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FOOD SUPPLY AND ECONOMIC COOPERATION IN  
WEST AFRICA

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## I. Introduction

1. The purposes of this paper are merely to highlight certain food supply problems of the West African Sub-region and to indicate the possibilities of cooperation between the countries of the sub-region in the development of their agricultural resources. Particular emphasis is on the reduction of imports of foods. The paper will not cover sugar or questions of agro-allied industries since other papers have been prepared on these as well as on cotton and timber.

2. A brief presentation of some index numbers and average annual rates of growth of food production will be presented, although it must be stressed that the development of estimates of food production is still very much deficient. Interpretation, therefore, of these and other published estimates should be made only with the greatest of care and reservation. We still do not really know with any precision what are the main characteristics of the trend of production (nor of consumption) of the principal food crops of West Africa. In this paper the figures are calculated from FAO sources. The United States Department of Agriculture, through its Economic Research Services, also constructs indices of agricultural production on a systematic basis. Generally, these are not published as such but are prepared mainly for **internal** circulation within the United States official agencies. There are marked and substantial differences often between the FAO and the USDA's estimates. The FAO figures are for the most part official data provided by African governments; the USDA's figures appear to represent modifications of these made by United States government observers. The Indicative World Plan for Agriculture, now being prepared by the FAO, uses estimates which again differ from both the above. It is unfortunate that until work began on the Indicative World Plan the data to be found in the FAO Production Year book, the Trade Year book, and that prepared by other FAO Divisions, have not always been mutually consistent. The West African Pilot Study of Agricultural Development - 1960/1965 of the Indicative World Plan <sup>1/</sup> represented a first attempt to development estimates of production, trade, and consumption which are consistent.

This study, however, is being redrafted in the course of the preparation of the various sub-regional studies which will go together to make up the Indicative World Plan for Agriculture to be presented at the World Food Congress of 1968. It must be stressed again, however, that no realistic expectation of substantial improvement in the basic data can be had for the next few years, at the least. There is an urgent need to prepare and carry through a programme of sample surveys on these matters so that all those interested and who require consistent and comparable data may have them within the least possible delay. It is doubtful that at best such surveys could be designed and conducted within the next three or four years. In the meantime such data as the FAO and others present, and which will be used here, should be regarded simply as the best available guesses, as to what purports to be the case.

3. Levels of production will be compared with estimates of population for the past decade or so and with projects of estimated rates of population increase for the forthcoming decade. It must be emphasized that the population estimates are almost as unreliable as crop production estimates. In fact it should be known that estimates of production are very much influenced by the estimates of population and by other shaky estimates, on food consumption.

4. In fact, in the light of the very uncertain data, this exercise might serve incidentally as an appeal to shift discussion away from a comparison of guesses on the courses of production and population, and to focus it instead upon some more nearly precise matters such as the lowering of the cost of food in major developing urban centres and the reduction of foreign exchange wastage in importation of foodstuffs. These and other qualitative problems, such as the improvement of diets, the "industrialization" of agricultural raw materials, the more intensive utilization of relatively idle agricultural resources, would seem to be appropriate policy objectives. More precise and more reliable basic data would be very helpful for such purposes, but the objectives do not permit us to wait for the provision of data.

Finally, there will be a brief discussion of some outstanding policy questions.

II. Some Indications of the Trend of Production of Staple Crops in West Africa. (1953-1965).

5. As emntioned in the introduction above, it is very difficult to represent quantitatively the trend of food production in Africa. The indices prepared by FAO are of the whole region, and conceal probably significant differences between sub-regions as well as between countries.

6. Indices of the volume of production have been prepared by the Joint ECA/FAO Agriculture Division and are presented below. They are not proposed as either authentic or reliable, but if intepreted with care may indicate orders of magnitude and direction. The methods and procedures are briefly given below.

