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BASES FOR AN AGRICULTURAL DEVELOPMENT STRATEGY IN
AFRICA (SOUTH OF SAHARA) FOR THE SECOND DEVELOPMENT DECADE

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BASES FOR AN AGRICULTURAL DEVELOPMENT STRATEGY IN
AFRICA (SOUTH OF SAHARA) FOR THE SECOND DEVELOPMENT DECADE

The Indicative World Plan has forecast African agriculture in 1985. FAO is using the conclusions (carried up to 1980) worked out by the Indicative World Plan with a view to establishing its own strategy for the Second Development Decade. It is known that agricultural development involves human, financial and institutional factors. They may be national, regional or external, according to circumstances. But it is important to emphasize that they must be studied by those responsible in the countries concerned, not assessed from outside. African development must be based on the resources and values of African society. This section examines the three main elements of development policy - the people, capital and institutional requirements. In conclusion, a brief review is given of the problems of integrating agriculture with overall economic development with particular reference to comprehensive land use planning and intersectoral relationships.

A. The three elements of development

Human Resources

The shortage of skilled labour, competent managers and dynamic entrepreneurs is constantly stressed as one of the basic obstacles to development. Quantitatively, no employment planning could be attempted in the study. However, it is known that overall employment opportunities will not meet the demand at least until 1980, because of population growth, rural and urban under-employment and population movement. There is a danger that the urban unemployed unskilled workers will be on the increase, while at the same time landless unemployed peasants will be trying to migrate to the towns. This first prospect leads to a basic element of policy in the agricultural sector: priority should be given to mechanization only when necessary for technical reasons, or when the financial and economic net gain would be such that failure to resort to mechanization would cause a marked economic loss to the nation. It is clear that until 1980, the opportunity cost of human labour in the agricultural sector will continue to diminish while that of capital will grow fast. If wages do not rise too fast, African agricultural production could remain competitive with that of the other continents. At the same time, value added per unit of production may well be higher in African countries than in countries where mechanization is becoming general. There is already a tendency among farmers to replace manpower with mechanization in agriculture (for instance in the groundnut area of Senegal). It does not seem necessary for governments to encourage this trend.

The possibility of mobilizing unemployed manpower for tasks of national importance is often put forward and many schemes have been

organized on this basis. Such opportunities should not be overestimated. Some essential tasks, however, such as the establishment of forest plantations, which must generally be government financed, might certainly be carried out with manpower employed at very low cost (work camps, civic youth service and other similar arrangements).

Paradoxically, there is a growing shortage of qualified personnel while the number of unemployed intellectuals is growing. This poses the problem of education and training. African governments have made considerable efforts in national education, often devoting 18 to 25 per cent of their public budgets to it. But plans modeled on European educational methods, sometimes already outdated in Europe itself are not always suited to African needs. Hundreds of thousands of young Africans holding general education certificates are unemployed.

Foreign Technical assistance mitigates the management deficiencies to some extent. But its inadequacy is known: its creative function is slight, it provides substitutes rather than advisers. Often it is too heavy on the administrative side and ineffective or insufficient at the professional and intermediate levels. It should be reorganized if the objectives of the plan are to be attained. Priority has to be given to the technical training of the African counterpart who will be called upon to take the expert's place.

Capital

Capital, whatever the model of development, is an indispensable factor of production. Capital, a scarce factor, is being wasted all too often or is not used for lack of an adequate institutional structure. The growth model worked out by FAO takes account of an agriculture whose capitalization is minimized in order to leave the principal use of capital to sectors for which there is no other choice (industries, transport infrastructure, etc.).

The major constraint in the agricultural sector is, as a matter of fact, expected to arise on demand, not on supply, with the noticeable exception of meat. Agriculture should be able to meet demand with a marginal increase in present capital stock. This is what has been done up to now, a large part of investments having been made in the form of labour by African producers and planters. In the traditional sector in process of modernization, which remains the main producer of agricultural commodities, the problems occur rather in the stages preceding and following the process of production.

By contrast, the modern sector would need considerable private and public capital whenever no other solution is possible. This would be the case especially in the following subsectors: agro-allied industrial complexes for export (oil-palm, rubber, tea, bananas, pineapple) or for internal consumption (sugar); irrigation developments in well-defined and economically profitable cases, industrial fisheries; production and

transport equipment for forestry; equipment for modern animal husbandry and ranching.

Finally, some regional development schemes will require massive public capital inflow when they are carried out in areas where population density entails costly development work.

Elsewhere, realities must be faced: the shortage of capital and qualified personnel indicates the choice of projects that do not require large investments and are easy to manage.

Since national budgets have to be devoted more and more to recurrent expenditure and to the operation of administrative services, only the wealthiest countries have public funds of any size available for investments. It would therefore be increasingly necessary to appeal to private national or foreign savings, and to study the best way of doing so. This should also put a brake on the consumption of imported goods.

