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REPORT ON WORKING GROUP ON NATIONAL ACCOUNTS
AT CONSTANT PRICES

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I. Introduction

1. The Working Group on National Accounts at Constant Prices met in Addis Ababa, Ethiopia, from 21 to 28 November 1966. The Group was the first in a series of meetings in the various regions of the world on national accounts at constant prices, which are being convened in connexion with the revision of the SNA.
2. Recommendations concerning national accounts at constant prices are not included in the present SNA. Constant price estimates will, however, constitute an integral part of the revised SNA, which will contain a special chapter on the subject based on the conclusions of the regional working groups. Since the subject is of growing importance in connexion with economic planning and also has many other important uses, the regional working groups are considering not only conceptual problems but also practical methods of compilation of constant price series.
3. Experts from eight African countries and from France and the United Kingdom participated in the Working Group. A list of participants is given in Annex II to this report.
4. The agenda as adopted by the Working Group for its discussions, as well as the background papers considered by the Group are shown in Annexes I and III to the report.
5. Mr. R.K. Gardiner, Executive Secretary of the Economic Commission for Africa opened the meeting. The Executive Secretary's opening statement is reproduced in Annex IV.
6. Mr. Abdelhamid Aouad (Morocco) was elected Chairman and Dr. Aziz EL Din Sayed Ahmed El Tigi (United Arab Republic) was elected Vice-Chairman of the meeting.

II. The nature of constant prices data most useful for the region

7. Following the lay-out of document ST/STAT/15 "National Accounts Data in Constant Prices", prepared by the Statistical Office of the United Nations,

the Working Group first considered which parts of the full system of accounts and tables of the revised SNA should be recommended estimated at constant prices. The Working Group was in complete agreement with the recommendations in ST/STAT/15 that efforts should be concentrated on obtaining useful estimates of the items on the product and expenditure accounts. These items could for the greater part be disaggregated into commodity flows or be obtained as differences between such flows which could be factored into a price and volume component in a unique way.

8. The Group felt that it would be presumptuous and not very useful at the present state of statistical development in the region for it to engage in a detailed and time-consuming theoretical discussion of issues like the estimation of a complete system of balanced accounts at constant prices or the relative merits of the various deflators which could be applied to income flows in order to express them in terms of their purchasing power.

9. The Group recognized that estimates of income flows expressed in terms of their purchasing power over specific baskets of commodities might be required in the region to a limited extent and for specific purposes, mostly connected with national planning. In such cases the purposes for which the estimates were required ought to be defined as clearly as possible so that the choice of deflator would be narrowed down as far as possible. In practice, labour income or private disposable income could, for instance, be deflated by means of the consumer price index in order to obtain a measure of the change in welfare or real income of the labour force or the population as a whole, saving could be deflated by a price index for gross fixed capital formation, etc.

10. It was agreed that the usual methods of arriving at gross domestic product at constant prices, namely by the double deflation method of value added by industry or by revaluing all expenditure items at base year prices and deducting imports so revalued from the sum of the other items at constant prices, were in principle applicable in the region. In practice, however, other methods such as applying gross output indicators directly to value added would mostly have to be used in revaluing the product side.

This was the case not only for this region but for most countries of the world.

11. The Group felt that it would be useful to estimate gains or losses from terms of trade and consequently the supplementary concept of gross real income at constant prices particularly for those countries of the region whose economies were dependent on the export of one or a few primary products which were subject to price fluctuations on the world market. It was agreed that the gains or losses from terms of trade should in these cases be estimated as the difference between the foreign balance deflated by the import price index and by the separate price indexes for export and import

$$\left(\frac{E}{P_n} - M \right) - \left(\frac{E}{P_e} - \frac{M}{P_m} \right) = M \left(\frac{P_m}{P_n} - \frac{P_e}{P_m} \right)$$

12. The Group felt that the description of the estimation of gains or losses from terms of trade in paragraphs 9 and 10 of SA/STAT/15 should be revised to indicate more clearly the difference between estimates of totals with and without adjustment for changes in terms of trade. It was stressed that the adjustment was not required in order to achieve balance between estimates of gross domestic product and gross domestic expenditure in real terms. It was only needed in order to obtain a supplementary estimate which took into account present and prospective gains or losses in income resulting from changes in relative prices of exports and imports of a country. It was recommended that the transition from gross domestic product at constant prices to gross real income should be shown in a separate table so that the supplementary character of the estimate of gross real income was indicated as clearly as possible.

