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REPORT OF THE EXPERT GROUP MEETING ON FERTILITY AND MORTALITY LEVELS, PATTERNS AND TRENDS IN AFRICA AND THEIR POLICY IMPLICATIONS

Monrovia, Liberia, 26 November - 1 December 1979

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I. ORGANIZATION OF THE MEETING

Opening session

1. The meeting, which was organized jointly by ECA and the Government of the Republic of Liberia, took place at the Unity Conference Centre, Monrovia, from 26 November to 1 December 1979. It was declared open on behalf of the President, the Government and the people of the Republic of Liberia by the Honourable Deputy Minister for Economic Planning, Mr. Samuel D. Greene.

2. Addressing participants, the Minister reviewed the demographic situation in Africa as well as the causes and consequences of change with respect to the size, distribution and composition of the population, noting clearly the interrelated role played by fertility, mortality and urbanization in the demographic process. Stressing the importance of research findings for developing and formulating appropriate social and economic policies and programmes for improving the standard of living, he noted that there was still an urgent need to find the correct balance between people and resources, with a view to eradicating poverty and illiteracy.

3. In this regard, it was emphasized that what was being advocated was not just the reduction of population size but the proper integration of population factors in national planning and thinking. It was clearly recognized that there is a continuing interaction between population and food, education, employment, and other social and economic needs of the people. In this connexion, population policy should not be confused with family planning as a service within an over-all population policy. There was an urgent need for greater commitment to population and development matters on the part of planners in the hope that the 1980s would usher in improved attitudes to planning.

4. The Resident Representative of UNDP in Monrovia, Mr. J. Gordon, welcomed participants to the meeting and presented the opening address of the Executive Secretary of ECA. He reviewed the development philosophy and strategy of the Commission, as embodied in the unified approach with its emphasis on equalization of developmental opportunities and, in particular, on correcting imbalances in the economic process.

5. It was noted that the unified approach, by its very goals, was population-oriented. The view was also expressed that related development objectives arising from the different patterns and levels of fertility and mortality, should differ from one area of the continent to another, and that their proper comprehension should involve both macro- and micro-analytical studies. The importance of evolving clear, comprehensive and effective development policies directed at improving the standard of living and ensuring that couples attain a family size consistent with their needs, situation and aspirations was emphasized.

Participation

6. Apart from national experts from both the Francophone and Anglophone African countries, the meeting was also attended by experts from international organizations both inside and outside the United Nations system. The following United Nations bodies and agencies were represented: Population Division, New York; Department of Technical Co-operation for Development, New York; Statistics Division, Addis Ababa;

International Labour Organization, Addis Ababa; and International Bank for Reconstruction and Development, Washington. The two United Nations sponsored regional demographic training centres, the Regional Institute for Population Studies (RIPS), Accra, Ghana, and the Institut de Formation et de Recherche Démographiques (IFORD), Yaounde, Cameroon, were also represented. The other organizations present were: the Institut National d'Etudes Démographiques; ORSTOM, the Population Council; the World Fertility Survey; the US Bureau of the Census; the Family Planning Association of Liberia; the Sahel Institute; the Ministry of Planning, Monrovia, Liberia; and the Demographic Unit, University of Liberia.

Election of Officers

7. For the general conduct of the affairs of the Expert Group, the Honourable Assistant Minister for Statistics in the Ministry of Planning, Liberia, the Honourable Philip Gadegbeku, was unanimously elected General Chairman for all the sessions. For the post of General Rapporteur, the Group also unanimously elected Dr. Robert Leke of the University of Yaounde, Cameroon. Sessional chairmen and rapporteurs were designated and invited by ECA. Consultants for the meeting were: Professor J.C. Caldwell, Department of Demography, Australian National University, Canberra; Dr. J.C. Blacker, London School of Hygiene and Tropical Medicine, University of London; Professor P.O. Olusanya, Department of Sociology, University of Lagos, Lagos, Nigeria; Dr. A.E. Okorafor, Department of Economics, University of Nigeria, Nsukka, Nigeria; and Professor S.K. Gaisie, Institute of Statistical, Social and Economic Research, University of Ghana, Accra, Ghana.

Adoption of Agenda and Scientific Programme

8. The Expert Group Meeting adopted the following agenda submitted to it by ECA, without amendment:

1. Opening address
2. Election of officers
3. Adoption of agenda
4. Background to fertility and mortality in Africa: an overview
5. Usefulness and relevance of existing methodology for collecting and analyzing fertility and mortality data:
   - Data collection techniques
   - Direct and indirect methods of analysis
6. Fertility and mortality levels and patterns in Africa
   - Observed and estimated levels and patterns
   - Determinants of levels and patterns
   - Age and sex patterns and schedules
   - Observed changes in levels and patterns
   - Implications of prevailing levels and patterns

7. Fertility trends and differentials
   - Observed trends in some countries
   - Regional and spatial variations
   - Modernization and socio-economic variations
   - Prospects for the future

