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PROBLEMS AND PRACTICES OF AFRICAN
COUNTRIES IN THE COMPILATION OF PRODUCTION
ACCOUNTS AND COMMODITY BALANCES

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ANNEX I. Part A of the ECA questionnaire on Production Accounts, Commodity Balances and Input-Output Analysis at both current and Constant Prices, Feb. 1971.

PROBLEMS AND PRACTICES OF AFRICAN COUNTRIES IN THE COMPILATION OF PRODUCTION ACCOUNTS AND COMMODITY BALANCES

INTRODUCTION

1. This paper is intended to highlight some of the problems and practices in the compilation of production, consumption expenditure and capital formation accounts in countries of the African region. An inventory of the availability of these accounts and tables compiled in the region will be attempted in this paper, the sources of data used examined, current methods of estimation in both current and constant prices reviewed, and problem areas identified. This has been done subject to the availability of information from the countries as contained in national as well as international publications and the country replies to an ECA questionnaire sent for the purpose in February 1971 (Part A of the questionnaire concerning production accounts and commodity balances is appended as Annex I).

2. For conceptual, definitional and classificatory guidelines on the compilation of the SNA accounts and tables on goods and services, and the sources of data for, and the methods of compilation of, these accounts and tables, the reader is referred to papers E/CN.14/NAC/44 and E/CN.14/NAC/45, both of which were prepared by the U.N. Statistical Office.^{1/} For problems and practices in the compilation of input-output tables in African countries, he is referred to an ECA secretariat paper E/CN.14/NAC/43.^{2/}

3. It should be understood that the information contained in this paper is incomplete in coverage and not necessarily up-to-date in timing and is consequently subject to later revision in the light of fuller information then obtaining.

ECA QUESTIONNAIRE:

4. An ECA questionnaire on Production Accounts, Commodity Balances, and Input-Output Analysis at both Current and Constant Prices, was despatched to the countries in February 1971. However, up to the time of writing this paper, altogether 13 country replies were received, including 12 from the English-speaking and 1 from the French-speaking countries, out of a total of 42 forms distributed. Although the country replies cover only about one-third of the total, information received in respect of selected countries is of interest and given as follows:

1/ : Structure, Concepts, Definitions and Classifications of the SNA Accounts and Tables on Goods and Services (E/CN.14/NAC/44).

The Methods of Compilation of, and the Sources of Data for, the SNA Accounts and Tables on Goods and Services (E/CN.14/NAC/45).

2/ : Problems and Practices of African Countries in the Compilation of Input-Output Tables (E/CN.14/NAC/43).

(a) Ghana: Recent achievements in the field of national accounts include the following:

- A methodological manual on national accounting entitled Sources and Methods of Estimation of National Income at Current Prices in Ghana has been prepared for restricted circulation;
- Standard Table 1 of the SNA has been compiled (with the exception of the columns on compensation of employees and operating surplus) for the years 1965-1968, valuation being at current producers' prices;
- Work on price indices for deflating the current series is being initiated;
- Standard Table 4 of the SNA on government final consumption expenditure according to cost-composition and purpose, has been prepared for 1965-1968;
- Work on capital formation and external transactions is currently in progress.

(b) Kenya:

- Production accounts for Kenya have been worked out in the form of Accounts II(C) of the SNA, for industries, for the years 1963-1969. The economic activity breakdown of these accounts is based on a Kenyan adaptation of the 3-digit International Standard Industrial Classification (ISIC). These accounts are aggregated at market prices, and at factor cost in the case of "value added" or "gross domestic product" aggregates;
- No general tables have been prepared on the basis of Accounts II(A) of the SNA, i.e. accounts for commodities, except for Account 4 on capital formation. Estimates of capital formation are available, based on an industrial breakdown by producing and investing sectors and a commodity breakdown by type of asset, dating back to 1964;
- Although Accounts II(A) of the SNA cannot be compiled for all the years and for all commodity groupings, dating back to 1963, it can be put together for 1967 on the basis of the information for the input-output matrix for that year;
- Data in the form of Accounts I of the SNA, i.e., the Consolidated Accounts for the Nation, can be put together for Kenya;
- By and large, there is sufficient data to establish Standard Tables 1, 3, 4 and 7 (except for the flow "increase in stocks") of the SNA, while Standard Table 2 and Table 28 can be only partially filled except for the year 1967;
- Work is currently under way on a provincial breakdown of the "national" calculations on "Gross Domestic Product" by Industries, for the year 1967. Industrially, the disaggregation is being undertaken at Divisional and in some cases Major Group level. Disaggregation is being undertaken for all provinces in the country. The valuation of the exercise is at factor cost, and the sources of data and methods used are the same as those used for establishing production accounts for the country as a whole.

(c) Ivory Coast:

- Production accounts are compiled for 27 branches of production, with intermediate consumption valued at purchasers' values and output at producers' values. The accounts and tables are established for the country as a whole and not by geographical regions, although regional estimates were done in some fields and for years when regional surveys were made (notably for 1964-65);
- The nomenclature of ISIC has not been utilised in the Ivory Coast up to now, but as from the data for 1970, the new nomenclature of production branches will be in correspondence with it and it will then be easy to convert the latter into the ISIC.

(d) Nigeria: Nigeria is currently drawing up a programme for the implementation of the revised SNA and hopes to have the production accounts for Nigeria under the new system compiled, beginning with 1969 at least, before the end of 1971.

(e) Sierra Leone:

- Production accounts in the form of Accounts II(A) and II(C) of the SNA are now being worked out for the year 1968, and also data in the form of Accounts I of the SNA. Standard Tables 1 and 4 are now being compiled and Tables 6 and 7 of the SNA are now complete;
- The kinds of activity shown for the 1968 accounts are agriculture, hunting, forestry and fishing; Mining and quarrying, manufacturing and handicraft, electricity and water supply; Finance, insurance and real estate. The flows are valued at producers' prices;
- Commodity balances are now in the process of being worked out for 1968. Such balances have been worked out for a number of commodities key of which are Rice, Cassava, Palm Kernels, Kola nuts, Groundnuts, Beans, Poultry, Meat, Iron ore, Diamonds, Bauxite, Stone quarrying, Petroleum, Kerosene, Cement, Electricity, and Water transportation. Work is still being done on the disposition of these commodities, which will be valued at producers' values;
- No production accounts have so far been compiled for selected regions or areas in Sierra Leone.

(f) Sudan: The accounts and tables of the revised SNA compiled by Sudan for the years 1966, 1967 and 1968, include the following:

- Consolidated Accounts for the Nation;
- Production accounts, which include Standard Tables 1, 6b and 7a of the SNA, namely, tables on GDP and factor incomes by kind of economic activity, final consumption expenditure of households in the domestic market by object, and composition of gross capital formation by type of capital goods;
- Tables supplementary to Income and Outlay and Capital Finance Accounts, namely, Tables 18a, 21 and 26 (abridged form), on national income, income and outlay and capital transactions of the sub-sectors of general government, and external transactions.

- (g) Tanzania: A publication entitled National Accounts of Tanzania, 1966 to 1968: Sources and Methods has recently been issued by the Bureau of Statistics, Ministry of Economic Affairs and Development Planning, Dar-es-Salaam Consolidated Accounts for the Nation of the SNA have been compiled for 1966-68. Data on government expenditure by purpose and capital formation by type of capital good have been compiled for 1966-1969. These estimates are published in the National Accounts of Tanzania, 1966 to 1968 and the Economic Survey and Annual Plan 1970-71.
- (h) Uganda: Production accounts in the form of Accounts II(A) and II(C) of the SNA have been worked out for the economy as a whole and by kind of economic activity. These estimates cover the period 1960 to 1969. Data on Account 1 of the Consolidated Accounts of the Nation of the SNA, namely, Gross domestic product and expenditure, are also available for the same period. Standard Tables 1, 4 and 7 of the SNA, have also been compiled with minor modifications. These accounts and tables will appear in The National Accounts of Uganda, 1960-1969, which will be published in due course and will also contain a description of data sources and methods used.
- (i) United Arab Republic: Basic data required for the compilation of production accounts for the whole economy are now available. The compilation of Account 1. Gross domestic product and expenditure and Standard Tables 1, 2, 3, 4.6 and 7 and Table 28 of the revised SNA, for the fiscal years 1966/67, 1967/68, 1968/69 and 1969/70, is currently in progress and is expected to be ready in October 1971. The data will be valued at producers' values, and the kinds of activity shown in the tables will be in accordance with the ISIC of 1968. As basic data are gathered on a regional basis, it should be feasible to compile accounts and tables for the regions, save for some governorates. Commodity balances have been compiled for about 167 commodity groups by the Egyptian Ministry of Planning. As the basic data required for the compilation of these balances are now available, the CAPMAS (Central Agency for Public Mobilization and Statistics) intends to work out commodity balances for the years 1966/67 - 1969/70. The CAPMAS has been working on an input-output table of the order of 44x 44 for the year 1966/67, and, in view of its 5-years statistical programme, intends to construction these tables for the years 1970/71 and 1973/74 in the future.
- (j) Malawi: Production accounts in the form of Accounts II A and IIC of the SNA have not been compiled. However, information needed for the compilation of Account 1 of the Consolidated Accounts for the Nation of the SNA, i.e., gross domestic product and expenditure, can be put together. Standard Table 6b. Final consumption expenditure of households in the domestic market by object, is available for 1968 and will be published mid-1971. Similarly Table 7a of the SNA, dealing with gross domestic capital formation by type of capital good, can be compiled. The National Statistical Office of Malawi intends to produce more tables in line with the revised SNA, in particular, Standard Table 1, in its National Accounts Report for 1969 to be published in mid-1971.

AVAILABILITY OF STATISTICS RELATING TO PRODUCTION ACCOUNTS AND COMMODITY
BALANCES:

5. By "production accounts" is meant to include all the Class II Accounts of the Revised SNA, namely, the accounts on production, consumption expenditure and capital formation, in particular, Accounts IIA. Commodities and Accounts IIC. Industries, and the Standard Tables of the SNA that are supplementary to these accounts, that is, Standard Tables 1 to 7 for data in current prices and Standard Tables 8 to 16 in constant prices. Account 1 of the Consolidated Accounts for the Nation (Class I Accounts) on Gross domestic product and expenditure, is also covered under the heading of production accounts.

6. So far as estimates in current prices are concerned, the availability of production accounts data can be examined in terms of Accounts IIA and IIC of the SNA and in terms of Standard Tables 1, 2 (or Table 28), 3, 4, 5, 6 and 7, and Account 1. Gross domestic product and expenditure.

7. As most African countries are still in the initial stages of having the revised SNA implemented, it is natural to find that the data that are currently available, relating to production accounts are compiled in terms of the old SNA or some other systems of national accounting, e.g., the French (courcier) system, rather than in terms of the revised SNA. The current availability of national accounts data valued in current prices and relating to production, consumption expenditure and capital formation accounts in African countries, is given in country detail in Table 1, for selected accounts and tables bearing on transactions in goods and services. The current availability of national estimates at constant prices, with respect to GDP by type of expenditure and by industrial origin, together with their respective base periods, is given in country detail in Table 2.

8. As is pointed out in the secretariat paper E/CN.14/NAC/43 dealing with problems and practices of African countries in the compilation of input-output tables, certain progress has been achieved in countries of the African region in the implementation of the revised SNA. Such information is given by country in terms of the accounts and tables of the SNA, in Table 3. As is already stressed in the above-mentioned paper, the progress made so far has in most cases been linked with the provision of technical (advisory) assistance by the United Nations in the way of providing to countries concerned country experts or regional advisory service. The organization and successful conduct of two regional Seminars on the revised SNA, one for the English-speaking countries (Kampala, 13 September to 4 October, 1970) and the other for Franco-phone countries (Rabat, 17 May to 6 June, 1971), have also made their due contribution to this cause. These seminars were organised jointly by the ECA secretariat and the Institutes of Statistics and Applied Economics at Kampala (Uganda) and Rabat (Morocco) respectively, under the overall technical guidance of the U.N. Statistical Office.

9. By "commodity balances" is meant to include an analysis of the supply and disposition of commodities or commodity groups in considerable detail. Table 28 of the SNA is in fact a supply and uses table of goods and services -- a kind of commodity balance. The resources and uses table of the French (Courcier) system is also a table on commodity balances for the particular commodity classification used in that system.

10. For a number of the Franco-phone countries in the region, detailed commodity balances, indicating respectively the supply (i.e. local production, imports, trade and transport margins) and the disposition of commodities (i.e., intermediate consumption, final consumption, fixed capital formation, increase in stocks, and exports), have been worked out for selected years in great commodity detail. Examples are Madagascar (1960, 1962, 1966), Mali (1964/65), Ivory Coast (1960, 1965, 1966, 1967), Niger (1962-1966), Morocco (1960, 1966), Tunisia (1960-1964), amongst others. In the case of Madagascar, commodity balances were worked out for 147 commodities in terms of value, and for 101 commodities in terms of physical quantities, for the year 1960.^{1/} For the English-speaking African countries, however, such balances have generally not been compiled, even though some countries, e.g., Sierra Leone, are currently working out these balances for a selected list of commodities, while the U.A.R. has already had some years of experience in compiling these balances as part and parcel of a planning exercise.

11. On the other hand, for agricultural commodities the FAO has worked out food balance sheets for all the countries of the region for the years 1964-66. The figures are given as averages for the 3 years in question, and have been established by the FAO in consultation with the countries concerned as part of the exercise for the IWP (FAO's Indicative World Plan). The format for the Food Balance Sheets used by the FAO, to be given in physical terms (e.g., metric tons), comprises on the side of supply, such items as local production, imports, and withdrawals from stocks. On the

^{1/} : In the National Accounts Statistics for Madagascar, 1960, the number of commodity balances established were 147 in terms of value, and 101 in terms of physical quantities. The distribution of the commodities by commodity groupings of the Courcier System is as follows:

Commodity group	No. of commodity balances in terms of value	No. of commodity balances in terms of quantities
0. Vegetable and animal products	34	37
1. Food products	39	41
2. Energy	4	-
3. Raw materials and semi-finished products.	24	23
4. Mechanical and electrical products	9	-
5. Textiles and leather products	4	-
6. Miscellaneous manufactured products ...	7	-
7. Building and construction	3	-
8. Services	23	-
Totals:	<u>147</u>	<u>101</u>

side of utilization, the items distinguished include addition to stocks, exports, and domestic utilization, which consists of feed, seed, waste, manufacture for food purposes, manufacture for non-food purposes, and food. The commodities and commodity groups used by the FAO for the compilation and publication of food balance sheets include the following items:

- | | |
|------------------------------|----------------------------|
| 1. Cereals | 7. Meat |
| 2. Starchy roots and tubers | 8. Eggs |
| 3. Sugar | 9. Fish |
| 4. Pulses, nuts and oilseeds | 10. Milk and milk products |
| 5. Vegetables | 11. Fats and oils |
| 6. Fruit | 12. Commodities |

12. It is known that such food balance sheets established by FAO for African countries have not yet been published, and are consequently only available from the FAO and the country concerned. The FAO plans to prepare commodity balances by computer, on the basis of information made available by countries on an annual basis in reply to FAO's questionnaire programme and any additional information available to FAO, including office estimates. These will form the basis for the preparation of future food balance sheets. It is further suggested by the FAO that the countries should undertake an extensive review of the commodity balances available to the FAO, in intervals of not more than five years. These extensive reviews should have the purpose of revising and updating the data, the conversion factors used and the assumptions on which the estimates were based.^{1/}

BASIC STATISTICAL SERIES AND ACCURACY OF ESTIMATES:

13. In spite of the miscellany of accounts and tables on national accounts that have been turned out in recent years by national statistical offices of countries of the region, there is a growing consciousness among both the producers and users of these statistics that an appraisal of the reliability of these estimate should be attempted, wherever possible, on a global as well as main aggregates basis. Although production accounts, commodity balances and input-output tables would be of help in checking the internal consistency of the national accounts estimates and thereby reveal areas of statistical deficiency, they are, however, no substitute for accurate basic data series.