13. It was pointed out that in some countries dependent on agricultural exports and with limited basic statistics it was sometimes necessary to deflate value added in agriculture by the export price index to ensure a meaningful result. This must be considered a statistical expedient, however, and was used only to avoid that fictitious increases or decreases in real domestic product arises because of the use of unrepresentative deflators and had no theoretical connexion with the adjustment for terms of trade.

14. After considerable discussion it was agreed that whenever possible net factor income from abroad should be estimated at constant prices, so that both the gross domestic product and gross national income total were presented in real terms. The Group realized the practical and theoretical difficulties of deflating net factor income from abroad, but in view of the importance of payments of interest and dividends to abroad in many countries of the region, it was necessary to attempt deflation of net factor income from abroad, for instance in order to derive total gross national product at constant prices which was a useful total for many purposes. Some members of the Group were not in agreement with this decision, on the grounds that current flows were sufficient for most analytical purposes and that constant price estimates of net factor income from abroad obtained by overall deflation, for instance by the import price index did not have economic significance.

15. The Group felt that the deflator to be used in estimating net factor income from abroad at constant prices depended on the purpose of the calculation. If total national income in real terms were interpreted as a measure of productive capacity, it would be reasonable to apply the export price index, while from a welfare point of view the import price index was more suitable.

16. The Group agreed that gross concepts should be used throughout and no attempt should therefore be made to deflate provisions for the consumption of fixed capital.

III. The Constant Price Tables of the Revised SNA

17. The Group then proceeded to make a general review of the tables at constant prices proposed for inclusion in the revised SNA. These are tables 8 and 9 and tables 11 - 15 shown in Annex II of document E/CN.3/345.

18. In conformity with the general principle of recommending that only gross magnitudes are deflated, the Working Group felt that item 9 "Net domestic product at factor incomes" of table 8 which shows value in constant prices and correlative price indexes for gross domestic product by type of expenditure, should be deleted. The Group approved of the

proposal by the second session of the Expert Group to sub-divide item 8 gross domestic product at market prices into product arising in commodity producing industries, in general government activities and in private nonprofit institutions serving households.

19. The Group also agreed to include a new table at constant prices based on Table B, p. 246 of document E/CN.3/345, after table 8. It was recognized that Table B was incomplete since it does not include goods and services which are not commodities according to the proposed new system. Also, the Group noted that the items on the uses side of the table were valued at market prices and that the model system of price indexes shown in document E/CN.3/328 could not be applied in revaluing these items since these price indexes were in terms of producer prices as far as commodities were concerned. The most appropriate way of arriving at Table B at constant prices therefore would be to use quantum indexes to extrapolate base year market values.

20. With regard to Table 9 of document E/CN.3/345, which refers to gross domestic product at constant prices by kind of economic activity, the Group felt that at least for the adaptation of the table to the region, column (4), net domestic product at factor incomes, should be excluded. It was agreed that column (2) gross domestic product at market prices should be given priority, while column (3) gross domestic product at factor incomes might be estimated if data permitted.

21. In this connexion paragraphs 24 to 29 of document ST/STAT/15, which deal with valuation at factor incomes and at market prices, were discussed. Although the Group did not wholly endorse the arguments against estimates of gross domestic product at constant factor incomes included in these paragraphs, it did find that it would be easier in the region to estimate real gross domestic product at market prices than at factor incomes. The treatment of import duties in a separate row of table 9 gave rise to considerable discussion. In one opinion, import duties on goods destined for final consumption should be left out from both the current and constant price tables on gross domestic product, while import duties on

goods destined for intermediate consumption only should be included in the Value added of the industry using the input. From this point of view, only the import duties on intermediate goods entered into the production process and thus constituted part of gross domestic product at market prices, while import duties on final goods did not. It was pointed out that it should be indicated in columns 3 and 4 of table 9 that import duties should not be entered in these columns.