8. Mortality trends and differentials
   - Observed trends in some countries
   - Regional and spatial variations
   - Modernization and socio-economic variations
   - Prospects for the future

9. Special topics:
   - Sterility and subfertility in Africa
   - Evolution of the causes of death
   - Nutrition, fertility and infant mortality.
   - Case study of the impact of family planning on fertility

10. Country reports/statements

11. Fertility and mortality in national development planning

12. Adoption of the report

13. Other business

14. Closing session

II. BACKGROUND TO FERTILITY AND MORTALITY IN AFRICA: AN OVERVIEW

9. A brief summary of document No. E/CN.14/POP/145 was presented, and it was stated that the main purpose of the paper was to raise some fundamental issues which were considered important in the study of fertility and mortality in Africa. No attempt had therefore been made to give an over-all picture of fertility and mortality levels and patterns in the continent. In a general review of the situation, it was remarked that population was very important in African development in view of its dramatic rate of growth and the consequent large increments in existing populations. Population growth and its characteristics should be measured in order to assess their relevance to development planning in Africa; ECA had a leading part to play in that undertaking.

10. A great deal of data was available in Africa which had not been adequately analyzed. Governments and universities should collaborate in carrying out in-depth analysis of such existing data, especially those from the 1970 rounds of censuses and post-enumeration surveys. Both national and international experts should be involved in such an analysis.

11. While concerted efforts to analyze existing data were called for, it was recommended that the results of such an analysis should be used with caution, mainly because of inherent limitations that can affect observed levels of small variations in fertility in particular. With regard to mortality, it was observed that very little could be said about its trend and that, in fact, the rate of decline was probably slower than supposed and implied in most projections prepared for African countries.

12. The continent of Africa incorporated two known population regimes, namely, Africa south of the Sahara and North Africa, inhabited mainly by Arabs These two distinct cultural areas had prevailing high levels of fertility. The fact that fertility had not declined substantially in those areas called for investigation and research to determine the factors responsible. It was further observed that there were three exceptions to the high fertility prevailing in Africa. The first comprised the oceanic islands of Mauritius, Reunion, the Seychelles, Cape Verde and St. Helena. The second exception was represented by a belt of low fertility in Central Africa, where fertility was kept low by pathological factors, and the third consisted of Tunisia and Egypt in North Africa, where fertility decline had recently become stabilized.

13. Another research frontier related to improving knowledge of the relationships between socio-cultural factors and the family in Africa. Within the family, there was a need to know more about decision-making processes affecting fertility, family size, income, expenditure, and the adoption of family planning. There was also a need to formulate an explanatory theory designed to test, guide and improve knowledge of demographic interrelationships in an interdisciplinary and cross-cultural frame of reference.

14. It was observed that there was no evidence that the results of past censuses and surveys have sufficiently influenced policy decisions in Africa. It was therefore urged that efforts should be made to add some flesh to crude demographic statisitics and measures in order to ensure that the results of research and censuses were adequately reflected in policies formulated by African governments. In terms of the research necessary, there was a need to improve the collection of data on morbidity over and above the present concentration on mortality alone. The importance of a critical evaluation of the impact of existing family planning programmes on fertility was emphasized as was the relevance of changes in marriage patterns to marital fertility, especially in Africa south of the Sahara. In addition, it was noted that demographic data had been used only to a small extent in planning effective, efficient and cheap health delivery services.

15. It was clear that many African countries had small populations and meagre resources. This situation called for interregional co-operation and collaboration in data collection, processing and analysis. Continuing assistance from UNFPA and other donor agencies would be required in the future.

16. In a comment on document E/CN.14/POP/145, it was pointed out that most of the censuses undertaken during the 1970 rounds of censuses had been analyzed. However, the reports of such analyses had not been widely disseminated and further valuable comparative analysis by ECA or with the collaboration of ECA was both desirable and necessary.

17. There was a call for co-operation among demographers and for the exchange of demographic information through the publication of research results in a periodical that could be disseminated internationally. ECA was expected to play a leading, co-ordinating and supportive role in that connexion.

18. Concerning the accuracy of the United Nations series of population projections, it was explained that the projections were made after consultations with various United Nations agencies, including the Regional Commissions and National Statistical Offices, and that consultants were sometimes engaged to assist in making the projections. It was, however, pointed out that the United Nations did not pretend that the projections were sacrosanct, mainly because of the problems of the inadequate quality of the data from developing countries. In the circumstances, therefore, the projections represented a fair assessment of prevailing conditions; they were also subject to revision in the light of improvement in the data situation but should nevertheless be accepted with caution.

19. The causes of low fertility in some parts of Africa were discussed. The view was expressed that pathological factors had not been solely responsible but that they had interacted with social and ecological factors.

III. USEFULNESS AND RELEVANCE OF EXISTING METHODOLOGY FOR COLLECTING AND PROCESSING FERTILITY AND MORTALITY DATA

20. The document on data collection among nomads described the various techniques used in obtaining information on non-sedentary populations. Some of the methods had been used in the recent censuses conducted in Africa and the experience had been summarized in a special study by ECA entitled "Study on Special Techniques for Enumerating Nomads in African Censuses and Surveys". It was, however, suggested that, since certain situations might require the use of more than one of these techniques at the same time, there was a need to consider the possibility of using them in different combinations for the effective collection of data on nomads.

