the foreign debt payments were negligible, by 1969 these elements had become significant items in the balance of payments, e.g. public foreign debt payments as a proportion of exports rose from about 5½ per cent in 1954 to roughly 18 per cent in 1969.

Infrastructure investments creating the conditions for commodity production in the modern sector were complemented by the growth of urban demand, mainly for consumer goods. The rise in labour productivity in mechanized agriculture, coupled with the creation of employment opportunities in modern manufacturing, encouraged a migration from the countryside to the towns—the total population living in 165 municipalities grew from about 1.4 million in 1962 to 2.3 million in 1970.[8] The movement from countryside to town was not only from agriculture to industry; it was also from a subsistence sector to a monetized one. These conditions provided the foundation for the growth of an effective money demand directed towards the purchase of consumer goods, both agricultural and manufactured. The urban demand, therefore, acted as a stimulus to the supply of consumer goods and

thereby to the process of import substitution.

TABLE 1

THE PATTERN OF IMPORT SUBSTITUTION IN MANUFACTURING IN ETHIOPIA

Industry	Total domestic supply[a]		Imports including taxes on imports		Share of imports in domestic supply	
	1954[b]	1970	1954[c]	1970	1954	1970
	Ethiopia $ million				*Per cent*	
I. *Consumer goods*						
Meat products	...	8.5	...	1.5	...	17
Sugar and confectionery	8.2	54.1	7.1	2.9	86	5
Soft drinks	1.1	12.8	0.2	1.2	18	9
Alcoholic drinks	4.1	60.4	1.2	11.6	29	19
Flour milling	5.4	42.7[d]	—	9.0	0	20
Manufactured food products n e s –	...	11.5	...	2.2	...	75
Tobacco	2.5	22.3	0.6	4.1	24	18
Textiles[e]	64.1	203.7	54.0	66.8	84	32
Leather footwear	3.4	10.5	1.9	1.5	55	14
Printing and publishing	1.7	12.4	0.6	3.1	35	25
Dairy products	...	12.4	...	6.5	...	52
Paints, varnishes, plastics, soap products, etc.	...	29.5		18.8		63
Pharmaceuticals	2.5	24.7	2.5	21.1	100	87
Wood and furniture	...	5.3	...	2.4	...	44
Others	...	2.3[f]	...	2.3	...	100
Total above	(93.0)	513.0	(68.1)	155.1	(73)	30
II. *Intermediate goods*						
Leather tanning and finishing	...	10.9	...	1.9	...	23
Sawmill and woodwork	2.4	13.0	0.9	1.5	37	11
Petroleum products	14.6	38.4	14.6	17.8	100	46
Glass products	...	7.2	...	3.0	...	42
Basic industrial chemicals, fertilizers, synthetic resins and plastics	...	30.4	...	28.7	...	94
Others	7.7	81.5[g]	2.5	37.4	32	44
Total above	(24.7)	181.4	(18.0)	90.3	(72)	50
III. *Capital goods*						
Cement and lime	1.3	15.0	0.3	0.2	23	1
Structural clay products	0.2	3.3	—	0.6	0	18
Other non-metallic minerals	...	5.2	...	1.4	...	26
Iron and steel products	...	61.0	...	32.6	...	53
Metal products	...	31.8[h]	...	30.0	...	94
Tyres, tubes and rubber products	...	22.9	...	19.5	...	85
Electrical and non-electrical machinery	...	110.8	...	110.5	...	99
Transport equipment	...	70.9	...	70.9	...	100
Others	...	8.7	...	8.7	...	100
Total above	(1.5)	329.6	(0.3)	274.4	(...)	83
I–III GRAND TOTAL	(119.2)	1,024.0	(86.4)	519.8	(72)	50

Sources: Figures for 1954 obtained or estimated from Central Statistical Office, *Statistical Abstracts* Addis Ababa; *Economic Progress of Ethiopia* and company records. Figures for 1970 from Stephen Guisinger, 'Tariffs and Trade Policies in Ethiopian Manufacturing', August 1972 (mimeograph), Ministry of Commerce, Industry and Tourism, Table 1, page 48.

[a] Total domestic supply is equal to gross value of production plus imports including taxes minus exports.
[b] 1954 figures include gross value of production and imports only. Data do not cover Eritrea.
[c] Figures do not include taxes on imports.
[d] Includes flour milling and bakery.
[e] Includes spinning, weaving and finishing of textiles; knitting; wearing apparel and other textile goods.
[f] Includes pottery, china and earthenware.
[g] Includes paper and paper products; animal and vegetable oils and fats; made-up textile bags, cordage, rope and twine; animal food; fibre for spinning; wooden and cane containers; miscellaneous petroleum and coal products; and non-ferrous based metal products.
[h] Includes structural and fabricated metal products and cutlery, tools and hardware.

Table 1 summarizes the changes from 1954 to 1970 in imports as a proportion of total domestic supply in individual industries in the consumer, intermediate and capital goods sectors. Though the figures should be regarded as broad orders of magnitude only, they do indicate that by 1970 substantial import substitution had occurred in the consumer goods sector where imports fell from 73 per cent to 30 per cent of total domestic supply over the period. In the case of intermediate goods the proportion fell from 72 per cent to 50 per cent, while capital goods imports still accounted for 83 per cent of total supply.

Import substitution in modern manufacturing depended on the application of technology new to Ethiopia and that technology was obtained from abroad. The dependence on foreign supplies was most striking in the machinery and transport equipment sector where, in the period 1966–69, imports accounted for 91 per cent of total investment. The imports of technology in the form of know-how mainly came under the rubric of technical assistance. Between 1964/1965 and 1968/1969 total technical assistance to Ethiopia amounted to E$421 million, that is to say to 56 per cent of the value of imported capital goods over the same period. To this should be added payments for foreign personnel made in the agricultural and industrial sectors, both as salaries and management fees. These averaged E$20 million per annum in 1970 and 1971.

Thus it was not merely technology but foreign technology which led to improvements in productivity, both in the modern manufacturing and mechanized agricultural sectors, and to a transformation of the Ethiopian economy. Yet the process of economic transformation could not be ascribed to mere technical factors. Changes in productivity take place within and react upon a system of socio-economic relations. The importance of the system of social relations was that it determined how increases in productivity were distributed between foreign[9] and Ethiopian[10] economic agents; the proportion of those increases which was invested in Ethiopia and the proportion which was directly or indirectly transferred abroad; and the ways in which, through factor prices and the terms and conditions of technology contracts, the factors of production, both Ethiopian and foreign, were combined. In Ethiopia these issues took on a special character as they arose in a 'least developed' economy whose transformation was dominated by foreign technology controlled by foreign capital. The next section of this paper examines the institutional cum policy framework in which this transfer of technology took place, thus providing the setting for the subsequent analysis of the character and dimensions of foreign control.

II

The preconditions for the establishment and growth of commodity production do not refer to material imports alone. An infrastructure of an institutional kind is an essential element in determining the nature and extent of the modern sector in a poor economy. Ethiopia's condition as a least developed country has influenced strongly both policy formulation and the kind of legislation introduced. However, before discussing specific areas of legislation, three points of general applicability must be mentioned. First, the concept of policy in Ethiopia differed somewhat from the way in which it is generally understood. For instance, there was no consistent formal set of rules with regard to the imposition of tariff duties on imports; the duties actually charged were the result of bargaining on an *ad hoc* basis, case by case. Similarly, in the field of industrial property there was no specific legislation, and individual patents or trade-marks were simply registered. Second, legislation affecting transfer of technology took the form, by and large, of describing the broad contours of policy but did not reach a stage of prescribing detailed provisions for the implementation of such policy. Third, there were a number of areas of economic policy which remained outside the scope of legislation and institutional development. One example was the provision of procedures and institutions which might have encouraged the growth of a national technological capability. Another example was the absence of provisions for increasing the supply of scarce indigenous factors of production (e.g. entrepreneurship and capital). The implicit

emphasis of legislation in Ethiopia was on the creation of conditions for the import of foreign technology, capital and skills.

Four areas of government policy were particularly relevant in determining the possibilities for the transfer of technology and the size and distribution of returns generated by the process. These are described in the following sub-sections.

A. Foreign Investment

Investment legislation was the principal policy instrument employed by the government to encourage the import of capital and technology. The first investment law was the Notice of 1950, which came into force about 7 years ahead of the First Five-Year Development Plan (1957–1962). At the time when the 'Notice of 1950 for the Encouragement of Foreign Capital Investment' was issued, Ethiopia had only the rudiments of industrialization.[11] A consistent industrial policy had yet to evolve (it was not until the early 1960s that the policy of import-substituting industrialization was adopted), and there was little indigenous capitalism in industry, and little foreign investment of the type associated with modern transnational firms. In 1950, the main group that owned and operated industry consisted of members of expatriate communities resident in Ethiopia. Given this ownership structure, three sets of choices were open at the time: to encourage the development of domestic manufacturing enterprises, leading to the absorption of foreign technology mainly through licensing arrangements; to promote the transfer of capital and technology through direct foreign investment; or to provide for both the encouragement of domestic enterprises and foreign investment. Of the three options, it was the second which seems to have prevailed.

The central purpose of the Notice was to encourage the absorption of capital and technology through foreign investment. It was designed exclusively for the benefit of foreign investors, to whom it accorded special facilities and incentives in the form of exemptions from profits tax for five years, guarantees regarding the remittance of a fixed proportion of earned profits, and duty-free importation of necessary machinery. Moreover, foreign technology suppliers were given complete freedom with respect to the acquisition of equity holdings in firms, and where local participation was considered necessary it was understood that such participation in equity and management would in most instances take the form of only a minority interest.[12] Though the Notice provided incentives and guarantees for foreign investors, similar incentives were not available either to existing or potential domestic investors, and the situation remained unchanged until the enactment, thirteen years later, of the Investment Decree of 1963.

The Investment Decree of 1963 was issued against the background of the Second Development Plan. That Plan, unlike its predecessor,[13] gave a high priority to the expansion and diversification of the country's industrial base, and its long-term objectives were clearly technological in content. They were: (i) to change the structure of the economy from a predominantly agricultural to an agro-industrial one; (ii) to change the pattern of production by introducing new processes and methods; and (iii) to increase the production capacity of the economy with a view to diversifying production and increasing the rate of growth.

This approach called for a much closer alignment between development planning and legislation. Accordingly, the 1963 law: first, consolidated under one heading all the relevant earlier legislative instruments dealing with investments, importation of machinery and capital equipment and foreign exchange and fiscal regulations; second, created a formal institutional machinery which had hitherto been lacking; and third, for the first time extended the system of incentives to cover both domestic and foreign investment.

In a formal sense the 1963 Investment Decree, which in 1966 was transformed into a Proclamation, represented an improvement over the situation in the 1950s. However, there was little evidence of any shift in the basic premise underlying government policy. It still did not prescribe any explicit measures for encouraging domestic investment or entrepreneurship, nor did it incorporate any obligations to be

fulfilled by foreign technology suppliers. Its object was simply to offer incentives and guarantees.

Foreign exchange guarantees provided under the law covered three main subjects. First, investors were given freedom to remit abroad all of their share of profits, dividends, interest repayments, management fees and royalties. Second, they were entitled to repatriate the net proceeds belonging to them upon the partial or total sale or liquidation of their investment. Third, foreign personnel employed in Ethiopia were allowed to remit 35 per cent of their earnings per annum for the first six years, although in subsequent years this ratio was progressively diminished. The liberal nature of these guarantees was underlined by the fact that no restrictions, apart from an upper limit on remittances of earnings of expatriates, were prescribed in the law.

The only other condition (rather than a limitation) laid down was that the amount of profits or dividends that could be repatriated abroad in any one year could not exceed the foreign share in equity—this limit appears to have been formal rather than effective. The fact that foreign technology suppliers were able to determine the extent of equity participation implied their freedom to influence their share of profits and, hence, the size of their remittances.[14] Moreover, even when constraints were placed on profit remittances, a wide range of possibilities still existed for transferring funds through other means, such as interest repayments, management fees and royalties (none of which were subject to legal limits) and transfer pricing.

In addition, a variety of fiscal incentives were introduced to encourage the inflow of foreign technology. For instance, corporate tax rates in Ethiopia were kept lower than in other African countries, capital gains were exempt from tax and imports of technology (machinery and spare parts) were admitted duty free. Furthermore, new investments were offered extra incentives in the form of tax relief provided that the amount invested was not less than E$200 000. While this provision was meant to apply to both domestic and foreign investment, it in fact seems to have by-passed many of the domestic investors most of whom were small or very small in size. In contrast, most of the foreign sector investments by virtue of their size appear to have been the principal beneficiaries of these incentives. The granting of tax relief took little account of the 'infant' nature of local firms using Ethiopian capital, management and labour.[15]

B. Tariff Protection

Tariff protection was another form of fiscal incentive. Since the early nineteenth century, a tariff policy has been regarded as providing, at one and the same time, protection to domestic producers through raising the domestic price of protected products in relation to the foreign price, and an incentive to encourage foreign exporters of these products to locate their productive facilities inside the country. In the Ethiopian case this view of tariffs was hardly applicable. First, tariffs did little to encourage or protect domestically-owned enterprises since, as explained in a later section, even as late as 1970 very few of them had been set up in modern manufacturing. Second, the notion of tariffs acting as an incentive to foreign investment assumes that the foreign investor faces a predetermined tariff structure. Such a notion was alien to the Ethiopian situation where foreign enterprises were, in fact, instrumental in determining the structure itself through bargaining over the terms and conditions on which they could establish production facilities.

Available evidence suggests that the initial demand for tariff protection usually came from the technology suppliers (or investors) before any investment had been undertaken. In fact, tariff guarantees constituted an integral part of the majority of agreements involving direct foreign investment; in some cases the investment and the technology transfer were made conditional upon such guarantees. Moreover, in the determination of tariff rates the government tended to rely heavily on data provided by the foreign firm itself, which was thus in an advantageous position to influence the outcome.

An analysis[16] of the tariff structure in Ethiopia indicated that, while there were wide variations from one specific case to another, nominal tariff rates—on average 70 per cent—were the highest on consumer

non-durables; and semi-finished goods paid a moderate rate of 21 per cent, while capital goods were taxed at only 7 per cent. Nominal tariffs, however, do not accurately measure the protection afforded by the tariff structure to the value added of individual firms; to analyse the latter, estimates of effective rates of protection are needed. Calculations have been made for 17 products, of which 11 were found to be receiving effective protection ranging from 100 per cent to a little over 500 per cent. Furthermore, there appeared to be a strong correlation between high effective protection and the distribution of foreign investment according to product group. These results, as well as the procedure for granting protection described earlier, suggest that individual foreign firms wishing to invest in Ethiopia successfully negotiated special tariff privileges for their particular investments.

C. Employment of Foreign Personnel

In the 1950s, nearly all key positions in industry were held by expatriates.[17] The situation does not appear to have changed much over the years. A recent ILO study[18] indicated that the number of foreign personnel employed in both the public and private sectors around 1970/71 totalled 10 000. Of these, nearly half were in the private sector. Although the number of work permits issued to foreign employees in the latter sector fell from about 7000 in 1968/69 to about 5000 in 1970/71, i.e. a decline of approximately 25 per cent, this decrease was almost entirely concentrated in the unskilled categories.

Nearly half of those holding key positions in firms had only secondary or vocational education; their skills were essentially acquired through 'on the job' training and were easily transmissible to local personnel. Of the total of foreign employees 2 per cent were 'illiterate' and 15 per cent had only primary education. Additional evidence obtained on the basis of replies to a questionnaire and survey data further suggested that in most of the foreign-owned firms over 50 per cent of skilled occupations were monopolized by headquarters personnel. In the largest single firm in Ethiopian manufacturing—a subsidiary of a foreign firm—75 per cent of the professional staff in 1965 were foreign and only after considerable pressure from the government was this ratio reduced to about 60 per cent. In fact, these ratios over-estimate Ethiopian participation, since evidence suggested that Ethiopians were usually given a lesser role in decision making than was indicated by their formal positions in the firms' hierarchy. In contrast, wholly Ethiopian-owned firms were found to employ only a very small number of foreign personnel in skilled occupations.

Both the law and the institution concerned with the regulation of foreign employment were highly inadequate and largely ineffective. The main legislative instrument for the encouragement of private investment and transfer of technology, i.e. the Investment Proclamation of 1966, did not concern itself with the employment of foreign nationals.[19] The principal regulatory instrument was the Foreign Nationals Employment Regulation issued in 1964 which merely prescribed general criteria for the employment of foreign personnel. The provisions in the law relating to the employment of Ethiopian counterpart staff were conditional rather than compulsory. Employers were required to train Ethiopian counterpart staff if this was considered necessary, and even then it was difficult to determine whether such 'on the job' training was in fact being provided; the rate of turnover of dissatisfied Ethiopian staff is known to have been high.[20]

D. Industrial Property

The returns derived from the transfer of technology and the distribution of those returns among the various parties affected were also influenced by the extent and nature of the protection which technology owners could obtain in Ethiopia for the industrial property they possessed. When, in 1960, the Commercial Code of Ethiopia was enacted, it was stipulated that 'patents shall be subject to the protection of special laws'. Although Ethiopia had not enacted a formal patent law, it operated a system of registration. Under this system monopoly protection was granted to patents and trademarks once they had

been registered; this protection had the same legal validity as that which is normally accorded to industrial property rights under formal industrial property legislation. Most of the beneficiaries of the system were foreign. Available evidence on 29 patents registered in Ethiopia indicates that no fewer than 26 of these were foreign owned. Similarly, 97 per cent of a sample of 760 trademarks were foreign owned.[21]

III

This section focuses on the three critical dimensions of foreign control in the modern manufacturing sector, namely direct foreign investment (not merely in total but also with reference to the sectors where it operates and the extent of 'leverage' within individual firms), contractual arrangements for the lease of technology, and the oft neglected yet basic dimension of concentration and power in the final goods market. An adequate perspective can be obtained only by considering the total impact of these three factors; their overall effect will be discussed in section IV of the paper.

A. Foreign Direct Investment

Inflows were fairly small during the 1950s, but with the rapid establishment of import substituting industries from about 1960 to 1966 gross inflows reached 69 per cent of gross fixed capital formation in mining and manufacturing. These figures for gross direct foreign investment in Ethiopia did not reflect, of course, the actual net transfer of foreign resources, including capital and technology. There are three reasons why this was so. First, a proportion of the reported figure for gross direct foreign investment consisted of reinvested earnings, and these simply represented foreign claims on investible surplus generated within Ethiopia rather than any transfer of real resources from abroad. Second, a proportion of the reported figure was accounted for by the capitalized value of equipment and know-how supplied from abroad. The reported value of these productive factors often bears but a tenuous relationship with their true value because of the possibility of over-invoicing. Third, the figures show gross inflows, i.e. they do not allow for the outflow of resources from Ethiopia through remittances, both direct and indirect.

The annual flows of reported foreign investment during the period 1950–1969 in part gave rise, in each year, to foreign claims on the ownership of equity in manufacturing industries in Ethiopia. By the year 1969/70 the stock of paid-up capital in the manufacturing sector amounted to E$323 million. Of this the most important single element was the foreign holding, which accounted for 43 per cent of the total, followed by an Ethiopian Government holding of 38 per cent. Moreover, the figures for foreign equity holding underestimated the effective foreign share in equity since in certain cases equity holding classified as 'Ethiopian private' in fact represented holding by foreign-controlled firms registered in Ethiopia and treated for statistical purposes as 'Ethiopian private.'