^{1/} : Preparation of Supply/Utilization Balances for Food and Agricultural Commodities (Commodity Balances) - Recommendations regarding Methods, Concepts, Definitions, and Classifications (AGS/APC:NE/5/70-7.1; February 1970) - A paper from the Food and Agriculture Organization of the United Nations, submitted to the 5th session of the Near East Commission on Agricultural Statistics and the 5th session of the Near East Commission on Agricultural Planning, Cairo, April 1970.

14. So far such appraisal of reliability of estimates has been limited to a few African countries' national accounts publications. They include Kenya (1960), Lesotho (1964/65 and 1965/66), Nigeria (1962 and 1958-1966), Sudan (1955/56), and Tanzania (1966-68).^{1/} These ratings of overall accuracy of estimates for major aggregates or individual tables, however, represent only subjective judgements based on the individual estimators' personal experiences and knowledge. These ratings may or may not be valid for estimates for later years unless the methods of estimation and data sources and coverage remain unchanged.

^{1/} The following ratings for overall accuracy of estimates for major aggregates or individual tables have been used in the national accounts estimates for Kenya, Lesotho, Nigeria, Sudan, and Tanzania respectively:

(a) Kenya (refers to 1960 or thereafter):

- A = Good estimates; 5 per cent
- B = Fair estimates: 10 per cent
- C = Rough estimates: 20 per cent or more.

(b) Lesotho (1964/65 and 1965/66):

- A = error probably less than 10 per cent;
- B = error possibly between 10 per cent and 25 per cent;
- C = error not known; possibly in excess of 25 per cent.

(c) Nigeria (1962 and estimates for 1958-66):

- A = Very good, with an error margin of under 5 per cent;
 - B = Good, with an error margin of between 5 per cent and 10 per cent;
 - C = Fair, with an error margin of between 10 per cent and 20 per cent;
 - D = Poor, with an error margin of between 20 per cent and 40 per cent;
 - E = Very poor, with an error margin of over 40 per cent.
- For the estimates 1958/59 - 1966/67, the scale of reliability ratings used were: good, fair, and poor, without further specification.

(d) Sudan (relating to estimates 1955/56):

Same ratings A, B, C, D, E, as for Nigeria above.

(e) Tanzania (for estimates 1966-68):

- The total GDP estimates for 1966-68 are broken down into 3 parts:
- (i) 1/3 of the GDP has an error margin of around 5 per cent. This covers production of export crops, mining, manufacturing establishments, electricity and water supply, trade (parastatal segment only), railways, harbours, airways, communications, financial institutions, public administration and one part of education, health and other services;
 - (ii) 1/3 of the GDP with an error margin of around 10 per cent. This covers estimates relating to the marketed portion of non-export crops, hides and skins, construction, trade (for establishments covered by the employment and earnings surveys only), road transport, real estate and one part of education, health and other services;
 - (iii) the remaining 1/3 of the GDP should be considered as rough estimates and subject to wider margins of error. This includes estimates of subsistence production of food crops, livestock products, firewood, handicrafts, trade (residual segment), and the residual part of miscellaneous services.

For national accounts estimates of Tanzania for the early 60's, the accuracy ratings used were: A = less than 10 per cent; B = 10 per cent to 20 per cent; and C = more than 20 per cent. These ratings are not applicable to the estimates for 1966-68.

15. Estimation of error margins for national accounting aggregates is inherently a hazardous task even for the developed countries, for which far better and more extensive statistical series on production, consumption, expenditure and incomes are available, let alone the developing countries, for which such important economic variables as the size and composition of population, livestock, agricultural production, etc., are often subject to unknown margins of error. Thus, in a country where agriculture accounts for say 50 per cent of the gross domestic product, an under- or over-estimation of agricultural production of 20 per cent would mean a corresponding under- or over-estimation of the GDP by at least 10 per cent. An under- or over-estimate of population would produce similar results if the GDP estimates were linked in one way or other to the size of population, that is, if the production estimates were not made independently of population estimates.

16. A summary of apparent availability of basic data series for African countries is given in Table 4. The availability of these data sources is termed "apparent" here, inasmuch as the censuses or surveys that were undertaken some years back and consequently could be potential sources of information, might after all not be analysed due to one reason or another, or analysed only after long years of time-lag.

17. With the view of improving the current status of the availability and reliability of basic data series, a number of African countries have embarked upon statistical projects of national importance through their participation in the 1970 round of World Population and Housing and Agricultural Censuses and the taking of national household consumption expenditure surveys and industrial censuses or surveys. The participation of African countries in world population and agricultural censuses during the 50's, 60's and 70's, is provided in Table 5.

PROBLEMS AND NATIONAL PRACTICES: SOURCES OF DATA AND METHODS OF ESTIMATION:

18. In this section of the paper it is intended to deal with the main sources of data, methods of estimation used and major problems encountered in countries of the region, at one go with respect first to the industrial origin of the gross domestic product and then to the expenditure on the GDP. In a brief paper it is obviously impossible to deal with all these topics in sufficient detail. Nevertheless, the main topics will be covered and major problem areas identified and exposed. The description and appraisal will proceed under the following headings:

(a) GDP by kind of economic activity:

- (i) Agriculture, hunting, forestry and fishing;
- (ii) Industries (mining, manufacturing, electricity, gas and water);
- (iii) Construction;
- (iv) Commerce and transport;
- (v) Real estate (including ownership of dwellings);
- (vi) Other services;
- (vii) Producers of government services;
- (viii) Producers of private non-profit services to households.

(b) Expenditure on the GDP (Problems only):

- (i) Private consumption expenditure;
- (ii) Government final consumption expenditure;
- (iii) Gross fixed capital formation;
- (iv) Increase in stocks;
- (v) Exports less imports of goods and services.

(a) GDP by kind of activity:

(i) Agriculture, hunting, forestry and fishing:

19. Problems concerning the availability and accuracy of data in respect of the agriculture sector are immense. The lack of basic data from periodic agricultural censuses and surveys of national scope, is chiefly responsible for this. The problems and country practices will be examined in respect of agricultural crops, livestock, forestry, fishing and hunting, and producers' prices. The estimation of gross output, intermediate consumption, depreciation, and factor incomes originating in the agriculture sector will also be touched upon.

A. Agricultural Crops:

20. For countries which follow the production approach, crop production is built up by multiplying estimated acreages under crops by their respective yield rates. This is easier said than done. Although crop-cutting experiments have been carried on for some years and have been increasingly used as a means of obtaining reliable data in many countries of the region, they have been limited to a small number of cash or staple crops only. To obtain variation in crop yields from one year to another and to get reliable data on yields, crop-cutting would have to be done over a relatively large geographical area or areas and to be carried out in successive years and concentrated on a small number of key crops. The field work involved in this can be time-consuming and costly.

21. With respect to data on acreages under different crops, unless a properly organised agricultural census has been conducted to gather benchmark estimates of the universe, the total number of agricultural holdings or holders and acreages under cultivation can only be approximated through the holding of successive annual agricultural surveys. These surveys could provide wild variations in crop acreages from one year to the next. This could be due partly to relatively large sampling errors, but possibly mainly to non-sampling errors introduced through say, insufficiency in field supervision or other reasons. Such non-sampling errors, if uncontrolled and not kept to a minimum, could obscure completely the real variation in the levels of crop production between successive years. This has in fact been the case in some countries of the region.

22. Data on intermediate consumption is usually estimated from statistics on imports and local production of such items as fertilizers, insecticides, etc. In a few cases (e.g., Ghana), special surveys on a limited scale were held in order to obtain data on intermediate consumption of items in respect of seed, implements, baskets, bags, etc.. Seed rates are normally obtained as a technical factor, while in some countries (e.g., Nigeria), the only intermediate input item taken into account was seeding.

23. With respect to the cost structure of crop production, Farm Management Surveys conducted on a small scale in some African countries (e.g., Kenya) would be of value. As to factor incomes originating in the agriculture sector, it should be stressed that quite a number of African countries are currently experiencing difficulties in estimating wages and salaries paid (including payments in kind) on account of lack of data on hired labour (as distinct from unpaid family labour and working proprietors) and data on wages and earnings for farm workers. Where information on the industry and occupation of persons gainfully employed has been obtained in population censuses (e.g., the 1967 population census of Tanzania), this can be used as a starting point for making estimates of the flow of compensation of employee in the agriculture sector. Otherwise, information on the size of hired labour and wages and salaries paid would have to be obtained in nation-wide agricultural censuses or surveys, as is the intention with some African countries' agricultural censuses (e.g., the Phase II of Ghana's 1970/71 agricultural census). Once the flow "compensation of employees" has been arrived at, operating surplus could be derived by difference, that is, if the other elements of value added, viz., consumption of fixed capital and indirect taxes net of subsidies, could also be ascertained.

24. Estimation of depreciation of fixed assets in the agriculture sector would call for estimates of the stock of fixed assets (e.g., machinery and equipment, farm buildings, dairy and breeding cattle etc..) and an assessment of the average economic life of the various classes of fixed capital assets concerned. Such data is always difficult to obtain. Often one has to make use of the rates of depreciation obtained from small-scale and localised farm management surveys and those concerning selected large-size modern farms or plantations. Capital formation in agricultural machinery and equipment could be estimated from statistics on imports and local

production over the period of years of the average economic lifetime of these assets, while estimates of the value of stock of farm buildings and dairy and breeding animals would present very serious problems of evaluation in the absence of basic data.

25. Methodological material on national practices in estimating crop production by countries of the African region is rather scanty. These practices can nevertheless be classified into three broad types: (i) Export crops estimated from statistics kept by Marketing Boards, while the bulk of the remaining crops are estimated through eye observations by agricultural extension agents and market reports; (ii) Cash crops assessed through the purchases and change in stocks data of related Marketing Boards, while the quantities of production for the remaining crops are estimated through data on acreages and yields from annual or less frequent agricultural surveys and crop-cutting exercises; (iii) Export crops are estimated from data on exports and estimates of local consumption, while the production of other crops is estimated from data on population and estimated level of per capita consumption from household budget surveys, etc.. Examples are given as below for selected countries:

1. Ethiopia: No agricultural census has taken place as yet in Ethiopia. Current data on acreages and yield rates for selected crops (e.g., Teff, sorghum, etc.) were obtained from the first round of the National Sample Survey (1964-68), which covered the rural areas, while the second round of the Survey is currently in progress. For current national accounts estimates, however, the data from these surveys have not been used as yet. For cash crops, estimates of quantities of production were built up by equating local production to recorded exports plus estimated local consumption. For other crops, mainly crops of local consumption, the overall crop production level for 1961 was established on the assumption of a total per capita consumption of 180 kgs. of foodgrains per year, based on localised household budget surveys, estimated indigenous food consumption habits and technical factors. This total production figure was then distributed among the various crops, allowance being made for home processing and feeding (at about 10 per cent of total production) and for waste and losses in storage (at 5 per cent). The Ethiopian statistical and planning authorities are well aware of the weaknesses of the present agricultural production estimates and considerable efforts have been exerted to provide a sound statistical base for such estimates. A nation-wide Rural Household Consumption Expenditure Survey, covering 1900 rural households, was conducted in 1967/68 and further such surveys are being planned for the future.
2. Ghana: Production of cocoa is equated to the purchases of the State Cocoa Marketing Board, adjusted for changes in stocks of the Board. For crops other than cocoa, the production of a crop is a particular year is estimated by multiplying area under the crop with the average yield per acre for the crop under consideration. The estimates of acreages under various crops are based on results of annual agricultural surveys, which included a total of about 4,000 holdings in 1968, accounting for an

estimated 0.5 per cent of the universe. Estimates of yield for main crops are considered to be reasonable, while estimates for acreages vary considerably for individual crops from year to year. Non-sampling errors were considered to be high; assessments of the sources and magnitude of such non-sampling errors are yet to be made.

3. Kenya: Quantities of production of food crops are obtained by multiplying acreage data by yields per acre for individual crops. Acreage data under individual crops have been built up for each province from district figures. Quantities of production estimates have in all cases been checked by dividing production by the estimated number of producing units or families to obtain estimates of consumption per family on a monthly basis.
4. Morocco: Annual agricultural surveys for data on acreages and crop-cutting experiments provide the basis for estimates of crop production. For the present, three main sources of information on agricultural production are available, viz., the "Agricultural Surveys Service" attached to the Statistics Division of the Ministry of Plan and Co-ordination, the "Agricultural Statistics Service" attached to the Ministry of Agriculture, and the "Office Cherifian Inter-professionnel des Cereales" (O.C.I.C.). Up to now the National Accounts Service has used, for part of the estimates (grains), the figures of the O.C.I.C. for reasons of keeping continuity of the series. The O.C.I.C. determines the level of grain production by subjective methods while the former two agencies establish their estimates on a more scientific basis. For the remaining agricultural products, the Ministry of Agriculture remains the principal source. An agricultural census is planned for 1970/71.
5. Nigeria: For cash crops which include cocoa, tobacco, rubber, palm fruits, palm wine and cola-nuts, the principal source of information consists of Marketing Boards and related companies and institutes. The purchases of cocoa have been taken to equal production. For the bulk of Nigerian farm crops, the rural Economic Survey Division of the Federal Office of Statistics supplies the production figures as well as price data. The only input taken into account is seeding. The allowances made it vary from 1 to 20 per cent. The R.E.S. estimates are based on yield rates and acreage data. They relate to the quantities grown, not those harvested. Figures on harvested produce are not available. Wastage was not taken into account. For the remaining farm crops, consisting mainly of fruits and vegetables fresh, such as oranges, pineapples, coconuts, greens, tomatoes, bananas and plantains, their production is equated to exports plus local consumption, the sources of data being external trade statistics and urban consumer surveys.
6. Sudan: Apart from the key cash crop, cotton, for which statistics on acreages, production and marketing are supplied by the Gezira Board and other Agricultural Production Boards, the production estimates of the Department of Agriculture for agricultural crops are based on eye-estimates of its field staff, but generally influenced by market sales

in the rural areas and intelligent guess-work of tribal leaders, Sheikhs and Omdas. Beginning in 1965 with a pilot survey in one council, the Department of Agriculture undertook a series of crop estimation surveys on dura and wheat, and groundnuts. By 1967/68, the Department had completed 18 such surveys, but they were of an ad hoc nature, made on a small scale and confined to the modern sector of the economy only.