Institutional Requirements

The rate of development and the change in orientation implied by the Plan could not be achieved without new or thoroughly reorganized institutional services specialized in the numerous tasks (farm credit, research, extension service, processing and marketing) which precede, accompany or follow agricultural production. In this field, the danger to avoid is the establishment of cumbersome and costly administrative machinery whose competence would be unsatisfactory and which would be difficult to co-ordinate. Here it is not possible to analyse the best operating rules for these services. It must suffice to outline the way in which agricultural extension services might evolve. General constraints make it necessary both to limit the use of capital and to intensify yields. This increase in productivity per unit of area and per caput implies a modernization of production techniques and methods. The diffusion of these techniques requires the use of extension officers and the creation of adequate organizational structures. But a comprehensive extension service is impossible on a large scale. Recurrent expenditure would be too heavy. Thus, the rural communities themselves must be involved and trained to take over such services gradually.

It has been found that extension officers not belonging to the environment in which they are working obtain excellent immediate results, but that these tend to diminish rapidly after the extension service is withdrawn. Often there has been no integration, the diffusion of techniques has had no lasting effect, especially if the related organizations supposed to provide credit and inputs and to sell and process the products, do not exist or do not work properly. However, it would seem possible for farmers, after a certain period of extension service training, to become responsible for the spreading of techniques in their villages. As a result, the cost of extension service would be much lower. This is, indeed, a fundamental problem.

of primary agricultural produce mainly concerns intra-subregional trade involving modest quantities. In West Africa, internal trade largely uses the export routes. In Central and East Africa, natural complementary conditions are found on the whole within each country, and so sub-regional agricultural trade is of less importance.

It would therefore be advisable to establish gradually economic complementarities which are much more powerful than the ecological links which by themselves would not lead to any considerable development of trade among countries or zones. The former would result from a concerted policy of gradual area specialization, leading to lower costs of production. The trade developing among Kenya, Uganda and Tanzania is an example of economic complementary arrangements starting with a more or less concerted division of labour.

Therefore, it would seem that a policy of "sprinkling" each country with the widest possible range of industries, of a limited size because of restricted national markets, would be shortsighted and dangerous when declining transport costs make it possible to build production units designed for a sub-regional market.

A more far-sighted policy has to be actively prepared at sub-regional level during the decade. At national level, concrete programmes will have to be launched and implemented in the agricultural sector. They should start with a progressive intensification of agriculture resulting in a certain degree of reconversion of the poorest marginal areas of those farthest from export centres; declining prices will no longer make it possible to subsidize the producers of those areas. This may lead to the channelling of migratory movements through regional development programmes. However, the limitations of this intensification policy have to be faced. If pushed to extremes, it would run counter to social justice, with a small number of producers providing the main part of marketed production. So long as the number of rural people continues to grow in absolute terms, intensification must be limited in its effects, applied to the greatest number and achieved at the lowest cost.

Supply of towns will also require land use organization in some measure: market gardening zones; creation of areas for the intensive production of certain basic commodities - yam, for example; infrastructure for transport, storage and processing etc.. It is through consumption on African urban markets that agriculture could achieve a higher degree of integration with the economy as a whole, of which it forms the basis.

The Links of Agriculture with Industry and Markets

Examination of the model seems to show that the growth rate of household expenditure on processed agricultural produce would be faster than that of expenditure on agricultural raw products. The value added by agricultural industries would grow much faster than the value added

by monetary agriculture. Thus, on the internal market, agriculture would operate more by its indirect effect on industrialization than by its direct effect on consumption. The link between agriculture and industry thus is the key to development; and agricultural production should gradually bring about a drop in prices of industries serving agriculture (fertilizer, pesticides, farm equipment, commercial production of seeds) and served by agriculture (food, agricultural and forestry industries). This requires a concerted policy among countries of the same zone and of neighbouring zones.

As a matter of fact, even if growth is ensured by exports of raw materials during the period under review, the fact remains that further development is conditioned by the growing complexity of the link between agriculture and industry, the establishment of a sufficiently large internal market and the manufacture of increasingly processed products at competitive cost. The international division of labour that allows Africa to put on the world market finished products (tyres, textiles, margarine, paper, furniture, etc.) made from its agricultural commodities, may not continue. At all events, one must hasten the day when organization of the African internal market will make it possible to set up competitive industrial units. This brings up again the concept of primary development centres gathering together production units for an international vocation and of secondary national centres. Agro-industrial development must be conceived on a multinational basis, resulting in inter-dependence among unevenly endowed countries for their mutual benefit.

Agricultural development obviously could not be carried forward without constant attention to market prices. This also applies to products sent to the internal market because it would be extremely difficult to prevent official or clandestine imports of the same and cheaper goods. But at any rate price policy will be one of the main means of which governments can vary their strategy in the agricultural sector.

As for traditional export commodities, it may be hoped that international agreements will be concluded on the pattern of the coffee agreement. The future for commodities like sisal and rubber seems uncertain; for others, prices may drop over a long period (cotton, groundnuts, bananas). For all countries, alignment with world prices is an absolute necessity. The decline in prices would mainly be counter-balanced by gains in productivity, possibly by economies in transport costs, commercial margins and fiscal levies. In general, price policy for export commodities is marked by a narrowing margin of manoeuvre, by a diminishing capacity to finance the rest of the economy, by the need for strict control over the use of inputs and for keeping foreign-exchange expenditure to the minimum; by temporary subsidies for fertilizers and pesticides which prove profitable for the national economy, and by increased foreign aid for integrated development programmes in the form of financing and technical assistance.