The aggregate figures for foreign equity ownership in the manufacturing sector are only a partial indicator of the true extent of foreign control. A proper assessment requires, as a minimum, consideration of the number of sectors where foreign equity was dominant, the character of the industries in which foreign equity holding predominated (i.e. whether these sectors tend to be 'traditional' or 'modern'), the extent of foreign equity holding at the individual firm level ('majority' or 'minority'), and the degree of diversity in the origin, both by foreign country and foreign firms, of capital and technology. The relevant information on the first two of these points is given in Table 2—the third and fourth points are examined later.

Table 2 shows that foreign equity holding had a dominant position (i.e. more than 50 per cent equity holding) in as many as 23 of the 34 branches. In fact, in ten manufacturing branches the foreign participation accounted for as much as 80–100 per cent; in nine it was between 60 and 79 per cent; and

TABLE 2

DISTRIBUTION OF FOREIGN AND ETHIOPIAN CAPITAL BY MANUFACTURING BRANCH, 1969/1970

	Manufacturing branch	No. of establish-ments	Value of paid-up capital					Foreign share in paid-up capital
			Ethiopian			Foreign	Total	
			Private (1)	Public (2)	Sub-Total (3)	(4)	(5)	(4) ÷ (5) (6)
			E $ thousand					*Per cent*
	Fabricated metal products							
1	Electrical machinery	2	—	—	—	700	700	100
2	Structural metal products	4	35	—	35	720	755	96
3	Fabricated metal products	3	211	—	211	2,930	3,141	93
4	Cutlery, hand tools, etc	4	660	—	660	1,430	2,090	68
5	*Basic metal industries*	3	1,173	419	2,150	4,450	6,600	67
	Leather and shoe							
6	Tanneries and leather	7	160	—	160	2,240	2,400	93
7	Footwear	6	595	—	595	2,352	2,947	80
	Wood products							
8	Sawmills, etc.	18	1,897	—	1,897	1,968	3,864	51
9	Furniture and fixtures	7	89	—	89	1,388	1,477	94
	Textiles							
10	Knitting mills	11	1,112	—	1,112	3,737	4,848	77
11	Finished textile goods	3	1,319	—	1,319	3,231	4,550	71
12	Wearing apparel	4	520	—	520	1,021	1,541	66
13	Spinning and weaving textiles	15	10,807	18,134	28,941	37,658	66,600	57
	Food products							
14	Dairy products	2	162	—	162	2,105	2,266	93
15	Miscellaneous food products	4	806	—	806	7,958	8,764	91
16	Sugar processing	4	11,905	7,269	19,174	30,368	49,542	61
17	Meat canning	13	1,450	1,000	2,450	3,377	5,827	58
18	Vegetable and animal oils	19	2,144	—	2,144	2,014	4,158	48
19	Grain milling and bakery	30	5,506	200	5,706	3,136	8,842	35
	Chemicals							
20	Plastic products	6	362	—	362	2,628	2,990	88
21	Paints and varnishes	3	382	—	382	568	950	60
22	Soaps, cosmetics, perfumes	4	749	—	749	1,301	2,050	63
23	Other chemical products	2	—	450	450	650	1,100	59
24	Pharmaceuticals	1	—	...	...	...	...	49
25	Basic industrial chemicals	4	570	—	570	505	1,075	47
26	Rubber products	5	343	3,957	4,300	615	4,915	13
27	Petroleum refining	1	—	54,642	54,642	—	54,642	—
	Non-metallic products							
28	Glass and glass products	4	300	—	300	2,700	3,001	90
29	Structure, clay products	6	382	—	382	738	1,120	66
30	Cement lime and plastic	7	2,560	14,100	16,600	5,142	21,802	24
31	Other non-metallic products	11	589	4,943	5,532	1,976	7,507	26
32	*Beverage*	28	9,546	5,445	14,991	4,505	19,497	23
33	*Printing and paper products*	20	2,980	9,603	12,582	4,183	16,776	25
34	*Tobacco*	2	—	4,311	4,311	—	4,311	—
	Total manufacturing	263	59,872	124,473	184,345	138,293	322,639	43

Source: Annual Survey of Manufacturing Industry for 1969/70, Ministry of Commerce, Industry and Tourism.

in four it ranged between 50 and 59 per cent. With regard to the second of the characteristics of foreign control mentioned above the table indicates that foreign capital and technology seemed to have concentrated mainly in modern manufacturing, particularly in those branches which were among the more dynamic and technology-intensive in the sector, e.g. fabricated metal products; basic metal industries; textiles (the largest single branch in manufacturing in Ethiopia); food products; and several branches of the chemicals industry. By contrast the majority of branches where Ethiopian capital was dominant were among the more 'traditional' ones in the sector. At least six of the eleven branches were of this kind—tobacco, beverages, paper products, printing, cement, and grain milling. Of the remaining five

which corresponded to 'modern' manufacturing, Ethiopians had a marginal majority in three and a significant majority in only two branches.

Since negotiations and bargaining about foreign technology were conducted at the level of individual firms, it is essential to examine the structure of ownership of these firms, determined through bargaining with the Ethiopian government or with Ethiopian entrepreneurs. The significance of analysis at the firm level is especially pronounced in the Ethiopian context because the manufacturing sector was dominated by rather a small number of firms. In fact, there were only 37 firms in the sector which, in 1969/70, recorded value added of E$1 million or more. About 14 other firms either were subsidiaries of foreign firms or had contractual arrangements with such firms. These 51 firms constituted the 'hard core' of manufacturing in Ethiopia and, as shown in Table 3, they alone, although constituting only 11 per cent of the total number of firms in the sector, accounted for 80 per cent of paid-up capital, over 76 per cent of value added and 69 per cent of employment in the sector as a whole. Consequently, it was the ownership structure of these few firms that was of critical importance for the evaluation of foreign control.[22]

TABLE 3

OWNERSHIP PATTERN OF A SAMPLE OF 51 MAJOR FIRMS IN THE MANUFACTURING SECTOR 1969/1970

Forms of Ownership	No. of firms	Paid-up[a] capital	Value added	Employment	Per cent share: Paid-up capital	Per cent share: Value added	Per cent share: Employment
		(1)	(2)	(3)	(4)	(5)	(6)
		E $ million		No. '000		*Per cent*	
A. 51 per cent and over foreign:	*29*	*122.7*[b]	*97.3*[c]	*18.1*	*38*	*41*	*37*
B. 50 per cent foreign	*4*	*36.3*	*32.7*	*7.4*	*11*	*14*	*14*
C. Minority foreign	*5*	*3.9*[d]	*2.7*[e]	*1.1*	*1*	*2*	*2*
D. Wholly Ethiopian	*10*	*97.0*	*33.8*	*5.9*	*30*	*15*	*12*
Private	2	2.3	3.0	0.5	1	2	2
Public	8	94.7	30.8	5.4	29	13	10
E. Unspecified	*3*	...	*11.2*	*1.0*	...	*5*	*2*
Sample total	51	259.9	177.7	33.6	80	76	69
Total manufacturing sector	479[f]	322.6[g]	254.9	49.4	100	100	100

Source: *Annual Survey of Manufacturing Industry 1969/70*, Ministry of Commerce, Industry and Tourism.

[a] This refers to the total of both foreign and Ethiopian capital.
[b] Data on three firms not available.
[c] Data on eight firms not available.
[d] Data on one firm not available.
[e] Data on two firms not available.
[f] Refers to number of establishments.
[g] Refers to paid-up capital in 263 establishments.

The characteristics of ownership of the 51 major firms may be summarized as follows. First, in 29 firms foreigners had an outright majority of the equity (i.e. 51 per cent or more), in another four they had 50 per cent, and in five firms foreign participation was below 50 per cent. Even in those cases where foreign equity holding was less than 50 per cent, there may still have been effective control by foreigners because foreign equity represented a single block vote and such shareholding was always combined with management contracts. In brief, 38 of the 51 major firms in manufacturing in Ethiopia were either foreign-owned or foreign-managed, or both; these firms, moreover, accounted for 75 per cent of the value added by the sample firms and for 57 per cent of the value added in the whole of manufacturing in Ethiopia. Second, only ten of the 51 firms were wholly Ethiopian and of these eight were in the public sector. In view of the particular manufacturing branches in which they operated these

firms had substantially lower ratios of value added to paid-up capital than firms with foreign participation. When these Ethiopian firms were weighted in terms of their share in paid-up capital they accounted for 30 per cent, although their share in value added was only 15 per cent. Thus, measures of foreign control based on paid-up capital alone tended to exaggerate the importance of wholly Ethiopian enterprises in modern manufacturing.

The analysis suggests that the manufacturing sector in Ethiopia displayed some of the characteristics of an enclave within the Ethiopian economy as a whole.[23] To begin with, foreign ownership of technology and management led to foreign-controlled firms securing a dominant position in the sector. Domestic enterprises were thus confined to a relatively minor role and their growth, both in terms of numbers of firms and share of output, was accordingly inhibited. Not only was the relationship between the foreign enclave and the remainder of the sector marked by the characteristics described, but the enclave itself had some significant features which are discussed in the following paragraphs.

In Ethiopia both the structure of demand, which was biased towards relatively simpler goods, and the size of demand, which was not sufficient to support large-scale production, together determined the types of technology that were transferred. Such technology was already widely dispersed in the world economy before its introduction into Ethiopia and, being of an older vintage, tended to be non-proprietary and easily transmissible. Due to these characteristics, the technology and managerial skills could be obtained from a wide variety of sources.

TABLE 4

OWNERSHIP OF EQUITY, BY ORIGIN OF EQUITY HOLDER, IN A SAMPLE OF FIRMS, 1969/1970

Origin of equity holder	Per cent of equity holding		Total	Value Added	Per cent share in value added
	51% or over (1)	50% or less (2)	(3)	(4)	(5)
	Number of firms			*E $ '000*	*Per cent*
United States	2	—	2		
United Kingdom	2	—	2	2 054	2
Netherlands	2	—	2	37 406[a]	28
French	2	—	2	4 625	3
Scandinavian	2	—	2	564	
Israeli	1	1	2	755[a]	1
Japanese	1	3	4	25 515[a]	19
Indian (Asian-African)	2	2	4	11 996[b]	9
Italian	8[c]	3[d]	11	36 823	28
Greek	2[d]	—	2	4 408	3
Lebanese	2[e]	—	2	1 040	1
Mixed	3	—	3	8 226	6
Sample total	29	9	38	133 412	100

Source: Replies to questionnaire and data obtained from the *Annual Survey of Manufacturing Industry 1969/70*, Ministry of Commerce, Industry and Tourism.

Notes: (a) data for one firm not available.
(b) data for two firms not available.
(c) at least five firms include equity-holding by indigenous expatriates.
(d) all owned by indigenous expatriates.
(e) one firm owned by indigenous expatriate.

Table 4 shows the diversity of the countries of origin of those firms which supplied capital, technology and management, or through which these elements were transmitted. In all, 11 sources of technology and management can be identified. However, of these only 4 (Netherlands, Japanese, Indian and Italian) together accounted for 84 per cent of the sample value added. Thus those industrial countries

which are usually found to be major suppliers of capital and technology in other developing countries, i.e. United States, United Kingdom, France, the Federal Republic of Germany and Switzerland, played at most only a minor role in the transfer of technology to Ethiopia through foreign investment. The 38 foreign-controlled firms mentioned in the table were not all subsidiaries or affiliates of foreign corporations with headquarters abroad. At least 11 of the 38 were owned and managed by expatriates resident in Ethiopia, i.e. Italians, Greeks, and Lebanese. Such firms differed from foreign subsidiaries in that management decisions were taken in Ethiopia, only a small proportion of their operation was outside Ethiopia, and the surplus generated by their operations tended to be reinvested in Ethiopia.

There appear to be some clear patterns in the kinds of production in which the firms from various countries concentrated their activities and in the importance of majority ownership of equity for each of these firms. First, the firms from the industrialized countries (excluding Italy and Japan) tended to concentrate in primary processing rather than import-substituting activities, and in all cases these firms had majority foreign control. Second, the firms from India, Israel, Italy (excluding expatriate-owned firms) and Japan tended to concentrate on import-substituting activities, especially textiles. In contrast to the firms in the preceding group, these firms were not all predominantly foreign owned, e.g. in 6 of the 10 firms in the sample which were of Israeli, Japanese and Indian origin the foreign equity holding was 50 per cent or less. Third, so far as expatriate-owned firms were concerned, their principal activities were in textiles, primary processing and chemicals, and in most cases indigenous expatriates retained the majority interest.

B. Contractual Arrangements for the Transfer of Technology

There were two reasons why a considerable proportion of technology imports in Ethiopia was associated with foreign investment: first, there were few domestic firms in a position to negotiate suitable terms and conditions for utilizing foreign technology under licence; and second, technology suppliers acquired equity holdings as a complement to (and sometimes a substitute for) other forms of control excercised directly or indirectly through contractual arrangements. At the same time, and contrary to observations concerning other developing countries,[24] licensing contracts for the lease of patented know-how have been of relatively little significance.

(i) *Management Contracts* The dominant type of arrangement was the management contract. Thus, of the 51 major firms in Ethiopian manufacturing, 28 had contractual links of one sort or another with their parent company or other enterprises located abroad and of these 18 had management contracts. Moreover, the Ethiopian case differed from that of countries hitherto studied in regard to the transfer of technology in that only a few firms from the 'well-known' countries of origin, i.e. USA, UK, Federal Germany, France and Switzerland, entered into management agreements—in Ethiopia the principal sources were India and Japan.

The considerations influencing the decisions of a management contractor tend to differ significantly from those influencing a licensor in two respects. First, by its very nature, the work of the management contractor involves him in the day-to-day decisions of the firm in which his services are being used. Secondly, in general, the management contractor exercises control over a wider spectrum of decisions taken at the firm level.

The terms and conditions found in 20 management contracts were examined, and showed two main features. First, the large number of clauses connected with the human skill factor in production, i.e. clauses concerned with the degree of control exercised by management, clauses giving the management contractor the right to appoint the managing director, clauses affecting the employment of technical and professional staff, and clauses regarding training. Within the clauses concerning control areas in management, conditions affecting control of overall management were the most prevalent, occurring in 17 of the 20 contracts. Second, the tie-in clauses in these contracts referred mainly to tied

purchases of intermediate inputs, particularly of machinery. Explicit tie-in clauses regarding the purchase of intermediate inputs seem to have occurred mainly in contracts involving Japanese firms.

Many of the management contractors in Ethiopia appear to have maintained their initial bargaining advantages through contracts of long duration. Of the 12 contracts on which information was available, only one contract was for three years; in contrast, nine were for ten years or more. In fact, in two cases contractors who had entered into long contracts in the first place negotiated their contracts before the terminal date for further long periods to perpetuate their control over management decisions in exchange for some concessions on training, sales and imports. None of the contractors seemed to show any interest in training Ethiopians to take over such key managerial and technical functions.

(ii) *Licence Contracts* Only 6 of the sample of 51 Ethiopian firms had acquired technology under licence up to 1970/1971 and the contracts themselves were few in number and of past 1958 origin. All of them related to import-substituting industries, i.e. soft drinks, paints and varnishes, textiles and pharmaceuticals. There were two franchise agreements involving the lease of brand names of internationally known products (Pepsi-Cola and Coca-Cola). The brand name owners did not, in either case, take any share of the equity nor did they stipulate any other specific form of payment—their main interest was to set up outlets for their branded inputs whose prices were fixed in relation to the sales price of the final product in the Ethiopian market rather than on a cost price basis.

There were two cases of licence agreements in which the technology transferred, though simple was packaged in nature[25] and in which the comparative advantage of the licensor seemed to rest on the differentiated nature of their products (paints). Their main concern appeared to be the retention of control over the Ethiopian market which they had previously served through experts and which had been threatened with competition from domestic and foreign firms as a result of the imposition of import tariffs or similar products by the Ethiopian Government. Consequently, this control was acquired directly through the acquisition of a majority equity shareholding in licensee firms and indirectly through licence agreements which formalized the managerial and marketing control of the licensors over the affiliates as well as ensured the tying of intermediate inputs. Licence agreements were employed also to justify the charging of royalties (royalty rate of $2\frac{1}{2}$ per cent of net sales after tax) for financing R & D expenditure by the parent company.[26]

(iii) *Role of Foreign Machine Suppliers* Research was undertaken on 12 firms which were established at the initiative of, or in collaboration with, foreign machine suppliers. The 12 firms included four from the sample of 51 major firms: the remaining ones were selected on a random basis. The key to an understanding of the performance of these firms is that the main interest of the foreign supplier was in the sale of machinery and equipment. It was a once-and-for-all interest rather than a desire to establish a longer term contractual relationship with enterprises in Ethiopia. The machinery seller therefore had an interest in encouraging the setting up of operations and in influencing the purchasing decision. He had no interest in any subsequent control of the firm, save for the period it took to repay suppliers' credits (if any). In these firms, therefore, foreign equity played a much smaller role than foreign aid. Returns were realized more in the form of the sale of the equipment than in the form of a regular flow of dividends, technical fees or profitable transfer prices.

In 6 of the 12 firms the Ethiopian Government held 100 per cent of the equity. In 3 others equity was held by Ethiopian private or public interests. In the remaining 3 there was also some Ethiopian participation, but in conjunction with a participation by the foreign machinery supplier. With the exception of the last 3, it was the Ethiopian equity which was at stake. The fact that the capital was Ethiopian does not imply that Ethiopians—or particularly the Ethiopian Government—had provided the capital. In at least 10 of the cases all or part of the government's contribution was funded by foreign public funds. What in effect this meant, however, was that the government had to fund its equity stake

out of future profits which would be transferred to the aid donors as interest and repayment of principal. The risk that there might be no profits was thus borne by the Ethiopian Government.

There are several features of the performance and operations of these 12 companies which deserve some comment. First, 10 of the companies made continuous losses, and an eleventh recorded losses for most years. Second, these losses occurred at a time when the firms were being managed or technically assisted by foreigners. Eight of the 10 companies received technical direction or advice from the machinery suppliers or, in the case of one enterprise, from the firm responsible for the original feasibility study and for setting up of the plant. Many of them either would not or could not perform these services. One company whose plant began to be established in 1968 was still not operating four years later. Another, which started production in 1970, made such large losses in the first two years that it was unable to cover even its depreciation provisions. In the case of one company, the machinery supplier and turn-key operator went bankrupt in the United States, leaving the Ethiopian company without any technical support. In the case of another company the machine suppliers' management was found, by the Agricultural and Industrial Development Bank of Ethiopia, to be technically inadequate, and proper cost accounting procedures or overall co-ordination had not been established. In these cases, the machine suppliers' main interest seems to have been in selling the machinery with little regard to the subsequent efficiency of its operation. Third, the performance of firms using machinery purchased from foreign machinery suppliers was adversely affected by both the technical and economic suitability of that equipment and by its price. Six of the 12 sample firms bought machinery which either individually or as a set was unsatisfactory and to two of them machinery was sold which they did not really need.

The characteristics of these firms were interrelated. The machinery suppliers secured their outlets by controlling the feasibility study and purchasing contract, starting up the firm which was to buy the machines, or by offering credit to finance the purchase. Their own financial and technical commitments were usually kept to a minimum. Ethiopian capital bore the main financial risk. The technical advisory input often went by default.

C. Market Concentration

Many studies on the transfer of technology to developing countries have tended to focus on two sources of monopoly power, namely equity control and control exercised through clauses occurring in transfer of technology contracts between the supplier enterprise and the user enterprise. This emphasis, however, takes little account of the control that foreign technology suppliers could exercise through arrangements the purpose of which is to secure monopoly power in the market for the final goods. Such arrangements may include government-granted protection in the form of tax and duty reliefs, tariff protection and occasionally, franchises.