7. FAO data on crop production from 1950 through 1965 are the sources. Only the most important staple food crops for local supply have been selected. Crops such as groundnuts and palm products have been deliberately excluded, not because they are not important in local consumption. But for this exercise it was decided to exclude such export crops on the grounds that their trends of production may well not reflect those of the main staples. Three-year averages of estimated production were calculated for a base-period 1952/3 - 1954/5, 1957/8 - 1959/60, and 1962/3 - 1964/5. Indices based on 1953 were then computed for 1958 and 1963 with price weights used by the United States Department of Agriculture. Table I shows summarized results for the 14 countries in the sub-region, in index numbers and average annual percentage rates of growth. These rates can be compared to estimates of rates of growth of population.

TABLE II

Estimated Volume of Production of Staple Food Crops

1953 - 1963

West African Sub-region

('000 metric tons)

Three-year averages

Price <sup>a/</sup> Weight	Crop	1952/3-1954/5	1957/8-1959/60	1962/3-1964/5	Percent Growth Rate 1953-1963
65	Maize	1352	1607	1863	3.2
65	Millet and Sorghum	5495	6427	7752	3.5
90	Rice (Paddy)	1231	1396	1750	3.6
30	Sweet Potatoes and Yams	12981	15291	19223	3.9
15	Cassava	13219	15188	18250	3.3
155	Beans, Peas and other Pulses	464	759	965	7.4
	Index	100	119	146	3.9

Source: (same as Table 1)

<sup>a/</sup> Price-weighted by the following weights of U.S. Dept. of Agriculture. See Economic Research Service, Indices of Agricultural Production in 28 African Countries, Washington, December 1965.

TABLE I

Indices and Growth Rates of Production of Staple Food Crops

1953 - 1963

West African Sub-region

Country	Indices of Food Production (1952/3-1954/5 =100)		Average Annual Percentage Rates of Increase			
			Food Production		Population	
	Three-year averages					
	1956/7- 1958/9	1962/3- 1964/5	1953 to 1958	1958 to 1963	1953 to 1963	1953 to 1963
Dahomey	97	108	0.6	2.2	0.8	1.8
Gambia	112	166	2.3	8.2	5.2	2.6
Ghana	103	122	0.6	3.4	2.0	2.8
Guinea	132	132	5.8	0.0	2.8	2.5
Ivory Coast	137	186	6.5	6.3	6.4	2.2
Liberia	124	119	4.4	0.8	1.8	1.1
Mali	106	115	1.2	1.6	1.4	2.0
Mauritania	128	121	5.1	1.1	1.9	1.3
Niger	158	232	9.6	8.0	8.8	3.0
Nigeria	119	133	3.6	2.3	2.9	3.1
Senegal	109	145	1.8	5.9	4.2	2.2
Sierra Leone	100	122	0.0	4.1	2.0	2.0
Togo	112	210	2.2	13.4	7.8	2.2
Upper Volta	127	218	4.9	11.4	8.1	2.2
Sub-region	119	146	3.5	4.2	3.9	2.7

Source: Derived from FAO Production Statistics, using price weights of U.S. Department of Agriculture. See note, Table II.

8. The results may appear surprising. Certain countries seem to have achieved <sup>very high</sup> rates of growth, relative not only to Africa but to other countries of the world, (Niger, Upper Volta, Ivory Coast). Table II shows the weighted indices by the main staples.

9. Several comments and some tentative interpretations, or rather inferences, may be ventured. First, if the overall figures are to be believed then the record does not appear to be as poor as perhaps most interested people have supposed. Estimates for North Africa, and Congo (Kinshasa), Ruanda and Burundi have fallen enough to reduce the index (for the same period) for the Africa region to below 100 on a per caput basis. But if the West African figures presented here are considered to reflect recent over-estimation, or, rather a serious degree of under-estimation in the earlier years, then it may be that the overall indices of FAO for the Africa region may be over-estimated.

10. Most of the countries in Table I show modest increases, in line with population or slightly higher. It is conceivable that the base period may be low and therefore relatively high rates may be achieved for a few years. It is difficult to imagine rates of increase of staple crops only of over 6 per cent per year being maintained for long unless a veritable agricultural revolution is under way.