Price policy for products intended to replace imports or for marketing within a sub-region calls for intra-regional agreements of the type in force for sugar or projected for meat (OCAM). Elsewhere, protectionism is developing, for wheat in East Africa, for example, which may continue so long as it does not lead to uneconomic activities or industrial plants that are too small, which would raise prices considerably (this danger exists for sugar-mills). For instance, it would seem possible to set up a meat market for West Africa as a whole on a protectionist basis.

Price policy for products intended for national markets should consider two factors: the present inadequacy of the marketing system in face of the growing demand of towns and agricultural industries, and the worsening relations between the cost of inputs and the value of production. These two factors do not favour supply elasticity. It is therefore necessary to stabilize producer prices throughout the year, build an economic storage infrastructure, and possibly subsidize inputs for a certain period. Foreign aid should play a much greater role with regard to the last two points which have been too often neglected in the past.

In conclusion, agricultural commodity prices are still governed by constraints outside Africa. Only by improving marketing channels and rationalizing processing industries can African governments finally influence their price policies. But these objectives require resources which international aid should in part be able to furnish.

In most countries without mineral resources, the transfer of funds from one sector of the economy to another has as yet been a one-way operation - from agriculture to the other sectors (industry, and often infrastructure or the operation of public services). Until 1980, agriculture should be able to continue financing general development, thanks to the position it would keep in exports, but declining commodity prices and increasing production costs per unit area will not allow it to play this role to the same extent as in the past. On the contrary, plant production will often have to be subsidized, not directly but by input subsidies regarded as an investment in land capital and linked to the settlement of agriculture and to intensification. The other subsectors - animal husbandry, fisheries, forestry and agricultural industries - should not need any subsidies for their operating costs but would require high capital investments. Likewise, research which in fact is expensive must be intensified. Funds which cannot be supplied by the private sector could hardly come from the national budgets of the poorest countries where agriculture calls for the greatest amount of aid. Foreign aid in the first place will therefore have to furnish indispensable technical and financial assistance; it must be thought of as an investment in a sector where profitability may be low but is sooner or later certain, and upon which alone development can be based.

SECTORIAL AND GEOGRAPHICAL TACTICS

This section describes the most urgent development measures required to stimulate the development of the agricultural sector. These measures will be analysed by subsectors and country groups in order to show the specific characteristics of each type of project or development which is suggested in relation to problems or countries with the same characteristics. An attempt is made to show how such measures can be integrated within an economic and social framework of increasing complexity.

A. Priority Action by Subscribers

Knowledge and Information

By this is meant the requirements in research and statistics. Lack of both national funds and of African research officers will increase the deficiencies in this field unless foreign financial and technical aid continues on a large scale. Particularly, fundamental research should not be neglected. Without it, there would soon be only attempts at technical adaptation, without a chance of innovation. The recommendations therefore are directed at the following points:

- Establishment of programmes for fundamental and applied research and the simultaneous training of African research workers financed by foreign aid;
- development of research in sectors which have received little encouragement so far; food products, food technology; elaboration of the best fertilizer doses and formulas; research into animal production; genetic research for certain crops threatened by competition; rubber, cotton and groundnuts; research into crop preservation;
- more research into cultivation techniques and related fields (weed killers, pesticides, improved tools, etc.);
- sociological research, largely neglected so far, for the better preparation and application of programmes for integrated development. Investigations prior to implementation of these programmes should always be carried out by teams composed of experts in the various branches of science, including sociologists, nutritionists and economists.

Agricultural statistics in tropical Africa are inadequate for analysing production, demand or trade. Only for export commodities is there a good picture, thanks to customs statistics. Data on animal husbandry, food crops and small-scale fisheries are restricted to very rough estimates. Little is known of household consumption despite a number of statistical surveys, as most were not properly formulated,

processed or analysed. It seems that in this field priority should be given to ensuring greater consistency between the data on production, trade and consumption by using systematic household surveys at national level (or for large areas) with the collection of data in both quantity and value terms distinguishing marketed production from other production. Only thus can better use be made of agricultural statistics. How can this consistency be achieved?

For marketed production it is relatively easy to measure volume and value (forestry, exported perennial crops, industrial fisheries, animals passing through slaughter-houses or controlled channels). However, there are weak points. For example it is impossible to use time series for external trade (frequent changes in economic groupings, unexplained methodological variations); data on intermediate consumption are inadequate or non-existent (gaps in industrial surveys), and there is a lack of short-term forecasts on production exports, internal demand and prices, which makes it difficult to check the progress of the economy. Apart from improvements on these points it would seem that priority should be given to working sessions and meetings between representatives of different countries to work out a general methodology and improve sub-regional co-ordination. In fact, there is generally no consistency between the trade statistics of neighbouring countries.

Statistics on subsistence production are merely rough estimates. Production and consumption, it seems, could best be approached by periodical household surveys (every eight or ten years) covering the rural area as a whole. Developments in food consumption and household expenditure could be measured in this way. Such work would have to be supplemented by surveys in towns and sampling surveys of production. Using suitable sampling techniques such a programme would represent a more economic use of resources than found at present in many countries.

In addition to statistical surveys, inventories of physical resources are required (land use, forests, fishery resources, grazing areas). The inadequacy of present data precludes reliable long-term projections. Priority should be given to making systematic inventories of heavily populated areas which may face serious problems from 1975 onwards.