Since most technology used in manufacturing in Ethiopia was relatively simple and widely known, the monopoly power which foreign technology suppliers were able to enjoy sprung from government protection, institutional tying, and possibly a certain ignorance on the part of competitors. To put the point differently, foreign firms obtained their monopoly position through bargaining over the totality of items affecting their operations and not merely over the narrower range of issues specific to contracts between technology suppliers and technology users—such bargaining seems to have been quite successful from the point of view of foreign technology suppliers. Among possible reasons for the latter's success it would seem that Ethiopia's position as a least developed country, having a small domestic market and few significant domestically-controlled firms, may have been an important factor.

The analysis of foreign investment given in subsection A above revealed a high concentration of equity ownership in 23 of 34 branches of Ethiopian manufacturing industry (see Table 2). Corresponding to this concentration there was a high degree of production concentration in Ethiopian manufacturing. Table 5 shows the results for 1970 of calculations of industrial concentration for 36 branches of Ethiopian manufacturing at the four-digit level. A quarter of the branches had one firm each accounting for more

than 50 per cent of sectoral output. A number of other sectors were dominated by duopolies. In 33 of the branches the top 3 firms accounted for more than 50 per cent of sectoral output, in 26 of them the proportion rose to over two-thirds, and in 15 cases (more than two-fifths of the branches) the top 3 firms accounted for more than 90 per cent of output in the particular sector. Only in three branches—'grain-milling and baking', 'sawmills', and 'other non-metallic minerals'—did the top 3 firms account for less than half the sector's production.

TABLE 5

CONCENTRATION IN MANUFACTURING INDUSTRY IN ETHIOPIA, 1970

Sector	No. of firms	% of output by top firms			
		1st firm	2nd firm	3rd firm	top 3 firms
Slaughtering	15	29	20	15	63
Dairy products	6	26	23	22	71
Oil and fat	29	27	23	9	59
Grain mill and baking	56	10	9	9	28
Sugar and confectionery	9	71	28	—	99
Other food	8	42	37	9	87
Distilling	9	24	22	18	65
Wine	10	49	21	19	88
Malt liquors	3	62	21	17	100
Soft drinks	16	42	17	9	68
Tobacco	2	79	21	—	100
Spinning, weaving and finishing	18	26	17	9	52
Non-wearing textile	5	43	39	17	99
Knitting	20	68	13	13	94
Wearing textiles	5	51	19	16	87
Tanneries	9	39	20	12	72
Footwear (leather)	15	28	23	13	64
Sawmills	54	23	8	6	37
Furniture	19	35	25	21	81
Printing, publishing	29	27	15	9	51
Pulp and paper	9	66	16	5	87
Basic industrial chemicals	5	60	22	9	91
Paints, varnishes	5	43	24	23	91
Soap, perfumes	5	58	20	12	90
Other chemicals	3	71	25	4	100
Petroleum refining	1	100	—	—	100
Other rubber	5	76	16	4	96
Other plastics	9	41	17	13	71
Glass	4	97	3	1	100
Structural clay	20	29	16	9	54
Cement, lime	6	65	31	2	97
Other non-metallic	18	17	13	11	41
Iron and steel	3	44	35	22	100
Cutlery, hardware	5	45	22	16	84
Structural metal	12	42	17	9	67
Other metal goods	7	—	—	—	—
Electrical goods	3	58	33	9	100

Source: Annual Survey of Manufacturing Industry 1969/70, op. cit.

These figures suffer from the difficulties common to any calculations of degree of concentration. In some cases the sectoral breakdown fails to take account of cross-elasticities of demand between sectors. In some cases the four-digit breakdown is too aggregated. Each of the top two firms in 'other

chemicals', for example, had a strong position in its own sector of the market. Despite these difficulties of quantification, it may be concluded that Ethiopian industry was characterized by a high degree of concentration in most branches and in a country with so narrow an industrial base as Ethiopia the high degree of concentration in domestic production was not surprising.

A priori reasoning would suggest that the strongest competition would be likely to have come not so much from domestic firms as from foreign firms wishing either to set up production facilities in the country or to supply the market through exports. To ensure against this, most of the leading importers of foreign technology in Ethiopia benefitted not only from substantial nominal rates of protection but also from high effective rates of protection (that is, protection of the process of production rather than the product, protection of the Ethiopian value added rather than the final product price). Calculations made of the effective rate of protection for 17 products show that just under half of these products were sheltered by effective rates of protection of more than 100 per cent and 5 of them by rates of over 500 per cent.

There was a strong correlation between those industrial branches where effective rates of protection were very high and the branches dominated by subsidiaries of foreign firms. This was true of synthetic textiles, cotton yarn, galvanized iron sheets, cotton cloth, and soaps.

It has often been pointed out that both nominal and effective rates of protection in Ethiopia were non-uniform. Industries with diverse rates of protection were found in the same sector. There was no general tendency for final goods to benefit from higher rates of protection than intermediate or capital goods. For these reasons, the tariff structure has been referred to as arbitrary. The data suggest that in one respect it was not arbitrary; most of the large firms producing import substitutes, particularly the foreign owned ones, succeeded in securing for their products high rates of protection. As one official report put it: 'It may be conjectured that the degree of protection obtained by the companies was more a result of the individual company bargaining strength and abilities than of any rational policy.'[27]

Some individual cases lend support to this view of tariff protection. Leading companies in the sugar industry, cotton textiles, synthetic textiles, drugs, and iron and steel all secured 'necessary protection'. In the iron and steel industry, for example, a prospective foreign investor made it clear that its home government would require a letter of intent from the Ethiopian Government promising to give protection and encouragement to the industry as soon as production started. The Ethiopian Government agreed, and evidently interpreted this promise as an undertaking to grant a substantial increase in the nominal tariff. The firm, arguing some time before the concept of 'effective rate' of protection became common, insisted that the protection should yield a net difference of 40 per cent between the duty on the imported intermediate and that on the imported final product. Similarly, in one case arising in the chemical industry, the government was persuaded to raise and maintain import duties on competitive products or on the raw materials used in the manufacture of such competitive products at a rate of 15 per cent above the existing level as well as maintaining the current rates of transaction and municipal taxes on such products. The government also agreed to purchase the firm's local products as long as their price did not exceed by more than 15 per cent the landed price of competing products.

In some cases where the domestic market was large (like that for cotton textiles), where scale economies were slight and/or where the marginal cost of developing a plan in Ethiopia was small, there was a genuine possibility that new firms would enter production. In these cases, some firms sought guarantees from the government, in the form of franchise agreements, against the entry of new firms. HVA (Ethiopia) was granted an exclusive franchise for sugar in 1951, though the government attempted to break this agreement only a year after its conclusion. In the chemical industry, the firm which successfully applied for a concession was promised that in the unlikely event of the government's deciding to establish further facilities in the same field the concessionnaire would have priority.

IV

In this section we attempt an estimate of the foreign exchange costs to the Ethiopian economy of the supply of foreign technology, bearing in mind that much of this technology was closely associated with foreign direct investment.

Data concerning the profitability of foreign-controlled firms in Ethiopia were not generally available. However, figures have been published which made it possible to calculate estimated average earnings on fixed assets for all firms in the sector.[28] It appeared that average pre-tax returns were approximately 16 per cent in 1969. There could be two objections to using this figure as an approximation to the reported returns actually received by foreign-controlled firms in the manufacturing sector in Ethiopia. On the one hand, taxation would reduce the net rate of reported returns and, for this reason, the 16 per cent might be regarded as an overestimate. On the other hand, the 16 per cent estimate was an average for the manufacturing sector as a whole and therefore included Ethiopian as well as foreign-controlled firms. The evidence presented earlier would suggest that foreign firms, in view of their concentration in the more dynamic branches of industry and the high protection and generous benefits they obtained, probably earned higher returns than the average for the sector. For the purpose of calculations in the remainder of this chapter it is assumed that these two factors—the one tending to result in overestimates of reported post-tax returns and the other tending to result in underestimates of such returns—approximately cancel each other out, with the consequence that the reported figure may be taken as a starting point for calculations of effective returns to foreign technology suppliers.

There are some reasons, however, why the reported returns cannot be used as an indication of the effective returns obtained by the foreign technology suppliers. The reasons for this are discussed in the following paragraphs.

A. Valuation of Capital

There were two main ways in which capital committed by foreign enterprises was overvalued. First, in some cases foreign suppliers overstated the value of capital committed as equity and intermediate inputs (e.g. spare parts) by overpricing technology initially supplied to the new operation. The values assigned to various items of technology could have served as a contribution to equity (investment in kind) or could have been exchanged against equity capital contributed in cash form by the technology supplier. In either case the effect would have been the same.

Although several problems are involved in the estimation of initial overpricing, the evidence that has been collected provides a tentative basis for assessing the extent to which such pricing practices occurred in Ethiopia. The discussion showed that there were 28 major firms in Ethiopia which had contractual arrangements of one kind or another with foreign technology suppliers (including parent firms), and one or two firms which were wholly-owned subsidiaries of foreign firms but did not have formal contracts. In the majority of these cases, trade in machinery was either an 'intra-firm' flow or was tied to specific sources and could, in principle, have been subject to overpricing.

The Ethiopian Government did not have an elaborate system for monitoring input prices of this sort, nor was there a general study of the subject. However, different government departments have had occasion to check initial input values in the course of investigating individual firms. In one of the cases examined by the auditors, it was found that the invoices in respect of the plant and equipment were not received from the manufacturer but from the foreign parent firm. Given these circumstances the auditors stated that they were not satisfied as to the accuracy of the values attached to the plant and machinery. In another case, the auditors found that intermediates supplied by the parent were on several occasions more expensive than identical items received from other suppliers. They also found that unit prices appearing in the parent company's invoices were comparatively higher than those shown on invoices sent to the company direct from the manufacturers. In one case, which the auditors

followed up by way of a test, the discrepancy between prices charged by the parent and those charged by other firms was 57 per cent.

Second, in some instances the value of capital equipment of foreign branches or subsidiaries was inflated in order to provide a source of nominal funds for increases in share capital. In one case, an independent valuation of the subsidiary's capital expenditure estimated that, at the time when the foreign owned branch was transferred into a subsidiary, such capital expenditure had been inflated by about 43 per cent as compared to a similar plant located elsewhere. Another company in the sample appeared to have revalued some of its fixed assets upwards by more than 30 times without any evident justification.

B. Transfer Pricing in Trade in Commodities

Transfer pricing as a means of hidden profit repatriation was of two kinds. In some cases exports to parent or sister companies overseas were under-invoiced and/or intra-firm imports over-invoiced.

As far as the first was concerned there was evidence of under-invoicing for a few companies. One of these had aroused the government's interest because, after a decade of losses amounting to nearly 14 times the original equity contribution, the company wanted to expand its operations. The losses appeared improbable for the additional reason that the price of the commodity in question had shown a steady upward trend in the world market. Accordingly, a study was undertaken which found that, on conservative assumptions, the company was undervaluing its exports by 150 per cent. If the profit/loss figures had been adjusted accordingly, an accumulated loss of 14 times the share capital would have been transformed into a profit of 50 times the share capital in five years. Similar calculations for another exporter of processed primary products suggested an underpricing of 56 per cent. Goods were shipped to the parent at prices which had been set by the leading buyers of the commodity, all of whom were located in one European capital. The effect of the overcharging was to raise stated profits for two years in question by a factor of 39.[29] A third company produced a commodity sold in the domestic and export markets. The domestic export price ratio was 12.5:1, a difference which one official felt could only partly be explained by transport costs within Ethiopia. A similar discrepancy between domestic and export prices was noted in the case of the other exporter of the same commodity. A fifth company, wholly foreign owned, began by exporting its commodity to independent producers, and then switched to supplying its mother company. It appeared that the price of the export fell after the export became the intra-firm flow. The company argued that the lower price was the result of the export being of lower quality than had originally been thought.

The second form of transfer pricing was that involving over-invoicing of intra-firm intermediate imports. From a sample of 17 firms with significant intermediate imports, it was found that 13 received most, if not all, of their imports from or through an overseas corporate network. A further firm received its imports from a network of United States firms under a long-term contract that appears to have been arranged in conjunction with the entry of the foreign shareholder. In at least one other case there was indirect evidence that imports were intra-corporate. Thus, for most foreign equity holders in firms active in import substituting industries, there was the possibility of adjusting invoices relating to intra-firm transfers.

This information suggests that there were indeed ample opportunities for transferring funds through overpricing of intra-firm imports in Ethiopia. One firm was found by the Ethiopian Government to be over-invoicing inputs identical to those being imported by another foreign competitor by an amount which yielded a 40 per cent return on equity in each of the three years investigated. (The National Bank in fact ordered the foreign company to repatriate this accumulated sum plus 9 per cent interest *per annum* to Ethiopia).[30] Another company's imports were the object of a detailed study by an inter-departmental team. The team found significant overpricing whose effect was to raise the overall 'expatriated return' from E$405 063 (23.6 per cent on equity) to E$963 771 (56.1 per cent), for the year 1970.

TABLE 6

ELEMENTS RELEVANT TO ESTIMATING COSTS OF THE TRANSFER PROCESS

	Estimated foreign exchange cost	
	Assumption I	Assumption II
	E $ million	
(a) Management fees and salaries of expatriate personnel	20	20
(b) Value of declared returns on fixed assets	22	22
(c) Overpricing of intermediate imports	—	32
(d) Overpricing of imported machinery	—	34
Total	42	108

In the light of the preceding discussion Table 6 summarizes estimates regarding four of the elements relevant for an assessment of the cost of foreign technology. Two alternative assumptions regarding overpricing are offered. Assumption I is the extremely conservative one that there was no overpricing of imports of either machinery or intermediate goods. The available evidence, limited though it may be, nevertheless suggests that overpricing did occur and may have been substantial. To take account of this factor alternative cost calculations were carried out according to assumption II, which supposes that there was overpricing of 50 per cent on the inputs, by the manufacturing sector, of machinery and intermediate goods. In the light of the evidence given earlier, assumption II would also appear to be a moderate one.

According to assumption I the estimated foreign exchange cost to Ethiopia in 1969/70 was approximately E$42 million. Since this assumption ignores the possibility of overpricing, the cost has two components only, i.e. the management fees and salaries of expatriate personnel (E$20 million) and the estimated value of declared returns going to foreigners on their equity holding in the manufacturing sector (E$22 million). The latter figure was derived by applying the 16 per cent rate of return to the value of paid-up capital held by foreigners in the manufacturing sector in 1969/70 (see Table 2 above).

If it is now assumed (assumption II) that imports by the manufacturing sector of both capital and intermediate goods were overpriced by 50 per cent, then the figure of E$ 42 million given in the preceding paragraph would represent only a part of total costs. As regards, first, the overpricing of imports and intermediate goods, the *Annual Survey of Manufacturing Industry, 1969/70* indicated that the value of such imports by the manufacturing sector in that year was E$ 96 million. On the assumption that these imports were overpriced by 50 per cent, the estimated foreign exchange cost, calculated by this procedure, comes to E$ 32 million. The calculation of overpricing of capital goods imports by the manufacturing sector was made in a similar manner and yielded an estimated cost through overpricing of E$ 34 million.[31] Consequently, according to assumption II foreign exchange costs were equal to E$ 108 million. This figure was approximately five times the value of declared returns (item (b) in Table 6) and more than two and one half times declared returns plus management fees (item (a) of the table).

The figure of E$ 108 million gives a broad order of magnitude of the foreign exchange cost of technology imported by the manufacturing sector in Ethiopia. However, this figure is likely to err on the side of understimating total costs for the following reasons. First, no account whatsoever has been taken of the under-invoicing of exports by the foreign-controlled firms in the manufacturing sector although some firms in Ethiopia engaged in such under-invoicing. Second, no allowance has been made for either royalty payments of lump-sum payments under turn-key agreements. And lastly, part of the payments for technology is sometimes included in interest repayments to parent companies, and this form of payment has likewise not been taken into account.

The significance of the cost estimates must be assessed in relation to the main features of the Ethiopian

economy. Three features seem particularly relevant here: for 1970, they were (i) GDP amounting to E$ 3861 million; (ii) net value added in modern manufacturing equal to E$ 212 million; and (iii) annual export proceeds of E$ 305 million. Thus, the costs involved in the transfer process amounted to some 2.8 per cent of GDP, to over one-third of export proceeds and to a little more than half the net value added in the modern manufacturing sector. Comparable figures for developing countries as a group have been estimated to be—again with many qualifications—under 1 per cent of their combined GDP and around 4 to 5 per cent of their export proceeds.[32] The sharp contrast between Ethiopia—the largest of the least developed countries—and the developing countries as a group serves to underline the severity of the burden of costs of the transfer process on least developed countries.

Footnotes

1 The only ones with which we are familiar are Stephen Guisinger, 'Tariffs and Trade Policies in Ethiopian Manufacturing', mimeographed, Ministry of Commerce, Industry and Tourism, August 1972; and Lars Bondestam, 'Notes on Foreign Investments in Ethiopia', published in Carl Windstrand (ed.), *Multinational Firms in Africa*, Uppsala 1975, pp. 125–142.

2 The four countries in question were Burundi (US $ 54), Malawi (US $ 64), Somalia (US $ 62) and Upper Volta (US $ 47). See UNCTAD, *Handbook of International Trade and Development Statistics*, 1972 (United Nations publication, Sales Number: E/F. 72.II,D.3, Table 6.1).

3 ibid., Table 6.8.

4 In the three decades since the end of occupation Italian expatriates have been an important entrepreneurial class in Ethiopia.

5 United States Agency for International Development (USAID), *US Overseas Loans and Grants and Assistance from International Organizations 1964–1972*, May 1973, page 93.

6 ibid. Table J. 7, page 137.

7 There were six sources of capital which influenced the process of growth in Ethiopia: (i) the Central Government; (ii) public financial institutions, notably the Development Bank of Ethiopia and the Ethiopia Investment Corporation; (iii) public corporations; (iv) commercial bank credit; (v) foreign direct investment, i.e. reported long-term private capital inflows plus the reported value of reinvested earnings by major foreign enterprises (the latter as so defined by the National Bank of Ethiopia); and (vi) reported reinvested earnings and reported allowances for depreciation by firms in the private sector not included in (v) above. The share of foreign funds in net monetary investment, in the Second plan period (1963–1967) was expected to be 45 per cent (see Imperial Ethiopian Government, *Second Five Year Development Plan, 1963–1967*, Addis Ababa, 1962, p. 99). This figure underestimated the effective foreign contribution because part of the foreign public funds was used to finance current expenditure by the Ethiopian Government, thereby releasing monetary resources for the Government capital account.

8 See *Statistical Abstracts*, Central Statistical Office, Addis Ababa, issues from 1963 to 1970.

9 Foreign economic agents may be regarded as including transnational firms and other types of foreign technology suppliers operating in Ethiopia, expatriate groups resident in Ethiopia, and foreign governments and international financial agencies to the extent that they give loans to Ethiopia.

10 Ethiopian economic agents may be regarded as including the Ethiopian Government, Ethiopian capitalists and Ethiopian labour.

11 In 1950 industrial enterprises did not number more than 107; most of these were small in size and almost all were owned by expatriates settled in Ethiopia. The total amount of investment in manufacturing was not more than Eth. £5 million, or probably less than one-fifth of the value of assets in the Ethiopian economy; almost all the technical and administrative staff was foreign, and private foreign investment, though negligible, was mainly concentrated in trading activities. See *Ethiopia Observer*, vol. X, no. 5, 1966.