For the national accounts estimates for 1966-68, the findings of the Household Consumption Survey of 1967/68 for the Six Northern Provinces have been made use of in estimating private consumption expenditure. The survey provides per capita consumption data respectively for urban, semi-urban and rural areas, distinguishing in percentage terms consumption from own production and purchases from the market. Such data, adjusted for obvious inaccuracies where necessary, and multiplied by the number of population in these areas would provide data on quantities of crops consumed on the farm and marketed.

7. Southern Rhodesia: The production of staple crops such as maize, munga (finger millet), kaffir corn (sorghum), rupoko (bulrush millet), beans, rice, wheat, groundnuts, fruits and vegetables, is estimated on the basis of reports made by agricultural demonstrators, whose job it is to report for each crop the quantity harvested through direct questioning of farmers. For modern farms above a certain size, an annual census provides the information needed.
8. Tanzania: The available information on crop acreage, output, etc., is very meagre, except in the case of the export crops such as sisal, cotton, coffee, tea, tobacco, pyrethrum, etc. For these crops the sources of data are the relevant Marketing Boards. For the other crops, estimates of production are made by the Ministry of Agriculture Food and Co-operatives (KILIMO). The KILIMO data on crop production are compiled from the periodic crop reports of the Regional and District Agricultural Officers, which are mainly based on eye observations and market reports. These estimates are used for lack of other sources of data on production. However, for some crops, viz., maize, rice, beans, cassava, and fruits and vegetables alternative estimates of production have been built up on the basis of data obtained through the preliminary listing schedules of a household budget survey based on a sample of 824 households spread throughout the country and these have been preferred to corresponding KILIMO estimates.
9. United Arab Republic (Egypt): The basic information used in compiling agricultural accounts is not collected on the basis of holdings, but on the basis of commodities produced. Quantities of crop production are obtained as the product of crop acreages and yields per acre. A stratified multi-stage samples are used in crop-cutting experiments to estimate the average yield per feddan for cotton, wheat, maize, rice, onions and potatoes. The same method is used for estimating the yield per bearing

tree of mangoes, grapes, bananas and dates, also for estimating the average production of milk per head of buffalos and cows. For the assessment of the area under which a crop is sown and harvested, sampling methods are also used. For instance, 50 per cent of the cultivated area during an agricultural census year is selected at random and by using the ratio method the total areas under wheat and cotton are estimated. The areas under cultivation of rice and sugar cane are estimated through complete surveys and exact measurement, while the areas for other crops are estimated by questioning farmers and agricultural experts. After having made some experiments with aerial photography for estimating acreages under cultivation, the U.A.R. has decided to use this method beginning with February 1966.

B. Livestock:

26. As in the case of other commodity balances, the production of livestock products in quantity terms can theoretically be established from the following formula:

Local production = Intermediate consumption of industries, producers of government services and producers of private non-profit services to households + domestic final consumption + increase in stocks + fixed capital formation (in dairy, breeding and draught animals) + exports - imports.

27. The intermediate consumption in livestock products could be estimated from surveys of industrial production and surveys and studies of small-scale and cottage industries; data on domestic final consumption would have to be built up from results of family consumption surveys; and data on increase in stocks and fixed capital formation in dairy, breeding and draught animals presupposes the existence of estimates of livestock population by species for specific dates, while data on exports and imports of livestock products can normally be obtained from external trade statistics.

28. All this appears to be well and good. However, in current African conditions, few countries possess solid estimates of livestock population with known margins of error, based on livestock censuses or surveys. Even where censuses (complete enumeration or of an administrative nature) of livestock were taken, the results might be subject to considerable margins of error on account of frontier movements between neighbouring countries, caused by a desire on the part of cattle breeders to avoid their cattle being counted because of fear of taxation. This has been or could be the case for countries such as Niger and Nigeria, Somalia and Ethiopia, etc. The present livestock population estimates for African countries have largely been built up by making use of one or a combination of the following methods:

- Livestock censuses (complete enumeration) or sample surveys carried out on a nation-wide or localised scale;
- Records of taxes paid on animals;
- Animal vaccination statistics, in particular, for such diseases as rinderpest;
- Counts or records taken at popular watering places, etc.
- Administrative censuses of the livestock population.

29. To obtain an estimate of the livestock population, some countries of the region have resorted to the practice of conducting periodic livestock sample surveys. A case in point are the livestock enquiries of Nigeria, 1963/64 and 1964/65, organised by the Federal Office of Statistics. The purpose of the inquiries was to obtain estimates of livestock population, variations in numbers between successive years, birth and death rates, purchases and sales, slaughter rates, etc. The sample consisted of 5,700 households in 190 village units selected throughout Nigeria for the inquiry in 1963/64, and of 6090 households in 203 village units for that in 1964/65. A stratified multi-stage sample design was used in selecting the village units and households to be studied. The surveys relate to livestock held by rural households only, and include neither the livestock raised on government or commercial farms nor that owned by the nomadic Fulanis, for whose livestock special methods would have to be developed for the purposes of the inquiry. The Nigerian experience has shown that while sampling errors can easily be calculated, the size of non-sampling errors, such as errors in measuring and computing, response errors and enumerator biases, etc., could not in general be measured. It is sometimes, however, possible to determine whether or not biases are present in the estimates. By retaining a proportion of the informants in successive samples, it was possible to obtain evidence that a hesitancy existed on the part of the respondents contacted for the first time to report all of their livestock through possible fear of taxation, and that for certain regions of the country, estimates on some items were biased downward, while those on some others were biased upward.

30. Once the absolute size of the livestock population by species has somehow been established, it would then become a comparatively easy matter to calculate the annual offtake of animals and the output of the livestock industry, based on established or assumed technical factors. The annual offtake rate could be estimated by making use of the so-called

"réproduction rate" and "reported hides" methods, supplemented by data on controlled slaughterings and consumption patterns obtained from household consumption surveys. These methods appear to have been used by most countries of the region, in arriving at annual estimates of livestock production.

31. For the Franco-phone countries of the region, the methods used in obtaining estimates of livestock production appear to have been those suggested by Courcier and Le Hegarat.^{1/} The livestock production is to be estimated from the following formula:^{2/}

$$R = Ac + Anc + E - I + De$$

where R = Livestock production;

Ac = Controlled number of animals slaughtered;

Anc = Uncontrolled number of animals slaughtered;

E = Exports of livestock on the hoof;

I = Imports of livestock on the hoof;

De = Increase (or decrease) in number of livestock

during the year. The livestock numbers as expressed in the above formula would have to be converted into quantities of meat, hides and skins, milk, etc.. through the use of technical factors. The off-take rates for the Franco-phone countries in Africa are assumed by Courcier and le Hegarat to be 10 per cent for cattle and oxen, 10 per cent for donkeys and horses, 30 per cent for sheep and goats and 80 per cent for pigs.

^{1/} : Planification en Afrique, Tome 3, Manuel de Comptabilite nationale pour economies en voie de developpement, Michel Courcier et Guy le Hegarat, Republique francaise, Ministere de la Co-operation, March 1963.

^{2/} : Almost exactly the same formula is used by Ghana in its most recent national accounts estimates for 1965-68, except that the term De in the above formula is explicitly spelled out in the Ghanaian case as $P_t - P_{t-1}$, i.e., the difference in numbers of livestock between the end of years t and t-1.

32. As an example of practices in the Franco-phone countries, the methods used by Madagascar in estimating livestock population and livestock production is worth noting. The size of the present cattle population of Madagascar is poorly known due to lack of basic data from censuses or surveys. Estimates of livestock production are derived from two main studies, viz., (i) the study by Lacroux-Tych-Sarniguet, which is based on demographic characteristics of animals analysis of marketing data, administrative censuses and exports of hides and which provides an estimate of an annual offtake ratio of 10% on the estimated cattle population and gives an available quantity of 16.5kgs. of carcass per capita per year, and (ii) the study of Patrick Francois, which is based on an analysis of household budgets in rural areas and provides an estimated consumption of 9.2kgs. of meat and 14kgs. of carcass per capita per year. Similar techniques may well have been used in other African countries in similar circumstances.

33. National practices in the estimation of livestock production in English-speaking African countries are available for a larger number of countries including Ethiopia, Ghana, Kenya, Southern Rhodesia, Sudan and Tanzania. They are described below:

1. Ethiopia: The total numbers of livestock were built up by making use of statistics on exports of hides and skins and results of the 1961/62 Livestock (Cattle) Survey in Southern Ethiopia, which covered roughly one-third of the country in terms of area. The annual production of meat milk and milk products, hides and skins was estimated by making use of technical factors such as the age and sex distribution of livestock, estimated live weight and dressed weight per animal, the assumed percentages of such animals slaughtered, supplemented by external trade statistics. The products were valued based on prices in the main selling regions obtained from trade sources.
2. Ghana: The gross domestic addition to the stock of animals in a year has been estimated by adopting the following equation:-

$$Y_t = P_t - P_{t-1} + S_t + A_t - I_t$$

where Y_t = the gross increase in the number of animals in the t th year;

P_t = the animal population at the end of the t th year;

1/: A similar formula is used in Libya's gross national product estimates for 1964-66.

- At = the number of animals slaughtered outside the slaughter houses in the t th year;
St = the number of animals slaughtered in the controlled slaughter houses in the t th year;
It = the number of animals imported during the year.

The value of livestock production by type of animal was estimated by multiplying the gross increase in the number of animals with their respective average prices.

3. Kenya: Through a judicious use of the "reproduction rate" and "reported hides" methods, an annual offtake of 11½% on the total stock of cattle population was obtained. From records kept by the Livestock Marketing Organization for sales of cattle at recognised markets in Kenya, an average price was calculated for Kenya for cattle sold for slaughter, weighted according to the numbers of animals sold in the various markets. The offtake of animals sold or consumed outside cattle markets were valued at 75% of the price recorded at the markets in order to allow for differences in quality and in the proportions of young animals. The assumed annual offtake rates for sheep and goats, poultry, and pigs were 20, 50, and 90 per cent respectively.
4. Nigeria: The livestock population is estimated from periodic livestock surveys. To obtain the production of meat and hides and skins, an estimate of the cattle, sheep and goats slaughtered in Nigeria, whose hides and skins were not exported, was first made. This estimate was supplemented by the number of exported hides and skins after deduction of the hides and skins imported from adjacent African countries. The resulting figure was taken to equal the total of slaughtered animals. They were then converted into beef, mutton, goat meat, etc., by applying average yields, per carcass.
5. Southern Rhodesia: Livestock production was equated with the number of sales plus the number of animals slaughtered and dying, plus the increase in herds. The number of animals slaughtered plus deaths was converted to cold dressed weight for consumption on the basis of the average for the appropriate grade and type of animal. For hides and skins it was assumed that skins of all animals slaughtered were sold and those of animals dying from natural causes were retained for own use. Estimates of production of milk, eggs and poultry were made by making use of various assumptions regarding the cattle and poultry population.

6. Sudan: Estimates of livestock population, made by the Ministry of Animal Resources, are based mainly on animal taxes collected, records of vaccination centres and of popular watering stations for animals. An annual offtake rate of 6% was estimated for cattle and animal products were valued at weighted average auction prices for each province, these prices being collected daily covering market transactions at these auction markets.
 7. Tanzania: The total livestock population is estimated based on some partial surveys and reports. These estimates are compiled annually by regions by the Ministry of Agriculture, Food and Cooperatives. To obtain estimates of annual increments in livestock, the total number of animals slaughtered in 1966-68 was estimated on the assumption that the animals, whose hides and skins were exported represent 95% of the total numbers of cattle, sheep and goats slaughtered in the country. Annual data were obtained by assuming that the subsistence production of meat increases at the same rate as population and marketed production at the rate of 5%. The average prices paid by Tanganyika Packers Ltd per lb. carcass have been used to value the meat production. In estimating increments in livestock, it has been assumed, due to lack of reliable information, that half of it consisted in dairy and breeding cattle and the remaining half in beef cattle. The former forms part of fixed capital formation and the latter constitutes increase in stock.
34. To arrive at the net output (i.e. value added) of the livestock industry, it is necessary to deduct from the gross output estimated intermediate consumption, which consists mainly of purchases of feed salt, medicines, licence fees, marketing charges, maintenance of sheds or other equipment, etc. For some countries of the region, practically no intermediate inputs have been allowed for on account of the fact that animals graze freely on pasture or farm land, while for some others a rough guess of 10 to 15% has been put arbitrarily as intermediate consumption, based on studies of the cost structure of a small number of farms.
35. It would be difficult to decompose the value added by the livestock industry into its various components, namely, indirect taxes net of subsidies, depreciation, compensation of employees and operating surplus. The bottleneck in estimation appears to lie in the difficulty in estimating compensation of employees and depreciation: the former because of lack of data on hired labour and its earnings; the latter because of the difficulties involved in the evaluation of the present value of fixed assets (including dairy, breeding and draught animals) and their average economic lifetime pertaining to

each type of asset. Once these two flows have been ascertained, operating surplus can be obtained as difference because of the relative ease in estimating the flow indirect taxes net of subsidies from taxation records.

C. Forestry, Fishing and Hunting:

36. Statistics on forestry resources and annual fellings are scanty for countries of the region, due to lack of bench-mark data from censuses or surveys. Countries have got round the problem of estimating forestry production by equating it to the total production of industrial wood and fuelwood. The main sources of data are industrial and foreign trade statistics and household budget surveys. For some countries (e.g., Nigeria), the gathering of firewood in rural areas has been regarded as a gift of nature and consequently left out of the boundary of production. Once estimates for the consumption of firewood has been established for a particular year, it is common practice, in the absence of current annual data, to extrapolate the series by relating it to the growth of population.

37. Estimates of intermediate consumption of the forestry industry are often based on no more than fragmentary information or intelligent guesswork. As a matter of fact, a number of countries of the region, including Ethiopia, Ghana, and Tanzania have put the intermediate consumption of the industry at 10% of the industry's gross output. For obtaining the breakdown of value added into indirect taxes, depreciation and factor incomes, the main difficulties involved would be to estimate the components compensation of employees and depreciation, on account of lack of data on number of employees and applicable wage rates and data on fixed assets employed in the industry.