11. The second inference is that the quality of the data combined with the nature of the agricultural problems, suggest that too much has been made of simple comparisons of average annual rates of growth of production and population. It is entirely possible (e.g., the cases of Ivory Coast and Senegal) that apparently healthy growth rates of food production are consistent with simultaneous sharp increases in the cost of food in the cities and with rising imports of foodstuffs. It would appear that policy might better be directed toward import substitution as such and toward holding the price of food in the cities down rather than to overall targets of certain growth rates. To focus on food prices and food imports serves direct by the whole exercise of development investment.

Urban food prices also reflect difficulties in marketing and transport as well as in food production. Finally, the anomalies of the data here once again emphasize the need for improvements in data-gathering if any significant macro-analysis is to be done.

12. The West African Pilot Study of Agricultural Development, done in 1965 by FAO for the World Indicative Plan for Agriculture, is to be substantially revised in 1967. It will represent an attempt at an integrated picture of agricultural production, consumption, trade, and income. Data on these will be reconciled with other national accounts, and investment data and projections will be worked out for the periods to 1975. We must await this to get a picture of the quantitative setting of the problems of food supply for the next decade. But the Pilot Study and other indications already throw into sharp relief two complex sets of problems to be discussed further in the next section of this paper. The first is the problem of supply of staple cereals for growing urban centers. This has been done recently by growing imports of wheat or wheat flour, and by rice imports. The second complex of problems concerns the characteristic protein deficiencies of most of the sub-region. These two sets of problems are scarcely reflected in the statistical exercises involved in calculating overall annual rates of growth. Agricultural development policy might well be thought of as a set of measures designed to deal specifically with these problems as well as with food imports and urban prices. For the solution of these problems will require qualitative changes in the structure of agriculture and the economy, not merely quantitative rises in production indices.



III. Some Opportunities for Cooperation Among West African Countries in the Field of Agriculture

13. Sub-regional cooperation may be discussed under the following headings:-

- Specialization of production and trade in foods;
- Joint policy determination on major development questions.
- Joint programmes in the fields of training and research;

Specialization of Production and Trade The problems of integration and cooperation in the field of agriculture show interesting differences from those in industry. The opportunities are not so striking and there is probably less scope for integration in agriculture. Much of the proposed integrated industrial development is of almost entirely new industrial activity; harmonized industrial patterns which have been proposed for sub-regions typically are of a small number of discrete industrial enterprises. In such exercises it is easier to imagine a pattern of geographical specialization and trade links for the products of such industrial plans. In the case of agriculture, however, and especially with regard to food products, one starts from a long-settled pattern of traditional production and organization. A high proportion, between 2/3 and 90%, of food production is not marketed. Much of the marketed portion is produced within a very short radius from places of consumption. With few exceptions there has been very little long distance trade in African staple food products. Two important exceptions are fish and meat (including livestock). Even higher degrees of geographical specialization are fairly obvious in the case of meat. With respect to the staple food crops, geographical patterns of specialization are not so obvious. Millet and sorghum and similar grains are produced practically only in the drier savannah regions. Starchy roots and tubers are concentrated mostly in the forest zone, and maize and rice also tend to be concentrated though not in as simple a pattern.

But food consumption habits still restrict possible gains from specialization and trade in the staples. Shortages, for instance, of millet cannot be expected to be countered by movement of yams from areas to the south. Apart from the important matter of transport costs, most of the typical crops of the southern zones are simply not eaten in the northern zones and vice-versa. There is virtually no history of trade over long distances for most of the principal foods for most of West Africa. Further, even within broad zones, with the same patterns of production and consumption, many historical factors, notably, the sparse pattern of adequate transport routes, have combined to discourage trade in the past and hence discouraged the development of specialization of production in specific areas of the staples. The chief consequence of all this is that we have no adequate picture of which specific areas have marked **comparative** advantages for the production of these staples.