12 This treatment was reflected in an important contract that was signed between a Netherlands sugar processing firm and the Ministry of Finance at about the time when the Notice was issued by that same Ministry. Furthermore, an earlier draft of the Notice had contained the following clause: 'The Government will not, as a general rule, impose participation of Ethiopian capital investment on new enterprises established with foreign capital investment according to the nature of the enterprise and the extent of foreign capital. Nevertheless, it will be the policy of the Government to require participation of Ethiopian capital in suitable industries, usefully employing the capital of the country. However, such local investment shall, in most instances, represent a minority interest.' Quoted in Krishna Ahooja, *Ethiopia Observer*, vol. X, no. 5, 1966, page 254. The author implies that the subsequent deletion of this clause from the final text of the Notice was the result of a difference of approach between the Ministry of Finance, which was responsible for issuing the Foreign Investment Notice, and the Ministry of Commerce and Industry, which was responsible for industrial policy as a whole.

13 In the First Plan, the pattern of investment was clearly concentrated upon infrastructural development and little emphasis was placed on modern manufacturing and agriculture.

14 This freedom was reinforced by the absence of any effective measures preventing foreign technology suppliers from increasing their shareholding through the purchase of local equity holding.

15 Given the industrial structure of Ethiopia the relevant aggregate for policy analysis is often the firm rather than an industry.

16 See Guisinger, op. cit.

17 See Krishna Ahooja, *Ethiopia Observer*, vol. X, no. 5, 1966.

18 See ILO, 'Report of the Exploratory Employment Policy Mission to Ethiopia—by Mark Blaug' (mimeograph), pages 78–80.

19 In contrast, by 1965 about half the countries in Africa (14 out of 31) had developed a relatively more integrated approach by enacting, in their investment laws, specific provisions which regulated foreign employment in managerial and technical positions. Some of them obliged nationals to be employed and trained for such positions, others set upper limits for foreign employment in specific skills, and certain others were voluntaristic in nature. For details, see Krishna Ahooja, 'Investment Legislation in Africa', *Journal of World Trade Law*, vol. 2, no. 5, Sept:Oct 1968.

20 Based on interview evidence. This fact is also mentioned in IBRD: *Economic Growth and Prospects in Ethiopia*, volume II, 22 September 1970.

21 For further details see Peter O'Brien and Rumman Faruqi, 'Industrial Property in a Poor Country: The Case of Ethiopia', mimeographed.

22 In Ethiopia the corporate manufacturing sector and small-scale industries accounted for 5 per cent of GDP each in 1969/70. However, little was known of the state and composition of small-scale industries. The latter were usually located in households and small workshops employing fewer than five persons and depending mostly on own or family labour. Manual skills rather than machines seemed to have played the predominant role in these establishments. Almost in their totality they have remained isolated from foreign technology or capital. With respect to the corporate manufacturing sector, the *Annual Survey of Manufacturing Industry, 1969/70*, covered 479 establishments. Like the small-scale industries, most of these enterprises were also small or very small in size, and employed simple technology which in most cases did not necessitate any formal contractual arrangements with technology suppliers. Furthermore, most of them were known to have been owned and operated by the foreign residents in Ethiopia.

23 An enclave economy, as generally understood, is one in which an important sector of the economy has only a tenuous link with the rest. The reasons for the lack of integration are: (i) foreign control of the sector in question; (ii) expatriation of the surplus generated within the domestic economy; (iii) export of most of the output of the sectors; (iv) use of low-wage domestic labour and land obtained at very low cost. It is this concept which has been extensively employed in the analysis of plantation economies and of economies where extractive industries were important. (See H. Myint, 'The gains from trade and the backward countries', *Review of Economic Studies*, vol. 22, June 1955, pages 129–142.) The sense in which the term is used here differs from the above in that it refers to the manufacturing sector and in Ethiopia little of the manufacturing output is exported.

24 For details see the UNCTAD Study *Major Issues Arising from the Transfer of Technology to Developing Countries*, United Nations, New York, 1975.

25 The package consisted of patented products and processes, manufacturing instructions, technical advice, new inventions, raw materials and the use of their brand names.

26 'Royalty proceeds make it possible to build up R & D laboratories of a size enabling us to compete with the large foreign paint groups.' Extract from report of the chairman of the board to the shareholders at the Annual General Meeting of Sadolia Paints Ltd., March 1970.

27 IBRD, *Economic Growth and Prospects in Ethiopia*, vol. II, 22 September 1970, Section on Manufacturing Industry, page 16.

28 See *Statistical Abstract*, 1970, page 55.

29 The methods involved in the two calculations were not the same. In the first, FAO figures for export prices for that part of Africa were taken as a criterion, and an adjustment made for quality differences. In the second, there was no satisfactory world price for comparison. The price of the final commodity as sold in developed countries was used and the excess profit was distributed among different operations according to their share in total costs. The parent company had argued that all excess profit should go to its sales department, but this seemed unsatisfactory since the Ethiopian subsidiary had already been charged a fee for the use of a product's brand name.

30 The firm whose imports were assumed 'normal' for this calculation was itself under suspicion for overpricing.

31 Since imports of machinery by the manufacturing sector were not shown separately, it was assumed that the ratio of such imports to total imports of capital equipment in the Ethiopian economy was the same as the ratio for intermediate goods imports, i.e. 72 per cent.

32 See *Proceedings of the United Nations Conference on Trade and Development, Third Session*, vol. III, *Financing and Invisibles*, United Nations publication, Sales No. E.73.II.D.6, page 110; document TD/106, 'Transfer of technology: report by the UNCTAD secretariat'; and document TD/B/AC.11/10/Rev.1.

Regional Integration in Africa: Lessons from the Past and Prospects for the Future

Abdul Aziz Jalloh*

1. Introduction

The case for unity and cooperation among African states has been strongly made.[1] According to Nkrumah, 'If we are to remain free, if we are to enjoy the full benefits of Africa's rich resources, we must unite to plan for our total defence and the full exploitation of our material and human means, in the full interests of all our peoples. "To go it alone" will limit our horizons, curtail our expectations, and threaten our liberty.'[2] Green and Seidman added the observation that

> 'No African state is economically large enough to construct a modern economy alone. Africa as a whole has the resources for industrialization, but it is split among more than forty African territories. Africa as a whole could provide markets able to support large-scale efficient industrial complexes; no single African state nor existing sub-regional economic union can do so. African states cannot establish large-scale productive complexes stimulating demand throughout the economy as poles of rapid economic growth because their markets are far too small. . . .
>
> The only way to achieve the economic reconstruction and development essential to fulfil the aspirations, needs and demands of the peoples of Africa is through a sustained shift to continental planning, so as to unite increasingly the resources, markets and capital of Africa in a single substantial economic unit.'[3]

More recently, Green has noted that 'Economic size is crucial to both political and economic power to bargain and to enforce decision', and that the quickest way to acquire a substantial increase in economic size is through economic integration. Economic cooperation is also 'a means of increasing both effective decision making and implementary capacity' with the result that 'the ability of each state to exercise rights of sovereignty and ownership may well be greater after their partial merger than when exercised separately but with weaker power and capacity backing.' These results, however, hold true only when the cooperating units are roughly equal in economic size and attempt something more than a *laissez-faire* form of cooperation.[4]

In addition to the motives of security, autonomy, power and economic development, the case for African unity has also been made on the following grounds: the social and cultural unity of Africa; the unity and community of fate that derives from having been exploited by Western imperialism; a way of avoiding conflicts among African states; unity is the wave of the future and even the Europeans are doing it.

By now, the above grounds for African unity are generally accepted even though some may quibble with some of the arguments presented above. Serious disagreements are likely to be encountered over the Green and Seidman assertion that no African state or sub-region could construct a modern economy as well as over Green's contention that a *laissez-faire* approach to economic cooperation is unlikely to produce the desired results.

In the past, disagreements also existed between advocates of a federalist approach entailing instant political unification and partisans of a gradual and incremental strategy of African political unity by way of economic cooperation and integration. At present, some contend that African cooperation and unity is not adversely affected and may even be facilitated by maintaining and even strengthening

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the prevailing close ties with the developed market economies while others claim that African unity requires and should aim at eliminating the dependency of African states on the global system. Finally, there are disagreements over the time period entailed in integration. Some measure the transitional phase in terms of decades, if not generations, while others think of achieving the desired outcome within a much shorter period.

Thus it is clear from the above that in spite of the apparent general consensus on the need and desirability of African unity, serious disagreement exists on the following points:

(1) level of unification—continental or regional;
(2) strategy of unification—federal or incremental;
(3) scope of cooperation as measured by number and importance of issue areas—broad or narrow;
(4) period of transition to full and effective unification—short or long;
(5) condition and consequence of unification on relations with the international system—autonomy or dependence.

Finally, one should note a sixth area of disagreement, that of whether unification requires and should lead to socialism or capitalism.

Not surprisingly, these areas of disagreement are familiar to those who have encountered them in Western Europe. Further, these disagreements over the ultimate form and goals of unification remain dysfunctional in West Europe[5], and they undoubtedly have the same consequences in Africa. Nevertheless, Western Europe has achieved a much greater degree of integration than Africa or any of its sub-regions.[6] Thus our task is to go beyond the above disagreements on form and outcomes of integration and analyse the obstacles to regional integration in Africa. But before we do this, certain conceptual clarifications are necessary.

2. Concepts of Regional Integration

In the above sections, the terms cooperation and integration were used interchangeably. In fact, however, they refer to different things. 'Regional cooperation is a vague term covering any interstate activity with less than universal participation designed to meet some commonly experienced need.' While 'The study of regional integration is concerned with explaining how and why states cease to be wholly sovereign, how and why they voluntarily mingle, merge, and mix with their neighbours so as to lose the factual attributes of sovereignty while acquiring new techniques for resolving conflict between themselves.'[7] Thus whereas the concept of regional integration implies a process that leads to a qualitative change in the relationships among the participating states with respect to their former sovereignty, no such qualitative change is implied in the concept of regional cooperation. A widely used measure of progress towards regional integration is the degree of increase in the scope and level of authority, with scope referring to the number of issue areas collectively dealt with and authority referring to the degree of jurisdiction possessed by regional bodies for making and implementing decisions in these areas. Continued increases in both scope and level of authority will eventually result in the emergence of a new political community at the regional level.[8]

It must be mentioned immediately that the full meaning of a concept cannot be fully understood in isolation from the theory in which it is embedded. The above definition of regional integration is the one more or less explicitly employed by most writers who subscribe to the neofunctional theory of regional integration even though there are differences in nuance and wording among them. This definition is also, in its essence, subscribed to by other theories of regional integration, such as the communications theory, even though this theory focuses more on the process of communication than on the process of political amalgamation. Further, this definition, regional integration and the theories in which they are

embedded were formulated mostly on the basis of the regional integration experience in Western Europe. Inevitably therefore, this definition of regional integration (and, as we shall show later, the theory in which it is located) reflects the dominant political orientation of the context from which it was derived. This political orientation is that of capitalism.

This bias in the definition is revealed not as much by what is included, but by what is left out. Nothing in the definition tells us who is going to control the process of decision-making, on the basis of which political values decisions are to be made, and which interests are going to be served by the decisions taken. And these are certainly the more fundamental questions of politics, far more salient than the degree or form of political integration as measured by the scope and level of joint decision-making.

That the question of regional integration under whose control and in whose interest is not asked is not surprising. The answer to this question from the regional integration experience in Western Europe is that the integration process is controlled by and serves the interests of the same groups that control and gain the most from the political processes within each of the states of Western Europe.

The typical style of decision-making associated with the above regional integration pattern is the supranational style. Haas identifies the participants in this supranational decision-making process as high civil servants, the experts working for the regional secretariat, the spokesmen of major national and regional interest groups, and legislature members.[9] Haas notes further that the context of supranational decisions is economic, social, and technical,'. . . the kind of economics and social questions . . . [that are] at the very core of the modern welfare state.'[10] In sum, one is talking about regional integration by and for capitalists or liberal democrats.

Thus, for those subscribing to a socialist philosophy, the above definition of integration is inadequate. This is not to reject the concepts of scope and level, but to indicate that they are inadequate. At a minimum, our definition of regional integration must provide for the participation of the broad masses of the people plus the notion that the process of integration must serve the interests of these broad masses rather than a small minority.

This is a way of saying that the definition of regional integration and the specification of its forms cannot be ideologically neutral; it could not be divorced from the motives that lead people to attempt regional integration, regard it as beneficial, and the results they expect from it. Form cannot be divorced from substance and inherent in the substance is a choice among values. Thus Haas acknowledges the normative factor that underlies studies of regional political integration.[11] Unfortunately, 'what has been missing from all this work [on regional integration] is some attention to the difference it makes whether or not such regional entities are created. As a result, after more than a decade of research we have only a very limited understanding of the costs and benefits of integration.'[12] Our contention is that the political ends we want to have realized as a result of successful regional integration influence our definition of it as well as our manner of studying it. These political ends must therefore be made explicit. Undoubtedly, our proposed definition of regional integration increases the measurement problems but this is no argument for a narrow definition.

3. Implementation of Regional Integration

How much regional integration by either criteria has occurred in Africa? In a survey of attempts at regional integration in Africa in the mid sixties, the conclusion was drawn that 'These studies of economic and political integration between African states have as much or more to say about the weakening of existing ties than about the coming together of those who were apart. Despite the speeches, the conferences, the resolutions, the quest for African Unity seems to approach little nearer to its goal.'[13]

In a survey at the end of the sixties,[14] the present author found that out of eight attempts at instant political union among African states, five met with failure (they are the Union of Central African

Republics, the Mali Federation, the Ghana-Mali Union, the Senegal-Gambia Union, and the attempt at Federation in East Africa in 1963), and only three succeeded (French and Southern Cameroon, British and Italian Somaliland, Tanganyika and Zanzibar).

A study of eight cases of broad attempts at functional cooperation revealed the following as far as changes in scope and level of authority from their respective date of creation to the end of the sixties.

	Scope	Level
U D E A O (1959)	—	—
U D E-U D E A C	0	0
Conseil de l'Entente	—	0
U A M-O C A M (1960)	—	+
U E A C (1968)	—	—
E A C (1961)	0	0
Maghreb Union (1964)	0	0
West African Free Trade Association (1965)	—	—

A plus sign (+) in the above indicates an increase in what is being measured, a zero sign (0) indicates no change, and a minus sign (—) indicates a decrease. Further, it must be noted that the above table measures total net changes over the entire period. Thus if a group of countries drop some issues from their cooperative venture while adding new issues without resulting in a change in the number of issue areas in which they cooperate, the outcome is judged as no change. Also, as noted earlier, scope measures the number of issue areas in which a group of countries pursue joint action and level measures the degree to which decision-making and implementation in these areas have been transferred to regional centres.[15]

From the above, the trend toward disintegration or stagnation with respect to regional integration in Africa during the sixties is sharply revealed. Of the eight cases, three (UDEAO, UEAC, West African Free Trade Association) had negative scores for both scope and level by 1970, these efforts had either formally ceased to exist (the UEAC and West African Free Trade Association) or were moribund (UDEAO). Two others (the Conseil de l'Entente and the UAM-OCAM) experienced decreases in their scope of integration and were tottering on the brink of collapse which was sharply revealed by their loss of members. The remaining three (UDE-UDEAC, EAC, and Maghreb Union), while they suffered neither losses nor gains in either scope or level, did not register gains in these areas either.

Moreover, not only was there stagnation in these efforts, they were also beset with constant and acute crises and conflicts which threatened their collapse. And both UDE-UDEAC and the Maghreb Union suffered losses in members.

More recently, Haas has measured the progress of 30 regional organizations in terms of changes in their scope and level of integration from their time of creation to about the mid seventies. Here are his findings for African regional organizations:[16]

	Scope	Level
O.A.U.	0	0
African Development Bank	+	0
Conseil de l'Entente	—	—
O C A M	—	—
West African Communities	—	0
U D E A C	—	—
E.A.C.	—	—
Maghreb Union	0	0

Note: Haas' measure of scope and level is more elaborate than the one we used earlier. It is not clear what Haas refers to as the West African Communities but it is most likely to be the UDEAO.

Of the above eight regional organizations, six experienced disintegration, two (the O.A.U. and the Maghreb Union) retained their earlier levels of integration, and only the African Development Bank enjoyed a gain in its level of integration. It is noteworthy that the three regional organizations which experienced no change or a gain in their levels of integration are also the ones most recently created. We cannot help but wonder whether in the absence of an increase in the factors favourable to regional integration, these organizations will continue to hold their own and/or do as well as they are now doing. We will subsequently return to what these favourable factors are.

What the above factors and figures point to is what is generally known and accepted by most students of regional political integration in Africa, namely that despite numerous efforts, the declared acceptance of the need for and the advantages of regional integration, the professions of goodwill and all the rest, the trend in Africa is not towards integration but towards disintegration. And this conclusion holds true even when we ignore the question of who controls decision-making, what values are being served, and who gains from these attempts at regional integration. Raising these questions only makes the situation bleaker.

4. Decision Making and Regional Integration

Many African countries have 'authoritarian' political systems. Within these systems, decision-making is in the hands of the political *élite*, the bureaucratic *élite*, individuals and sectors of the commercial and economic *élite*, and foreigners representing the political and economic interests of the developed capitalist states. The broad masses of the people mostly neither participate in nor influence the decision-making process. Inevitably, those controlling the decision-making process promote primarily their own interests and further their own values. In Africa, these interests and values are certainly not socialist but they are not genuinely capitalist either as compared with the nature of these interests and values encountered in developed capitalist societies.

In the developed capitalist economies, the goal is that of creating developed economies owned and controlled by indigenous entrepreneurs. The values are capitalistic and the habits of accumulation, efficiency, effectiveness, productivity, honesty, objectivity, etc. are encouraged. What one finds in Africa for the most part is acquiescence in if not the active promotion of the maintenance of neo-colonialism. Neo-colonialism results in underdevelopment whose essential features are: '(1) unevenness of productivity as between sectors; (2) disarticulation of the economic system; and (3) domination from outside. . . .'[17] The primary beneficiaries of neo-colonialism and underdevelopment are the foreign investors, expatriates employed in the country, some of the indigenous political, bureaucratic and commercial *élite*, and a few of the better paid local force. 'At the bottom of the income scale are the small peasants. . .'[18]. Values are heavily weighted towards conspicuous consumption[19], subjectivism, and personal and parochial ties. The result is the economic, political and social deformation that is so widespread in Africa. The internal characteristics of African states are bound to be reflected at the regional level.

Not much attention has been given to participants in the decision-making process within African regional organizations.[20] It is generally known though that these organizations are intergovernmental in nature with the key decision makers being very high level political *élites* and bureaucrats. Employees of the regional secretariats play a minor role while the various parliamentary bodies hardly participate in the process. The masses of the people are virtually ignored and even organizations representing business interests are not included on a regular and formal basis even though they do make their presence felt individually, indirectly, and informally. Finally, foreign interests are represented both directly and indirectly as well as formally and informally.

What interests do African regional organizations serve and what values do they promote? These

questions could not yet be answered conclusively because of the very limited degree of success, if any, in achieving regional political integration in Africa. It is clear nonetheless that none of them has directly and energetically attacked the problem of underdevelopment, none of them has proclaimed socialism as its goal and in none of them do the states that subscribe to socialism and deal seriously with the problem of underdevelopment constitute a majority of the membership.