Plant Production

It is known that the basic constraint will be the demand of foreign markets which will grow more slowly than in the past, accompanied by a prolonged and sometimes sharp decline in the prices of tropical products. In contrast, internal demand in Africa will grow at a much faster rate. Over the decade the relative importance of these two markets will certainly be reversed. At the same time, the value of marketed production will probably exceed that of subsistence production.

The plan confidently relies on improving the productivity of traditional agriculture. Here the choice of priorities is thus of particular importance. The measures chosen must at the same time raise the producer's net income, lower the cost price per unit of production, reduce the selling price, and therefore bring about a fairly strong increase in productivity per caput and per hectare (in view of the limited supply of good quality land).

All priority action should be based on intensification. But a distinction must be made between measures which could achieve high productivity immediately and those whose effect would be progressive. General ecological conditions must also be considered and operations have to be adapted to the great variations encountered in the climatic zones.

Measures which could Achieve Immediate Increases in Productivity

Plantations of the agro-industrial type, organized on capital intensive lines, can be quick to respond to changes in demand (particularly external demand). Rapid increase in production can be obtained by setting up such enterprises. The setting up of agro-industrial type units must be preceded by detailed studies of their financial and economic profitability and they must be efficiently managed. They offer employment which could absorb the growing number of young landless farmers from densely populated areas. However, their share in crop production as a whole will be limited. For domestic food crops traditional agriculture is quick to respond when prices and outlets are guaranteed.

Measures to achieve progressive productivity are inseparable from the general programme of development. They necessarily involve millions of centres of decision represented by the heads of family farm holdings. That is to say they require the implementation of a series of operations before and after the process of production, all of them aimed at integrating the producer with an economy of growing complexity; monetarization, credit, utilization of inputs, new cultivation techniques, utilization of collective equipment, sale, co-operation, etc.. The measures required may be divided into a great number of specific techniques; nevertheless, as a whole they constitute a giant undertaking in education and diffusion of progress. As far as possible, village communities must be the framework of this action.

The priority techniques are known: intensification of labour use; selection of seeds or young plants; use of pesticides; improved farm equipment; introduction of fertilizers; gradual transformation to settled farming and crop rotation. When such techniques are introduced particular attention should be paid to the rate at which peasant societies can assimilate them and also to the evolution of demand for all products at competitive prices if the techniques are properly transmitted to them.

Priority action thus consists in organizing institutional structures for development and making them work: extension services, rural leadership, credit marketing, processing. Its general framework thus involves all branches of government. Food crops would be the first point of attack to banish definitively the problem of food shortages and to provide the growing towns with urgent supplies. Food crops should rotate with industrial crops. The resources for these measures would need to come in part from foreign technical and financial assistance. In general, it can be demonstrated that these operations are profitable, and it is hard to understand why they sometimes fail to attract finance. Often, however, the preliminary sociological, economic and technical studies which are needed to justify finance are lacking. Also profitability can only be achieved in the longer term and thus such projects may not seem so attractive at first sight. In drawing up project schemes there should be a high initial investment in extension services in order to ensure high productivity of cash inputs. Only such high productivity of inputs of high opportunity cost will ensure eventual economic gain at the national as well as the farm level.

Animal Production

In the subsector of animal husbandry, supply will soon no longer be able to meet demand. Production is quite inelastic, especially in cattle production which will show the greatest deficit. Pending development of large new areas in the raising countries, urgent action is needed to increase production. This must be done in the traditional sector - where livestock is often overexploited, contrary to legends about "contemplative" husbandry - and in the modern sector which practically does not exist at present.

For both sectors, a considerable research effort is an absolute priority; except for veterinary research, knowledge and experience are lacking in the field of African animal husbandry. Considerable funds must be allocated for setting up experimental stations (selection, cross breeding, feeding, milk production, meat yield, eradication of glossina, ranching etc.). In most countries, these efforts which are urgent but will take time to produce effects, cannot be undertaken successfully without foreign technical aid. The research work must lead to the financing of experimental projects sufficiently large to enable their findings to be of general application. Here too, bilateral or multilateral donors have to be convinced: the projects will certainly be profitable in time, but it will doubtless be a very long time.

The principal measures required would have three general objectives:

- to raise production,
- to improve marketing, and
- to establish marketing facilities for livestock and meat.

Increased production would be sought in two ways:

- a) By increasing herds (mainly in West and Central Africa): health protection is a priority because at present there is generally a decline in prevention services. Other developments should include water supply on range lands and animal breeding. Special programmes would have to be drawn up for the raising of non-migratory cattle of the taurine type in West Africa.
- b) By increasing the weight of animals: ranching is doubtless the solution of the future, but development work is at the earliest stage in West and Central Africa. Experimental ranches need to be set up for three types of fattening: extensive grazing in the Sahel zone; pasture or industrial feeding in intermediate or coastal areas; and fattening on peasant holdings where farming is integrated with animal husbandry.

Improvement in marketing raises the problem of co-operation between exporting and importing countries. Sub-regional agreements are indispensable. The priority points would seem to be as follows: control of markets and livestock prices, organization of transport, reform of dealers' activities, organization of final markets, and regulation of prices.

Finally, marketing facilities are inadequate. Some efforts have been made to build slaughter-houses with cold-storage facilities (unfortunately not always properly located). But new facilities are necessary: livestock markets in the producing countries, recuperation yards, and new abattoirs or expansion of existing slaughter-houses.