38. Gross output of the fishing industry is largely evaluated on the basis of landing statistics on fish catches from both the sea and inland waters, valued at producers prices. Data on fish catches are recorded either on a complete enumeration basis as for those caught by fishing vessels, or on a sampling basis as for those caught by canoes. Data on fish catches in lakes and rivers are often inadequate; occasional surveys may have to be made in order to obtain such data. Where statistics on landings of fish are non-existent, recourse is sometimes made to consumption data obtained in household budget surveys. Intermediate consumption of the fishing industry has been obtained in some countries of the region from the cost statements of the larger enterprises engaged in fishing (e.g., Ghana), or obtained as a rule of thumb (e.g. Ethiopia), or has been left out altogether (e.g. Nigeria). Estimated volume of catches by amateurs has in some cases been added to the fish landings data in order to arrive at the total volume of fish caught (e.g. Tanzania).

39. Very little is known about the ways in which the output of the hunting industry is estimated in countries of the region. In most cases, however, data on the number of hunting licenses issued, rates of license fees payable, the total amount of fees collected, the value of sales of trophies by government, exports of ivory, skins and other products of hunting, etc., are available. Such data are sometimes used in conjunction with data on the subsistence consumption of meat of wild animals obtained from household budget surveys. Specific studies made on the subject by experts relating to the consumption of game meat in some countries could also be of value in estimating the output of game trophies.

D. Producers' Prices:

40. The definition and gathering of producers' prices for agricultural crops has been one of the thorny problems facing most African countries at the present time. The Seminar on Statistics of Prices and Quanta held in Addis Ababa, from 13 to 21 October, 1969, had the following to say:-

"There was some discussion on the definition used of producer's prices of agricultural commodities. It appeared that the general lack of such price data had placed a serious restraint on the actual valuation practices adopted in the countries. Often officially guaranteed prices fixed by marketing boards for export or cash crops were used; data collected or assessed by other governmental bodies such as the Ministry of Agriculture or Chamber of Commerce were also resorted to. Some countries valued their crops at the retail prices prevailing in the nearest neighbouring markets, while some others derived producer prices from wholesale prices by deducting estimated trade and transport margins. The Seminar did not come to any definite conclusion on a precise definition of agricultural producer prices."

41. The situation in respect of producer prices for agricultural commodities in countries of the region remains very much as it stood in 1969. Country definitions and practices in respect of producer prices are listed below:

1. Ethiopia: Lowest wholesale price quotations for provincial centres in main crop growing areas. Annual prices represent monthly averages;
2. Ghana: Average wholesale prices obtained in rural and some urban areas where the farmers sell most of the marketable surplus of their produce. The wholesale prices of each crop are averaged out over its peak marketing period;

1/: Report on Seminar on Statistics of Prices and Quanta (E/CN.14/NAC/36; E/CN.14/CAS.6/10; 21 October 1969). Para 52.

3. Kenya: Prices received by growers for produce sold in their local markets. Where price information is not available, prices obtaining in neighbouring Districts are used. Weighted average prices for each province are obtained, the Districts producing most of a particular crop receiving the greatest weight;
4. Libya: Wholesale prices in Tripoli; less estimated trade margins from farm to wholesale market;
5. Madagascar: For products of mass consumption and export products; Prices fixed by Ministerial order. For other products: Purchasers' prices less trade and transport margins;
6. Mali: For the principal agricultural products, officially fixed prices at the beginning of each season;
7. Nigeria: Producers' prices are defined as the prices at which farmers sell to wholesalers who buy on the farms, or at least in the villages. Due to data availability, however, in the national accounts estimates of Nigeria for 1958/59-1966/67, the following prices were used:
 - Marketing Boards' declared minimum buying station prices for the commodities which they handle;
 - Farmers' prices as collected by the Rural Economic Survey; and
 - Rural market retail prices for foodstuffs.
8. Malawi: For maize and other food crops of general consumption, guaranteed prices payable to the grower for delivery to the agents of the Farmers Marketing Board;
9. Morocco: The following prices were used as an approximation to producers prices for the valuation of subsistence production:
 - Official buying prices to producers or guaranteed prices: Wheat, barley, milk;
 - Recorded wholesale prices in Casablanca, reduced by a certain percentage;
This applies to cereals other than wheat and barley, beans and peas, etc.;
 - Export prices reduced by a certain percentage: certain dried leguminous vegetables, citrus fruit;

- Retail prices in Casablanca, reduced by a varying percentage: for early vegetables, poultry, olives.

10. Southern Rhodesia: For food crops, official guaranteed prices after deducting transport and handling charges and the levy on producer sales;
11. Sudan: Retail and f.o.b. prices, reduced by estimated trade and transport margins. Retail prices derived from the Household Budget Survey of 1967/68 were also made use of; these prices refer to urban, semi-urban and village markets. Weighted average prices were obtained based on production estimates for each district. Assumed trade margins were deducted from these prices to arrive at producers' prices.
12. Tanzania: For export crops: The National Agriculture Products Board fixes in advance of each season the prices to be paid to growers in respect of the crops handled by them. For the other crops: Quarterly averages of prices paid to growers for each region separately on the basis of monthly returns made by the Regional and District Agricultural Officers;
13. United Arab Republic (Egypt): Some statistics of prices received by farmers are collected annually during the marketing seasons. Prices received for cotton, beans, rice, groundnuts and onions are obtained from data on quantity and total value of produce recorded by cooperative marketing societies. In the case of 7 main crops, a sample of five villages is taken in each district with purposive selection and farmers are interviewed. Prices received for other crops and vegetables are based on a purposive sample of 15 producers in each district for each crop.

E. Problems encountered in the Agriculture Sector:

42. Among the many problems of estimation and data collection encountered by countries of the region for the agriculture sector, may be listed the following:

1. Lack of basic data of all kinds through properly conducted censuses and surveys on a national scale. This applies with equal force to crop production, livestock, forestry, etc. Even where these censuses or surveys have been held, proper and timely processing and analysis of data were not always forth-

coming. Often years would elapse between the completion of field work and the availability of results;

2. Difficulties in collecting prices from the rural areas: apart from the problems of the availability of trained statistical personnel and finance for such price collection work, the difficulties arise from the absence of organised markets in most rural areas, the prevalence of barter trade in some commodities, the absence of standard units of measure for some goods, the practice of most villagers to bargain in almost all transactions, etc.,
3. Difficulties in converting local units of measure into standard weights and measures, say, the metric system. The same local unit of measure (length, volume, or weight) may vary greatly from locality to locality in the same country; and this would affect the accuracy of land areas, crop production, and consumption figures finally expressed in terms of standard units of weights and measures;
4. Difficulties in estimating the volume of subsistence production: apart from problems of a conceptual nature, the measurement of production for own consumption and own-account capital formation is dependent on the availability of data from rural household consumption surveys, carried out on a national scale. In many countries of the region, this has not yet been done;
5. Lack of data on the cost structure of the agriculture sector, in particular, data on employment, wages and salaries paid (both in cash and in kind), consumption of fixed capital, etc. Intermediate consumption of the sector is often estimated indirectly rather than based on accounting data from the agricultural holdings;
6. Difficulties in obtaining estimates of increase in stocks (in particular, of agricultural crops) and fixed capital formation (e.g., own account construction of farm buildings and dwelling units, increase in the number of dairy, breeding and draught animals, land improvement and clearance, etc.) by the individual farming households.

43. The above list portrays only the major problems encountered by the national accountant in trying to establish production accounts for agriculture. As mentioned earlier in this paper, the problems are immense and would have to be resolved with determined efforts by countries of the region through extensive data collection programmes established within the framework of national accounts.

(ii) Industries (Mining, Manufacturing, Electricity, gas and water):

44. These activities are grouped together as the main source of information is periodic industrial censuses or surveys. Unlike agriculture, the statistics are recorded on an establishment or enterprise basis. Data on gross output, intermediate consumption and the components of value added, viz., indirect taxes less subsidies, consumption of fixed capital, compensation of employees and operating surplus, can in most cases obtained from the census or surveys returns received. In addition to periodic industrial surveys, some countries have made use of income tax returns as a source of industrial production statistics. The latter source has, however, not been made much use of as yet in countries of the region on account of the general reluctance of the tax departments to cooperate with the statistical office.

A. Main problems encountered:

45. The main problems encountered in estimating product from industries may be listed as below:

1. The problem of non-response and data coverage: In most industrial surveys carried out in the region, establishments below a certain size (say, with an employment of less than ten persons) are not covered. The uncovered small establishments often account for a considerable proportion of the total value of sales of the industry, and a much bigger share in terms of employment. This problem is generally not so important in mining (except where hand-worked small mines or diamond diggers prevail) and electricity and water as in manufacturing. Non-response and delays in submitting returns are not uncommon features in industrial surveys of the region, with or without statistical enabling legislation. Countries often have to work with data of partial coverage and with returns of varying quality and accuracy and degree of completeness, depending on the level and competence of the respondents and the extent of cooperation the statistical office receives from them.

2. The problem of keeping a directory of industrial establishment up-to-date:

Registers of industrial establishments are known to have been maintained in most African countries which have carried out periodic industrial surveys. Many of these are nominally complete, but some are limited to establishments with 10 or more employees. The various sources used for establishing and/or maintaining registers include periodic field enumeration records derived from compulsory governmental registration, social security records, tax records, external trade records, electric metre records, other private records and field checks. It is necessary that such registers be up-dated from time to time, if possible, from administrative sources, the alternative being complete enumeration or industrial census, which would be a very costly operation.

3. The problems of estimation for small-scale and cottage industries: To cover small establishments, the sampling method is usually preferred. The choice is between list sampling and area sampling or some kind of a compromise solution. At a Working Group on Industrial Statistics held in Addis Ababa from 5 to 9 January, 1970, it was pointed out that neither list nor area sampling could be regarded as ideal. Given the existence of a list whose coverage could be relied upon, there was no doubt that list sampling would be preferred. Where reasonably complete lists could only be built up from a complete enumeration or industrial census, list-sampling would imply frequent censuses and the cost would be prohibitive for many countries. Consequently area sampling would be the better choice. The Working Group recognised that an area sample was less efficient, in the sense that sampling error would be greater for a given sample size owing to intra-class correlation (the tendency for establishments in the same area to have the same characteristics). Thus, on the one hand list-sampling would involve frequent costly censuses in order to avoid bias resulting from the list going out of date, while on the other, area-sampling would involve high random sampling error (but not bias) resulting from intra-class correlation." The Group suggested a

1/: Report of the Working Group on Industrial Statistics (Addis Ababa, 5-9 January 1970), E/CN.14/467, E/CN.14/STAT/11, E/CN.14/CAS.7/1, Para. 50.

possible compromise of using area sampling with supplementary information from a census. In some cases, the production of, and value added by, cottage or household industries are estimated by making use of data on occupation and industry from population censuses and data from employment and earnings surveys. In certain other cases, the estimated consumption of materials obtained through the commodity flow approach has been used to arrive at estimates of gross output of household industries and handicrafts.

4. Miscellaneous problems: These concern such problems as the year of return to which the data refer, i.e. whether the calendar year or fiscal year has been used; the content of industrial questionnaires; the non-keeping of records and accounts by small establishments; the difficulty in obtaining the actual value of fixed assets; etc.

B. Country practices:

46. Country practices in the region in dealing with these problems, in particular, the problem of estimating production, value added, etc., of small establishments, cottage industries and handicrafts, will be briefly described below:

1. Ethiopia: An annual industrial survey of 200-300 establishments engaged in mining, manufacturing and electricity activities has been held since 1954. Because of absence of statistical enabling laws, the number of returns varied from year to year. The number of small establishments not covered by the annual survey is not known. The gross output of small-scale industries and handicrafts, which include handloom production of leather shoes in small workshops, carpentry, small flour mills with power, small oil presses, etc., has been estimated based on input of raw materials (local production plus imports) and technical co-efficients appropriate to each trade.
2. Ghana: Manufacturing establishments are classed into three categories, viz., large (with an employment of 30 or more persons), medium (with employment of 10 to 29 persons) and small (with employment of less than 10 persons). Large establishments are covered by annual industrial surveys, while medium and small establishments are not. An industrial census (complete enumeration) covering industrial establishments of all sizes was held in 1962. In 1963, a survey covering medium and small establishments separately was conducted,

and the results relating to the latter were published in Area Sample Survey of Small Manufacturing Establishments, 1963. The area sample survey consisted of a single-stage stratified cluster sample, with the enumeration areas used for the 1960 population census as sampling units (clusters). Supplementary information was provided by the 1962 Industrial Census, which information was used for setting up strata to control the size variation of the sampling units. The sampling units were stratified simultaneously according to three characteristics, namely, (i) regions, (ii) rural and urban character of the E.A., and (iii) size of the E.A., measured by the number of persons engaged in small industries in 1962 (supplementary information). Information on employment, production, material expenditure, wages and salaries, etc., was collected in the survey. The use of stratification and the ratio method was thought to have contributed substantially to the reduction of the standard error on regional and national levels, and the method of area sampling with interviewers was thought to have practically eliminated some important sources of non-sampling errors, e.g., bias due to imperfect frames or non-response.^{1/}

To estimate the gross output and value added by small-scale establishments, such data were first established for the bench-mark year 1963 based on results from the area sample survey. The estimates for subsequent years have been prepared on the basis of the change in the number of persons engaged and index numbers of wholesale prices. To obtain estimates of the number of persons engaged in small-scale establishments during 1965-68, the total number of persons engaged in manufacturing was estimated first, from which the number engaged in large-scale establishments was deducted. The remainder was then sub-divided between (i) small and (ii) medium scale establishments on the basis of the information for 1962.

3. Nigeria: Industrial Surveys undertaken during 1958/59 to 1961/62 suffered greatly from non-response. The use made of the returns received consisted in working out average value added for respondent establishments and in applying this average to the available quantities of the main raw material input after making some allowances for household consumption of same. No allowances for changes in stocks were made. Since 1962, the Federal Office of Statistics has mounted annual industrial surveys which cover establishments employing 10 or more

^{1/}: See "Introductory and Methodological Notes" to the publication Area Sample Survey of Small Manufacturing Establishments, 1963, Central Bureau of Statistics, May 1965.

persons, is multiplied by an arbitrary factor 1.2 in order to cover the value added by establishments employing less than 10 persons as well. The gross output of handicraft was estimated based on Okigbo's figure for 1957, by assuming an annual growth rate of one per cent in real terms. This was converted into current prices by making use of the consumer price index.