21. The types of data to be collected recommended in the study included: age, sex, relation to head of household, current and retrospective births, births and deaths in household in the past 24 months and orphanhood. The discussion on the document mainly centred around the problems encountered in the enumeration of nomads, the consequent difficulties and the unrepresentative nature of the data collected. It was pointed out that there were several other special population groups in African countries, such as the pygmies of the central parts of Africa and the Bushmen in the Kalahari desert area of Botswana. These and others might also require special enumeration and data collection techniques. It was clear that special studies were needed on data collection methodologies and the experience acquired should be recorded and disseminated.

22. The ECA paper on vital registration in Africa presented the historical background of the system, some recent experiences, and an appraisal of some of the problems and gaps in the system. It was pointed out that, unless vital registration certificates became essential for administering social services and related activities, such as entry into school, employment, insurance, taxation and many others, it would not have a wider appeal. That was one reason why registration had been more complete in urban than rural areas.

23. The vital statistics system in Ghana, which had been in force for quite a long time, had undergone several changes over the period. The items recorded had varied, the demarcation of registration areas changed, and the number of areas increased. Even though there had been a substantial increase in registration, the percentage coverage was still between 30 and 40 per cent. The registration forms now in use had been simplified to exclude most of the socio-economic and demographic items which were contained in the forms introduced in 1970. It was believed that simplifying the forms would ensure better coverage of events. The sample registration scheme, which had so far been on an experimental basis, would soon be expanded to cover the entire country. Suggestions for improving the scheme included freeing it from existing legal constraints and administrative handicaps.

24. The discussions on the experience of Ghana helped to focus attention on the experience of other countries which had similar problems. It was suggested that other methods, such as the 10 house call system in Tanzania, the use of visitors in Igbora, Nigeria, and of religious leaders in Katsina, Nigeria, might be used. It was pointed out that the Tanzanian system had not been able to produce vital statistics because of the heavy load of data collection imposed on the village leaders. It was also pointed out that the UDEAC countries had developed an over-all strategy for improving the system for recording vital statistics. Those countries had adopted a model which laid down, in general terms, the actions to be taken; these included increasing the number of centres, personnel training, developing effective data transmission circuits, and checking and evaluating the system.

25. In the document on the evaluation of methods of collecting data on fertility and mortality in Africa, the importance of vital statistics systems in estimating levels of vital rates was stressed, even though there were difficulties in implementing such systems. It was noted that censuses and multi-round surveys had provided more reliable data on fertility and mortality in Senegal. Some of the reasons advanced for the failure of vital statistics systems included ignorance, apathy, and various administrative problems.

26. The discussion centred on the findings and failure of multi-round surveys in some countries. It was pointed out that the experience of Algeria, Liberia and Ivory Coast with multi-round surveys had been encouraging and ECA was requested to assist countries in the planning and execution of sample surveys. The multi-round survey conducted in Ghana had shown that the quality of the data improved over time and, even though in some cases deficiences were observed, there were considerable improvements in others. It appeared, therefore, that the method *per se* might not have been responsible for the poor quality of the data and that the fault might lie more with deficiences in field control and procedures.

27. The document on materials relating to computer programmes described the various ways computers could be useful in data processing and analysis. Several packages were available for editing, tabulating and analyzing data which could make results available to users not only on time but also with sufficient details. The US Bureau of the Census would be prepared to make their data analysis programmes available to countries on request.

28. The discussion highlighted the dangers inherent in the indiscriminate use of computers in data analysis. The data analyst should scrutinize the data thoroughly before using the methods, in order to avoid misleading interpretation. However, it was admitted that the computer had opened up great possibilities for more detailed analyses and had removed some of the tedium of computations. Another point brought out concerned the difficulties of using some of the packages because of the small capacity of computers available in certain African countries. In this regard, it was suggested that it would be useful to adapt some of the packages to the size of the computers available.

IV. USEFULNESS AND RELEVANCE OF EXISTING METHODOLOGY FOR ANALYSING FERTILITY AND MORTALITY DATA

29. The first document on the application of indirect techniques for the estimation of fertility and mortality to African data underlined the urgent need for updating the book The Demography of Tropical Africa by Brass et al. in view of the more detailed and recent data that had become available and also of the development of several new techniques for deriving parameters from incomplete and defective data. This need might be met by having the manual prepared by the National Academy of Sciences Committee on Population Trends.

30. It was indicated that the Brass P/F ratio method had fared tolerably well with regard to data from Francophone countries in the late 1950s and early 1960s but when applied to some Anglophone countries during the 1960s had been less satisfactory. One of the reasons advanced for the poor performance was the doubtful quality of the data on current fertility. Accordingly, information on the most recent births was obtained in some countries instead of on births in the past 12 months. It was also noted that this method had improved the situation, as shown by comparing the Swaziland data for 1976 with those for 1966, which provided information only on births in the past 12 months.