The actual working of these organizations provide us with further evidence for the above conclusions. None of the African regional organizations has ever succeeded in creating a complete customs union, much less engage in serious regional planning for industrial and economic development on the basis of self-reliance. Further, the goal of a customs union is seen as a way of attracting foreign direct investments which will only aggravate the degree of underdevelopment. That this in fact did happen is partly suggested by the fact that African countries for the most part have not diversified their sources of direct foreign investment and the former colonial powers retain their hold over the economies of their former colonies. Thus, as of 1967, Britain and France were responsible for 50 per cent or more of all foreign direct private investments in their former African colonies. Further, these foreign investments have resulted in very weak measures of industrial interdependence in the economies of the individual African states as compared with the degrees of interdependence produced in similar sectors in the highly developed capitalist economies.[21] This disarticulation of the economies of the individual African states is reflected in and explains the low degree of economic transactions within African groupings. Thus in the East African Community, regional trade as a percentage of the GDP of the member states decreased from 6.0 per cent in 1965 to 3.5 per cent in 1971 and a similar trend also occurred within UDEAC.

We can therefore conclude that regional organizations in Africa acquiesce if not assist in the perpetuation of neo-colonialism, serve the interests of those who benefit from neo-colonialism, and promote the values associated with neo-colonialism. The outcome cannot be otherwise. The political, economic, and social characteristics of the individual members will inevitably be reflected in their regional endeavours.

Our over-all conclusion is that the current attempts at regional integration in Africa are failures measured either by capitalist standards or by socialist standards. The remainder of this paper will be devoted to explanations of the above outcome and to some prescriptions as to how the outcomes could be altered.

5. Critique of Theories of Regional Integration

Two major theories of regional integration are the communications theory and the neo-functionalist theory initially formulated by Karl Deutsch and Ernest Haas respectively. How useful are these theories in helping us understand attempts at regional integration in Africa?

The fundamental assertion of the communications theory is that intensive patterns of communication among states as measured by trade, mail flows, movement of individuals across state boundaries, mutual attention, etc. is positively correlated with regional integration. The theory however fails to spell out the causal links between communications and regional integration and it is unclear from the theory whether increases in communication cause regional integration or whether increased communication is an outcome or a measure of regional integration.[22] Further, the communications theory does not establish the link between communications and the motives, interests, perceptions, goals and strategies of the actors nor does it pay much attention to the contents of the communications.

At the level of verification, it has been argued that on the basis of data derived from the regional integration attempt in Western Europe, there is no direct correlation between communications and integration. It was found that while increases in communications had halted, political integration was

still taking place.[23] More recently, and again on the basis of evidence from Western Europe, a subscriber to the communications theory has stated that while transaction flows have descriptive utility in the study of regional integration,

> '... it cannot be underlined too strongly that there is a major difference between *describing* regional integration and *explaining* it. More directly to the point, transaction flows reflect regional integration. *But transaction flows do not cause regional integration.* Moreover, since it is not entirely clear, either theoretically or empirically, exactly what causes, accelerates, or reverses transaction flows, there is some risk in using transaction analysis predictively in integration studies.'[24]

In Third World integration efforts, especially in Africa, negative correlations have been found between increases in transactions, especially trade, and regional integration.

To conclude, the communications theory has very serious shortcomings as a theory with explanatory and predictive power. It is formulated at the systemic level and not linked to the concerns of concrete individuals and groups. Finally, serious doubts exist as to the correlation between communications and integration at the descriptive level. The communications theory is therefore unlikely to help us explain the outcomes of attempts at regional political integration in Africa. The causal imagery of the neo-functionalist theory is functionalist. The essence of a functionalist explanation is that 'the *consequences* of some behaviour or social arrangement are essential elements of the causes of that behaviour'. Moreover, 'whenever we find *uniformity of the consequences* of action but *great variety of the behaviour causing those consequences*, a functional explanation in which the consequence serves as a cause is suggested.'[25] Applied to the study of regional integration, regional integration becomes the consequence and the problem in formulating the theory is to specify the positive behaviour engendered by these consequences and the tensions that hinder the automatic attainment of the consequences.[26]

Early statements of the neo-functionalist theory were not as explicitly and rigorously functionalist and neither did national actor strategy occupy as central a role as in Schmitter's formulation. Rather, the search was for an exhaustive list of independent variables that were functional for regional integration.

In the initial formulation of the neo-functionalist theory, Haas limited its applicability to settings with the following features:

> '... (1) an industrialized economy deeply enmeshed in international trade and finance,
> (2) societies in which the masses are fully mobilised politically and tend to channel their aspirations through permanent interest groups and political parties,
> (3) societies in which these groups are habitually led by identifiable elites competing with one another for influence and in disagreement on many basic values,
> (4) societies in which relations among these elites are governed by the traditions and assumption of parliamentary (or presidential) democracy and constitutionalism.'[27]

Shortly thereafter, Haas stipulated two additional variables besides the environmental variable cited above as necessary for successful integration. These were, '(1) Institutionally, supranational bodies most readily lend themselves to accommodation on the basis of upgrading common interests... [and] (2) functionally, specific economic tasks resolving policy differences emerging from previous imperfect compromises on welfare questions but involving large mass interests, are most intimately related to rapid integration....'[28]

Work on the neo-functionalist theory since the above was written has been mainly concerned with disaggregating and specifying the independent variables more rigorously, increasing the list of independent variables through the search for functional equivalents, a clearer specification of the relations among the independent variables and the relations between the independent variables and the dependent variables, and otherwise refining the theory.[29] These changes in the theory have been necessitated by problems encountered in trying to apply the theory to areas other than West Europe (especially Latin America), by stresses within Western European integration not anticipated by or fully explainable with the aid of the theory (the 1965 crisis in the E.E.C. that resulted from the French boycott)[30] and by

criticisms of the neo-functionalist theory.[31]

Still, however, the essential position of the neo-functionalist theory is that successful regional integration is correlated with and caused by the environmental, structural, and functional factors cited above. Thus the neo-functionalist explanation of the failure or slow progress towards regional integration in Africa as compared with West Europe is that these three factors, especially the environmental one, are absent or present to only a minimal degree in Africa. For Africa to be as successful as West Europe, it must become like West Europe economically, socially, and politically. A second approach is to seek functional equivalents of the West European environment, but even this is a second best approach in that few have been found thus far and the positive impact of these equivalents on regional integration have been assessed as not very strong.[32]

In sum, efforts at regional political integration in Africa are likely to yield only negative or at best minimally positive results. But is the picture really that bleak or is there a way out? Such a way out can only emerge from raising serious doubts as to the validity of the explanations and therefore the predictions of the theory. It is to this task of evaluating the validity of the theory that we now turn.

The neo-functionalist theory explains the lack of regional integration in Africa by showing that certain features associated with successful efforts in Western Europe are absent in Africa. This implies that only those features found in Western Europe can promote regional integration. But as noted above, the essence of functionalist logic is that a great variety of behaviour can result in the same consequences. So why limit the factors that are functional for regional integration to those mentioned above and found only in Western Europe? This could only be done if one postulates traits that are functionally indispensable for realizing the stated consequences. But not only would this run counter to the postulate of functionalist explanation mentioned above, but it would also run into the problem that 'the assumption of functional indispensability for a given item is highly questionable on empirical grounds: in all concrete cases of application, there do seem to exist alternatives.'[33]

Not only is it impossible for functionalist theory to make a requisite statement, but even the possibility of making a probabilistic statement is doubtful. '. . . for in most, if not all, concrete cases it would be impossible to specify with any precision the range of alternative behaviour patterns, institutions, customs, or the like that would suffice to meet a given functional prerequisite or need. And even if that range could be characterized, there is no satisfactory method in sight for dividing it into some finite number of cases and assigning a probability to each of these.' [34] The result is that functional analysis by its very nature can offer only a weak explanation which takes the form of stating that any one of a limited list of variables could have produced a given consequence. Otherwise, its explanations will be *ex post facto*.

It is undoubtedly the above weakness in functionalist explanation, which the neo-functionalist theory shares, that accounts for the continuous increase in the list of independent variables in the face of new developments in Western European integration and when attempts are made at applying the theory outside the Western European environment. What the above criticism implies, however, is that the increase in the independent variables will either be endless or else arbitrarily curtailed. Even then the explanation offered will be either trivial or else *ex post facto*.

In the face of such weak explanatory power, functionalist explanation cannot predict which behavioural patterns if any, will emerge to promote the desired consequences and neither could it prescribe, except in an arbitrary manner, a finite list of behavioral patterns that will promote the given end. The neo-functional theory of regional integration is therefore weak as a theory and there are no theoretical grounds for accepting its explanations, predictions or prescriptions. Its explanatory and predictive weakness in the context of Western European integration is an additional proof of this conclusion.

The above is a general critique of the neo-functionalist theory of regional integration. From the general weakness of functionalist explanations, and the manner in which the neo-functionalist theory tries to by-pass these shortcomings (through the imposition of arbitrary limits to their list of indepen-

dent variables derived largely from the Western European context), we arrive at a specific weakness of neo-functionalism as far as explaining developments in Africa. Attempts at regional integration in Africa are not studied on their own terms, with the factors functional and dysfunctional for regional political integration being clearly specified and their causal links to the dependent variable carefully traced. The result is that the exercise is not very convincing.

A final criticism of neo-functionalist theory in the context of Africa is that its explanatory depth is rather shallow. Let us accept for a moment that the factors which neo-functionalists argue are positively correlated with regional political integration are absent in Africa. For the theory to be politically relevant, i.e. for it to be relevant to those who want to change reality, it must provide some explanation as to why the above characteristics are absent and how they could be created. This the theory does not do and this is why it ends on a note of pessimism and futility. But the need is too urgent and we must seek a way out. On what basis can one construct a theoretically sound explanation of regional integration in Africa that is politically relevant and provides hope for the future?

6. Elements of a Theory of Regional Integration in Africa

The basis of our analysis must be the essential characteristics of African states. It is these that explain both the numerous attempts at regional integration and the failure of these efforts. In our view, these essential characteristics are the economic and political underdevelopment of African states as a result of the manner in which they have been integrated into the world political economy. Political and economic underdevelopment generates contradictions for which regional integration is advanced as a solution, but regional integration is impossible in the context of political and economic underdevelopment. This is the fundamental explanation of the outcome of regional integration attempts in Africa, and the rest of this paper will be devoted to the elaboration of the above thesis.

Following Samir Amin, we have already specified the features of economic underdevelopment as those of unevenness of productivity between sectors, disarticulation of the economy, and external domination. The literature on economic underdevelopment is now very extensive and provides us with extensive insights on the consequences of economic underdevelopment. It is both impossible and unnecessary to go over this ground again. What we intend to do is to indicate the salient consequences of economic underdevelopment for regional integration.

We are advancing the concept of political underdevelopment as a substitute for the concept of political development that is widely used and for the concept of political decay advanced by Samuel Huntington.[35] We agree with Huntington that there is little sign that many Third World countries are becoming politically developed in the sense of moving in the direction of creating the kind of political systems found in developed countries of the West. But the term political decay is inaccurate in that it implies that these systems were once developed in the sense indicated above and are now degenerating from that position.

The concept of political underdevelopment is analogous in the political sphere to the concept of economic underdevelopment in the area of economics. It implies that in the same way that integration in the world capitalist economy produced structural defects in the economies of the periphery that are manifested by their economic underdevelopment, the inevitable integration of the peripheries in the political system of world capitalism produced deformed political systems which are summed up by the concept of political underdevelopment. In sum, the crippled economic and political formations found in the periphery have the same roots.[36]

What are the essential traits of political underdevelopment? They are:

(1) the absence of nationhood and a sense of national cohesion;
(2) authoritarian systems lacking the formal liberties found in developed capitalist states; and
(3) inefficient, ineffective, and often unstable governments and bureaucracies.

Most observers will agree that these are some of the salient features of the political systems found in the periphery. Some though, may disagree with us as to the origins and explanations of these deformities. It is unnecessary to proceed with the presentation of the facts and analysis that underlies our conclusion; these will be discussed in a subsequent study. Given the undeniable presence of the above features of political underdevelopment, we can proceed with the indication of their consequences for regional integration.

Uneven production between sectors of the economy implies a widening of the gap in society. One aspect of this problem is the high unemployment level which has been documented throughout the countries of the periphery. The other is the greater inequality in the income distribution in the periphery as compared with the centre.

This means that the broad masses of the people are excluded from effective participation in the economy as both producers and consumers. This low economic mobilization of the broad masses of the people means they are unlikely to be involved in regional integration efforts based on functionalist strategies. At best, therefore, regional integration will be between only a tiny fraction of the population of the states concerned. But even this is unlikely since this tiny high income group is most likely to develop consumption patterns oriented towards the centre countries.

The disarticulation of the economy leads to the lack of communication or exchange among its sectors. It also has the consequence of inhibiting the spread of growth and development from one sector to another. These produce negative effects on regional integration in that in the absence of cohesive national economies one can hardly expect them at the regional level. And it is precisely the existence of substantial economic links and interdependencies that result in possibilities and demands for regional coordination of economic policies. Thus it is not surprising that in contrast to the Western European experience, the creation of customs unions among states of the periphery did not result in any significant increase in economic transactions among them which would have served as a catalyst for more cooperative efforts.

A second consequence of disarticulation of the economy is that by restricting the spread effects of growth and development in one sector, it limits the overall growth and development of the economy. Given the increasing hardships of the broad masses of the people noted above, lack of overall growth and development creates pressures on the *élites* who then initiate regional integration attempts as a way of solving their dilemma. But since the root cause of the disarticulation of the economy—external dependency—is not attacked, these attempts at regional integration fail to produce the desired results. The invariable result of this situation is conflicts among the member states as to who gains the most from the attempt at regional integration and, very soon, disintegration sets in.

External domination reinforces and is the cause of the disarticulation of the economy at both the national and regional levels. At the same time, it entails more substantial and unequal economic exchanges with the centre countries. Further, external dependence results in severe financial problems (notably in the area of balance of payments) because of the repatriation of profits from foreign investments.

Moreover, as Samir Amin and others have shown, foreign investment in underdeveloped countries leads to an accelerated growth of imports because of (1) urbanization without sufficient growth of local subsistence goods, (2) rapid growth of administrative expenditure due mainly to the obligations that follow from integration in the international system, (3) maldistribution of incomes and the foreign consumption habits of the high income groups, and (4) inadequate and unbalanced industrial development resulting in the need to import intermediate and capital goods.[37] These financial problems result in the distribution crisis mentioned above. They also lead to difficulties in creating free trade areas because of the potential loss of import duties resulting from trade diversion. Finally, since these financial difficulties are encountered by different countries at different times and with different severities, creating and maintaining a customs union becomes difficult.

One would assume that external dependency will result in joint efforts in dealing with the external actors. While a few timid steps have been taken in this direction (e.g. the common investment code of UDEAC which however leaves a lot of discretion to individual members), these have failed because, as noted earlier, the *élites* are externally oriented and benefit from underdevelopment relative to the masses of the people in the periphery. They are likely to loose their positions and rewards as a result of any serious challenge to the interests of the external actors. Moreover, certain countries of the periphery enjoy a more privileged position in the international division of labour as compared with other countries of the periphery. These privileges take the form of relatively greater ability to attract external funds, and political and military support. Efforts at preserving these privileges, and the efforts of others to secure a share in these privileges makes joint action difficult.

In sum, we can conclude that economic underdevelopment generates the need for regional integration as a way of solving increasingly difficult problems of economic growth and development and thus of calming the frustrations of the masses. Economic underdevelopment, however, prevents successful regional political integration for the following reasons:

(1) restriction of involvement to only a tiny privileged group;
(2) creation of a tiny privileged group that is externally oriented and has foreign consumption habits;
(3) inability to generate substantial economic exchanges while maintaining or increasing economic exchanges with the centre states;
(4) generates crisis over the distribution of gains;
(5) generates competition and rivalry rather than cooperative attitudes and behaviour; and
(6) inability to produce economic gains. With liabilities such as these, it is hardly surprising that little regional integration has occurred in Africa and countries of the periphery in general.

Is political underdevelopment equally detrimental to regional integration? Lack of cohesive nations and of efforts in that direction also inhibit broad involvement in the regional integration effort. It also reinforces the negative consequences resulting from external dependency since the ruling group tends to rely on foreign help to stay in office. The ruling group also uses its control over the state machinery to provide rewards in the commercial and bureaucratic sectors for its sub-national base. The commercial and bureaucratic bourgeoisies that emerge tend to cooperate with and play a subsidiary role to the foreign interests present in the country. Regional integration is unappealing to this group (except in some instances when they feel themselves to be stronger than their counterparts in the other countries) since it is seen as entailing increased competition for them. Thus they push for strengthening the hold of the group in power and collaboration with outside forces. In this context, the development of national, and much less regional norms and values is next to impossible. Finally, in the absence of the reality and sense of nationhood, the preoccupation of the ruling group is to stay in office. Thus there is little time and effort devoted to promoting regional integration.

Authoritarian styles of politics again limit the breadth of participation of regional integration by reproducing the same authoritarian style at the regional level. And since those who decide invariably promote their own interests and values, it means that regional integration in the periphery along socialist lines is impossible because of the nature, interests, and values of these groups discussed above. Restricted participation limits the input of information and knowledge to the regional decision-making process to the detriment of effective policy making and implementation. Finally, authoritarianism makes it impossible for the regional integration effort to acquire legitimacy.

The quality of the governmental and bureaucratic structure has as its key consequence the inability to make and implement effective policies. The resulting inefficiencies lead to frustrations, failure to achieve goals, and ultimately conflicts among the partners. It also accounts for the non emergence of regional norms and identity and inhibits the acquisition of ligitimacy by the regional institutions.

Thus our answer to the question raised above is that political underdevelopment is dysfunctional for

regional integration for the following reasons:

(1) it helps in the creation and support of groups opposed to regional integration;
(2) it inhibits the emergence of common regional norms and identity;
(3) it takes attention away from regional integration matters;
(4) it makes effective policy making and implementation difficult;
(5) it reproduces an authoritarian and non socialistic pattern at the regional level; and
(6) it is inimical to the acquisition of legitimacy by the regional institutions.

7. Conclusions

We have now arrived at the conclusion and provided the reasons why regional integration is impossible in an environment of economic and political underdevelopment. The evidence that underdevelopment is inimical to regional integration is overwhelming. This holds true even for areas outside the periphery. Thus one author recently concluded that 'In the last analysis, the main obstacle to European unity is Europe's military dependence on the United States and, among other things, the presence of American troops on the continent.'[38] But our conclusion is more general than that stated above. Our view is that in the long run, regional integration within the framework of capitalism is impossible.

It must never be forgotten that regional integration started in Western Europe only after World War II, and as a result of the desperate situation faced by the states in that region. Regional integration was seen by many as the only way of saving the economic and political systems of Western Europe. But how far has this effort at regional integration gone? Several years ago, Karl Deutsch and others concluded that 'European integration has slowed since the mid-1950s, and it has stopped or reached a plateau since 1957–58'.[39] More recently, West Europe was labled as a 'Community of Malaise'.[40] And Haas states that 'Regional integration in Western Europe has disappointed everybody: there is no federation, the nation state behaves as if it were both obstinate and obsolete, and what once appeared to be a distinctive "supranational" style now looks more like a huge regional bureaucratic appendage to an intergovernmental conference in permanent session.'[41] In sum, most observers agree that something has gone wrong and that the earlier optimistic hopes of the degree of regional integration that will be attained in West Europe must be revised downwards.

What accounts for this new turn of events? In our view, it is a clear manifestation that in the long run, integration under capitalism is impossible. In the desperate circumstances attendant on the end of World War II, Western Europe had to try to integrate. The moment the grave threat receeded, problems emerged. This is because capitalism is essentially competitive even though individual capitalists seek to avoid competition at all costs. A common way of doing this is to seek protection from the state, especially by groups that are losing from competition. This tendency of losing groups to seek state protection applies not only to industrial groups but also to territorial and other economic groups. The national political *élites*, few of whom were wholeheartedly in favour of regional integration in any event, begin to assert the national interest and perspective. Also, as capitalist development advances, its political system becomes more bureaucratic with fewer possibilities for the active participation of the broad masses of the people. This style of politics is reproduced at the regional level and the result is growing dissatisfaction with and alienation from regional integration. For these reasons, regional integration soon runs out of steam and comes to a halt.