4. Tanzania: The method of estimating the contribution to GDP of small-scale and cottage industries in Tanzania, consists in ascertaining the total number of persons engaged in this activity and their average earnings or net output per person. The former has been estimated on the basis of data obtained through 1967 Population Census and the latter from scattered sources including some case studies. The bench-mark estimate so built up is then adjusted for quantity and price changes to yield estimates for the other years. The total number of persons engaged in manufacturing industries in 1966 was derived from a sample analysis of the 1967 Population Census, which contained information on the industry and occupation of persons gainfully employed. Further breakdown of this estimate into 12 sub-classes of manufacturing industries was also obtained. From this total, the employment provided by the large manufacturing establishments, viz., those employing 10 or more persons and covered by the biennial Survey of Industrial Production and those employing 5 to 9 persons but covered by the Employment and Earnings Surveys, also regrouped under the same 12 sub-classes, was subtracted and the number of persons engaged in household and cottage industries was derived as a residual.

To extrapolate the estimate of the contribution of the household and cottage industries to G.D.P. for 1966 to later years, it then became necessary to estimate the quantity and price changes involved. Three quantum indicators were used for the purpose, viz., the agricultural output at constant prices, the output of manufacturing industry at constant prices and the growth rate of population. The output of agriculture provides an indication of the purchasing power available particularly in the rural areas; while some of the small-scale establishments such as repairing activities are ancillary to large-scale establishments. The conversion of constant price estimates into current prices was effected by means of the retail price index for wage-earners in Dar-es-Salaam.

(iii) Construction:

A. Country Practices:

47. Surveys of builders and contractors in countries of the region are notoriously characterised with high rates of non-response. Estimates of the gross output and value added of the construction industry in African countries are usually built up from the following sources:

1. Expenditure approach: Expenditures on building and construction by government departments and public enterprises; expenditures on construction by private enterprises as a by-product of industrial and business surveys;
2. Production approach: These include:
 - Surveys of builders and contractors;
 - Building permits issued;
 - Buildings and other works under the supervision of the Ministry of Public Works;
 - The value of building materials (both locally produced and imported) available inflated by estimated ratio of sales to intermediate goods for the construction industry, in order to arrive at estimates of gross output of the industry;
 - Excise taxes paid by builders and contractors on payments received and income tax records.

48. Thus, in Morocco, buildings are estimated on the basis of records of building permits issued in 29 municipalities. Based on a study of tax statistics, correction factors are obtained in order to cover the localities not covered in the statistics, frauds, and the rise in price levels between the issue of building permits and the completion of construction. In addition, certain assumptions are made to allow for the time-lag between the issuance of the permit and completion of the construction. For instance, it is assumed that one half of a house is completed in the first year and the remaining half in the second year; for a block of flats, four-fifths in the first year, seven-twelfths in the second year, and one-twelfth in the third year, etc. For the value of other construction, it is estimated from government (central and local) budgets, accounts of public and semi-public enterprises and the annual Economic Survey (for private enterprises).

49. In the U.A.R. estimation of value added in construction is based on information obtained from the expenditure of public enterprises and government authorities. Rural buildings construction is estimated on an arbitrary basis. An alternative approach was tried, which relies on the blowing up of the total value of locally produced and imported building materials and other inputs used in the construction industry, by estimated ratio of intermediate consumption to output for the industry. A similar method is used in Sudan, for which the ratio of material costs to the total cost of building was obtained by analysing the balance sheets of constructors submitted to the Department of Taxation, and by making use of the returned questionnaires made to the statistical offices by the constructors, and a survey made by the Ministry of Housing on the cost of materials used in building first-class houses.

B. Estimation of own-account construction in rural areas:

50. One of the main problems encountered is the estimation of the value of own-account construction in rural areas, in particular, with respect to the construction of traditional type housing. Country practices on this score are not quite clear. Some countries of the region have included the construction of traditional African style housing in their production and capital formation statistics; these include Ethiopia, Ghana, Mali, Nigeria, Sudan, Tanzania, Togo, and Upper Volta, among others. On the other hand, some African countries have left out this item altogether on account mainly of lack of basic information on which such estimates might be founded.

51. For those countries which have made estimates of the construction of traditional type housing, they almost invariably rest on a number of arbitrary assumptions. The procedure of estimation followed normally consists in the estimation of populations living in say, urban, semi-urban and rural areas; estimates of the numbers of existing traditional housing in different areas, based on the size of population involved and the average number of occupants per house for each type of area; and finally, estimates of the number of traditional houses constructed during the year, an estimate often related to rate of population growth. The numbers of new traditional type houses built during the year are then valued at some average values for each type of house prevailing in the urban, semi-urban and rural areas respectively. In Nigeria, for traditional mud-walled houses, construction estimates were based on the demand for this type of housing in the urban and semi-urban settlements; estimates for this type of housing for rural areas were not made. In Sudan, estimates have been greatly facilitated by results of the Household Sample Survey carried out in the 6 Northern Provinces in 1967/68.

52. For Ghana, a somewhat different approach has been adopted largely due to the availability of data from different sources. Thus, the construction of non-permanent buildings in 1965 was estimated on the basis of (i) average value of buildings by type of construction materials, (ii) frequency distribution of the buildings by type of construction materials in 1960, and (iii) an assumed rate of growth in the number of buildings. (i) was estimated on the basis of the data for 22,500 houses selected by cluster sampling from the records maintained by the Ministry of Local Government. The information on (ii) was obtained from the data collected during the Population Census of 1960, and the assumed rate of growth in the number of buildings is one-half of the rate of growth of population. Further manipulations were done to obtain estimates for the later years.

(iv) Commerce and Transport:

A. Wholesale and Retail Trade:

53. Thus far censuses or surveys of distribution have been held in only half a dozen or so countries of the region, including Morocco, United Arab Republic, Ghana*, Kenya, Southern Rhodesia, Zambia and South Africa. These censuses refer to a particular year only; the exercise has so far not been repeated.

54. The countries have so far resorted to a number of devices in order to estimate the output of the wholesale and retail trade. These include:

1. A comparison of producers and retail price levels for various commodities. The difference is accounted for by trade and transport margins. When estimated transport costs are deducted from this figure, gross trade margins would be obtained and expressed as a percentage of producers' prices (e.g. Ethiopia, Ghana, Nigeria, Tanzania, etc.)
2. Records from marketing boards and other public trading enterprises; (e.g., Nigeria, Tanzania);
3. Trade margins obtained through an analysis of income tax returns submitted by the larger trading establishments (e.g. Ghana);
4. Special inquiries made by the statistical office to cover the main importers, exporters and wholesalers in the country and to cover retailers by a sample inquiry (e.g. Sudan);
5. Data from annual surveys of the distributive trade (e.g. the U.A.R.)

*Results of the distributive census for Ghana for Ghana have not been analysed.

55. A description of the methods used by Tanzania in estimating trade margins may be useful for countries in similar situation. Information on trade available included a survey of wholesale and retail trade in carried out by the Economic Intelligence Unit Ltd. of London in 1962 and the number of trading licenses issued compiled by the Bureau of Statistics.

56. For national accounts purposes the trade sector is sub-divided into four sub-sectors comprising (1) the parastatal trading enterprises, (2) the private trading enterprises covered by the Employment and Earnings Surveys, (3) the remaining small trading enterprises, and (4) restaurants and hotels. Estimates of trade margins for commodities handled by sub-sectors (1) and (2) are derived from the receipts and expenditures figures from the enterprises themselves, with complete coverage for (1) and sample coverage for (2). The estimation of GDP from the sub-sector (3) is more involved and less reliable. The value of marketed output of each industry (i.e. agriculture, mining, manufacturing) as well as imports is estimated, to which average trade margins are applied. The average trade margins were derived from (i) data obtained from the State Trading Corporation (STC) in respect of the trade mark-up which allow on their landed cost, (ii) the wholesale selling price of STC and their recommended retail selling price for each type of merchandise, (iii) the prices paid to growers by the various commodity boards and their selling or export prices, (iv) a comparison of retail and producer prices in respect of many agricultural commodities in a number of small towns, (v) information on trade mark-up usually applied by some of the traders in Dar-es-Salaam obtained from them, (vi) the annual accounts of some of the public and private trading establishments, and (vii) the 1962 Survey of Wholesale and Retail Trade in Tanganyika by the Economic Intelligent Unit Ltd.

57. In the case of Ethiopia and Ghana, trade margins are calculated separately for imports, locally manufactured goods, agricultural products, etc. For imports the method used consists in the assessment of percentage trade margins for various commodities imported and in an estimate of the value of imports that entered the distributive trade. For Ghana, for estimating the gross mark-up and various costs of operation, analysis was made of the income-tax returns of all the big establishments and 275 medium and small establishments engaged in distributive trade for the two years 1966/67 and 1967/68. The percentage rates of gross mark-up and the various costs thus estimated were adopted for imported goods and locally manufactured goods entering the distributive trade. For agricultural products, the method consists in the assessment of marketable surplus in product detail, and the application of percentage mark-ups for the various products. These percentage mark-ups were obtained by comparing wholesale prices in rural areas and the retail prices, an estimated percentage transport cost having been deducted.

58. The case of Sudan deserves mention in that a special survey was made to obtain estimates of the contribution to GDP by wholesale and retail trade. Returns on cost structure and volume of turnover and receipts were required from 168 importers, exporters and wholesalers in the country, of which 136 were located in Khartoum and 32 in the regions. The returns refer to the years 1966/67 and 1968. For retail trade, a sample of 626 retailers were visited by field staff, of which 325 were in Khartoum and 301 in the regions. The coverage of the survey was estimated at 1/10 for Khartoum and 1/100 for the regions.

B. Restaurants and Hotels:

59. For estimates of products from restaurants and hotels, the methods of estimation used by Ghana and Tanzania are of interest. They depended to a large extent on the sources of material that happened to be available. In Ghana, income tax returns have proved to be the main data source for both public and privately owned and managed hotels and restaurants. In the case of small-scale cafes and other eating and drinking places, a small sample survey was carried out in Accra and its suburbs to estimate per establishment (a) gross earnings, (b) intermediate consumption and (c) number of persons engaged. This information together with the estimated total number of persons engaged in providing petty eating and drinking facilities and the index numbers of prices of local food formed the basis of the estimates of gross output and domestic product. In the case of Tanzania, estimates of the product of private restaurants and hotels not covered by the Employment and Earnings Survey, were obtained as the product of the estimated total number of persons engaged in such activities (derived from the 1967 population census) and the average earnings per person applicable to household and cottage industries.

C. Road transport:

60. For estimating the contribution to GDP from transport, storage and communications, the main problems encountered appear to lie in the estimation of product from road transport and the treatment of producers (railways, airlines, etc.) operating in several countries and in international commerce.

61. In estimating the gross output and domestic product of road transport, countries of the region appear to have used the following methods of estimation, depending on data availability in each case:

1. Gross output of road transport is obtained on the basis of the number of vehicles registered, estimates of capacity and average charges per ton-mile, etc. (e.g., Nigeria);

2. Vehicle registration statistics plus periodic (quarterly or annual) rural traffic survey (e.g., Ethiopia);
3. Volume of road transport estimated as difference between total volume of freight traffic and other forms of land traffic (e.g., by rail): Example: Ghana;
4. The product of road transport is estimated partly by relating the number of vehicles, estimated number of persons engaged to average earnings per worker (e.g., Tanzania);
5. Special sample survey of truckers (e.g., Sudan).

62. A brief description of the practices of the countries mentioned above may be of interest. For Nigeria, the number of commercial vehicles - buses, taxis, trailers, lorries, tippers - are first ascertained from vehicle licensing statistics. Estimates are then made of: (i) the number of days in use per year, (ii) the mileage covered per day in use, (iii) average capacity for (a) goods and (b) passengers, (iv) extent of utilisation of capacity for (a) goods and (b) passengers, (v) average fuel consumption for (a) petrol and (b) gas oil engines, (vi) proportion of vehicles using petrol and gas-oil respectively, and (vii) average charge per (a) ton-mile and (b) passenger-mile. The gross output is obtained separately for goods-carrying and passenger-carrying vehicles, by multiplying the number in each category by (i), (ii), (iii) (a) or (iii) (b), (iv) (a) or (iv) (b) and (vii) (a) or (vii) (b). Value added is obtained by deducting from this gross output the cost of fuel (as obtained from (v) and retail prices of petrol and gas-oil) and the estimated expenditure on motor spare parts and tyres.

63. In the case of Ethiopia, similar methods of estimation have been used. The estimated total daily traffic in vehicle-kilometres obtained from traffic counts at 22 stations by the Imperial Highway Authority in its periodic rural traffic survey, has been used in conjunction with the numbers of commercial vehicles registered (current registrations), to arrive at the total freight-ton-kilometres carried. Inquiries from trade sources are used as a cross-check. The estimated total ton-kms. multiplied by assumed average charges per ton-km. gives the gross value of production.

64. For Ghana, the domestic product and gross output from freight transport by road is derived indirectly by first estimating the total land freight expenses (as part of the exercise in estimating the GDP from the distributive trade) and then deducting from it the charges for freight transportation by railway. The decomposition of gross output into the constituents was done by analysing the detailed income-tax returns submitted by a few freight transport companies.

65. Tanzania represents a special case in that part of its road freight traffic is accounted for by the East African Railways Corporation. The Corporation's activities have been classified separately under rail transport, road transport, water transport, catering services, manufacturing and construction. For each group the receipts and expenditure have been allocated territorially, i.e., allocated to the Corporation's member states, Kenya, Tanzania and Uganda respectively on the basis of location. Of the remaining land transport, Tanzania-Zambia Road Services and Tanzania-Zambia Pipelines have furnished detailed information on their receipts and expenditure arising from their activities in Tanzania. The employee compensation paid out in Tanzania, rent and interest if any paid in Tanzania and the estimated share (by ownership) of total operating profit (net of rent and interest) have been taken as contribution to GDP. The remaining road transport services are classified into two categories, viz., (i) those road transport undertakings covered by the Employment and Earnings Survey, and (ii) the residual ones not covered by the Survey. For (i) the contribution to GDP was estimated from a small sample of these establishments, and for (ii) the estimates were based on the number of vehicles, estimated employment and earnings per worker.

66. Sudan has chosen to take an ad hoc sample survey for the purpose. The survey related to the year 1968. The sampling unit used was the "vehicle". Altogether 623 vehicles were included in the sample of which 484 were in Khartoum and 139 in the regions. The sample coverage was approximately 1/10 in Khartoum, and 1/20 in the regions except for lorries for which the sampling fraction was 1/200 in the regions. The universe (excluding government vehicles) for the years 1966-1968 was provided by the vehicles registration statistics kept by the Department of Statistics.