Certain measures for milk production and for raising pigs and poultry can be carried out with the help of private capital. But prices will doubtless have to be guaranteed if investors are to risk their capital.

Fisheries

This sector is expected to develop very quickly. It seems that private capital is available and that the constraints of supply will not be felt until 1980. There is, however, a lack of vocational training. The profitability of well-conceived investments in sea fisheries justifies the ambitious targets and the investments assumed by the plan.

Distribution of fish in the interior involves a very high degree of economic co-operation and intra-regional trade, which is a field of priority action in this subsector. Agreements on marketing facilities will be necessary, as in the case of meat. In some cases, the facilities

could be common to meat and fish to cut distribution costs. African co-operation should be reinforced by foreign technical aid for the organization and management of these facilities and for vocational training of the labour force. Industrial sea fisheries and processing plants can be financed by private enterprise, but international financial aid would be indispensable for the construction of harbour installations and cold-storage facilities and for the development of small-scale fisheries in rivers and lakes.

Priority should also be given to the development of economic processing techniques by perfecting present small-scale methods (dried, salted and smoked fish) and by introducing new types of processing (fishmeal). Losses between production and consumption must be reduced. In the period under review, fish will replace meat as a protein food to an increasing extent because the price of meat is going to rise markedly. As a result, demand for fish may be higher than assumed by the plan which uses projections at constant prices for meat and fish. All measures designed to raise fish production at reasonable cost therefore must receive priority, especially:

- intensified oceanographic biological research
- inventories of lake and river resources.

Forest Production

In the forestry subsector, the long-term constraints will also be at the level of supply, not of demand. Priority developments must aim to make the best possible use of forest resources, add value to production by increasing the processing of timber into semi-finished and finished products, and to replace the resources used by new plantings.

Developments in forestry are by definition long-term and limited to certain favourable ecological zones. Since production will rapidly decline in some countries after 1975-1980, priority measures must include:

- continued research into the best species for reafforestation and into the industrial use of timber and by-products. (This can be done on the basis of regional co-operation.)
- inventories of resources and requirements at national and sub-regional levels;
- reafforestation in the most heterogeneous forest zones of West and Central Africa;
- plantations planned at national and sub-regional levels in East Africa, with studies on the best locations and on market possibilities;

- choice, at sub-regional level, of countries which could manufacture paper in the period under review. It is clear that preliminary agreement among governments is necessary for any project to produce paper pulp or paper;
- new plantations for firewood and roundwood for the local market in deficit areas until higher standards of living and improved distribution make it possible to replace wood with petroleum (or gas);
- finally, with a view to reducing expenditure of foreign exchange, it is recommended that a paper manufacturing industry be preceded by the setting up of paper conversion plants which create employment, considerably increase value added, and develop the local paper market.

Agro-allied Industries

The annual growth rate for agro-allied industries would be higher than that of GDP. These industries can diversify agricultural activities and have a stimulating effect on agricultural development. However, the necessary measures in this subsector are not easy to identify. The size and location of factories, the cost and the supply of raw materials and inputs, and the capacity of manpower and management are factors which determine success or failure. The high productivity of enterprises in industrialized countries, moreover, enables them sometimes to compete successfully with African industries on the African market itself.

In the field of agricultural industries the first step is the preparation of a concerted sub-regional policy. Encouraging signs exist in this respect (regional studies, conferences, joint investments). The policy to be advocated must look for the optimum location, size and type of a plant, having regard to the conditions of production and the market.

The siting of installations should be decided upon at sub-regional level or at national level, according to circumstances. Most agricultural industries can be set up at national level, but the importance of economies of scale should not be overlooked: for instance it would seem that costs of sugar production could be cut by 25 per cent by going up from a 20,000-ton plant to a 70,000-ton plant.

Government action therefore should tend to encourage industries at local level only if they can be profitable without special protection. Otherwise, there is a great risk of losing the benefit of the investment. Furthermore, the criterion of a competitive capacity is just as decisive for industries producing for the local market as for export industries. Even with customs protection, the former would have to compete with smuggled imports across highly permeable frontiers.

Investments will be directed more and more to agricultural industries producing for the internal market which is developing fast. Notable exceptions would be factories processing timber, preserved fruits and fruit juice, and some types of canned fish. Two-thirds of palm-oil will be consumed in Africa, even if all planned projects are carried out.

Two questions must receive special attention:

- the first, of a short-term nature, is research and technological innovation, especially in the field of new food products for urban consumption, made with a growing proportion of local raw materials (bread flour, prepared foods, etc.);
- the second, in the long-term, is the identification of industries which can extend agricultural processing to the stage of the final product, with a reasonable chance of competition on African markets and possibly on foreign markets.

International aid is an indispensable contribution to both.

Food Consumption

Priority action is also necessary in the field of food consumption. Because of urbanization internal food demand is evolving not only in quantity but also in quality. The necessary measures involve both the maximum utilization of the resources of local or sub-regional production and the improvement of the protein-calorie balance.