31. Two new developments were also described, viz the Coale-Trussell and the Gompertz curves, which apply models to observed fertility data. Those methods had improved the estimates, especially by reducing the very high fertility reported by older women. Regarding the use of age structure, it was felt that the Coale-Demeny models might not apply to the situation in Africa and that the Brass models might be more appropriate, especially the two parameter life tables. It was also observed that the Le-Jay Cho method based on "own children" had produced reliable results in countries such as Bangladesh but might not be suited for use on sub-Saharan African data.

32. On the estimation of mortality, it was reported that the Sullivan and Trussell methods did not produce significantly different results from those based on Brass methods, and that derived estimates of levels of mortality based on the various values differed. It was, therefore, difficult to decide which was the better estimate. It was thought that the Feeny method of deriving trends in infant and child mortality looked promising. When values of adult mortality are sought by the Brass-Hill orphanhood methods, more realistic estimates are obtained when data on mother's death are used. More realistic estimates for males are obtained

when data on widowhood are used. However, it was admitted that better estimates of adult mortality were probably produced by the Hill widowhool method although it might be more difficult to apply in the African context.

33. On the question of using models to adjust observed fertility curves, the view was expressed that a certain amount of adjustment was necessary for any estimation procedures and that, where nothing was known about the correct pattern, the use of methods which remove some of the obvious anomalies, such as the occurrence of very high fertility among older women, was in order. A note of caution was sounded on the use of Coale-Demeny models, mainly because they were constructed essentially with data from a narrow range of countries.

34. While it was appreciated that it was necessary to strengthen data collection systems in Africa, it was agreed that the development and use of indirect analytical techniques should also be improved, since they provide a better insight into the quality of the basic data for analysis. In this regard, the choice of which method to use was a matter of scientific objectivity and the nature of the data.

35. The document prepared by the ECA Population Division on "Some Indirect Mortality Estimates for Libya, Tanzania and Kenya had the three objectives of experimenting with available new techniques, estimating relevant mortality indices for the three countries; and discussing the merits, demerits and the socio-economic implications of the derived mortality estimates. In this document, adult and child mortality estimates were derived by various techniques. The methods used for the child mortality estimates were: (a) Brass/Sullivan; (b) Brass/Trussell; (c) logit smoothing of the estimates derived from the two preceding methods; and (d) child survival in the past 12 months. For estimating adult mortality, the Hill widowhood and Brass/Hill orphanhood methods were used.

36. Conclusions drawn from the results of the analysis showed that questions on child/parent survivorship yielded reliable estimates; that Brass techniques and its variants gave fairly consistent estimates with very little difference among the three; that the Sullivan and Trussell techniques were, however, preferable because their application yielded better results after smoothing; and that the method based on the survival of the parent of the eldest child apparently yielded more reliable estimates than the all children orphanhood approach. Concern was expressed that very little was being done in the estimation of adult mortality, as compared to infant and child mortality.

37. The estimation of mortality from widowhood requires data on the survival of the first spouse. In the paper, however, the experience of ever married spouses was considered and the results yielded beta values that were inconsistent. This, therefore, not only posed the problem of the criteria for selecting the most appropriate beta value but also the appropriateness of such data for estimating the level of adult mortality in the light of African realities as regards marriages, divorces, remarriages and mobility.

38. The document on "Estimating Fertility and Mortality Levels and Trends in Ghana" was an attempt to apply all the available indirect techniques to data from Ghana in order to assess the merits and demerits of those techniques. It was noted that the reverse survival method had proved ineffective in correcting errors arising from omissions in the data. In addition, it was noted that the method was not a satisfactory basis for estimating births in cases where the age structure was distorted. In the case of the stable population techniques, the major problem was how to select the most appropriate model, since different estimates were usually obtained depending on the criteria used. On the application of the Brass/P/F ratio method, it had been found that the calculated ratios were affected by distortions in the age data. An effort had therefore been made to isolate the effect of international migration on the age data by using the estimates for the population of persons of Ghana origin. As regards the progression between two censuses method, the 10-year interval method yielded more plausible estimates than the 5-year interval method.

39. The last paper dealt with the results of a preliminary report on a simulation model developed at the Regional Institute for Population Studies on indirect methods of estimating mortality. The model had been developed to test the applicability of those methods in the presence of certain errors, biases and deficiencies, on the basis of synthetic rather than actual data. The indirect methods tested with this model were the Brass, Sullivan, Trussel and the Preston-Palloni techniques of estimating mortality.

40. Initially, the model was tested on the basis of biological parameters of fertility taken from Indian experience but modified so as to reproduce observed African fertility patterns. Then, with a known mortality level and pattern, the simulation attempted to assess the performance of the above indirect methods. Furthermore, certain types of errors, biases and deficiencies were introduced into the data to reflect the extreme situations expected to exist in Africa, and the performance of those methods was compared. The results of the simulation in respect of the techniques considered were in favour of the Brass techniques.