D. Carriers operating in Several Countries and in International traffic.

67. Information on country practices in the treatment of carriers operating in several countries and in international traffic is scarce for countries of the region. What is available concerns the practices of Kenya, Uganda and Tanzania in the treatment of enterprises jointly owned and operating in their territories, such as the East African Railways Corporation, East African Harbours Corporation, East African Posts and Telecommunications Corporation, and in the East African Airways Corporation. By and large, the recommendations of the revised SNA have been followed. However, there are several instances in which the treatment accorded to the various flows relating to the operations of these Corporations are at variance with the SNA recommendations. For instance, one of the deviations from the SNA recommendation lies in the territorial allocation of expenditures of these corporations based on the location of the expenditure incurred, except for depreciation charges and interest payments where locations of the relevant

capital assets has been taken into account.^{1/} The SNA recommends that resident producer units are to be delineated. "The costs of production of the resident industries should include an appropriate share of the common operating costs of the complex of which each resident industry is a member. These common costs of production are to include charges in respect of transportable fixed assets, for example, aircraft, railway cars, lorries, used in the operations in the country in question, as well as in the other countries, and a share of the head-office expenses of the parent enterprises."^{2/}

68. Another point of apparent deviation appears to lie in the treatment of fixed capital formation by these corporations. While capital formation in buildings and construction is allocated to the three countries based on the location where such construction has taken place, capital formation in rolling stock is allocated territorially based on ton-miles/passenger-miles expected to be covered by the respective rolling stock in each of the three participating countries^{1/}, instead of allocating the latter expenditure based on the capital participation of the countries in the equity of the corporations.

69. In the case of the East African Airways Corporation, the treatment accorded to its operations is somewhat different in that it operates both within the participating territories and in international areas. From the Corporation's accounting records, its domestic and international operations are isolated. Receipts from international operations and the expenditures on these operations incurred outside the three participating countries, are classified territorially in proportion to the share ownership of the countries in the Corporation's equity. Capital formation by the Corporation is again territorially allocated on the basis of location except for capital formation in the form of new aircraft and aircraft spare engines. These so far as the Corporation's international operations are concerned, are proportioned to the countries according to their respective capital participation in its equity; for domestic operations, such expenditure is allocated to the countries in proportion to the flight-miles covered in them.

(v) Real Estate (including Ownership of Dwellings):

70. The gross output of the real estate industry can be estimated in

^{1/} Source: Treatment of the East African Community in Production and Balance of Payments Accounts of Kenya, a working document submitted by F. Singh to the O.E.C.D. Study Session on National Accounts of African Countries, Paris, 16-20 February, 1970.

(b) National Accounts of Tanzania, 1965 to 1968: Sources and Methods, Bureau of Statistics, Ministry of Economic Affairs and Development Planning, Dar es Salaam, March 1971.

^{2/} Para. 5.104 of the U.N. publication A System of National Accounts Series F, No.2, Rev.3, New York, 1968.

African conditions as the sum total of the following:

1. Gross rents actually received by the real estate industry on buildings, both residential and non-residential, whether owned by corporate and quasi-corporate enterprises, households, producers of government services or producers of private non-profit services to households;
2. Gross rents imputed to owner-occupiers of dwellings in urban areas;
3. Gross rents imputed to owner-occupiers of traditional African style housing in rural areas.

71. Country practices in the calculation of building rentals are available for some 20 countries in the region. Few countries have made imputations for 3. above; some do not even include 2. in their estimates of the gross output of the real estate industry. The countries have made use of different methods of estimation for this flow based mainly on the kinds of data that happen to be available. Their methods of estimation may be summarised as follows:

1. Number of dwellings multiplied by estimated average rent equals gross rentals; information on number of dwellings being obtained from population or housing censuses: Examples include Algeria, Mauritius, and South Africa.
2. Estimated number of dwellings (or number of families living in rented houses) x estimated average rent: Examples include Gabon and Niger.
3. Estimated number of dwelling units of non-African population x estimated average rental: Examples include Southern Rhodesia.
4. Number of rented houses in urban centres x estimated average rent obtained from household budget survey: e.g., Togo.
5. Rent actually paid, based on tax records: e.g., Central African Republic and Tunisia.
6. Gross rent is calculated based on data on replacement cost and rateable value of houses by type of construction materials used for roof and walls, the information having been collected through area sampling: e.g. Ghana.
7. The gross operating surplus is assumed to be a certain percentage of the original cost of the various types of building: e.g., Kenya.

8. Estimates derived from household budget surveys; Examples include Madagascar, Sudan and Tanzania. The average rental value per household of dwellings in rural areas and of rented houses and owner-occupied houses respectively in urban areas, could be obtained from such surveys. These average rental values per household multiplied by the total number of households would yield estimates of the gross output of the real estate industry, so far as residential buildings are concerned.

72. Once the gross output of the industry has been established, estimates of the intermediate consumption of the industry such as operating, maintenance and repair outlays, water charges, insurance service charges, etc., would have to be made in order to obtain estimates of value added by the industry. Few countries have made explicit their practices in this respect. Allowances made for maintenance and repairs and often only notional; in several cases, it is put as equal to one month's rental income per year.

73. Although in the revised SNA it is recommended that the rent of the family dwellings owned by government and dwellings owned by private non-profit institutions, which these bodies do not let on the market, should be valued at the rent of the market, very few countries in the region have in fact done so. The rent of these dwellings has continued to be under-valued.

74. From the various methods of estimation listed above, it can be seen that there is at present little comparability with respect to data coverage and the basis of estimation between one country's data on building rentals and those of another. The main problem of estimation, as is common with the other kinds of economic activity already dealt with in this paper, lies in the absence of bench-mark data obtained from censuses and surveys of housing. The cost structure of the real estate industry can of course be obtained from sample surveys of an ad hoc nature and on a small scale.

(vi) Other Services:

75. Covered under this global heading are finance, insurance, business services, and community, social and personal services. The services rendered by the producers of government services and of private non-profit services to households are, however, not covered under this heading and will be dealt with elsewhere.

76. The estimation of the product from the services sector has been one of the hardest tasks for countries of the region, on account of lack of reliable and comprehensive information.

A. Banking and Insurance:

77. For banking and insurance, the required information can often be obtained from the enterprises concerned, although there is always the problem of statistical coverage. In the case of financial institutions, the gross output is equated to the sum of actual service charges received plus imputed service charges (i.e. the excess of interest received over interest paid) for the banks, and to the excess of premiums received over claims paid for casualty insurance and to the excess of premiums received over the sum of the claims paid and the net additions to the actual reserves, excluding interest on these reserves accruing to policy holders, for life insurance. The practices of the countries of the region in estimating the gross output and value added by banking and insurance are not clear: some apparently made imputations of service charges for the banks and some did not; still others appear to have obtained the value added by banks from the income approach, i.e., by adding up compensation of employees, operating surplus, depreciation, etc. A number of countries of the region have also had to resort to the use of the income shares approach to arrive at estimates of product from the insurance industry for lack of data on total insurance premiums received and total claims paid. For Ghana, however, it has been possible^{1/} to obtain the gross output of the industry from the production approach.^{1/} The formulae used in Ghana's case are as follows:

Gross output of casualty insurance = Premium income + net
commission received + re-insurance claims recovered -
claims paid - re-insurance premiums paid.

Gross output of life insurance = Premiums income + other
income - claims paid - re-insurance premiums paid -
additions to reserves (gross).

78. Once the gross output of banking and insurance industry has been estimated from the production approach, data on intermediate consumption and factor incomes can normally be obtained from the balance sheets and profit-and-loss statements of these financial institutions.

B. Business Services and Community, Social and Personal Services:

79. Country practices in the region in respect of the estimation of the contribution to GDP from business services, and community, social and personal services are available for some 24 countries. The information available is given in rather general terms and suffers from a lack of precision and detail. Nevertheless, it may be said that the

^{1/}: Similar methods are used also in Sudan and the U.A.R.

countries have in the main used the income approach and in a number of cases, made their estimates on the basis of number of persons engaged and the estimated average earnings or gross income. Among the sources of data used may be listed (i) income tax records, (ii) business licence registers (iii) employment and earnings surveys, (iv) administrative records of government departments, (v) special inquiries through ad hoc questionnaires, (vi) government accounts, etc. A description of the practices of three selected African countries, viz., Ghana, Nigeria and Tanzania, may be helpful for purposes of illustration,

1. Ghana: The "business services" sub-sector consists of legal, accounting and auditing, and engineering services and machinery rental. Information on the number of private legal practitioners was obtained from the Office of Judicial Council. Average gross income per person was estimated partly on the basis of data supplied by some legal practitioners and partly on the basis of the salary of comparable persons in the government service, while average intermediate consumption was estimated on the basis of data provided by some of the advocates. For accounting the auditing services, engineering services and machinery rental, the estimates of gross output and domestic product were prepared on the basis of analysis of income tax returns. The sector "social, recreational and related community services" comprises private educational services, private medical, dental and other health services, and recreational services provided by the private sector on a commercial basis. For educational services compensation of employees was estimated for a bench-mark year 1963/54, based on data contained in "Education Statistics, 1963/54" a publication of the Central Bureau of Statistics; intermediate consumption was derived from data supplied by some of these private educational institutions for later years. These figures were projected for later years on the basis of informed guess. For private medical, dental and other health services, estimates of gross output and domestic product for doctors and dentists were prepared on the basis of the number of doctors and dentists and the data contained in their income and expenditure statements submitted to the Income Tax Department. In the case of native doctors, the number in 1960 taken from the 1960 population census and projected to later years on basis of rate of population growth, was multiplied by an assumed income per person. For recreational services, the requisite information on the income and expenditure of the establishments engaged in these activities was collected through a postal survey.

2. Nigeria: Information on the number and income of lawyers in private practice was obtained from the Federal (official Gazette and the records of the Inland Revenue Department. Information on income and expenditure of accountants, engineers, architects, etc., in private practice was obtained from the different establishments. Value added by domestic service was compiled by multiplying the estimated number of servants employed by their average earnings.
3. Tanzania: Estimates of the gross output and domestic product of business services and community, social and personal services in the private sector were built up almost entirely on the basis of information on number of persons engaged in these activities from the 1967 population census and data on employment and earnings from the annual employment and earnings surveys. Tax records have apparently not been much used for the purpose. For establishments covered by the Employment and Earning Survey, data on employment and employee compensation are available from that source; for establishments not covered by the survey, that is, in the unorganised segment of the economy, an estimate of the number of persons engaged in this unorganised segment of these services was obtained on the basis of information from the 1967 Population Census. The average earnings per person engaged in this residual group was taken to be the same as for those engaged in the household and cottage industries. The number of persons engaged in these services was assumed to increase at the same rate as the population and the average earnings per person engaged at the same rate as the consumer price index for wage earners in Dar es Salaam.

80. It is evident from the above that estimates of the gross output and domestic product of such services as business services, and community, social and personal services in most countries of the region are still very crude and based on rather shaky foundations. These estimates are necessarily subject to wide margins of error. The short-term solution of the problem appears to lie in the systematic exploitation of income tax records and other government administrative records, and the holding of periodic employment and earnings and related surveys.

(vii) Producers of government services:

81. This sector is defined in the present SNA as comprising (i) all departments, establishments and other bodies of central, state and local governments, establishments and other bodies of central, state

and local governments which engage in such activities as administration, defence, health, educational and social services and promotion of economic growth whether accounted for, or financed in, ordinary or extra-ordinary budgets or extra-budgetary funds; (ii) Social security schemes in respect of large sections of the community imposed, controlled or financed by government; (iii) non-profit institutions entirely, or mainly, financed and controlled by general government or mainly serving general government; and (iv) embassies, consulates and military establishments of a country located abroad.

82. As countries of the region are in the initial stages of implementation of the present SNA, it is yet too early to describe here national practices in estimating the gross output and domestic product of this sector or in estimating the final consumption expenditure of this sector by cost-composition and purpose. Suffice it to say that most of the required data for making such estimates can usually be found in government accounts. Problems encountered in the use of these accounts include the following:

1. Incomplete data coverage: The accounts often refer to the central government only, while data for local governments may be available on a partial basis or not at all;
2. Unavailability of government revenue and expenditure actuals: National accountants are often obliged to use budgetary estimates instead of budgetary actuals data, on account of the considerable delay on the part of governments in releasing data on revenue and expenditure actuals;
3. Problem of the accounting year: Government accounts are usually kept according to fiscal years. To adjust such data to a calendar year basis, monthly or quarterly data would be required;
4. Problems of classifications and definitions: e.g., definitions used in differentiating current from capital expenditure, depreciation according to book-values as distinct from the replacement cost concept, etc.
5. Lack of statistics on social security schemes;
6. Lack of data on economic and functional classification of government expenditure^{1/}.

^{1/}: Only 9 African countries have so far published their statistics on economic and functional classification of government expenditure for one or more years. They include: Ghana, Liberia, Southern Rhodesia, Zambia, Sudan, U.A.R., Togo, Uganda, Upper Volta and Sierra Leone.

83. The above indicates the major lacunae that exist at present in the statistics relating to producers of government services in countries of the region and pinpoints the areas on which future efforts must be directed.

(viii) Producers of private non-profit services to households:

84. This sector is defined in the SNA as "bodies which mainly furnish social and community services to households free of charge, or at sales prices which are not intended to cover fully the costs of producing the services, and which are not entirely, or mainly, financed and controlled by the public authorities." Included are social and sports clubs, youth or women's associations, trade unions, employers' associations, political parties cultural institutes, religious missions, etc. Neighbourhood, sport, social and similar clubs which employ less than the equivalent of two or more employees are excluded. Also excluded are the subsidiary commercial activities of private non-profit institutions, such as eating and drinking facilities, publishing and selling postcards and books, if the scale of these activities is relatively large, owning and letting dwellings and owning and providing dwellings to staff.

85. Thus far in the national accounts of most countries of the region, the gross output of, and value added by, these non-profit institutions, their final consumption expenditure, etc., have been included in the households sector in accordance with the previous SNA. Time will be needed to effect a new orientation in order to collect the necessary data on production, consumption and capital formation, etc., from these institutions.

86. The principal source of data will be these institutions themselves. The problems of estimation expected to be encountered will include (i) the problem of statistical coverage of the sector, (ii) the segregation of the trading activities of these institutions from their other activities, and (iii) the obtaining of data on fixed capital formation and consumption of fixed capital from these institutions, among others.

(b) Expenditure on the Gross Domestic Product:

87. In the paragraphs that follow, it is intended to state the main problems encountered only in respect of GDP by type of expenditure. This will be done in a rather brief manner as the main problems of estimation have already been described and analysed in some detail in respect of GDP by kind of activity in the foregoing paragraphs.

(i) Private Final Consumption Expenditure:

88. Almost all the countries of the region have estimated the flow "private final consumption expenditure" by difference, that is,

derived as a residual; the total GDP being obtained from the production approach. Less than a dozen countries in the region have compiled statistics on the composition of private consumption expenditure by commodity group in accordance with the commodity classification of the former SNA, for a particular year or more. This is mainly due to the lack of data on a national scale from recently conducted household consumption and expenditure surveys.

(ii) Government Final Consumption Expenditure.