In areas where cereals are the staple food, it is advisable to encourage consumption of protein-rich local cereals (millet and sorghum in the first place, then maize, before rice and wheat) and to reduce cereal imports. In areas where nutrition is based on roots and tubers, more attention has to be given to cereals and, above all, to pulses, or protein has to be added to dishes prepared with roots and tubers, which are the cheapest calories. This attempt at "guided consumption" has a chance of success in towns where the danger of malnutrition is often greater than in the countryside.

A change in food habits is already noticeable in cities, unfortunately in favour of mainly imported foods: breads, canned goods, tinned milk, Far Eastern rice, etc.. Continuation of this trend would be ruinous for the African economy and against one of the fundamental principles of development - the creation of an African urban market for local agricultural products. Action should be taken to meet the objective needs of the urban population (reducing the time for preparing and cooking food; enabling wage-earners to take a quick lunch to their places of work, etc.). Funds are required for research on food technology. This work should be based on traditional African dishes.

It is supposed that the structure of food consumption will remain more or less unchanged until 1980, with the basic foods predominant in the diet. Only people in the higher income brackets will tend to consume imported goods: customs duties can act as a deterrent in this case.

Other direct priority measures concern assistance in developing grain production (research into high-yield varieties with better nutritive value, marketing and storage, industrial processing) and in increasing the production of pulses. These operations should be carried out in line with the evolution of prices of and demand for meat. If rising prices reduce per caput meat consumption, fish and pulses can replace meat in part: sub-regional agreements could be concluded enabling the poorest inland countries (Malawi, Upper Volta, Niger, etc.) to step up their exports of pulses to coastal countries.

Finally, action for improved supplies to towns leads to the commercial organization of marketing channels, creation of a suitable infrastructure (markets, silos, industries, etc.) and of a commercial and financial network. These considerable problems could not be examined in this report and will have to be the subject of further studies.

B. Priorities in each Sub-region

The countries reviewed in this report have been grouped, somewhat arbitrarily, in four sub-regions - West African Savannah Countries, West African Coastal Countries, (including Nigeria), Central Africa and East Africa.

West African Savannah Countries (Mauritania, Senegal, Gambia, Mali, Niger and Upper Volta). The guidelines for agricultural development in this sub-region are based on the following four points:

- Seeking a better balance between food supply and demand, particularly in the subsistence sector: periodical shortages must be eliminated;
- meeting the demand of the urban market and of mining workers; reducing food imports, especially in Senegal;
- stressing complementary arrangements with the coastal zone, developing traditional exchanges (livestock, fish, cola nuts), modernization and diversification (grain, pulses), gradual specialization in certain areas and developing economic complementary systems backed by inter-governmental agreements;
- ensuring the maximum outlets for export commodities by cutting production costs and keeping in line with world prices.

The necessary measures have to be at three levels (interior, inter-regional, extra-African) and must result, in the very long run, in a new land-use system which assigns areas fit for grazing to animal husbandry and intensifies plant production on the best soils which are becoming rare. Before the end of the period under review, reception areas should be created like the upper valleys of the Volta Rivers, which are fertile but uninhabited because of disease.

The measures suggested assume this new arrangement of the territory. Thus, the average area per holding will tend to drop, productivity per hectare and per caput will increase markedly and, above all, rural development will aim at organizing farm holdings and communal land use in the direction of intensified and settled agriculture.

The agricultural programmes proposed during the period of the plan would bring about only a very low rate of growth, but they would be accompanied by progressive modernization of techniques and by the development of "rural leadership" in village communities which will gradually become responsible for organizing production. The declining prices of export products will make it impossible to burden governments with the costs of expensive extension services, nor will it be possible to have producers shoulder high costs of equipment. The best utilization of land and materials (ploughs, sprayers, etc.) should be sought within the framework of the village.

Gradually, it should be possible to develop specialized agricultural zones; animal husbandry in the north, grain growing areas closer to the centres of consumption, cotton and groundnut zones on the most favourable soils; intensification should make it possible to concentrate in the south on the fattening of livestock with improved ranching.

Close attention will have to be paid to the problem of production prices, especially for export products, which are overvalued at present in relation to declining world prices. The necessary intensification must minimize the cost of monetary inputs by seeking methods which give the best benefit-cost ratio.

To sum up, the predominant subsector in the long term must be meat production which needs big investments from now on. Meanwhile, an effort must be made to intensify exports of cotton and groundnuts and to develop exports of grains and pulses to towns along the coast. These steps must be co-ordinated within the zone and with the neighbouring coastal zone. Trade agreements must be concluded on meat and on processing of grains and pulses. This kind of action also applies to the northern areas of the coastal countries and to some countries of Central Africa (Chad) and Eastern Africa (Malawi).

West African Coastal Countries (Nigeria, Dahomey, Togo, Ghana and Ivory Coast). It is estimated that the constraint of supply will not be

important in this zone. Favourable ecological conditions, the possibility of migration, within the sub-region, and the fact that intensification techniques are known, make it possible to rely on a capacity to change in traditional agriculture, sometimes backed by the creation of capital intensive agricultural development. Technical and financial considerations will influence the choice between the two types of farming.

However, the changes required for supplying the local market are quite different from those needed in the export subsector. Internally, the problem is to meet the demand of the big cities, several of which will have more than one million inhabitants by 1980. Their food supply alone involves a series of complex developments in production, processing, transport, marketing and credit, which must be carefully studied and planned. Special attention is drawn to the complexity of agro-industrial problems and the need for co-ordination within the region.