14. It would be extremely useful to obtain fundamental knowledge on the relative production potentialities, and especially with respect to cost of production, of the principal food crops. But this too cannot be done very quickly. It would require a long-term project manned by many specialists, to determine precisely which areas might best be earmarked for the large scale intensive surplus production of food crops to be sent to other areas to exchange for their surpluses. Such specific studies have been recommended for the programme of economic cooperation in the case of the Central African Sub-region. It should be carefully considered by the members of the West African Sub-region whether such an intensive survey of specialization prospects should be prepared for this sub-region also. Our present state of knowledge simply prevents the preparation of a suggested pattern of production of the various food crops of the West African Sub-region. To a certain extent, any such pattern, even if based ~~on~~ intensive survey of the agronomic and climatic factors, would depend upon what pattern of transport it is to be developed within the sub-region. The possible transport pattern itself should, of course, depend, among other things, <sup>on</sup> the geographical pattern of industrial development projected.

It would seem to be obvious that it is better to project these possible patterns of agriculture, industry and transport simultaneously. In practice it is probable that industrial and transport patterns will have to precede that of agriculture, if for no other reason than the fact that the necessary information with respect to agriculture will probably take longer to obtain, even if such bodies as this Conference agree to request such agricultural studies.

15. In addition to information on production potentialities and their geographical distribution and on relative costs, a further requisite for any pattern of geographical specialization is, of course, some assurance that trade barriers to the resultant indicated movement of foodstuffs will be eliminated by the countries concerned. Without some indication that the countries are willing to accept the consequences as well as the benefits of sub-regional integration, the difficult and expensive preliminary investigations may not be able to be arranged.

#### Joint Policy Determination on Certain Major Development Problems

16. At this point, however, it is possible to identify certain problems which strongly suggest themselves as subjects for joint consultation and even decision by member governments of the sub-region. Two such are mentioned below:

- Joint policy on the problem the provision of staple grains to developing urban centres; and,
- Joint policy on the problem of overcoming protein deficiencies.

17. The first of these two might be defined at least partially, as the wheat flour-and-rice problem. Imports of wheat or wheat flour in many countries of the sub-region, particularly in the more heavily populated coastal zones, have been increasing at very high rates of close to 10% per year for a decade or more. Such rates of increase simply cannot be sustained for many more years without severe consequences. These consequences include not only possible dangerous reliance upon foreign sources for a singularly strategic portion of the nation's food supply. There is an evident wasted opportunity in expending critically important foreign exchange needed for import of capital equipment.

It is sometimes advanced that, so long as a nation possesses sharp comparative advantage in certain lines of production, it need not, and should not, on economic grounds, seek self-sufficiency in food, but should import from cheaper sources the needed addition to its food supplies, paid for by export earnings. There are, indeed, many important historical and present instances of this familiar example of international division of labour. If the UAR, for instance, attempted self-sufficiency in food, the result would be to condemn its inhabitants to an even lower standard of living and virtually prohibit any chance of substantial economic development. The agricultural resource potentialities of the UAR have already been developed to a very high degree. Much higher returns to investment and labour can be obtained in other activities than food production, and any necessary increase in food supply should be imported. But in the case of virtually all West African countries it cannot be maintained that land and labour resources are so nearly fully utilized that sufficient food production cannot be obtained within the countries or the sub-region without competing for resources with either present export products or with industrial production. In other words, it is assumed here that West African countries, or at least the sub-region considered as an economic unit, can and should produce virtually all food requirements without penalizing either its export sector or the possibilities of development and growth of a modern industrial sector. Of course, many of the traditional agricultural exports of West Africa are classified as foodstuffs: cocoa, palm oil, ground nuts, etc.. Thus, it can be said that many of these countries produce a "surplus" of foods, merely exchanging the export proceeds of ground nuts for wheat flour, for example. Such a view, however, fails to consider that no matter how much cocoa or palm oil is sold abroad the proceeds need not be spent on imported food, so long as it is economically feasible for the country to produce its own food and continue to try to conserve all possible export earnings for the purchase of that capital which cannot now be produced at home.