22. The Group felt that, in tables 11 and 12, referring to consumption expenditure of general government and private non-profit institutions, respectively, columns 3 showing commodities consumed might be deleted, or be changed to refer to total use of goods and services. It was proposed that the term "Public administration" should be used instead of "General government services" in Table 11.

23. The Group agreed that although many countries of the region did not at present have the data required to fill in Table 23 on household expenditure at constant prices, the table formed a very useful part of the system and efforts should be made to provide the necessary basic data in the near future.

24. The Group found table 14 on the composition of gross fixed capital formation at constant prices very useful. It was suggested that since part b of the table could only be estimated if information on capital formation by type within each industry were available, this part of the table might be transformed into a cross-classification of capital formation by industry and type. It was proposed to sub-divide item 10, work-in-progress, into buildings and other work in progress.

25. After some discussion, the Group agreed that in table 15 which refers to imports and exports at constant prices classified according to characteristic products of industries, a sub-total should be shown before the three last items. These items should be made to refer to services alone by including "other goods" in the sub-total.

IV Units of measurement, formulae and base period

26. The Group then proceeded to discuss section IV of document ST/STAT/15. It was agreed that in principle, allowance for quality changes was very important in constant price estimates. There was reason to believe that price indexes overstated the actual price increases because it was not possible in practice to make allowance for quality changes. It was pointed out that some of the refined methods of allowing for quality changes which were mentioned in ST/STAT/15 are still in an experimental stage and do not always lead to satisfactory results. The Group concluded that the more elementary ways of allowing for quality changes, like revaluating commodities in as much detail as possible so that different qualities would appear as different commodities, or by using price indexes based on exactly specified commodities for deflating current price series were the methods generally applied and were also most relevant for this region.

27. The Group felt that the whole problem of separating "pure price" changes from price changes due to quality changes needed much further study. The definition of quality characteristics, allowance for general technical progress, the problem of aircraft and electronic computers where the price increase for new models might actually be smaller than the quality increase, etc. were some of the points which needed clarification.

28. The Group agreed that the best year for constant price estimates should preferably be a year for which particularly ample basic data are available from censuses and surveys. The Group had no further comments on the discussion in document ST/STAT/15 of units of measurement for commodities and services, index number formulae and base period.

F Techniques and sources of estimation

29. This section of document ST/STAT/15 was considered together with Annexes I and II which show typical indicators used in estimating product and expenditure at constant prices and with document E/CN.14/NAC/23 "National Accounts Practices at Constant Prices in Africa".

30. The Group agreed that no general method for estimation of constant price data which was applicable to all countries could be established, since the availability of basic data would determine the methods used by each country. However, it was agreed that the commodity flow and double-deflation techniques, furnish an ideal basis for the integrated estimation of data on quantities and prices in respect of the flows on the production account. Within this framework as consistent estimates as possible should be aimed at within the limits set by the availability of basic data.

31. It was noted that several countries of the region applied the double deflation method in estimating value added in agriculture at constant prices; although the majority used gross output indicators directly on value added. The Group found that agriculture could with advantage be sub-divided for purposes of constant price estimation, since the importance of inputs varied considerably between different parts of the industry; and the availability of input data did likewise. Although no definite agreement was reached as to the actual categories into which agriculture should be divided for this purpose, the general concern was that small-scale or less productive agriculture, where inputs were small, ought to be distinguished from large-scale agriculture with substantial inputs for which the double deflation method ought to be used. It was also suggested that deflation of the part of agricultural production which was not marketed was extremely difficult, but that this part of the production was sometimes estimated directly in quantity terms.

32. The problem of obtaining prices for agricultural products was also discussed. It was suggested that market prices may be used instead of producer prices, which may not be easily available particularly for the products of small farm. Also, it was very difficult to arrive at producer prices for agricultural products, which was free of elements of transport services, handling costs etc., if the latter were provided by the farmer himself. For large-scale agriculture, however, a "pure" producer price may be more readily available.

33. With regard to fishing, it was mentioned that some African countries engage in industrial fishing, for which the double deflation method could be applied. It was also suggested that input in mining may sometimes be significant so that the double deflation method should, in principle, be used for that industry.