41. In the ensuing discussion, the relevance of this kind of research was questioned, but it was, nevertheless pointed out that this kind of exercise was necessary in order to test and assess under African conditions the techniques currently being used by demographers.

V. FERTILITY AND MORTALITY LEVELS AND PATTERNS IN AFRICA: REGIONAL STUDIES

42. During the introduction of the first paper of this session, attention was drawn to the fragmentary and sketchy nature of fertility data for most African countries due to the absence of comprehensive vital registration systems. It was noted that only five countries, namely, Algeria, Egypt, Mauritius, Reunion and Tunisia, have somewhat better vital statistical data, but since the populations of these countries are not typical for Africa, their data cannot be extrapolated to other countries of the region. However, demographic surveys and censuses undertaken in the

countries of the region had been used to estimate reasonably acceptable fertility indices for most of the countries. Indirect techniques and methods of analysis had been employed in those surveys and censuses to improve the quality of the estimates.

43. Estimates of fertility levels for all countries of the region showed that, except for the offshore islands of Mauritius and Reunion, the continent has the highest fertility rates in the world. The rates, however, showed differences among the subregions of the continent. West Africa had the highest fertility rates and these were uniformly above 40 per thousand. Mainland East Africa came next, with the highest rate of 51.5 for Zambia and the lowest rate of 42.0 for Burundi and Djibouti. The Central African countries appeared to have the widest variation in fertility rates, both within and between countries, and with an estimated crude birth rate of 44 per thousand, had rates lower than those of the West African and mainland East African subregions. The North African and Southern African subregions, each with an estimated crude birth rate of 43, ranked lowest among the subregions.

44. The age-specific fertility rates for the various subregions also showed that childbearing started early and continued until the onset of menopause. The most recent United Nations projections on age-specific fertility rates for selected African countries showed that the fertility of countries south of the Sahara would continue to be high into the 1980s. Estimates of total fertility, for selected countries of the region also showed that women bear, on the average, more than six children before the menopause is reached, and that it was only in the offshore islands of Mauritius and Reunion that the total fertility rates were lower than the generally high level. The reproduction rates and other fertility indices also showed levels that were correspondingly high.

45. During the discussions, it was pointed out that projection data which were used in some tables in the text might not be appropriate for the purpose of describing current levels of fertility because projections were usually based on certain assumptions. Although that might be true, it was stated that projections were not totally irrelevant for that purpose and that they could provide useful indications because of the rather stable fertility level and patterns among African countries.

46. The document on "Mortality in North Africa" referred to observations made by J. Bourgeois Pichat in 1966 showing that mortality decline in developing countries had passed through three phases: the period before the war, when mortality decline resulted in an increase in life expectancy of three months; the post-war period (1945-1950), which saw an increase in life expectancy of six to eighteen months; and the period beginning with the 1950s, which saw an increase of three to seven months.

47. Although the North Africican countries had also experienced three periods of decline in mortality, the rates in individual countries had been different and the decline had occurred over different time periods. Five theoretical models employed to estimate mortality indices were described. Estimates from direct surveys showed that Tunisia had a lower mortality rate than Algeria or Morocco. A crude death rate of 13.8 was

recorded for Tunisia, as against 16.7 and 19 for Algeria and Morocco respectively. Comparison of the survey estimates with estimates from the theoretical models, however, showed different results. The deficiencies of estimates derived from vital registration were noted.

48. Analysis of mortality by age, sex, cause and socio-economic characteristics showed variations in mortality levels by socio-economic status, and the pattern of mortality by age, sex and cause of death showed that mortality in Tunisia was very close to the levels seen in developed countries; mortality in the other North African countries was similar to that of countries with the highest per capita incomes among the developing countries. With respect to the level of education, the uneducated had the highest mortality levels, and mortality decreased with an increase in the level of education. This phenomenon was more pronounced in the urban areas and in areas with better medical facilities, and mortality was generally higher in rural than in urban areas.

49. Algeria and Morocco showed a higher mortality for young ages, but the picture for Tunisia was irregular. While the Maghreb countries generally showed an excess male mortality, it did not follow a regular pattern in the countries compared. In the case of infant mortality, the excess female infant mortality might be due to cultural factors which ensured that greater care and attention was paid to boys than to girls.

50. The objective of the third document was to assemble data on fertility and mortality levels, patterns and trends in some Anglophone African countries. The presentation showed that, even though a large body of data had been produced in African countries, it had been difficult to tabulate and disseminate the latest data from those countries. The quality of the data varied from one country to another, so that a single method could not be applied to all the data. The Brass method could be applied to most of them but adjustments had to be made in its application to the estimation of fertility levels.

51. Estimates by various agencies gave consistent results in most cases, and any differences were attributable to differences in the interpretation of the age-sex structure rather than to the methods of estimation employed. Differentials by a wide range of socio-economic characteristics were presented in the document, with the caution that the socio-economic characteristics at the time of the census or survey might have been different from those obtained at the time the events actually occurred. The data assembled, however, indicated that mortality levels had generally been falling in the countries studied.