18. In the case of wheat and wheat flour, however, there is a further complicating factor. Wheat bread, has become a most important prestige food, the significance of which is only too obvious in the import record.

Further, it must be admitted that there are very limited possibilities of producing breads acceptable to the growing class of urban consumers out of traditional African food crops. Millet and sorghum, and yams and cassava and the like, do not yield by themselves flours capable of yielding raised breads, and such breads are not only indicators of urban patterns of living, but are also very convenient forms of food for urban conditions. There are some small productions of wheat in the sub-region, chiefly in Mali, Niger and Northern Nigeria. Unfortunately the potentialities of wheat production in West Africa must be regarded as relatively small and costly. If we extend the horizon to include other parts of Africa, the picture does not become much better. North Africa, unfortunately, will probably be in an increasingly deficit position with respect to wheat and possibly all grains. The highland parts of East Africa, particularly Ethiopia and Kenya, have possibilities of substantial economic increase in wheat production, but it is doubtful whether these will be sufficient both to supply their own sub-region and to have available large amounts for export to West Africa, at all comparable with wheat from the principal international producers. In the Central African countries of Chad and may be Cameroon, in the area near Lake Chad, there appears to be the possibility, now under study, of important increases in wheat production. Even under most favourable assumptions there still would not be enough wheat for significant exports to West Africa.

19. It is possible, of course, to speculate that West African Governments will be so diligent in the pursuit of economic development as to be willing to adopt austerity import policies and may simply ban the import of wheat or flour. Such speculation is not realistic. Nevertheless, a serious policy of saving foreign exchange for capital imports might be adopted if some measure of success could be achieved on the problem of providing urban consumers with acceptable substitutes for at least part of the large quantities of wheat which can be predicted to be imported unless there is a significant change in policy. The following paragraphs are meant to suggest some possibilities of avoiding at least part of this expenditure of foreign exchange on what should be considered a luxury product.\*

\* This topic is considered also in ECN.14/INR/122

20. First of all wheat bread can be made more expensive to those who insist on buying it (on the condition that reasonable alternatives can be provided to those less able to afford wheat bread.) Special taxes could be used to raise the price to those consumers so insistent and so relatively prosperous. They would thereby at least make a contribution to government revenue. A higher tax on bread would also serve as a stimulus both to what production possibilities might exist for wheat, and to maize, millet and sorghum and rice producers. None of these can make suitable bread flours to be sure but nutritionally they can be quite acceptable alternatives to wheat bread. Rice in particular is also a "prestige" food in most of the developing urban centres of West Africa. This has long been the case from Senegal to Ivory Coast. Evidence in recent years indicates that it is also a food of choice in the cities of Ghana and Nigeria. Rice certainly can be grown under many West African conditions. Swamp rice is a major food crop from Guinea around the coast to Ivory Coast and probably could be a far more important crop in the coastal zones of many other countries, particularly Ghana and Nigeria. Irrigated rice in adjoining river beds is important in Mali and Northern Nigeria, and there may also be good prospects for its expansion in these countries as well as in other parts of the savannah belt. It is also grown as "dry" or "upland" rice in many other parts of West Africa under the traditional system of the so called "shifting cultivation" but prospects of expansion of this sort of rice are not particularly good.

21. However, imports of rice also have been growing and sharply in the last decade. As policy of much higher duties on wheat and wheat flour would probably shunt some of the rising urban demand for bread in the direction of rice, thus stimulating and encouraging the expanded production of rice in West Africa and justify intensive investigation into the possibilities of important investments in large scale methods of rice production. Such investigations would require very careful and expensive surveys. Experience with large-scale modern production of staple foods in tropical Africa has not been encouraging.