As regards exports, the commercial position achieved should be consolidated by selling products of better quality at lower prices. Diversification is still possible but limited. Lower production prices will be the decisive element for success of the programmes to be carried out. It will often be necessary to choose between developing new plantations of high productivity but requiring capital investment and an improvement of yields of traditional plantations. It is also necessary to keep the cost of inputs to the minimum. In this regard, the opening up of new areas should be considered only when costs are economic.

To sum up, developments will be essentially at national level, but co-ordination among neighbouring countries should be sought also in, for example, research, foreign trade promotion, and programmes for diversification or specialization. Finally, co-ordination with the neighbouring sub-region is indispensable for the development of animal husbandry as well as grains and pulses. The countries of the West African coast, which will be industrialized earlier than those of the Savannah, should find it possible to leave certain activities to the less favoured countries of the interior which will be their customers for industrial products.

Central African Countries (Democratic Republic of the Congo, Congo (Brazzaville), Gabon, the Central African Republic, Chad and Cameroon). According to the assumptions of the plan, the sub-regional GDP should double by 1980, but this growth would be due more to the mining, industrial and forestry sectors than to crops and livestock. As a result, the gap among the various countries would widen, with the biggest handicap obviously in the northern zone.

Agricultural activities, therefore, would no longer predominate, but they would remain the basis of development in Chad, Cameroon and, to a certain extent, in the Democratic Republic of the Congo. The

grouping of these different countries in the same sub-region is justified in perspective because a policy of economic specialization should allow exchanges to be developed within the area. It would seem that a customs and economic agreement among the six countries ought to be studied. In fact, it is difficult to imagine a harmonious development of agricultural and agro-industrial activities of this sub-region without strong political determination to co-operate and harmonize all sectors of economic activity. The tendency to scatter investments, which is noticeable at present, is dangerous.

In agriculture proper, the principal guidelines would be as follows:

- Production by rural people of the countries concerned of the main part of the food requirements of town-dwellers;
- giving Chad and the Central African Republic the maximum chances to export meat and cotton (and timber for C.A.R.);
- exporting to Nigeria all the agricultural and animal products the sub-region could produce.

The following is a summary of the main developments required: market-gardening belts round towns; intensive production of certain food commodities - sugar, yam, pigs and poultry; milk and in certain cases high-quality meat; in the Savannah zone, intensification of cotton cultivation (and of the cotton industry, if possible); development of animal production with cold-storage abattoirs near the places of production and meat transport by plane; development of fisheries, etc.. Development of the traditional export commodities (coffee, cocoa, timber).

In short, the possibilities for development are favourable in this sub-region. Their implementation calls for a policy of co-ordination and investment planning, division of the tasks of production and improved transport infrastructure. But the most handicapped states will be unable to carry out these operations without foreign technical and financial aid. In particular, it is necessary to continue extension services to agricultural production over a long period and to view them as an investment.

East Africa: Ethiopia, Kenya, Uganda, Tanzania, Malawi, Zambia and Madagascar - agricultural prospects are quite different from those of the other regions. In 1980 almost nine-tenths of land with a good potential should be under cultivation in Kenya, Uganda and Tanzania, probably also in Ethiopia. Therefore, it is more urgent than elsewhere to work out a policy for the utilization of all cultivable land, especially in the extreme cases of Madagascar and Malawi.

Trade prospects are marked by a break with the past owing to the exceptional place held by coffee and sisal in the exports of some of

these countries. Medium-term possibilities rest on diversification of traditional markets (seeking new outlets in the Near East and in countries on the Indian Ocean). In the long run, the most promising prospects are for food exports (plant and animal proteins).

The problems of changing crop production are made difficult by the wide gap in incomes from export crops that have so far enjoyed priority (coffee, tea, etc.) and the possibilities considered in our model of development. A fairly long time lag may be foreseen for these new programmes (establishment of modern animal husbandry, production of maize which is competitive on the world market). Growth of agricultural production will call for solutions mainly involving indirect action by governments and consequently fewer recurrent charges on public budgets. In Madagascar the long-term solution of the rice problem will call for a policy of heavy investments and intensive extension services.

Conclusion: What can be expected at the end of the second decade

The income level expected in 1980 may cause some disappointment considering the large resources required during the period covered by the plan, the necessary reforms and the institutions that have to be created. Some countries would not have gone beyond 100 dollars a year; most of them would be below 200 dollars. Yet this indicator is not very significant. If one examines household expenditure, which reflects the level of consumption much better, it is seen that the average in 1980 will still be less than 100 dollars per caput and per annum.

These modest results will call for unprecedented efforts on the part of African agriculture and for foreign financial and technical aid reorganized and co-ordinated more effectively. Cuts in technical assistance, gradual replacement of grants with public loans (with the financial burden of previous loans already heavy enough), and difficulties in selling African commodities on world markets could not but strengthen the state of dependence.

In fact of this disproportion between the means and the foreseeable results in 1985, a number of questions may be asked, particularly:

- Is it worth making such efforts for such small results? In other words, would it not be better to let past trends take their course?
- Could one not envisage faster growth by eliminating some of the constraints assumed in the model?