52. In the discussion that followed, it was pointed out that where excess female mortality occurred, one reason for it could have been the high rate of reproduction. It was also suggested that the United Nations Population Division should consult local demographers in the various countries and obtain their expert opinions when country population projections were being undertaken.

VI. FERTILITY AND MORTALITY LEVELS AND PATTERNS IN AFRICA: COUNTRY STUDIES

53. In all, nine case studies were presented, covering the Congo, Cameroon, Nigeria, Algeria, Ethiopia, Sierra Leone, Kenya, Liberia and Uganda. The studies on Cameroon and the Congo were presented by the Institut de Formation et de Recherche Démographiques (IFORD) and those

on the other countries by national experts. In the case of the Congo, it was stressed that the document was to be regarded as strictly provisional and should not be quoted. It contained a general account of the data used and of the most important results of the analysis of the fertility levels and structure in the Congo in 1974. The analysis had shown, in particular and among other things, an increase in fertility in the Congo. As regards Cameroon, the aim of the study presented was to determine, from the regional studies carried out in 1960-1965, the fertility and the birth-rate for the country. Three other reports were also presented by experts from Cameroon, aimed, on the one hand, at comparing the general and infantile mortality obtained from the 1960-1965 studies and the 1976 census, and on the other, at determining the trend in the mortality, together with its structure and differentials.

54. A report on available estimates of fertility and mortality in Nigeria, based on available data up to 1971-1973, was then presented and it was shown that both fertility and mortality in the country had been generally high and that fertility had probably been constant since 1952, with current mean birth and death rates of 50 and 20 per 1000 respectively. The derived annual rate of increase from these estimates implied that Nigeria's population would double every 20 years. This had serious implications for the country's socio-economic development. The Algerian report on levels, patterns and differential fertility in the country stressed, among other things, the fact that the legitimate fertility for the 15-25 year age-group was slightly higher in the urban than in the rural areas. Total fertility, however, was markedly lower in the towns.

55. The comments on the reports were essentially methodological in character. In the case of the Congo study, it was indicated that for the 1960-1961 data, it was the observed and not the adjusted data that were reported. On the adjustment of the Nigerian data from the 1971-1973 survey, it was noted that the papers based on this survey were regarded as draft reports and that the final report on the survey was in the course of publication; the latter would incorporate the necessary adjustments. There was a need for caution in the use of the reported higher urban than rural fertility in Algeria, since interpretation based only on marital as against total fertility were of doubtful validity.

56. Because of shortage of time, five other documents were discussed only very briefly. The first two focused on the levels, patterns and differentials of fertility and mortality in Ethiopia. These were followed by a review of existing estimates of fertility levels and differentials in Sierra Leone, as well as some aspects of the levels, patterns and differentials of fertility and mortality in Liberia.

57. All five papers were then discussed together. As regards the Ethiopian mortality study, it was necessary to reconcile the apparent difference between the reported estimates and those obtained following the application of analytical techniques to the fertility estimates. The need to check the possible effect of age at first marriage before comparing any observed urban-rural fertility differences was emphasized.

58. Three issues were raised in connexion with the Sierra Leone study. Firstly, there was the question of the need to guard against the use of reported findings from anthropological studies as explanations for observed demographic phenomena. Secondly, there was the issue of whether the reported age data were graduated before the estimates were made, since the observed differences in the fertility levels within the country might in fact be an artefact of such age distortions. Finally, it was pointed out that the lower fertility levels among women in polygamous marriages might be due to the residential and sleeping arrangements that obtain in such marriages.

59. A report dealing with the determinants of mortality levels, patterns and differentials in Kenya was also presented. This report highlighted the inadequacy of primary vaccination care, which has contributed to infant and early childhood mortality. Malnutrition, which has affected both young and old, mainly as a result of the change from the traditional food crop agriculture to the more remunerative cash crops, has also been important. It was also indicated that mortality levels had been falling in certain areas. As a result, regional differentials had emerged. It was noted that further research was needed to determine the causes of the apparent switch by the rural population from food crop to cash crop farming, which had affected the nutritional status of the rural population.

60. The last country report dealt with some aspects of the estimates of fertility and mortality in Uganda. It was pointed out that events in Uganda during the past ten years had made it almost impossible to obtain any data on those variables other than from the 1969 census. This lack of other data for purposes of comparison imposed limitations on the analysis undertaken. However, some differentials in fertility in Uganda were observed. In particular, urban areas tended to have a lower fertility than the surrounding districts, an observation which was also common to other studies so far carried out in Africa. Furthermore, application of indirect techniques showed a downward trend in the levels of infant and adult mortality. There were also certain mortality differentials, which were indicative of the general level of development in Uganda.