89. Problems involved in estimating the flow "government final consumption expenditure" have already been stated in paragraph 82. above dealing with producers of government services. In addition, there is a conceptual problem with respect to countries following the French (Courcier) system. For them the data for general government refer to those of "administrations", which include not only central and local governments, but also private non-profit institutions serving households and, in a large number of cases, "foreign administrations". This renders international comparisons of the levels of government final consumption expenditure difficult. A further problem pertaining to inter-temporal comparison of national data arises from the fact that in the case of some African countries, data on government final consumption expenditure include current transfers from abroad (e.g., foreign government assistance, grants, budgetary supports, etc) for some years but exclude these transfers for other years.

(iii) Increase in Stocks:

90. Data on changes in stocks are available for a limited number of African countries only. Even for these countries, the stock figures often refer to certain key crops of strategic importance (e.g., cotton, coffee, cocoa, groundnuts, etc.) and livestock (e.g., cattle) only. The information on stock changes is often made available by marketing boards; limited information on stocks is also available for the manufacturing industry, wherever regular censuses or surveys of production are held. On the other hand, information on stocks in the traditional sector of the economy (as distinct from the modern sector) and in the hands of distributors is rarely available. As dairy, breeding and draught animals are now classified as fixed capital assets rather than stocks in the revised SNA, a problem will naturally arise as to what proportion of the increment of livestock should be treated as fixed capital formation and what proportion as increase in stocks, in the absence of factual information on the absolute sizes of say beef cattle and dairy, breeding and draught cattle.

(iv) Gross fixed capital formation:

91. The majority of African countries have used a combination of the commodity flow and the expenditure approaches in estimating fixed capital formation. In the case of machinery and equipment, the

commodity flow approach has largely been followed. As local production of such goods is not significant in most African countries, detailed classification of import statistics provides the basis for estimation. The c.i.f. value of imports plus duty and other indirect taxes and estimated margins for transport, distribution, installation and legal fees, etc., usually provides the necessary estimates. Where regular censuses or surveys of industrial production are held, information on fixed capital formation by type of asset is usually obtained for the industries covered (e.g., mining, manufacturing, electricity, and in some cases, construction as well).

92. In the case of construction, the expenditure method has usually been relied upon for estimating fixed capital formation by general government and public enterprises and a few large-size private enterprises. For construction in the private sector, estimates based on materials used (e.g., cement for Ghana and Nigeria; iron sheets for roofing for Ethiopia), input-output coefficients established for building and construction (e.g., Tunisia), and/or building permits issued by municipal authorities, etc., have been resorted to. In the case of traditional African-style mud huts building, outright arbitrary assumptions regarding the stock of such housing, its average lifespan, average cost of its construction, etc., have frequently been made. In the case of some countries, such traditional type housing construction has been considered as current consumption and not included in fixed capital formation (e.g., Kenya, and Sudan for rural areas). The reader is referred to paragraphs 47-52 for further description of the methods and practices used by countries of the region in estimating the gross output of the construction industry, in particular, with respect to that of own-account construction in rural areas.

93. The main problems that have been or will be encountered include:

1. The problem of gathering bench-mark data on the size of dairy, breeding and draught animals and data on the annual increment of same, as these animals are now treated as fixed capital assets in the revised SNA;
2. The problem of obtaining returns regularly from builders and contractors in order to obtain a good statistical coverage so far as the gross output and cost structure of the industry is concerned;
3. the problem of estimating the volume and value of own-account construction in rural areas (e.g., land improvement, land clearance, farm building, irrigation, etc.);
4. the problem of treating:
 - Development expenditure: Should this be treated as current or capital expenditure?

- Expenditure on research and exploration for minerals, e.g., petroleum: Intermediate consumption or fixed capital formation?

94. The answer to 4. above is precise and specific in the SNA, that is, such expenditure should be treated as current consumption expenditure except that part of the expenditure which is embodied in tangible assets e.g., construction (Para. 6.63 of the SNA). However, a number of countries in the region continue to treat the total of petroleum exploration expenditure as fixed capital formation.

(v) Exports less Imports of goods and services:

95. External trade data in countries of the region remain one of the most readily available, comparatively reliable and most important sources of information. The data have been considerably improved in recent years, so far as the commodity classification used and the frequency of publication are concerned. Almost all African countries have adopted the commodity classification of the SITC or the BTN. However, the data on exports and imports of goods and services for most African countries still suffer from a number of drawbacks as follows:

1. Data on services: For most countries of the region data on imports and exports of services have been estimated on a rather weak basis. Often the element on freight and insurance for merchandise imported is estimated by rule-of-thumb, with little factual basis. For a fairly large number of the Franco-phone countries in Africa, balance of payments statistics have not yet been compiled on anything near a regular basis, in accordance with the Manual of the International Monetary Fund;
2. Timing of recording data: In most cases, the recording of data is on the basis of physical movements, instead of being on the basis of change-of-ownership as required for balance of payments and national accounts purposes;
3. Coverage of data on goods: Due to inadequate administration and the extensive land frontiers between African countries, intra-African trade has been seriously underestimated in some cases. A proportion of the trade between neighbouring countries might be conducted on a barter basis and consequently escape the trade and payment statistics of both countries. Examples are the exchange of goods between Niger, Chad and Northern Cameroun on the one hand, and Nigeria on the other. For some landlocked countries as Chad, Central African Republic, Mali, Upper Volta, Lesotho, Botswana, Swaziland, etc., the problem of getting accurate trade statistics, with adequate coverage

and detailed commodity classification, must have been a difficult one. The problem of patrolling borders to prevent smuggling and contraband has constantly to be faced;

4. Basis of valuation: In theory, the countries value their exports and imports of merchandise in accordance with declared values. In practice, however, officially fixed values for duty purposes have been used for statistical compilation as well. This is the case for most Francophone countries and some of the English speaking countries of the region in the case of exports and concerns such commodities as coffee, cocoa, bananas, etc. There is also reason to believe that for some countries the imports have been over-valued for the same reasons.

NATIONAL ACCOUNTS ESTIMATES AT CONSTANT PRICES:

96. The availability of national accounts estimates at constant prices is summarised in Table 2. Information on the practices of African countries in the compilation of these estimates and the methods used is contained in the ECA secretariat paper National Practices at Constant Prices in Africa (E/CN.14/NAC/23; October 1966). Little is to be added to what has already been said in that paper. For methods and discussions on conceptual problems in respect of national accounting estimates at constant prices, the reader is referred to Chapter III of the U.N. publication Series M, No.2, Rev.3, and the paper prepared by the U.N. Statistical Office entitled National Accounting Data in Constant Prices (ST/STAT/15; 1966).

97. It suffices to say that with the progress of work in the countries in the implementation of the revised SNA and the need of the countries to obtain growth rates for economic analysis and planning, further progress in this direction is expected to be achieved in countries of the region in the coming years.

ANNEX I

Questionnaire on Production Accounts, Commodity Balances,
and Input-Output Analysis at both Current and Constant Prices

Note: The questionnaire is divided into Parts A and B. Countries which have not so far compiled, and are not currently compiling, input-output tables are not requested to make replies to Part B of the questionnaire.

Part A. PRODUCTION ACCOUNTS AND COMMODITY BALANCES:

A pro forma of production accounts for commodities and industries (Accounts II A and II C of the revised SNA) as well as Standard Tables 1, 2 and 3 and Table 28 of the SNA, is included in Annex I to this questionnaire, for your reference. Also pro formas of Account 1. Gross domestic product and expenditure of the Consolidated Accounts for the Nation, and of standard tables 4, 6 and 7 of the Revised SNA, are included in Annex II to this questionnaire for the same purpose.

A.1. Have production accounts in the form of Accounts II A and II C of the revised SNA been worked out for the economy of your country as a whole, and by kind of economic activity (e.g. the major divisions of the ISIC), for any year or a period of years? And have data in the form of Account 1. Gross domestic product and expenditure and any or all of standard tables 1, 2, 3, 4, 6 and 7 and Table 28 of the revised SNA been compiled for your country? If so, please specify in your reply the particular accounts and tables that have been compiled and indicate:

- a) The year(s) for which such accounts and/or tables have been compiled.
- b) The kinds of economic activity (please list) for which the accounts and/or tables have been compiled.
- c) The prices at which the flows have been valued (e.g. producer's prices, purchasers' prices, etc.) in the accounts and tables.
- d) Name and special issue(s) of national publications in which these accounts and/or tables were published (please also attach publication, if possible).
- e) The sources of data and methods used in the compilation of these accounts and tables.

A.2 If production accounts have not so far been worked out for the whole economy by kind of economic activity, but have been carried out for some key kind(s) of economic activity only (e.g. coffee, cocoa, cotton, copper-mining, petroleum, etc.) in your

country, please furnish the same types of information as requested in (a), (b), (c), (d) and (e) as under A.1. above.

A.3. It is likely that production accounts or tables may have been compiled for selected regions or areas in your country on a global basis (i.e. without breakdown into kinds of economic activity). If so, please indicate:

- a) The regions and areas for which production accounts and tables have been compiled.
- b) Year(s) for which these data are available.
- c) The prices at which the production is valued.
- d) Name and special issue of publication in which these accounts and tables were published (please also attach publication, if possible).
- e) The sources of data and methods used in the compilation of these accounts and tables.

A.4. Commodity balances show the supply and disposition of commodities or commodity groups. Has your country compiled commodity balances or tables of resources and uses by commodity group so far? If the answer is "yes", please indicate:

- a) The year(s) for which such balances have been compiled.
- b) The commodity groups for which the balances have been compiled (list the commodity groups used and please attach commodity classification used by your country for this purpose).
- c) Name(s) and special issue(s) of publications in which these figures were issued (attach publications if possible).
- d) The prices at which the commodities were valued in these balances (e.g. producers' prices, purchasers' prices, etc.).
- e) Sources of data and methods of estimation in routing the flows.

A.5. If commodity balances (or resources and uses table) have been worked out for some key commodities only in your country (e.g., coffee, cocoa, cotton, copper, petroleum, etc.), please list the key commodities for which balances have been worked out and supply information on (a), (c), (d) and (e) as listed under A.4 above.

TABLE 1
Availability of national accounts statistics relating to production, consumption expenditure
and capital formation accounts in Africa (Current prices)
(An "x" indicates availability of a particular statistical series)

Sub-region & Country	Expenditure on Gross Domestic Product	Industrial origin of Gross Domestic Product	General government revenue and expenditure	Receipts and expenditure of households and private non-profit institutions	Composition of private consumption expenditure	Economic and functional classification of government expenditure	Gross domestic fixed capital formation				Input-output tables	Resources and uses table by product group or by branch	Latest year to which most of the accounts and tables refer
							Composition by type of capital good	Composition by type of purchaser	Composition by industrial use	Finance of domestic capital formation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
North Africa:													
Algeria	x	x	x ^{1/}		x ^{1/}		x	x	x		x	x	1965
Libya	x	x	x	x			x	x	x		x ^{2/}	x	1967
Morocco	x	x	x				x	x	x		x	x	1969
Sudan	x	x	x		x	x	x	x		x	x	x	1968
Tunisia	x	x	x				x	x	x		x	x	1969/70
UAR (Egypt)	x	x					x		x		x		1968/69
West Africa:													
Cape Verde Islands	x	x	x	x	x		x	x		x			1963
Dahomey	x	x	x		x		x	x				x	1966
Gambia	x	x	x				x	x					1969/70
Ghana	x	x	x ^{1/}		x	x	x						1968
Guinea	x	x	x ^{1/}				x						1966
Ivory Coast	x	x	x ^{1/}				x	x		x	x	x	1967
Liberia	x	x	x			x	x			x			1968
Mali	x	x	x ^{1/}	x	x ^{1/}		x	x		x	x	x	1967/68
Mauritania	x	x ^{1/}					x	x		x		x	1968
Niger	x	x					x	x		x			1966
Nigeria	x	x		x	x		x	x		x	x		1966/67
Portuguese Guinea	x	x	x ^{1/}	x	x		x	x		x			1963
Senegal	x	x	x ^{1/}	x			x	x		x	x	x	1968
Sierra Leone	x	x	x		x	x	x	x					1968/69
Togo	x	x	x			x	x	x					1967
Upper Volta	x	x	x		x	x	x	x					1966
East Africa:													
Ethiopia	x		x ^{1/}				x		x				1967
French Territory of Afars & Issas	x		x ^{1/}					x		x			1961
Kenya	x	x	x ^{1/}				x	x	x		x		1969
Madagascar	x	x	x				x	x			x		1966
Malawi	x	x					x	x					1969
Mauritius	x	x	x	x			x	x	x				1968
Somalia													
Southern Rhodesia	x	x	x		x		x	x	x		x		1969
Tanzania	x	x	x				x	x	x		x		1969
Uganda	x	x	x			x	x						1969
Zambia	x	x	x		x	x	x	x	x	x	x	x	1968
Central Africa:													
Burundi	x	x	x ^{1/}					x		x		x	1965
Cameroon	x	x	x ^{1/}									x	1968/69
Central African Rep.	x	x						x		x		x	1964
Chad	x	x						x		x		x	1963
Congo (Brazzaville)	x	x						x		x	x	x	1967
Congo (Kinshasa)	x	x	x					x		x			1969
Gabon	x	x						x		x		x	1966
Guinea	x	x											1967
Sao Tomé & Príncipe	x	x	x	x	x		x	x		x			1963
Equatorial Guinea	x	x											1962
Other Africa:													
Angola	x	x	x	x	x		x	x		x			1963
Botswana	x	x	x										1967
Lesotho	x	x	x		x		x	x	x				1967/68
Mozambique	x	x	x	x	x		x	x		x			1963
Swaziland	x	x	x				x		x				1967/68
South Africa (Rep. of)	x	x	x	x	x		x	x	x	x	x		1969
Nasibia (South West Africa)	x	x					x						1959

* These accounts and tables, strictly speaking, belong to income and outlay accounts, and not to consumption expenditure accounts. As few African countries have so far compiled Tables 4 and 5 of the SNA, namely, government final consumption expenditure by cost-composition and purpose, and final consumption expenditure of households they have been included here for completeness' sake.

Notes:

- 1/ Refers to household consumption by commodity group (of the French system)
- 2/ Latest input-output table refers to 1966 (current prices).
- 3/ The latest input-output tables compiled include, Sudan (1962/63), Tunisia (1964), UAR (1966/67 in preparation), Ivory Coast (1967), Mali (1959), Nigeria (1959/60), Senegal (1959), Kenya (1967, in preparation), Madagascar (1966), Zambia (1966), Congo (Brazzaville) (1967), South Africa (1956/57), Tanzania (1961).
- 4/ For 1959.
- 5/ For 1961.
- 6/ Refers to central government revenue and expenditure.
- 7/ Refers to revenue and expenditure of "administrations".