A. Continuing the Trends of the Past

All analyses of the present situation show that it is impossible to let past trends continue. Traditional agriculture can undergo only very limited intensification. It is extensive and shifting, needing considerable tracts of land for fallow. The rural population continues to grow fast. In the traditional scheme of things, productivity and income can only be raised by extending cropped areas. This is impossible without technical resources. It would be necessary to spread ploughing, extend fallow land, consume considerable areas, and land capital would be wasted in the detriment of future generations. Besides, cultivable land is going to become scarce in many countries around 1980; there would be landless peasants, and permanent conflicts between stock breeders and farmers, without any improvement in productivity. Finally, it is difficult to see how traditional agriculture could meet the growing urban requirements for food in quantity and quality without overall measures affecting organization of food production and distribution. Without the measures sketched in the plan, food imports would grow very rapidly, increasing economic and financial dependence on foreign countries.

Animal husbandry, as carried on at present, is reaching the limit of the rate of livestock reproduction and exploitation. The conclusions of the latest studies are categorical in this respect: if present trends continue, West Africa alone would have a meat deficit of over 250,000 tons from 1980. Here too, it is clear that the intensification proposed by the plan must be carried out, and the necessary investments must be made.

Traditional exports of tropical products are expected to increase at a lower rate, sometimes there may be a standstill and prices are going to drop further. In order to avoid reduction in producer's income, the unit cost of production has to be reduced and quality must be improved. Control of production will be necessary in many cases. New outlets have to be sought and regional or international agreements must be concluded. The scheduled investments, requirements of qualified personnel, structural reforms and development programmes are therefore indispensable. But could one proceed faster and hope for more spectacular results?

B. Is faster growth possible?

Additional growth could only come from increased internal trade or exports. Quicker growth of trade among sub-regions or countries within Africa would presuppose a new division of labour by a specialization of zones to be achieved by 1975-1980. This seems very unlikely. Except for meat, complementary ecological conditions are extremely limited, and an analysis of trade prospects among sub-regions has shown that efforts should first be concentrated on processed products with the highest income elasticities of demand. Moreover, intra-regional trade will

The launching of extension services therefore must always be preceded by careful studies on how current expenditure may be gradually decreased until local communities can take over for themselves. The aim of this transfer of technology is as much social as economic. It is based on the self-development of village communities and their involvement in local economic life.

B. Integration of Agriculture within Overall Economic Development

The agricultural sector cannot develop in isolation: it fits into a wider geographic and economic context than the operations of primary production. Labour, capital and institutional services therefore must be co-ordinated in a policy for comprehensive land use planning and developing the relations of the primary sector with the other sectors of the economy. Traditional agriculture can do nothing in these fields; it is precisely the dynamics of the proposed model which should meet this twofold need.

Agricultural Development and Comprehensive Land Use Planning

The foreseeable evolution calls for progressive land use management for several reasons:

- Good agricultural land is going to become scarce; it should gradually be reserved for specialized and intensive crops;
- inversely, marginal areas, where production costs per unit will increase, could gradually be abandoned and reconverted to pasture in line with its original vocation; agricultural intensification will thus make it possible to recover large areas for extensive or semi-extensive animal husbandry. The cost of semi-extensive production would be lower than the cost of intensive husbandry for a long time to come;
- towns would be partly supplied from semi-urban market-garden belts;
- in the most densely populated zones, which sometimes are also the poorest areas, migration would have to be encouraged or organized toward fertile areas which are now uninhabited because they are unhealthy.

Viewed solely from the angle of agriculture and agro-allied industries, there are limitations to land use planning. Owing to the modest unit value of its products compared with that of most of industrial goods, agriculture as such cannot justify long-distance transport routes. It must therefore use the routes required by industry and as a result will be influenced by the location of the mining and manufacturing activities. Roads to the ports exist and the main connections between inland areas and ports are constantly improving. The remaining movement

account for only ten per cent of total trade; thus, the impact on total exports would be limited until 1980.

The assumption of greater demand from international markets also appears unlikely. African production could certainly meet such a demand, but the prospects assumed by the plan are already optimistic. Comparison with those worked out for the other continents in regard to world demand would doubtless result in downward adjustments of the Indicative World Plan projections.

Envisaging a quicker growth of agricultural exports amounts to arbitrarily increasing Africa's share in international trade. Without doubt, possibilities of diversifying markets (Middle East, South-east Asia, centrally planned countries) do exist and efforts should be made to exploit them. But they will be uncertain and it would seem that diversification cannot markedly accelerate the rate of growth of foreign trade. Consequently, to go beyond what has been provisionally proposed, one would have to envisage deliberate action by centres of decision outside tropical Africa, and this is not within the frame of our analysis, although one might strongly encourage such a tendency.

Therefore, faster growth will mean a stronger expansion of internal demand. But the plan's assumption regarding urbanization is already high. Furthermore, higher demand for agricultural produce could be generated only by a faster growth of the other sectors. The unrealistic nature of this assumption, which would lead to growth rates for industrial exports in the order of 14 per cent a year, excluding Zambia, has to be stressed.

Apart from these difficulties, other problems would arise: the physical and human infrastructure is not geared to such a rate of growth; bottlenecks would quickly appear; income brackets would widen too much and too fast, accelerating inequalities in distribution. Structural reforms of production and land use management would be much more difficult, and it is these reforms which are designed to give a chance to autonomous African development after 1980.