What then are the prospects for regional integration in Africa? Our analysis shows that as long as the states remain economically and politically underdeveloped, regional integration is not likely to succeed. Further, we subscribe to the view held by many that it is not possible to construct mature capitalist economies in the areas of the periphery.[42] We have also just shown why in the long run regional integration in the context of capitalism is unlikely even in Western Europe. An indispensable

condition for regional political integration in Africa is therefore socialist political and economic development which itself requires regional integration. Hence those who argue and strive for regional integration and yet reject socialism are engaged in a futile exercise. For socialists, there is no contradiction since international solidarity is one of the cardinal principles of socialism. Until this perspective is generalized, no progress is likely to be made towards regional integration in Africa.

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After Nairobi: an Appraisal of UNCTAD IV

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During the whole month of May 1976 the representatives of 120 Third World states once again vainly tried to obtain from the developed countries a few modest concessions concerning raw materials' prices, the conditions of access to the markets for manufactured products, the terms for repayment of foreign debt and the modalities for the transfer of technology. The global rejection of these extremely timid demands, barely concealed by the last-minute voting of anodyne 'compromise' resolutions, repeats the failure of the three previous conferences of Geneva (1964), New Delhi (1968) and Santiago (1972). It clearly expresses the West's intention of accepting nothing which can translate into reality the principles of a 'new international economic order', which were first boycotted and then accepted in the inoffensive form of a 'Charter'—a catalogue of pious hopes.

Having obtained political independence, the Third World is now launched in a fight for economic independence which, as seen by the vast majority of the states, involves the transformation of the international economic order and, first and foremost, the transfer of the control of natural resources from multinational firms to the states and a substantial increase in the prices of raw materials. Are these goals realistic, and under what conditions can they be achieved?

It would seem to be self-evident that, as prices apparently result from the 'laws of the market', it is necessary to influence the conditions of the market. It has long been known that a producer's organization, by controlling supply, can substantially raise prices and incomes. Thus, in the developed countries the monopolies which control production and distribution hold both ends of the chain: by imposing the price they want on the consumers and by dictating their conditions to the suppliers of raw materials. Moreover, more than a third of world trade now represents internal 'exchanges' within the multinational firm, and the book-keeping 'prices' of these exchanges are fixed in direct relation to the global strategy of maximizing the profits of such firms. If the monopolies in the developed countries can thus determine price rises for manufactured products without 'consulting' the developing consumer countries, why should the latter have to 'negotiate' in order to raise their own prices? Cannot they obtain that result by organizing themselves into producers' associations?

The results recorded by OPEC have stimulated awareness of these possibilities. True, the structure of the system is such that OPEC has been operating under particularly favourable conditions; zero substitution in the short and medium term, zero elasticity of demand, monopolization of oil exports by a limited number of countries, and so on. Besides this, the producer countries have been able to exploit the current economic situation, the conflicts of interest between the United States, Europe and Japan, and to combine their economic and financial strategy with political objectives.

The fact remains that similar results—though probably with more difficulty—can be obtained by the same means in other sectors. The idea of a 'solidarity fund', for the purpose of supporting the producers' associations engaged in the price war, which was put forward at the meeting of the 77 held in Dakar in February 1975, falls within this strategy. However, the producers' associations are in danger of being confronted with 'retaliatory measures' and various other pressures aimed at whittling away their impact. Many Third World countries whose public finance and balance of payments are too vulnerable cannot resist these pressures without foreign financial help. Such a solidarity fund can only be financed by the developing countries, for you cannot expect those whose interests are opposed to your own to support you in combating them! This fund should therefore be financed by payments from countries which have already obtained a substantial rise in their prices, first and foremost the OPEC countries. This formula is the only one which really corresponds to a programme of solidarity in action; an ex-

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tension of political solidarity to the struggle for economic independence.

It is true that the contributions of the OPEC countries to aid are already large (1.9% of the GDP of these countries in 1974) and far higher than those of the countries of the 'North' (0.3% of their GDP). But so far the OPEC countries have been replacing the northern countries without changing the nature of the 'aid' process, which is rightly criticized.

It is precisely this type of solidarity fund and producers' associations that the North wishes to prevent by all possible means. For this strategy not only ensures a general rise in prices, but also a price stabilization by means of efficient indexing, and constitutes the basis for a real control of natural resources. The latter implies more than mere nationalization, which is only a basic pre-condition and which, nowadays, has become 'acceptable'. It implies regulating the exploitation of resources no longer merely to meet the demand of the developed countries, but especially to ensure the future needs of the Third World. But this objective can only be attained by means of a global policy decided upon by all the producers' associations; and incidentally that is also the best way of having any influence on prices. Despite all the speeches expressing concern about natural resources, the West pays no attention to the legitimate desire of the Third World to control their own resources and prefers to continue its lucrative plunder. This obviously is the aim of the proposal for an International Resources Bank put forward by Kissinger in Nairobi.

Between the Dakar declaration and the Nairobi resolutions, the idea of a solidarity fund has been gradually eroded, to be replaced by the innocuous suggestion of a stabilization fund to be jointly financed by both the producers and the consumers. The ideological groundwork for this clever substitution was prepared around the theme 'negotiation without confrontation'. The Manila declaration launched the 77 on this dubious path, while the UNCTAD Secretariat had prepared a modest 'integrated programme' in this connexion. It is obvious that a stabilization fund without any control on output by the association will either go quickly bankrupt or at best will 'stabilize' around a falling trend in the comparative real incomes of the producers: to put it briefly it will 'stabilize' super-exploitation and poverty!

Why, in these circumstances, has the North not subscribed wholly to the Manila proposals and those of the UNCTAD Secretariat? It certainly seems that the monopolies, whose rate of profit, seriously threatened by the crisis and worsened by the successful offensive of the oil producers, made a preliminary attempt to redress the situation by increasing the exploitation of the workers at the centre of the system through inflation and the policy of recession aimed at creating, once again, a reserve margin of unemployed. But this strategy requires first of all that the working class in the centres be brought to heel; otherwise it might well entail a radicalization of the struggles. Hence, meanwhile, the monopolies preferred to throw the whole weight of the crisis on to the periphery, i.e. to refuse any concession, even an extremely limited one. From this angle, the roles were distributed for the Nairobi conference according to a pre-arranged scenario. The Germans, who have hardly any public opinion other than a 'right-wing' one, repeated for weeks on end the ideological refrain praising the virtues of 'spontaneous' supply and demand (ignoring the existence of their monopolies). The Norwegians, on the other hand, supported the stabilization fund which the Third World decided to create, 'alone' if necessary, thus launching the major manoeuvre which was to lead to the final resolution. This resolution merely provides for the pursuit of negotiations by stages with a view to taking final decisions by the end of 1978 on the goals and modalities of operation of the fund. Even here the United States found it expedient to weaken the impact of these negotiations still further by expressing reservations.

The Third World hardly obtained more in the other areas. Tired of 'appealing' for 'aid' which is on the decline, the countries making up the group of 77 thought it more useful to try to obtain a reduction of the burden of their foreign debt. There again they only succeeded in having the item placed on the agenda of the Paris negotiation, which last April was in danger of not reopening. Yet if the balance of payments deficit of the non-oil producing countries of the Third World rose from 9 billion dollars

in 1972 to 35 in 1975 and 100 expected for 1980, the best way of reducing the burden is obviously to impose a rise in export prices. There is little likelihood of a reform of the international monetary system which could solve the problem by establishing a 'link' between the issue of special drawing rights (SDR) and 'development'.

With regard to the transfer of technology, when the draft imperative code of conduct which they submitted had been rejected, the 77 accepted a vague promise of a revision of the Paris convention on industrial property; just as they ultimately accepted no less vague promises concerning access to the markets of the rich countries for their exports of manufactured products, and the usual pious hopes concerning the 'control' of the multinationals and 'a special effort for the least developed countries'. True, in theory, export industrialization would relieve the social contradictions in the periphery. UNCTAD, taking up the goals defined at the UNIDO conference held in Lima in March 1975, drew up a list of thirty 'labour-intensive' manufactured products the output of which, if transferred to the periphery, could reduce the growth of unemployment estimated at 285 million people for the present Third World, and proposed a system of generalized preferences and a code limiting the non-tariff protections which the developed world uses and abuses so widely. But the fact is that the West is not ready at the moment to accept this 'redeployment', although it is highly 'profitable' (it would accentuate unequal exchange!), because large sectors of the working classes of the centres would also suffer from this and the monopolies must first of all reduce the risks on that side. The alternative—the strengthening of trade between Third World countries—is only acceptable on two conditions: first that the imperialist multinationals be eliminated from the project and second, that the rules of this internal division of labour in the periphery be different from those of pure capitalist profitability, which would accentuate the inequalities within the 77 to the detriment of the 'least developed'.

But is not the 'failure' of these negotiations actually a political victory, which may help the Third World to concentrate more on topics more appropriate both to its immediate and to its long-term interests? An opportunity is offered by the non-aligned summit of Colombo, scheduled for August 1976. Indeed, much can be obtained without negotiations, by unilateral decisions of the 77, strengthened by an organization which stresses their collective self-reliance. These possible victories would prepare the ground for more favourable terms in possible future negotiations.

As regards primary commodities for example, the setting up of producers' associations and of a supporting fund is not in contradiction with the possible creation of a stabilization fund. On the contrary, the former initiative would strengthen the effect of the latter. Furthermore, this kind of decision does not require a formal unanimity to begin to be effective; majority groups in certain fields can prime the pump and exert a considerable attraction. The non-aligned, the successors of the Arab-Asian group and then the Arab-Afro-Asian group in the previous stage of solidarity in the independence struggle, have already attracted to their banner some Latin American and Caribbean countries and have opened their ranks widely to the '77' (now 120).

As regards foreign debt, a decision of principle concerning the modalities of overall relief (conversion of the debt by instalments, according to the burden of the debt in terms of interest, maturity dates and its ratio to GDP and exports), would make possible collective negotiations and would have the advantage of limiting the attempts to divide the countries and reduce the particular pressures on some of them.

Naturally we are more cautious with respect to the access of industrial products to the markets of the North, which will depend on the good will of the multinationals and could hardly become effective except within a long-term strategy for a new unequal international division of labour controlled by the imperialistic monopolies. The same applies to 'access to technology', i.e. to a technology which is usually not adapted to the real needs of the peoples of the periphery and has a built-in bias towards domination by those who hold the monopoly of this technology. In this area, rather than chasing the ghost of a 'cheaper transfer', it would be better to have the courage to proclaim the two genuine principles of efficiency in this connexion. First, it is recommended that the purchase of 'developed' tech-

nologies be reduced as far as possible, and it is highly desirable to 'filch' them when it is possible and useful. Second, it is of fundamental importance to give priority to creating conditions for enhancing creativity with respect to technologies appropriate to the Third World.

These objectives, which lay stress on autonomy and self-reliance both in the national strategies and in that of the whole Third World community, are becoming more than ever feasible. A technical secretariat of the non-aligned, extended to the 77, could finalize these points. Again, this secretariat would not be 'competing' with UNCTAD (which is an international institution, i.e. a meeting place of the South and the North); it could, by strengthening the cohesion of the group of 77, help to provide more clear-cut prospects for the battle for a new, and less unfavourable, international economic order.

Peasant Agriculture, Commercial Production and Employment in Kenya

Tony Moody*

This paper attempts to assess the significance of commercial crop production to peasant agriculture in Kenya, and the implications it has for rural employment aspirations. The assessment is based on a recent study the author made in the Nyanza Province of Kenya, a study of peasant agricultural production based on analyses of historical data and sample surveys.[1]

It is frequently argued that the employment capacity of small-scale agriculture can be enhanced by realizing the entrepreneurial potential of peasant producers through improving their access to credit, know-how, material inputs, and under-utilized land.[2] Policies focusing on these improvements would set out to increase the intensive and extensive production of cash crops by relying on peasant producers' incentive for profit, and these producers would be encouraged to hire extra labour in order to maximize returns.

In this case, in Kenya, the cash crops would be tea, pyrethrum, coffee, maize, and possibly cotton and dairy enterprises. This has been the conceptual model for development of small-holder agriculture in Kenya, as used by government agencies and lately by the ILO Employment Mission,[3] which recommended a policy for increasing employment and incomes in Kenyan agriculture on these lines. The conception has been taken even further by some observers,[4] who believe that profit maximization in agricultural enterprises is of such prime importance to peasant producers that regional employment models using programming techniques can be applied to peasant agricultural production to assess future rates of employment in agriculture.

However, a close study of the development and existing pattern of peasant economy raises some doubts about the rationale of such arguments and conceptions of peasant incentives. This paper challenges the rationale that peasants generally respond to the profit incentive. It interprets the peasant economy of western Kenya as a composite relationship between a production priority for subsistence supplies and a cautious approach to securing cash incomes by a diversification of sources. This approach appears to relegate the commercial production of cash crops to a position relative to other options for earning cash incomes which are also available outside agriculture.

The paper first aims to show that the peasant's access to land in Kenya is limited relative to the access enjoyed by other classes, and that it is important to understand that the peasants are not merely small farmers. They are frequently referred to as small-holders, but it is erroneous to therefore deduce that they behave as large farmers on a smaller scale. As a social class, the peasants value their land in ways other than as a resource to be employed relative to their labour resources to maximize income. Rather, their land is their basic security in the face of uncertain changes in the cost of living, and this influences their immediate use of land for different functions. These functions are: the security of food supply (subsistence production), maintenance of capital savings (land and livestock), and the yield of cash income (commercial production). These immediate functions are reflected in their long term valuation of land as a vital inheritance for subsequent generations, which in turn appears to be the dominant influence over land acquisition.

Commercial advantage by agricultural capitalism would be an alternative ground for land acquisition. If it could be shown that there was a tendency for an agricultural bourgeoisie to emerge at the expense of a landless class, then this would support the view that commercial options were being exploited to full advantage in small-holder agriculture, for the commercial options have been available for some time.

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This paper does go on to show that there has been a considerable expansion in the production of certain cash crops in Kenya (coffee, pyrethrum, tea, and to a lesser extent, cotton) since controls over peasant production were relaxed. But it concludes that this expansion is not proceeding at the individual level as a profit-maximizing enterprise. Although existing relative input/output costs and returns would appear suitable for this, they are not valued *per se*, in isolation. They are related to opportunity costs in food production and the paper shows the importance of subsistence production as exemplified by its growth relative to the growth in output of cash crops. This preference is even taken to apparently non-profitable levels of production. The introduction of innovations to improve maize yields has encouraged increased production of maize for higher levels of consumption rather than the release of resources for cash crop production.

Cash incomes earned outside agriculture are spread widely amongst the rural peasantry and these are an important and viable alternative to agricultural cash incomes. Although the growth in employment outside agriculture is quite definitely inadequate, non-agricultural earnings are more closely related to changes in the cost of living index than are the actual prices paid for cash crops. Hence the peasant's attitude to earning cash incomes is to diversify the sources as far as possible whilst ensuring that his cost of living is minimized by the highest possible degree of self-sufficiency in production.

Finally, having shown how peasant agriculture is developing in Kenya, it is argued that unless there is a radical change in access to land, and in internal price relationships, the adoption of cash crops by the peasantry based on input/output expectancies cannot be assumed to be the simple answer to rural employment growth.

Peasants/Smallholders in Kenya

In colonial times agricultural land in Kenya was divided between the areas scheduled for European settlement and the native reserves. Today the distinction remains, and the former reserves are the only areas where there is freedom to settle, and where there is an open market for land, although today access to this land is difficult in practice.

The scheduled areas have now largely been transferred from European to Kenyan ownership. The total area of the scheduled areas is approximately 3 million hectares, of which 1.6 million hectares are ranches and plantations, still with some degree of foreign ownership. Of the rest, 0.6 million hectares were bought from European owners and incorporated into the 'Million Acre' settlement scheme. The aim of this scheme was to transfer land under single ownership to high and medium density settlement of landless families from the reserves. In practice, the financial cost of participation in these schemes has confined the present ownership largely to families who either had urban savings, or who have successfully moved into fully commercial agriculture. The history of the settlement schemes and the factors behind the present pattern of ownership are described at length elsewhere [6,7,8]. Without making a detailed analysis of the rural class structure of Kenya, it is proposed here that most of the rich peasants, or kulaks, who exist in Kenya are today found in these schemes. (See Colin Leys' thorough analysis of Kenyan society in [8].)

The remaining 0.8 million hectares of the scheduled areas are still large, individually owned farms, today mostly in the hands of Kenyan landlords. Thus there are still legislative constraints on land ownership in Kenya, and in various ways the largest landlords and the emergent kulaks have their access to land protected by statute and by artificial land-values (the price for compensation demanded by the European settlers).

The majority of the native Kenyan population are still restricted to the former 'reserves' for access to their land resources, and it is the population of these areas who are referred to as the 'small-holders'. The majority of households in these areas still operate economically as peasant households with peasant

production systems, in the Chayanovian sense.[9]

Agricultural entrepreneurship in Kenya is still largely the preserve of the larger landholders and kulak classes who have more than favourable terms for access to land often due to earlier successes in either urban businesses or political situations. For the bulk of the small-holder population, agricultural planning is subject to the constraints of a peasant economy. The tendency to forget that the primary concerns of the peasantry are subsistence food supply and the maintenance of inheritable land resources can raise undue levels of expectation on this peasantry to behave purely as commercial farmers.

Within this peasantry there are certainly some households with considerably more land, better incomes, or more visible security than their neighbours, but it is not considered that this represents an incipient class formation within the peasantry, as for example Lenin observed in pre-revolutionary Russia.[10] The more real class formation based on access to land in Kenya is taking place in relation to the differences between the exploitation of land in and out of the scheduled areas. For example, out of the total estimated area of 6.7 million hectares of agricultural land in Kenya,[3] 1.1 million hectares are still owned by only around 1500 owners. On the 0.6 million hectares of the settlement schemes there are approximately 53 000 families,[8] and on the remaining 5 million hectares of the 'reserves' are approximately 1.3 million households. In other words, 0.1 per cent of landowners share an average landholding of 714 hectares, 96 per cent of landowners have an average of 3.8 hectares, and between these two groups there are those previously 'landless', for whom there was originally a specific resettlement scheme, and who are now 3.9 per cent of all landowners and who share an average land area of 11.7 hectares.

Within the 'reserves', amongst that 96 per cent, differences in landholding are very small in relation to those for the country as a whole. In Kisii district it was found that only 3 per cent of the land was occupied by holdings larger than 10 hectares.[1] In Central Province in 1964,[11] only 1.6 per cent of the population had holdings larger than 10 hectares, while 60 per cent of the total cultivated area was occupied by holdings between half a hectare and two and a half hectares in size.

Of course, it would be fair to say that statistics relating to a static situation cannot be used to judge the existence, or otherwise, of a dynamic tendency such as class formation. But the little that is known about time trends in this case does support the static information.

Changes in land ownership amongst the peasantry of the 'reserves' are still dominated by inheritance, and this usually takes place by subdivision of existing plots. This means that all holdings tend to get smaller over time, and as it is also generally true that larger small-holdings support larger families, so the pressure on land by sub-division tends to be greater on larger plots. There is even a tendency for the reverse of differentiation to prevail in the size of family holding. It has also been noted that persons buying land in the 'reserves' were typically owners of less land than the sellers.[12] Concrete evidence has yet to be seen that any section of small-holder society in Kenya is specifically accumulating land for the main purpose of agricultural entrepreneurship. Yet, on the other hand, since the late 1950s there has been a remarkable increase in the output of marketed crops by the peasantry. The reasons for this are discussed below.