Table 2

Availability of consumer and wholesale price index numbers, 1955-1970

Sub-region and country	Consumer price indices ^{5/}	Wholesale price indices
NORTH AFRICA		
Morocco	1955-1969	1955-1969
Algeria	1955-1961, 1964-1967	1955-1961, 1964-1967
Tunisia	1955-1969	1955-1969
Libya	1964-1969	
UAR (Egypt).....	1955-1969	1955-1969
Sudan	1955-1969	1955-1969
WEST AFRICA		
Mauritania	1961-1969	1955-1969 ^{1/}
Senegal	1955-1969	
Mali		1957-1968 ^{1/}
Ivory Coast	1955-1968	
Upper Volta	1958-1964	
Dahomey		
Niger	1964-1969	
Gambia		
Guinea		
Sierra Leone	1956-1969	
Liberia	1965-1969	
Ghana	1955-1969	1961, 1963-1968
Togo		
Nigeria	1955-1969	
CENTRAL AFRICA		
Cameroun	1961-1964, 1968-1969	
Chad	1955-1969	
Central African Republic	1956-1964, 1966	1958-1968
Gabon	1959-1969	1958-1969
Congo (Brazzaville)..	1956-1969	
Congo (Kinshasa).....	1960-1969	
EAST AFRICA		
Rwanda		
Burundi	1965-1969	
Southern Rhodesia ...	1955-1969	1955-1969 ^{1/}
Zambia	1955-1969	1961-1969 ^{2/}
Malawi	1960-1964	

Table 2 (cont'd.)

Sub-region and country	Consumer price indices ^{5/}	Wholesale price indices
EAST AFRICA (cont'd.)		
Madagascar	1955-1969 ^{4/}	
Mauritius	1955-1969	
Tanzania	1955-1969	
Uganda	1955-1969	
Kenya	1955-1969	
Somalia	1955-1969	
Ethiopia	1963, 1965-1969	1955-1969 ^{3/}
OTHER AFRICA		
Comoro Islands		
Seychelles		
Reunion		
Fr. Afars and Issas ...		
Angola	1955-1962	1955-1969
South Africa	1955-1969	
South West Africa		
Botswana		
Lesotho		
Swaziland		
Mozambique	1957-1969	
Sao Tome and Principe.		
Equatorial Guinea		
Cape Verde Islands	1955-1969	
Portuguese Guinea		
Spanish North Africa ..		
Africa unspecified ...		

^{1/} For building materials only.

^{2/} For 1961-1965: Building materials only. From 1966 on, general index, including building materials.

^{3/} For imported and exported goods only.

^{4/} Index for Africans: 1964-1969.

^{5/} Representing capital cities only, except in the case of Zambia, UAR, Sudan, Southern Rhodesia, Mauritius and South Africa (UAR as from 1968).

TABLE 3

Implementation (actual and planned) of the Revised SNA in terms of its

Accounts and Tables: Selected African countries

(An "x" indicates that particular accounts on tables have been compiled or are being compiled)

Accounts and Tables of the Revised SNA	Dahomey ^{1/}	Sudan ^{5/}	Ghana ^{7/}	Nigeria ^{8/}	Sierra Leone ^{9/}	Tanzania ^{12/}	Kenya ^{14/}	Uganda ^{16/}	United Arab Republic ^{18/}
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
The Standard Accounts:									
Class I. Consolidated accounts for the nation:									
Account 1.....	x	x	x	x	x ^{10/}	x	x	x	x
Account 3.....	x	x	x			x			
Account 5.....	x	x				x			
Account 6.....	x	x	x			x			
Class II. Production, consumption expenditure and capital formation accounts:									
Accounts IIA.....	x ^{2/}				x ^{10/11/}		x ^{15/}	x ^{17/}	x ^{19/}
Accounts IIC.....	x				x ^{10/11/}				
Accounts IID.....									
Class III. Income and outlay and capital finance accounts:									
Non-financial corporate & quasi-corporate enterprises	x								
Financial institutions ...	x								
General Government	x			x		x ^{11/}			
Households, including unincorporated non-financial enterprises	x								
Supporting Tables:									
Standard Table 1	x	x	x		x ^{10/}		x ^{15/}	x	x
Standard Table 2							x ^{15/}		
Table 28	x						x ^{15/}		
Standard Table 3							x		
Standard Table 4	x		x		x ^{10/}		x	x	x
" " 5	x ^{3/}	x ^{3/}			x		x		
" " 6	x ^{4/}	x ^{4/}	x ^{4/}	x	x		x	x	x
" " 7									
Standard Table 18a	x	x							
" " 21		x ^{6/}	x ^{6/}	x			x ^{6/}		
" " 26	x								

* Represent accounts and tables that are being prepared or are planned to be prepared.

Notes: 1/ For the 3 years 1964-1966.

2/ For 8 kinds of activity, viz., (i) Agriculture, hunting, forestry and fishing; (ii) Manufacturing, mining, electricity, gas and water; (iii) Construction; (iv) wholesale and retail trade and restaurants and hotels; (v) Transport, storage and communications; (vi) Banking and insurance; (vii) Real estate and services rendered to enterprises; and (viii) Community and personal services.

3/ For Table 6b only, i.e. Final consumption expenditure in the domestic market by object (Dahomey, 1966; Sudan, 1966 & 1967).

4/ For Table 7a only, Composition of gross capital formation by type of capital goods.

5/ For the years 1966-1968.

6/ Data on net acquisition of financial assets and net incurrence of liabilities not given.

7/ For the years 1965-1968.

8/ For the period 1958/59 - 1968/69.

9/ For the year 1968.

10/ Still under preparation.

11/ Three production sectors are distinguished for these accounts, viz., (i) Agriculture, hunting, forestry and fishing; (ii) Mining and quarrying, manufacturing and handicraft, electricity and water; (iii) Finance, insurance and real estate.

12/ For the period 1966-1968.

13/ This table can be culled out of published material, although not explicitly given.

14/ For the period 1963-1969. The tables for Kenya can be prepared out of existing information available.

15/ Only for the year 1967, for which an input-output table has been under compilation.

16/ Data refer to the period 1960-1969, and will be issued in the publication "The National Accounts of Uganda, 1960-1969".

17/ No information on kinds of activity for which production accounts are established.

18/ For the fiscal years 1966/67 - 1969/70. The tables are expected to be ready in October 1971.

19/ For 167 commodity groups and commodities.

TABLE 4
APPARENT AVAILABILITY OF BASIC DATA SERIES
(An "x" indicates availability of a particular data series)

Sub-region & Country	Population census 1960's	Demographic surveys (National)	Agricultural (sample) census, 1960's	Household 1/ budget surveys	Employment & earnings surveys	Industrial censuses or surveys	External trade	Govt. Accounts	Balance of payments statistics	Census or survey of distribution
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
North Africa:										
Algeria	x	2/	x	N	Re 2/	x	x	x		
Libya	x		x	U	x	x	x	x	x	
Morocco	x	x	x	N	x	Re	x	x	x	x
Sudan	x		x	U,R			x	x	x	
UAR (Egypt)	x		x	N	Re	Re	x	x	x	
Tunisia	x	2/	x	N	x	Re	x	x	x	
West Africa:										
Dahomey		x		N			x	x		
Gambia	x	2/			Re	Re	x	x		x
Ghana	x	2/	x	N			x	x	x	
Guinea		2/	2/	U,R			x	x		
Ivory Coast		2/	x	U			x	x		
Liberia	x	2/	x	R			x	x		
Mali		2/	x				x	x		
Mauritania		2/	x				x	x		
Niger		2/	2/	U,R	x		x	x		
Nigeria	x	2/	2/	N	Re	x	x	x	x	
Portuguese Guinea	x	2/	x	U,R		x	x	x		
Senegal	x	2/	x	U,R			x	x	x	
Sierra Leone	x	2/	x	N	Re		x	x		
Togo	x	2/	x	U,R			x	x		
Upper Volta		2/	x	U,R			x	x		
Central Africa:										
Burundi		x	2/	U			x	x		
Cameroon		x	2/	U,R			x	x		
Central African Rep.		x	x				x	x		
Chad		x	x	U,R			x	x		
Congo (Brazzaville)		x		U,R			x	x		
Gabon	x		x	U,R	x		x	x		
Equatorial Guinea		2/					x	x		
Rwanda		2/		U,R			x	x		
Congo (Kinshasa)		2/					x	x		
East Africa:										
Ethiopia		2/	2/	N(2), U	x	Re	x	x	x	
Kenya	x		x	U,R	Re	Re	x	x	x	x
Madagascar		x	x	N	x	x	x	x		
Malawi	x			U	x	x	x	x	x	
Mauritius	x			N		x	x	x	x	
Somalia				U			x	x	x	
Southern Rhodesia	x	x	x	U	Re	Re	x	x	x	x
Tanzania	x			N	Re	Re	x	x	x	
Uganda	x		x	U,R	Re	Re	x	x		
Zambia	x	x		U	Re	Re	x	x	x	x
Other Africa:										
Angola	x		x				x	x		
Botswana	x		x				x	x		
Lesotho	x		x	N(R)			x	x		
Mozambique	x			U		Re	x	x		
South Africa	x		x	U	Re	Re	x	x	x	x
South West Africa	x		x				x	x		
Swaziland	x		x				x	x		
Number of countries:	27	27	28	35	19	20	45	45	17	6

1/ N stands for national coverage;

U " " urban;

R " " rural;

N(R) " " national coverage for rural sector only.

2/ Re stands for regular.

3/ A multi-purpose national sample survey, which covers both population and agriculture.

4/ Agricultural sample surveys held on a national scale and completed in a number of years (Nigeria: Annual Rural Economic Surveys, 1959/60, 1963/64.)

5/ Algeria (1969-71); Tunisia (1968/69); Ghana (1971);

Nigeria (1965-66); Senegal (1970-71); Togo (1971);

Rwanda (1970-71); Liberia (1969-73).

TABLE 5
PARTICIPATION IN WORLD POPULATION AND AGRICULTURAL CENSUSES IN AFRICA,
1950, 1960 and 1970 (ACTUAL AND PLANNED)

Sub-region & Country	Participation in world population censuses of : 2/			Participation in world agricultural censuses of :		
	1950	1960	1970 (Actual & planned)	1950	1960	1970 (Actual & planned)
	(1)	(2)	(3)	(4)	(5)	(6)
North Africa:						
Algeria	1954	1960	1966 (P&H)	1950/51	1964/65	1970/71 ^{2/}
Libya	1954	1964	...	-	1960	...
Morocco	1952	1960	1971 (P & H)	-	1962	1971/72 ^{2/}
Spanish North Africa	-	-	...
Sudan	-	-	-	-	1963 ^{3/} 1964/65 ^{4/}	...
Tunisia	1956	-	1966 (P & H)	1949/50	1961/62	1972
UAR (Egypt)	1947	1960	1966 (P)	1950	1960/61	1970/71
West Africa:						
Cape Verde Islands	1970 (P & H)	-	-	...
Dahomey	-	-	1972 (P)	-	-	1971/72
Gambia	-	1963	1973 (P)	-	-	...
Ghana	1948	1960	1970 (P)	-	1963	1970
Guinea	-	-	...	-	1964	1970/71
Ivory Coast	-	-	1971 (P) ^{1/}	-	1964	...
Liberia	-	1962	-	-	-	1971/72
Mali	-	-	...	-	1960/61	...
Mauritania	-	-	1971/74 (P) ^{1/}	-	-	...
Niger	-	-	...	-	1960	1969/70 ^{2/}
Nigeria ^{1/}	1953	1963	1973 (P&H)	1950 ^{3/}	-	1974
Portuguese Guinea	-	1960	1970 (P)	-	1960/61	...
Senegal	-	-	...	-	1960	1970 ^{2/}
Sierra Leone	-	1963	...	-	-	1970/71
Spanish Sahara	-	1960	...	-	1961/62	...
Togo	-	1958-60	1970 (P)	-	1961	1970
Upper Volta	-	-	...	-	1961	...
East Africa:						
Comoro Islands	-	1966 (P)	-	-	-	...
Ethiopia ^{1/}	-	1962	1969 (P)	1954	1961 ^{5/}	1971
Kenya	-	-	...	1950	1961/62	1971
Madagascar	-	-	1966 (P & H)	-	-	1968/69
Malawi	-	-	...	-	-	...
French Territory of Afars & Issas ..	-	1966 (P)	...	-	-	1972/73
Mauritius	1952	1962	1974 (P & H)	1958	-	...
Reunion	-	1961	1967 (P)	-	-	...
Seychelles	-	1960	1970 (P)	1950	1960	...
Somalia	-	-	-	-	-	...
Southern Rhodesia	-	1962	1969 (P)	1948/49	1959/60	...
Tanzania	-	1957	1967 (P)	1950	-	1971/72
Uganda	-	1959	1969 (P)	1950	1965	1970/71
Zambia	-	1963	1969 (P & H)	1950	...	1970/71
Central Africa:						
Burundi	-	-	1972 (P ^{1/})	-	-	1970 ^{2/}
Cameroon	-	-	1973/74 (P & H)	-	-	1971/72
Central African Rep.	-	-	1973/74 (P)	-	1960	1970/71 ^{2/}
Chad	-	-	1973/74 (P)	-	1960	1972/73
Congo (Brazzaville)	-	-	1972	-	1960	1970/71 ^{2/}
Congo (Kinshasa)	-	-	1973/74 (P)	1950	-	1970/71 ^{2/}
Gabon	-	1960/61	1969/70 (P & H)	-	1960	1970/71
Rwanda	-	-	1970 (P)	-	-	...
Sao Tome and Principe	-	-	1970 (P & H)	-	-	...
Equatorial Guinea	-	-	1970 (P)	-	-	...
Other Africa:						
Angola	1950	1960	1970 (P & H)	-	1961	-
Botswana	-	1964	1971 (P)	1950	1962	1968/69
Lesotho	1956	-	1966 (P)	-	1960	1969/70
Mozambique	1950	1960	1970 (P)	1951	-	...
Swaziland	1956	-	1966	1950	-	...
South Africa	1951	1960	1970 (P)	1950	1960	1971/72
South West Africa (Namibia)	-	1960	1970 (P)	-	1959/60	...
Total number of countries participating	13	28	39	17	31	30

Sources: For population and housing censuses: Demographic & Social Statistics Section of ECA secretariat.
For agricultural censuses: Report of the 1960 World Censuses of Agriculture Vol. II, published by FAO,
Rome 1968, and Review of Preparations for the 1970 World Census of Agriculture in Countries of the African
Region, a paper for the 4th Session of the African Commission on Agricultural Statistics, Algiers, 15-20
Dec. 1969. This information on both population and agricultural censuses has been updated.

Notes: 1/ Population census for urban areas, 1971 and sample survey in rural areas, 1974.
2/ In columns (1) to (3) of the table, P = Population census; H = housing census.
3/ Pump schemes only.
4/ In 6 provinces of Northern Sudan.
5/ Then Nigeria and British Cameroon.
6/ African agriculture only.
7/ Since the indication of the period of the census, no further information is available on when
the census would be conducted.