VII. FERTILITY TRENDS AND DIFFERENTIALS IN AFRICA

61. Documents presented at this session dealt with different aspects of observed fertility differentials in the region. The background paper presented by the ECA secretariat reviewed existing empirical data on those differentials. It noted significant fertility differences among ethnic groups in several African countries, and pointed out that lower than expected fertility among certain ethnic groups in Upper Volta, Zaire Uganda, Sudan, Cameroon and Tanzania was associated with the prevalence of diseases and with social, cultural and economic factors that facilitated their spread and inhibited medical efforts to combat them.

62. Rural-urban differentials in fertility were not clearly established because of the absence of a standard definition of the term "urban", conflicting results from various countries, and the scanty data available. It was, however, noted that the urban environment, with its impersonal character destroyed traditional birth regulation systems but made new

opportunities available for adopting modern birth control methods. It was noted that studies of fertility defferentials by occupation focused on the incompatibility between continuous child-bearing and permanent employment of women in the modern economic sector. It was therefore expected that extensive fertility decline would tend to be associated with greater involvement of women in the modern economic sector.

63. The interpretation of available fertility differentials by occupation in studies carried out in Africa was rendered difficult by several factors, including problems of definition of occupations and clarification of various economic activities. It was therefore emphasized that more carefully structured studies on the apparent relationships were needed. The influence of education on fertility was thought to be related to the prolonged duration of schooling, which reduced the period of exposure to the risk of child-bearing. Thus higher ages at marriage and longer duration of schooling after puberty tended to be negatively correlated with fertility.

64. In a discussion of the influence of marriage on fertility, it was noted that, although some children were born outside culturally accepted marital unions, structural changes in the frequency and timing of marriages influenced the level of fertility in most societies. The evidence reviewed suggested that a later age at first marriage and a greater number of marriages per woman tended to reduce fertility. It was further noted that the debate on the influence of polygyny on fertility was far from settled because, although some studies had shown lower average fertility for polygamous than for monogamous couples, there was no convincing evidence that polygyny per se reduced fertility.

65. A country statement from Kenya noted that rising fertility and declining mortality had resulted in an unprecedented population increase in Kenya in the past decade. There appeared to be some evidence from a comparison of the Kenya Fertility Survey with earlier survey results that the total fertility rate had risen by some 18 per cent since 1962. It was noted that this rise in fertility was associated with numerous and stable marriages and a corresponding decrease in childlessness.

66. A document on fertility levels and differentials in western Zaire showed a slight increase in fertility throughout that part of the country, due essentially to a corresponding decrease in sterility in the regions or ethnic groups which had, until recently, been strongly affected by it. A search for interrelationships between fertility and certain other socio-economic and cultural factors, in which factorial analysis was used, showed that ethnic groups having a high proportion of highly educated individuals and good socio-economic conditions, including housing, had a higher fertility than other groups. The document also showed that, in rural areas, the husband's educational level was of greater importance as a discriminating factor than that of the wife.

67. A review of fertility differentials in Nigeria was the subjet of the next country statement in which regret was expressed for the fragmentary nature of the data; it was stressed, in addition, that the results of studies of fertility differentials in Nigeria were tentative and needed validation. It was argued that, although there was a consensus

of opinion among Nigerian researchers that secondary and tertiary education had some effect in depressing fertility, there was a need for carefully designed and implemented studies that would remove the present uncertainty as to the existence of differences in fertility by rural-urban residence and religious affiliation. Fertility appeared to be higher among those with primary education than those with no education because post-natal female sexual abstinence declined faster at first with education than the use of contraception increased.

68. The review of fertility differentials in Senegal indicated that analysis of the 1970 demographic survey showed a higher rural than urban fertility. The fertility results demonstrated higher ages at marriage and a higher divorce rate for urban than rural women. Although the fertility data were not specifically related to ethnic differences, there was some evidence that the Wollof, with a longer tradition of urban residence in Dakar, had lower than average fertility. The survey showed no clear relation between fertility and type of marriage.

69. The paper on regression analysis of factors affecting spatial and subregional differentials in fertility in Africa reviewed previous studies in that field and presented correlates of fertility change which might be considered significant in the African context. Noting the varying sizes of total population in different African countries, the paper stressed that considerable subregional variations existed, given the coefficients of variation for the five indicators used.

70. Mass education as the major determinant in the timing of the onset of sustained fertility decline was the subject of the next paper, which argued that there was a close association in time between the achievement of mass schooling and the onset of fertility decline. It conceded, however, that major economic changes were fundamental since the nature of the economy helps to determine when universal schooling can be achieved. It postulated that education had its impact on fertility through five mechanisms: it reduced the child's potential for work inside and outside the home; increased children's costs far beyond schooling costs; created dependency both within the family and within the society; accelerated cultural change and created new cultures; and finally served as a major instrument for propagating foreign values.

71. A paper on the causes of polygamy and its effects on fertility noted that close to one third of all Senegalese men were polygamous. A major contributing factor was the difference in the age at marriage for men and women.

72. The general observations on these papers centred on the need to carry out carefully designed and structured surveys that would provide more convincing data on the factors that influence fertility. In view of this, the meeting called on the ECA secretariat to prepare a programme of research on factors interrelated with fertility in the continent.