The paper will now turn to a more specific analysis of the relationship between commercial production by small-holder agriculture, and the observed significance of subsistence production and of non-agricultural incomes. Particular reference will be made to small-holder agriculture in Nyanza Province, in the west of Kenya, where the author has concentrated some of his field work. Virtually the whole of Nyanza Province is occupied by small-holders, and the population densities there are some of the highest in Kenya. Particularly high are the densities in Kisii and Kisumu Districts of the province, and these districts have also been the focus of major introductions of commercial crops to the small-holder sector. Cotton, coffee, pyrethrum and tea are grown, and hybrid maize has been successfully introduced. There is, in Kenya, an active extension service, and there are ready supplies of the main material inputs. It is therefore possible to assess the significance of commercial production, in a manner relatively free of the constraints of ignorance, or unavailability.

Small-Holder Production of Commercial Crops

The late 1950s marked a turning point in government policy towards small-holder agriculture in Kenya with the publication of the Swynnerton Plan [13] when the Europeans' hegemony in commercial agriculture was finally broken. From that date, production of tea, coffee and pyrethrum by the small-holder sector increased rapidly in aggregate. It can be seen by the choice of crops that this development occurred largely in the higher altitude, higher rainfall, and *ipso facto* higher potential areas of the 'reserves', where population densities were also highest. Of these areas, Kisii district, although only 2 per cent of the area of all the populated reserves, became one of the most important production areas. Table 1 shows the increases in planted area of the three crops between 1959 and 1971, by small-holders, and the proportion of these planted in Kisii.

TABLE 1

INCREASES IN PLANTING OF TEA, COFFEE AND PYRETHRUM BY SMALLHOLDERS IN KENYA, AND KISII DISTRICT (hectares)

		Coffee planted	*Tea planted*	*Pyrethrum planted*
1959	Kenya	10 500	1 300	3 200
	Kisii District	1 537	50	2 000
	Kisii % Total	14.6%	3.8%	62.5%
1971	Kenya	62 600	20 500	23 600
	Kisii District	6 500	3 230	9 260
	Kisii % Total	10.4%	15.8%	39.2%

Source: Judith Heyer (14) and Statistical Abstracts (15).

The table illustrates as rapid a change in small-holder agriculture as may have occurred anywhere in Africa in recent years. In Kisii District the three crops now occupy about 20 per cent of all cultivated land, and their increased production has increased incomes earned from their sale from Shs. 6.8 million in 1959 to Shs. 59.14 million in 1971. Unquestionably this has been a very important contribution to rural employment.

The expansion of commercial production is impressive in aggregate. Disaggregation of the increases illustrates the nature of the expansion of production. First, each periodic increase has been as much influenced by administrative change as by peasants' volition. Thus, if it had been decided in one year that peasants in area 'A' would be allowed to grow tea, then applications for planting material would only be considered from that area. Once diffusion was progressing well in that area, the administration would then focus attention on area 'B', and there would be a corresponding *en bloc* increase in total planting. In this way much of the increase in planting represents a progressive geographical 'cover' of suitable areas. At the household level, production increases are shared by a large number of small-holders who plant either one or two of the new crops on a fraction of their land.

Heyer[14] shows this in her historical description of the progressive expansion of coffee planting in Kisii between 1957 and 1964. Between these years the amount of coffee planted in Kisii expanded from 1077 hectares to 5204 hectares. But the number of growers increased commensurately, with the effect that the average amount planted per grower remained at 0.12 hectares. Coffee planting reached a peak in 1964, and has not increased since due to the imposition of quota limits under the International Coffee Agreement. During the time of expansion it is clear that there was no significant concentration of production in the hands of a few.

Expansion of tea planting is proceeding in a similar way. Tea planting started in 1957/8, and expansion continues today. Again, expansion has been by a progressive introduction into different parts

of the district, and by a progressive adoption by new growers. In 1965 there were 960 hectares, and today there are 6500 hectares of tea in Kisii. Statistics available from Kitutu division of Kisii show that the expansion in acreage has again been accompanied by a similar increase in the number of growers, with the result that the average amount planted by small-holders has remained at 0.3 hectares over the last ten years.

Pyrethrum was originally introduced on an area-by-area basis, but since 1967 it has been grown in most parts of Kisii District. By 1968 there were 5100 hectares and 36 000 growers. Since then, price changes have been the biggest influence over the area planted, with the planted area increasing abruptly to over 9000 hectares in 1971, after the price had risen from Shs. 2.93 per kilo to Shs. 4.40 per kilo. The change in area was made up of a 25 per cent increase in the number of growers, and a 70 per cent increase in the average area that each small-holder planted. This elastic response to a price change illustrates the importance of price changes relative to other conditional changes such as credit or extension improvements. The expansion of pyrethrum cultivation was at the expense of the more traditional grain, finger millet, rather than maize (see below), and as with the tea and coffee expansion, whilst the overall increase in the amount of pyrethrum grown was considerable, actual individual planted areas per grower still only average 0.2 hectares.

To conclude this review of the development of commercial agriculture in Nyanza, it is necessary to outline the history of cotton production, which centres on Kisumu District, and which contrasts with the history of commercial crop growing in Kisii. Cotton was first introduced to peasant producers as early as 1920 as it was one of the few crops for which peasant production offered no competition with the European agricultural sector of the country. It was hoped that cotton production would generate a sufficient basis of rural incomes as to increase the yield of local taxes. The growth of production is shown in Table 2.

TABLE 2

GROWTH OF COTTON PRODUCTION IN NYANZA AND WESTERN PROVINCE, KENYA 1925–1960

Year	*Output of cotton lint (tons)*	*Approx. hectares*
1925	223.5	4 000
1930	170.0	5 600
1935	1385.7	24 800
1940	2056.2	37 600
1945	879.1	16 000
1950	1400.6	26 000
1955	2011.5	35 000
1960	2214.4	36 000

Source: H. Fearn (16).

The table shows that expansion of cotton throughout the whole western part of Kenya, of which Kisumu District is only a part but for which separate records are not available. However, the district cotton area has never exceeded 10 per cent of the overall total.

Expansion was rapid until the Second World War, but during the last thirty years cotton production has not expanded, despite recurrent and heavy doses of administrative enthusiasm and of extension efforts. Although research trials have been conducted to find solutions to optimal agronomic practices, such as short-term and drought-resistant varieties, date of planting, and optimal planting intensities in mixtures (Kisumu peasants traditionally plant all crops with a high degree of crop-mixture), typical peasant yields have never exceeded 200 kilo per hectare. Today, it would seem that cotton production has stagnated completely.

There are larger areas of uncultivated land in Kisumu District than in Kisii District, but cotton has

to compete with maize and sorghum for labour at time of planting, which is a limiting factor, in view of rainfall uncertainty and the need for timeliness in planting. The opportunity cost of food-grains foregone is higher at local market prices than the expected cash incomes from cotton, and the net income earnable from even as much as one hectare of cotton could be earned from casual labour in less than two months at minimum rates. These would appear to be very real considerations which affect commercial agriculture in Kisumu District.

It has been shown that from 1960 onwards there has been a significant change in peasant agriculture in Kisii District with rapid expansion in areas planted with coffee, tea and pyrethrum. Whilst the total expansion looks large, it represents only small individual planting by many producers. Individual peasants still plant larger areas of food crops and it needs to be noted that in the period under discussion the introduction of hybrid maize enabled a doubling of yields. Thus, although commercial crop production has increased, there is no evidence to show that this increase has been at the expense of subsistence agriculture. In Kisumu District subsistence agriculture has always remained predominant.

The Importance of Subsistence Production

In general, peasant small-holders attempt to grow enough maize, and/or millet and sorghum to meet the expected family food consumption needs. This is a widely accepted constraint of peasant agriculture, and it is generally explained as sound economic behaviour in the face of risk. It is important to illustrate this constraint with the use of examples. In Kisumu District the biggest risk peasants face is the irregularity of rainfall, a very common risk in savannah agriculture in East Africa. The unrealiable yields suffered in irregular rainfall regimes constitute an even greater economic risk with reference to relative prices. Another basic condition facing peasant agriculture is the wide difference between official buying prices offered for surplus grain harvests and local market selling prices, a difference that varies seasonally so that to buy maize in July a Kisumu peasant would have to pay three times the official price.

Subsistence production is also sound economic behaviour in the face of certainty; for it is now a virtual certainty for the peasant that his terms of trade with the industrial world will always worsen. If UNCTAD temporarily elevates price levels in international trade it is no guarantee that the terms of trade to the peasantry will improve. As long as he consumes the products of the developed world through the intermediary of his native urban bourgeoisie (the 'service' sector), and as long as his main marketable produce is raw material proceeding through the same chain, the law of surplus value would appear to make it inevitable that increasingly more of his own output exchanges for less of his purchased consumption.

Thus, in Kisumu District, not only do the peasantry try to cultivate all the grains they may need for consumption, in which many fail due to unreliable rainfall and diminishing land resources, but they also appear to be aware that cotton incomes give lower returns to their labour than a chance piece of casual labour in other sectors. The situation facing cotton growers in Kisumu, compared with commercial agricultural options in other areas, is particularly bad. Cotton yields seldom exceed 200 kilograms per hectare, and maize yields are on average only 700 to 1000 kilograms per hectare, and then one year in four the rains fail so badly that there is always a need to back up maize cultivation with considerable planting of sorghum. From the available data it is possible to show that there has been a long historical basis of price relationships in Kisumu that give cotton cultivation very poor substitution rates of return in terms of maize cultivation foregone and in terms of the time needed to spend in casual labour to secure the same income. Table 3 shows these substitution rates over the whole period of cotton growing in Kisumu from 1930 to the present day.

TABLE 3

SUBSTITUTION RATES BETWEEN THE INCOME FROM ONE HECTARE OF COTTON, THE COST OF MAIZE YIELD FOREGONE, MONTHS OF CASUAL LABOUR AT URBAN WAGE RATES, 1930–75

Year	*Cotton price (kg)*	*Maize price (kg)*	*Monthly urban wage (shs.)*	*Cotton income/ha*	*Cost of buying maize yield foregone*	*Value of cotton income in terms of months of casual labour*
1930	0.25	0.10	30.00	50.00	70.00	1.6
1940	0.33	0.10	35.00	66.00	70.00	1.8
1942	0.26	0.10	40.00	52.00	70.00	1.3
1944	0.34	0.10	40.00	70.00	70.00	1.7
1950	0.70	0.14	50.00	140.00	98.00	2.8
1955	1.27	0.40	69.00	254.00	217.00	3.7
1975	1.90	1.00	215.00	380.00	700.00	1.8

Sources: H. Fearn (16), N. Leys (17), Lord Hailey (18), and District Agricultural Reports of the Ministry of Agriculture.

The relationships shown here indicate that the cost of not being self-sufficient in grains is rising at a higher rate than the returns from cotton. Hence the relative unattractiveness of growing cotton as a contribution to meeting the cost of living. But cash incomes still have to be secured and, measured in returns to labour, these are easier to secure in casual labour than in commercial crop production. However, the labour market is limited, and therefore cotton still continues to be grown by those households who cannot meet their income needs in other ways, including households with elderly or female heads.

If there are rather obvious reasons why cotton is not a viable basis for a development of commercial agriculture in Kisumu, there are less obvious reasons for limitations to the popularity of cash crops in Kisii, where pyrethrum alone can give net incomes of Shs. 6000 per hectare. This kind of per hectare income represents the cost of buying almost twice the amount of maize, at market rates, that a hectare could produce in Kisii. And it is over twice the income that urban casual labour could give over twelve months. Yet pyrethrum, tea (Shs. 3000 per hectare feasible net income), and coffee, only occupy about 30 per cent of the area of peasant holdings in Kisii, whilst maize and millet occupy 40 per cent, and grazing land 30 per cent. The growth rates in production of pyrethrum, tea, and coffee, whilst remarkable, are overshadowed by the growth of maize production of which little is exported from the district.

In the sample survey it was found that different crops grown on peasant holdings occupied proportions of land as shown in the following Table 4 where the data are arranged according to different strata of size of holding.

TABLE 4

STRATIFIED LAND-USE PROPORTIONS IN MWOGETO SUB-LOCATION, KISII DISTRICT (sample based)

Size-groups (hectares)	*0–0.9*	*1.0–1.9*	*2.0–2.9*	*3.0+*	*Total sample*
Maize	35	29	28	28	28
Finger-millet	13	11	10	9	11
Pyrethrum	5	11	10	10	10
Tea	2	7	13	7	8
Coffee	17	14	14	7	13
Grazing	28	28	21	35	28
Other	—	—	4	4	2
Total	100%	100%	100%	100%	100%

It can be seen that although the proportion of land used for food crops is markedly higher on the smallest holdings, there is also a fairly constant relationship in which food crops occupy as much or slightly more land as the cash crops on all sizes of holdings, even the largest.

This apparent priority for complete self-sufficiency in maize exists in a situation where hybrid maize is grown almost universally, and where very high yields are achieved. One tenet of conventional wisdom on agricultural improvements for the peasantry is that, if higher yielding innovations can be introduced in food crop production, whilst using the same resource base, land and labour can be released for cash crop production. Hybrid maize, introduced in Kisii in 1965, has doubled yields, yet since then the area planted with maize has increased faster than it has for any other crop.

As all maize sales outside the district (i.e. maize not used as food by the peasantry of the district), passes through the parastatal marketing board, it is possible to see how much of the increased yield is sold and how much is consumed. In fact, when the area planted with hybrid maize increased from 14 000 hectares in 1969 to 28 000 hectares in 1972, and output of all maize from 80 000 to 136 000 tons in the same period, the average sales per head only increased from 3.9 kilograms to 7.1 kilograms whilst the amount consumed increased from 115 kilograms per head to 172 kilograms, a remarkably high absolute increase. It would seem that the introduction of hybrid maize, far from releasing resources for expanded production of commercial crops, actually encouraged the absorption of more of these resources with the main aim for small-holders of becoming more self-sufficient at higher levels of consumption.

Looking to the future, it is reasonable to expect that as population increases food crop production will compete even more strongly for resources and that despite high potential financial returns cash crop production will stabilize. Future changes in land tenure could, in theory, be dominated either by greater fragmentation by inheritance or by accumulation and increasing differentiation based on commercial farming. But the evidence is that land is still overwhelmingly valued as a secure basis for subsistence, and the most important legacy to bequeath to the next generation. As large areas of agricultural land in the nation are not freely accessible (the scheduled areas), so the pressure on land in the 'reserves' is increased, and this tendency is intensified.

The evidence on trends in land tenure exists in the records for transactions in land. All transfers noted in the Kisii land register were sub-divisions of larger holdings between a larger number of new owners, whose names were new to the register. The evidence also shows that the trend should continue in the future as shown by the relative family sizes on different sizes of holding observed in the sample survey. It was observed that the larger the holding the more sons in the family who were entitled to inherit the land. This is shown in Table 5.

TABLE 5

SAMPLE OBSERVATIONS OF NUMBER OF SONS ON HOLDINGS OF DIFFERENT SIZES

Size of holding (hectares)	0–0.9	1.0–1.9	2.0–2.9	3.0+
Average sons per household	1.96	2.89	3.58	5.0

This would suggest that the scale of differentiation in land holding may even be reduced in the future as the larger holdings should be subject to a greater degree of fragmentation than the smaller ones.

The Importance of Non-Agricultural Incomes

In assessing the potential of commercial agricultural options to generate incomes in rural areas it is important to try and see these options from the view-point of the peasantry. If it is true that other

sources of income are more valuable, and reasonably widespread amongst the peasantry, then one would not expect that the mass of peasant households would view cash crops as such a prime source of income, as do agricultural administrators. In Kenya non-agricultural incomes are important to a large number of peasant households. Extended family obligations, a large civil service and a well-developed business and trading sector make non-agricultural incomes available to a broad spectrum of the rural population. Thus, although it is frequently stated that over three-quarters of the population of Kenya rely on agriculture for their incomes, their incomes are actually a composite quantity from a variety of sources.

It could be expected that Kisii District, of all the districts of Kenya, has an income base most solidly dependent on local agricultural production. Historically, the people of Kisii, the Gusii, were the least involved of all tribal groups in Kenya in supplying migrant labour to the colonial economy—to the large farms and the towns. Isolation, and a relatively strong passive resistance to colonial rule were behind this.[19] Today this is reflected in the relatively small proportion of Gusii tribesmen who are found outside the home district compared to the urban migrations of other tribal groups. Of the five largest tribal groups in Kenya, the Gusii have the highest proportion, 94 per cent, of their number concentrated in their home district. Moreover, within the home district urban development is a relatively minor phenomenon. Although they are the fifth largest tribe the township of Kisii is only the tenth largest in Kenya, excluding the metropoli of Nairobi, Mombasa and Kisumu. Apparently, the number of people from Kisii district who live in urban areas is relatively few. And although future developments in commercial agriculture may be under question, the present scale of agricultural production is relatively high with Kisii peasants earning some of the highest peasant agricultural incomes in Kenya. However, the sample survey in Kisii District, conducted wholly amongst peasants whose homes were agricultural holdings, shows that only 42 *per cent of the aggregate sample income was earned from the sale of agricultural products.*

Fifty-six per cent of the aggregate income was earned directly by family members in a wide variety of non-agricultural occupations, and 57 per cent of households had access to such incomes. The sources of these incomes were varied, and many were directly related to local raw materials, for example, brewing, basket making, pottery and petty trading in the market place. Others were more widely related to the general level of wealth in the area; they came from employment or self-employment in local shops, hotels and butcheries, and in local transport—taxies, lorries and buses. Eighteen per cent of the whole sample had access to these latter incomes, which constituted 30 per cent of the aggregate non-agricultural earnings. Other sources that contributed to the general level were small-scale industry —timber felling and charcoal burning—and the public sector—the teaching, police and administrative branches of the civil service. Such sources contributed an amount equal to three-quarters of the value of incomes from agriculture, and were available to 17 per cent of the sampled households.

If non-agricultural incomes were unexpectedly high in Kisii District, they were almost the only significant source of income amongst the rural sample taken in Kisumu District. It has already been indicated that cotton in Kisumu District has failed to make any impact on rural earnings. Ninety-one per cent of the incomes earned by the sample studied in Kisumu were from outside agriculture. The range of the different types of income sources were similar to that described for Kisii District, but the importance of urban-based incomes was very much greater. Not only is agricultural productivity low in Kisumu District, but there has been a longer tradition for people from the district to seek employment in the urban areas of Kenya. This applies particularly to the young men of the district many of whom work permanently outside western Kenya. Because of this there is a high remittance component in rural incomes in Kisumu—13 per cent of the aggregate sample income.

The lack of commercial agriculture in Kisumu District may be partially attributable to the importance of subsistence production, but even subsistence production fails to meet more than 50 per cent of food requirements of the bulk of households and parts of the urban incomes are used to support a

flourishing import of basic foodstuffs into the district. In some respects it appears that peasant agriculture in this district is so poor that rural households could be more properly described as displaced urban households as they rely so heavily on urban incomes.

Although the importance of urban incomes is being underlined here, it must not be supposed that urban opportunities are limitless. Urban employment is certainly not increasing at anything near the rate of population increase but renumeration in urban employment is continually increasing its status in relation to the meagre earnings from agriculture possible in the district. This is borne out by the rapid growth in the population of Kisumu town in relation to a much slower growth of wage employment in the town over recent years. The average annual growth in wage employment has been just under 2 per cent per annum, and the population growth rate of the town has been more nearly 6 per cent, half of which represents an influx of people from the rural areas. However, urban wage rates have increased at a rate sufficient that the average share of the total wage-bill per head of urban population has remained more or less constant. This would indicate that not only are urban wages supporting a large number of rural residents but that many of the latter are migrating to the town to live with relatives there in the eventual hope of becoming employed themselves.