34. With regard to manufacturing, the Group felt that industrial surveys in the region should be planned in such a way that as much information as possible be made available for the construction of production indexes and national accounts at constant prices. It was agreed that it was extremely difficult to obtain information on handicrafts even at current prices, except for that part which was subject to organized marketing. The only feasible way of covering handicrafts in the estimates for manufacturing at constant prices therefore appeared to be through the use of more or less arbitrary coefficients. It was also suggested that extrapolation by means of quantum indicators for materials used was applicable for very few industrial groups. The narrowness of the application of this method ought therefore to be indicated in Annex I in connexion with the description of indicators for "Other manufacturing industries".

35. There was considerable discussion about the indicators to be used in estimating value added of electricity, gas, steam and water supply at constant prices. It was agreed that not only quantities produced, but also quantities sold or consumed may be used as indicators for the gross output of electricity. Some members of the Group felt that electricity production should be separated from electricity distribution. It was the general concern of the Group that the double deflation method should be used in revaluing value added of electricity works, since data were generally available for a deflation of inputs.

36. The Group felt that deflation by means of a price index for building materials combined with an earnings index for labour was the most appropriate method of estimating value added in the construction industry at constant prices. The need for guidance as to the best methods of obtaining the basic estimates of construction activity at constant prices

was stressed. It was pointed out that in cases where gross output of the construction industry was revalued in terms of information on inputs, the double deflation method could not be applied for this industry.

37. The Group noted the great detail in which constant price estimates for transport and communications are usually made, particularly when quantum indicators are applied, and agreed that information was usually available which made it possible to apply these detailed methods also in developing countries.

38. The Group noted the methods applied in estimating constant price series for wholesale and retail trade in a number of countries of the region. These methods were similar to those indicated as most commonly applied in document ST/STAT/15.

39. It was noted that indicators for extrapolating constant price series for the service industries were usually not available in the region. Current as well as constant price data for these industries were extremely difficult to make on the basis of the information available and the Group felt that it would be useful if a special Working Group were convened in the Region to consider the conceptual and practical problems connected with estimates of value added in the service industries. Such a Group would have to depend for its documentation on information obtained from countries concerning their actual practices and the difficulties met.

40. It was pointed out that where several volume indicators were possible for one particular industry, like number of pupils registered, teachers' hours taught etc. for education, and number of outpatients, number of hospital beds, number of doctors etc. for health services, there was no real solution to the question of finding the most appropriate deflator for services. A large number of indicators might be collected, but there was no basis for determining the weights which might be used in combining them.

41. The Working Group then proceeded to discuss the price and volume indicators which might be used in estimating the various expenditure categories at constant prices.

42. The Group noted the unrepresentativeness of consumer price indexes for deflation of household consumption expenditure, because these indexes usually referred to a special segment of the population and to certain narrowly defined areas. It was therefore required to combine a number of such indexes, if available, by means of appropriate weights. Thus the indexes for the high income part of the population may be combined with the indexes for the low income part of the population available in many countries of the region. It was desirable that any combined index should take into account the different expenditure patterns in urban and rural areas. The observation was also made that the consumer price indexes in the region may not be sufficiently detailed to permit separate deflation of the various categories of consumer expenditure.

43. It was suggested that locally produced and imported food should be estimated separately in constant prices. A quantum indicator for rent might be obtained by considering the changes in a sample of modern and traditional buildings. In one country number of dwellings could be derived from the number of meters for water supply in residential areas.

44. The Group felt that price deflation of medical care and health expenses was more convenient than extrapolation by volume indexes as suggested in ST/STAT/15. Also, it was suggested that petrol consumption might not be a good volume indicator for the use of personal transport equipment, since petrol was used for many other purposes than personal transportation.

45. As far as expenditure on services was concerned, the Group felt that some quantum indicators might be available for recreation, entertainment and cultural services, like number of seats sold in theatres and cinemas, number of admissions to museums etc.

46. It was suggested that item 4 General government consumption expenditure might be shown separately for each activity group. It was realized that take in all other cases where employment was used as indicator, the estimates suffered from the disadvantage that productivity changes were not taken into account.