There have been many costly failures but perhaps some hope might be based on the fact that more is known about modern rice production in the tropics than about most tropical food crops and on the fact that rice is not a typical low value food crop as is the case with millet and sorghum. Hence rice might bear the higher investment costs of modern methods. A topic therefore which might be of important national concern to the countries of the West Africa and a subject for a cooperative policy, would be a jointly sponsored intensive programme of investigation on large scale intensive concentrated production of rice in West Africa for the West African market. 1/

22. Such investigations should be detailed comprehensive attempts to identify those specific areas of West Africa which would promise to be the best areas of such specialized production. The specific question to be answered would be how much of a greatly enlarged rice requirement could be produced at acceptable cost for the West African market. In all probability such studies, particularly if they are designed to answer these questions within a very few years would be both difficult and costly, but the possible assurance of a sub-regional market might help assure external financing to conduct what might be termed a crash programme of investigations. It is not maintained here necessarily that rice could or should supply all of the demand for wheat bread. But the whole question must be seen in the light of the rising rates of increase of both wheat (or wheat flour) and imported rice within the horizon of a decade or more, and given any significant industrial development. The amounts of foreign exchange on these two items will be difficult if not impossible to maintain without severely compromising the capital investment necessary to achieve much economic development. In this light such an expensive investigation may well be warranted. But it may not be justifiable unless there <sup>is</sup> some indication that the sub-region may be considered as an economic unit both with respect to where the specialized production should take place and with respect to policies on protection.

1/ There might well be implications for considering these questions with countries of Central Africa, but this lies beyond the scope of this paper.

23. There are further dimensions which will be briefly discussed of this general problem of the provisioning of urban centres with staple grains. A further prospect should not be discounted. It is entirely possible that substitute bread flours may be found for wheat flour at least in partial substitution. The FAO is conducting serious experiments on a large number of possible alternative recipes for bread flours using mostly or even possibly wholly African materials. Recipes involving in various combinations only the African grains, cassava flour, groundnut and cottonseed cake flour, soya bean flour, and even fish flour are being experimented with. There are, of course, many unanswered questions on costs, acceptability, and practicability in general about these possibilities of alternative flours. But the possible stakes of West Africa in this complex of questions are very high. A programme of investigation and experiment, jointly sponsored by the member countries, presents a good opportunity for economic cooperation. We need as definite an answer as possible as soon as possible to the question of whether alternative bread flours can be devised that can suit West Africa requirements with respect to cost, tastes, and practical requirements. It is even conceivable that there could be jointly developed introduced, and sponsored one or several "Pan African breads", using largely or wholly African raw materials and symbolizing the joint effort to reduce the economic dependence of Africa. Underlining this discussion are the following additional considerations. Large quantities of protein-rich substances are becoming increasingly available in West Africa as by-products of the expansion and cultivation of cotton and groundnuts. Oil cake from the processing of these is a potentially valuable foodstuff and under certain conditions it has already been demonstrated that flour from these oil cakes can be incorporated into a bread flour mix as a valuable protein source.

24. Much of the long run problem of West Africa food supply should be made without at least some more serious reconsideration of the possible role to be played by cassava. It is well known that cassava is extremely poor in protein.



For this reason its consumption and production tends to be discouraged by nutritionists. But provided, of course, that effective progress were made on the problem of supplying adequate protein elsewhere in the diet, there is no good reason why cassava should be the victim of prejudice. In the case of too many food crops Africa suffers often great disadvantages. As things stand, wheat, rice, maize, sorghum and other crops can be produced at lower cost elsewhere in the world, as a general rule. But relative to most crops, cassava has many advantages, in Africa. It is easy to cultivate and less exacting as to labour requirements. It can be grown under a wider range of soil and topographical and climatic conditions. It is relatively more reliable and may be stored for many months simply by leaving it in the ground to be harvested only as and when needed, thereby constituting a very convenient food reserve. It gives a very high yield per unit per labour and the most calories per acre. It fits very well into most traditional systems of shifting cultivation, particularly as the last crop before reversion of the plot to long-fallow. Under many conditions it contributes to protection of soil against erosion and over exposure to rain and sun. Admittedly, it is a very deficient food in protein, and it is not a food of choice. But in the overall view of the growing historical problem of food supply and population such a plant with its many advantages cannot be dismissed. Among the possible combinations of crops available in the sub-region it may well be economically wise to rely on cassava for a high proportion of total calories, in the forest zone, if cheap protein supplement can be provided elsewhere in diet.