Conclusion

It has been argued that some of the recent emphasis placed upon intensified cash crop production by small-holders is over-optimistic in its hope of increasing rural employment. Examination of the relative importance attached to subsistence production shows that it is competing heavily with cash crop production for scarce productive resources. It has been shown that even when potential returns from cash crops are so high that they can yield an income greater than the outlay necessary to purchase maize produced by the same resource combination, peasants still limit their involvement in specialized cash crop production.

It is suggested that one of the reasons for this is that there is a preference by the peasantry to utilize scarce land resources to improve levels of consumption from self-sufficient production, rather than to increase commercial production. This indicates a negative, or restrained, attitude to involvement in the market economy, and is also a reflection of the state of agricultural marketing in Kenya. The parastatal Maize Marketing Board controls movements of the country's basic food crop in such a way that the normal operative channels are from rural to urban areas. There is little effective bulk movement from different rural areas and officially marketed maize is only available to rural consumers in a completely processed and packaged form for which the marketing margin is high. Movements of unrefined maize between rural areas are confined to marketplace traders who operate on a scale too small to benefit from economies of scale. This creates uncertain conditions of price-level and supply in the local market places in areas of small-holder agriculture, and consequently encourages maintenance of a high degree of self-sufficient production.

Another significant failing of agricultural marketing lies in the uncertainty of the actual earnings to the producer of cash crops. Although the officially prescribed price for a crop may be reasonable, and follow price concessions on the international market, the marketing agencies have a reputation for unreliability in paying the producer his full entitlement due to mismanagement, lack of producer participation and a lack of control over the marketing deductions that local branches of marketing agencies can make from the officially prescribed price.

These uncertainties behind the marketing of cash crops also contribute to the tendency to diversify sources of income, and particularly to seek access to non-agricultural incomes, despite the growing limitation in opportunities for this. For, although they are limited, the levels of these incomes follow the cost of living index of basic material consumption (soap, paraffin, clothing, hardware, etc.) more

closely than do the price levels of cash crops.[20]

Clearly the small-holders of Kenya are a distinct peasant class who do not view agriculture as their only source of cash income but rely on it to maintain levels of consumption. In this way they value land highly as a vital asset for subsequent generations because access to agricultural land is so differentiated between the areas set aside for large-scale farming and the areas where the peasantry live.

In the opinion of the author there are severe limitations to changes that can occur in rural employment resulting from policies concentrating on research, extension and credit. These changes could only come about under a more equitable system of land tenure in the framework of an agricultural pricing policy linked to peasants' production costs and more generally to price levels in other sectors. To propose radical land reform as a solution under the present Kenyan government would probably be unrealistic, but the author would like to think that at least a better system of price guarantees, price subsidies, and rational distribution could be feasible and would contribute to greater specialization in agricultural production within the context of Kenya's present class structure.

Footnotes

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Year	*Coffee cherry (kg)*	*Tea (kg)*	*Pyrethrum (kg)*	*Days of paid work*
1960	289	276	62	65
1967	475	419	88	50
1974	1300	570	137	59

(N.B. price levels are for Kisii District, wage rates for urban areas.)
It can be seen that in fourteen years the basket's price increased to twice the amount of tea and pyrethrum, but remained about the same amount of work as a labourer.

Focus on Research

INSTITUTE OF STATISTICAL, SOCIAL AND ECONOMIC RESEARCH
(ISSER, University of Ghana, Legon)

1. History

The Institute was established in 1962 as an Institute of Statistics. Its aims were to provide a programme of teaching and research in statistics, to study methodological problems in relation to the collection and analysis of government statistics and to provide advisory services to government and university departments. In 1966 the Institute became the Institute of Statistical, Social and Economic Research (ISSER) and began an active research programme into social and economic problems, besides continuing its responsibilities for teaching and research in statistics. Research topics are selected in the light of government needs and requests and also with consideration to long term research priorities and the need for teaching material in the social sciences. ISSER also has research associations with other universities and individuals and provides a base for research workers from overseas.

2. Research Programme

Agriculture

Agricultural research effort is focused on the evaluation of current production and marketing policies and the appraisal of proposed and ongoing programmes to increase production. The objective of this effort is to suggest improvements in government policies, programmes and projects where research indicates that more effective and efficient methods are required.

A programme of agricultural planning studies has been initiated by the Ministry of Agriculture. ISSER is examining the technical and capital input requirements for the expansion of certain industrial crops, namely cotton and sugar. Research has been undertaken to determine the prices that would need to be offered to farmers to increase production and the farm inputs necessary to meet domestic demand. In addition the foreign exchange savings realized from import substitution and the total marginal capital/output and technical input/output ratios will be calculated. The growth of domestic demand with the resultant increase of farm inputs will be projected to 1985.

Pilot studies are being carried out in the next area of priority; the production and processing of pineapples, rice and kenaf and vegetable oils, namely oil palm, coconut, groundnut and soybean.

Cocoa

Between 1891 and 1911 Ghana increased her production and trade in cocoa from 18 kilograms to 40 000 metric tons. It is hypothesized that the social and economic conditions under which this phenomenal increase in production occurred have given way to a new social and economic order. Cocoa is now no longer considered as one of the more lucrative investment alternatives due to the increased demand for social services mainly in administration and commerce. Returns to food crops and industrial raw materials now appear higher than cocoa, hence the apparent neglect of cocoa by the younger generation, although cocoa is still of vital importance to Ghana's economy.

In Ghana, cocoa is grown on some 1.5 million hectares of land, being intercropped on 0.6 million hectares. There are some 200 000 cocoa farm families controlling an average 8 hectares each. Individual

cocoa farm families use diverse methods of production but little is known about the economic returns to various production practices. Thus a study is being conducted to determine the relative profitability of cocoa in the country, the nature and extent of competition between cocoa and food crops and the returns to frequent harvesting and spray chemicals of the various varieties. Detailed long term management studies are being conducted in three villages in Ashanti.

Similar data have already been collected from farm compounds in two migrant settlements, Dominase in Brong-Ahafo and Kwabanta in the Eastern Region. Material from Dominase and Akokoaso, a settlement mainly inhabited by citizens in the Eastern Region, was used to look at the inter-relationship between social structure and cocoa farming and the pattern of cocoa farm development in contrasting ecological settings. It stressed in particular the existence of multiple interests in cocoa farms and the significance of matrilineal inheritance and descent for explaining the organization of production.

Government controlled cocoa development programmes involving the private farmer are currently expanding on a large scale in Ghana. Obviously these production patterns differ from those on private farms and different constraints operate. ISSER provided the base line feasibility data for one of these projects in Ashanti and is currently providing an evaluating and monitoring service.

A major constraint to the success of these programmes is the supply of labour, and since a large proportion of Ghana's cocoa farmers utilize hired labour on a casual and permanent basis, the private and public sector compete. Therefore a study has been initiated to investigate the withdrawal of labour from the private to the public sector through interviews with labourers hired by the Cocoa Rehabilitation Project at Suhum in the Eastern Region.

Although government is heavily involved in these schemes farmers are required to repay the costs when the trees start bearing. One problem encountered in planning projects has been to control cocoa sales to ensure repayment. Thus the Cooperative Buying Agency was given a monopoly in the Project at Suhum. This move motivated an evaluation of the potential of this Agency. Previous studies have documented the history of cocoa buying in Ghana and the operation of the agencies involved.

Population

Demographic variables are important as they not only influence development but are in turn affected by it. The high rate of population growth has been accompanied by a high growth rate of the labour force, thus the size, growth and structure of both the labour force and employment in Ghana have been detailed with attendant policy implications.

The population of Ghana, and the whole of West Africa, is highly mobile and each country is subject therefore to outside influences from its neighbours. The impact of international migratory movements in West Africa on social and economic development is being studied under the umbrella of CODESRIA.

A highly controversial area of government policy concerns fertility. Hence much of ISSER's population research is directed toward the value of fertility and health programmes. The extent to which socio-economic variables influence the utilization of health and family planning services is being examined in the Danfa Rural Health and Family Project, so that the impact of the Programme itself may be more effectively evaluated.

A continuous evaluation of the Ghana National Family Planning Programme is conducted, which largely relies on clinical records. Changes in development within the GNFPP have rendered the present clinical record forms inadequate, hence ISSER has revised and expanded these as well as developing edit procedures for edit checks and quicker evaluation. A pilot survey was carried out in Accra to measure the impact of the educational and clinical programmes.

Economics

Industrialization in Ghana started in earnest in the post-war period and was expected to usher in a period of unprecedented growth with import substitution, generation of employment and diversification

of the economy.

The actual performance of manufacturing industries is being analysed with respect to employment generation and income redistribution, together with any inter-relationship with the role of government policy since the post-war period.

The factors affecting industrial growth will be identified and analysed for selected manufacturing industries. The textile, chemical, wood products and footwear industries have been covered and it is planned to consider the food industry.

The natural beginning is to determine the extent of capacity underutilization and to identify factors which influence this level. Lack of skilled manpower has been blamed for distortions in development, thus a study first identifies the nature of this shortage and then investigates the causes and possibilities of meeting the demand. One criterion for the establishment of manufacturing industry in a country is the local availability of raw materials. However a sizeable number of manufacturing industries in Ghana today rely heavily on imported raw materials. The impact of this dependence is analysed on both the performance of the firms and the foreign exchange position of Ghana.

Education

Ghana's current educational policy is to reform the structure and content of general education so as to make it more positively responsive to the manpower needs of the country. A general study first identifies the broad relationships between the present educational system and manpower needs of the economy and provides statistics for the analysis of the two main problems, shortage in some sectors on one hand with the appearance of educated unemployed on the other.

The excess supply and demand for certain occupations is being evaluated with the suitability of the training received in the formal educational system from the point of view of employer and employee. A number of studies have been initiated to investigate particular situations. One is concerned with the future of Middle School Leaving Certificate holders, another with that of Secondary School leavers. These studies will identify and analyse the aspirations of these school leavers and the problems they encounter in their quest for further training and absorption into the labour force.

University education is being looked at in more detail. Firstly, the relationship between high level manpower requirements of the country and the enrolment and output of universities is being assessed. The public expenditure involved will be appraised against the rates of return.

Individual studies include the aspirations of university students with an identification of the factors leading to their course selection and their satisfaction with the course being followed. The relationship between academic performance at various levels is being analysed to evaluate admission requirements. The analysis also seeks to identify the importance of other variables for explaining ultimate academic success. The work experience of post graduates is examined in the light of satisfaction with employment, the suitability of university education for this and students' expectations and knowledge of the job market.

Urban and regional studies

Economic progress never occurs evenly within any country but tends to be concentrated within an urban tract. Effective development strategy must take into account the existence of urban areas and the larger regional framework within which they might function. Thus the economies of depressed rural areas may be brought into the productive sectors of the urban economy.

A pilot study at Winneba and its region is being used to examine in depth the extent to which urban centres may be used as tools for development. The basic aim of the project is to answer the fundamental question to what extent public and private enterprise in a given settlement can influence the growth of that settlement and the surrounding settlements. Such areas of investment concentration could become the nuclei around which powerful forces of spatial diffusion of economic growth could exert their

influence. Certain analytical techniques are tested and developed so they can later be applied to a much larger study on urban and regional development.

Social studies

Problems associated with migration are of topical concern. The social studies section is investigating the movement of people to industrial towns and other centres of wage employment. Four industrial centres, namely Accra and Tema in the Greater Accra Region and Akosombo and Akwatia in the Eastern Region have been selected for study. The varied histories and characteristics of these. Four centres are expected to offer many divergent and interesting variables linked with mobility. Examination of these should elucidate the problems created by the exodus of people from their previous settlement and their settlement and nature of life in their new setting. The study is concerned in particular with the position of female migrants, to investigate their manifest and latent functions and the social problems they create and face.

Concern with the effect of out-migration on rural areas has led to an investigation of rural development. Work in this area broadly examines the interplay of traditional attitudes and values on the one hand and factors of social change on the other as aspects of rural develoment. Specifically it attempts to find out what rural people themselves consider constitutes social, and in particular, rural development; what they think should be the extent of local involvement in rural development and their views on related issues of rural development.

This work assumes that the success of any systematic programme of rural development is a function of the recipient population's awareness of the problems involved and the need for change or improvement.

Four areas, all of which had at least one ongoing project initiated by the government, were selected, namely Ayensudo in the Central Region, Woe in the Volta Region, Nsutam in the Eastern Region and Kwaso in Ashanti Region.

Statistics

A methodology and analytical procedure is being developed to estimate the demand for consumer goods and services from household budget data. Procedures are being worked out using data from the Pilot Survey of the National Household Budget Survey ready for implementation when the data from the National Survey are available. Cross-sectional time series estimates and checks will be completed using previous household budget data.

Theoretical research in statistical methodology continues. Particular areas of interest include studies of compound distributions and experimental design.

3. Personnel

Director: K. Twum-Barima, M.A. (Camb.).

Deputy Director: K.T. de Graft-Johnson, B.Sc. (Lond.), Ph.D. (Iowa State).

The staff consists of two senior research fellows, 14 research fellows, two junior research fellows, one visiting senior research fellow, one chief research assistant, two principal research assistants, and one librarian.

4. Publications and Documentation

The Population and Social Science Library is housed at ISSER. This library focuses on the requirements of research workers but also serves both undergraduate and graduate students. The current

holding stands at over 5500 books and monographs and 1800 reprints and journals. The library subscribes to over 250 journals and serial publications and has a considerable holding of past issues.

The results of research activities at ISSER are reported in the Technical Publications Series, and other occasional works such as bibliographies are also published. The proceedings of any international conference organized by ISSER are usually published in book form.

CENTRE DE RECHERCHE, D'ETUDE ET DE DOCUMENTATION SUR LES INSTITUTIONS ET LES LEGISLATIONS AFRICAINES
(CREDILA, University of Dakar)

1. Objectives

The Centre was created in 1960 to build up documentation on African legislations and to study African institutions from a political, administrative and economic point of view. Since CREA (Centre de recherches d'Economie appliquée) was created, in 1971, its activities have been limited to legal problems.

In 1973 a section of 'Public Law and Political Science' was created within CREDILA. Mr Bakary Traore is responsible for this secton.

2. Activities

(a) Analysis and permanent filing of legislative and statutory texts (political, administrative, judiciary, economic and organization financing, status of people) published in the official papers of the French speaking African states.

(b) Analysis and filing of texts, documents and legal decisions on specific subjects (nationality, constitutions, trade companies, organization and functioning of public services, political institutions, conflicts of laws and jurisdictions, contracts and obligations, family right, social right).

(c) Realization of research programmes. The current programme covers legal and economic problems related to patents in Senegal and in the African Office for Industrial Property (OAPI). The programme is financed by the University of Dakar, and its geographic area covers Senegal.

Purposes and methods

(a) Training of Senegalese students (Ph.D. Level) in techniques of industrial ownership. To this effect, seminars with intensive lectures are organized with the help of the Centre for Company Law of Montpellier University and of the French National Foundation of Company Lawyers.

(b) Census of African legislations on the matter. Inquiries with firms in Senegal and the African office for Industrial Property in Yaoundé.

(c) Elaboration of a brochure on patents in Senegal.

holding stands at over 5500 books and monographs and 1800 reprints and journals. The library subscribes to over 250 journals and serial publications and has a considerable holding of past issues.

The results of research activities at ISSER are reported in the Technical Publications Series, and other occasional works such as bibliographies are also published. The proceedings of any international conference organized by ISSER are usually published in book form.

CENTRE DE RECHERCHE, D'ETUDE ET DE DOCUMENTATION SUR LES INSTITUTIONS ET LES LEGISLATIONS AFRICAINES
(CREDILA, University of Dakar)

1. Objectives

The Centre was created in 1960 to build up documentation on African legislations and to study African institutions from a political, administrative and economic point of view. Since CREA (Centre de recherches d'Economie appliquée) was created, in 1971, its activities have been limited to legal problems.

In 1973 a section of 'Public Law and Political Science' was created within CREDILA. Mr Bakary Traore is responsible for this secton.

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3. Staff and Administration

CREDILA depends on the Faculty of Law of the University of Dakar. It is administered by a director, who apart from his directorial functions is also responsible especially for the research in private law.

CREDILA has seven professional staff. The Director is Professor Pierre Bourel, Professor in the Faculty of Law. Other members of staff are:

1 Assistant
2 Short term undergraduates
3 Monitors
1 Librarian
1 Secretary.

Financial resources

Subsidies are received from French and Senegalese Ministries of Higher Education, and also from the Ford Foundation.

Working links

CREDILA has working links with the following institutions:

(a) In Senegal with the Faculty of Law. The Centre puts at the disposal of the students in their third year (in preparation for a degree or Ph.D.) the documentation necessary for the preparation and elaboration of personal works, research reports and theses.

(b) Collaboration with IFAN through Mr. Mamadou Niang, responsible for research in the department of social sciences.

(c) General delegation to scientific and technical research of the Republic of Senegal.

(d) In foreign countries there is close collaboration with the following institutes or research and documentation centres: C.A.F.R.A.D., Tangier; C.E.D.A.F., Brussels; African Law Centre, New York; International African Institute, London; Istituto Italo-Africano, Rome; Association internationale de droit africain; Centre d'Etudes des droits africains, Université de Paris I; Institut de Droit comparé, Lausanne; Office national de la Recherche et du Développement, Zaïre; Institut des Sciences juridiques du développement, Université de Nanterre; Service de Recherches juridiques comparatives du C.N.R.S., Paris; C.E.A.N., Institut d'Etudes politiques, Bordeaux; Centre pour le développement juridique africain, Brussels, Addis Ababa; Institut africain de Droit international privé, Rome; C.I.D.E.S.A., Brussels; Max-Planck Institut, Fribourg; Institut de Recherches interculturelles, Heidelberg; Institut Fur Afrika-Forschung, Hamburg; C.O.D.E.S.R.I.A., Dakar; Centre africain de Recherche, Alexandria.

This collaboration takes place in various ways, i.e. exchange of documents, research programmes, answers to questionnaires, sending of legislative texts, and so on.

4. Documentation and Publication

CREDILA collects two copies of official papers from French speaking African states (except Zaïre). The Centre also collects law reviews, journals and bulletins published by institutions in French speaking countries as well as some journals from Anglophone countries.

Publications

(a) The Centre publishes a quarterly bulletin of *African Law Documentation* (St. Paul Printing Office,

Dakar) in which are filed under headings of legal subjects the legislative and statutory texts published in the official journals of the black French speaking African states. Every year it devotes a special issue of this bulletin to one of these states. Already published are the alphabetical directories of legal texts of Dahomey (1972), covering the period from 1958–1971; of Senegal (1974), covering the period from 1961–1972; of Upper-Volta (1975), covering the period from 1961–1973; and of Gabon (1976), covering the period from 1961–1974.

(b) The Centre publishes periodical directories of Senegalese statute law. A directory on individual status has already been published. Directories on social law and obligation law are in preparation.

(c) Book collections of CREDILA (Pedone Publishers, Paris, and Nouvelles Editions Africaines, Dakar). In the series 'Thèses et Ouvrages de Reflexion Générale' 13 volumes have been published dealing with African constitutions, monetary and financial problems, political studies and the situation in agriculture. In the series 'Manuels et Traités', three volumes have been published concerning public finances in Senegal, general accounting of Senegalese enterprises and administrative law in Senegal.