47. The Group noted with interest that for some items of gross fixed capital formation, i.e., for aircraft and electronic computers, price changes might be assumed to just compensate for quality changes, so that deflation of these items was not necessary. It was suggested that quality improvements for such items were even greater than the price changes.

48. The Group found that developing countries might have difficulties in using price indexes for the deflation of machinery and equipment because of the importance of local transportation and installation costs the unigueness and infinite variety of capital goods and the important changes in the composition of imports which might take place.

49. The Group considered briefly whether it ought to recommend the inclusion of Tables 2 and 3 of Appendix II of document E/CN.3/345 at constant prices. These tables refer to supply and use of commodities and to gross output and input of industries, respectively. After some discussion it was agreed that it would have little meaning to recommend the inclusion of so complicated tables at the present stage of statistical development of the countries of the region.

ANNEX I

PROVISIONAL AGENDA

1. Opening address
2. Election of chairman and vice-chairman
3. Adoption of Agenda
4. Principles, concepts and methods of estimation of national accounts at constant prices
5. Problems in data collection relating to the development of interrelated systems of quantum and price indices
6. Supporting tables at constant prices of the revised and expanded SNA
7. Problems of estimating national accounts at constant prices in African conditions
8. Adoption of report

ANNEX II/ANNEXE II

LIST OF PARTICIPANTS
LISTE DES PARTICIPANTS

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Mr. K.C. Wang
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ANNEX III

LIST OF DOCUMENTS

ST/STAT/15	National Accounting data in constant prices
E/CN.14/NAC/22	Provisional agenda
E/CN.14/NAC/23	National Accounting practices at constant prices in Africa
E/CN.3/345	Proposals for revising the SNA, 1952-June 1966
E/CN.3/328	The Gathering and compilation of statistics of prices

ANNEX IV

OPENING STATEMENT OF MR. R.K.A. GARDINER

Gentlemen,

It is with great pleasure that I welcome you to this Working Group on National Accounts at Constant Prices. You are not unaware of the considerable interest that African countries and the Economic Commission for Africa attach to these studies, whose importance in the drafting of development plans and the assessment of progress achieved cannot be over-emphasized.

Your Working Group, the seventh to meet under the auspices of ECA in the field of national accounts, was called for by the Third and Fourth Conferences of African Statisticians. It is part of the revision of the United Nations System of National Accounts, which is now in hand and indeed will soon be completed. The aim is to discover how data on the great economic aggregates expressed in monetary terms can be measured by means of constant units, in particular by eliminating the effect of monetary depreciation and variations in prices.

It will be your task to discuss methods put forward for your consideration to assess how they can be applied to the countries in the region and perhaps to suggest new improvements. The emphasis now being placed on the "production" aspect should make it fairly easy to use the concepts of physical quantities and constant prices to arrive at coherent estimates. Some aggregates, in particular those referring to income and the distribution of income, will not be covered by this method and we shall therefore be concentrating our efforts more on the problems of production and consumption for the time being.

You will also be determining what practical methods can be used to estimate quantities and prices and in particular to study what adjustments are necessary and possible when changes occur in the quality or definition of the products. The Working Group should also give its opinion on the suggested model of the price indices system.

Finally, may I inform you that the Working Group on the Adaptation of the Revised SNA to African Conditions, which met in July 1965, adjourned

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its discussion of the constant price tables with the request that they be studied by you in this meeting and that you give an opinion with a view of final recommendations for the adoption of the new system. The secretariat has prepared for you a document summing up the present practices of African countries in these fields, which is intended to serve as a guide in your discussions.

Moreover, the United Nations Statistical Office has prepared the documents on methodology and has sent here Mr. Pedersen, who is particularly well briefed on special African problems, since, only a year ago, he was chief of the ECA National Accounts Section.

As you know, the tasks awaiting you are numerous and some of them are doubtless rather difficult. However, I am convinced that you will accomplish them effectively and thus increase economic knowledge about each of your countries, for the sake of Africa as a whole. It now only remains for me to wish you every success in your work and a pleasant stay in Addis Ababa.