25. The problem of West African food supply is not primarily a problem of production or capacity to produce, or even of efficiency of production. It is a problem of non-responsiveness to new patterns of demand, a problem of adapting the potentialities to the demands of development and better nutrition. Food consumption data are almost as bad as production estimates but if it is possible to maintain on balance that most diets are sufficient in calories it is clear that proteins are almost everywhere insufficient, especially animal proteins. But there are many ways in which the problem of increasing protein intake conceivably could be handled. But neither on a country basis nor on a sub-regional basis has the economics of the question been sharply posed.

26. Improvement on the protein question will involve expense and difficulty. Which pattern of protein production is most promising economically? We really do not know the answer in terms of investment or development policy. It is probable that a general ranking can be established, ranging from the most expensive per unit of animal protein, beef, through sheep and goat meat, pork and poultry, and fish. Vegetable proteins are cheaper but less efficient nutritionally. But the relative economics of production and distribution of protein foods has not been studied systematically in terms of West African resources. Such study deserves priority of attention in economic research in order that development policy decisions can be made on allocation of investment and allocation of that scarce resource, administrative capacity. The problem might be posed as what is the cheapest and most effective pattern of protein output which can be practically designed for West Africa. Here is another suggested area for sub-regional cooperation. A joint policy consideration, first on the required investigation and then on a cooperative pattern of investment and trade is worthy of consideration by sub-regional bodies. The investigation should indicate broadly the relative contributions as between animal and vegetable protein sources, and within these broad categories of sources. It is probable for instance that relatively too much importance is attached to development of beef cattle as compared to fish and poultry; and that vegetable proteins, especially soybeans and other pulses, have been slighted. Whatever the relative merits of the alternatives there is no

doubt that there can be found better and worse combinations of alternative protein supply patterns. The search for a harmonized development policy on this complex problem could be started by a West African inter-ministerial group occupied with questions of cooperation in agriculture. One of its first questions should certainly be the search for harmonization of development policy on livestock raising and meat processing. (This subject is dealt with in E/CN.14/INR Working Paper 2).

#### Cooperation in the Fields of Research and Training

27. Only brief mention will be made of these opportunities as they have received more attention elsewhere. The ECA Working Party on Manpower and Training, September 26 to October 30, discussed papers prepared by FAO on agricultural education, training, and manpower requirement assessment (E/CN.14/WP.6/7). In research, the FAO has begun a series of conferences on the appropriate means of coordinating research on the basis of ecological zones. The first of these is to be held in the second half of 1967 in West Africa, for the Sudanian and Guinean savannah zone.

In both research and training the best opportunities for cooperation are to be found in making better use of existing institutions. Most of these can effectively be used on various joint or shared bases.

#### IV. Conclusion

28. What is needed on matters of training and research as well as on the other topics of this paper is solid evidence of the acceptance of the principal of cooperation. The establishment of a joint ministerial committee could be the most effective demonstration of this. The committee should formulate and adopt at least a minimum program of cooperative action, having accepted the principal of harmonized development policy whenever it can be demonstrated to be feasible. Admittedly the scope, at present, for full coordination of agricultural development, particularly on patterns of specialization and exchange, is limited. For the initiation of major investment patterns on a joint basis it is still premature. But in addition to the fields of training, research, and common policy on export promotion and commodity stabilization there are further opportunities as mentioned in this paper which could provide a prospectus for continued

and broadened economic cooperation. Given a commitment on harmonized development in principle a beginning can be made by the joint sponsorship of investigations which can confidently be expected to indicate the economic patterns of specialization and trade, and to support joint policy on such questions as wheat imports, rice production, and the provision of proteins.