VIII. MORTALITY TRENDS AND DIFFERENTIALS IN AFRICA

73. In the course of the opening remarks at this session, it was noted that mortality was one of the major determinants of population change, and its decline was often cited as the cause of the rapid expansion of population in Africa. However, owing to the lack of relaible and adequate information on deaths, measurement of mortality levels, patterns and trends was still inadequate in the region. Demographers had nevertheless made some progress in the use of indirect methods of estimation to arrive at plausible estimates of mortality trends and differentials.

73. In the 50s and early 60s, figures prepared by WHO indicated that West and Central Africa exhibited the highest mortality levels; crude death rates ranged from more than 20 to more than 30 per thousand. The estimates of crude death rates for the East African countries ranged between 18 and 20 per thousand Population, the Southern African regions experiencing relatively moderate rates of between 14 and 17 per thousand. For the 1970s, the population Division of the United Nations had prepared estimates which indicated some decline in the level of mortality. The estimated crude death rates for 1974 ranged from 13 to 14, 18 to 22, 21 to 24 and 23 to 26 for the Southern, East, West and Central African regions, respectively. Both infant and early childhood mortality rates were extremely high in Africa. It had been estimated that the infant mortality rate in many parts of tropical Africa in the early 1970s was around 200 per 1,000 live births. It was also important to note that deaths in the age group 1-4 years in much of rural Africa equalled or exceeded those for under 1 year of age.

75. Mortality differentials were discussed in tersm of age-sex, place of residence, and other socio-economic variables. It was stressed that paucity of mortality information made differential mortality analysis extremely difficult. However, available information on male and female mortality indicated higher male death rates. In some African countries, reported data showed female mortality in the child-bearing ages (15-49) to be higher than male mortality. However, it was not certain whether this phenomenon was genuine or whether it was due to defective data. Mortality differentials among geographical and administrative units within the various countries had also been noted. In general, urban residents had a higher expectation of life at birth than their rural counterparts. This was mainly due to the higher concentration of medical and health facilities in those areas.

76. It was noted during the discussion that part of this differential might be due to customs regarding place of burial and/or a desire on the part of town dwellers to return to their village just before death. A rising educational level of mother and/or parents was associated with a consistent and siginficant fall in infant and child mortality. It was stressed that variations in infant and child mortality by such variables as education and place of residence reflected several factors operating in combination. Rural levels were higher than urban levels not because of rural residence per se but because of the relatively poor socio-economic conditions that existed in those areas. Most important were the absence of good medical facilities and good drinking water, and poor

nutrition. It was stressed that the decline in mortality was an important index of social and economic development and that preventive medicine and public health services should be extended to reach the majority of the population.

77. Since death was due to a multitude of factors of diverse origin, it was emphasized that biological and socio-economic variables should be considered in any analysis of differential mortality. In particular, studies of infant mortality differentials should include biological as well as socio-economic variables, since a combined approach could throw more light on the complex interrelationships involved. The need for specially designed surveys aimed at collecting detailed information on mortality could hardly be overemphasized.

78. The whole question of rural-urban differential mortality needed further investigation. It was felt that data should be collected in such a way that it would be possible to link vital events with their place of occurrence.

IX. BIOLOGICAL AND SOCIO-CULTURAL ASPECTS OF INFERTILITY AND STERILITY IN AFRICA

79. The relevant paper drew attention to the importance Africans attach to children as a stabilizing force in marriage. Children constituted a source of strength, pride, social insurance, consolation in old age and a guarantee of lineage continuity. Africans and African governments therefore attached great importance to infertility and subfertility.

80. A distincition was made between two kinds of infertility:
(a) primary - when a woman had never been able to conceive; and
(b) secondary - when a woman was once able to give birth, but thereafter found conception difficult. Studies had found substantial levels of infertility, especially in Central Africa and particularly in the following countries: Cameroon, Uganda, Upper Volta, Gabon, Central African Republic, Tanzania, Sudan and Kenya.

81. Various causes of infertility were indicated. In the female, these included: biological and pathological factors, growth or dysfunction of the pituitary gland, ovarian dysfunction, diabetes, hypothyroidy, tuberculosis of the pelvis, fallopian tube occlusion, venereal diseases, abortion, parasites, and several others. Observed causes of infertility in the male included: venereal diseases, abnormal spermatogenesis, testicular disease, tumour, failure of testicles to descend, post-pubertal mumps, leprosy, schistosomiasis, mechanical obstruction of sperm flow, and impotence, which was more psychological than socio-cultural or biological in origin.

82. Among socio-cultural factors discussed were: social stress, excessive anxiety to become pregnant, emotional imbalance, poverty, with its attendant insanitary environment, disease, and malnutrition, lack of basic health facilities, lack of education, and especially of knowledge of human reproduction, and lack of trained health personnel. Others included early age at marriage and subsequent early age at childbirth, polygamy, and unstable marriages.

83. Among the various issues raised was the view that syphillis was a less likely cause of female infertility, since it usually caused pregnancy wastage rather than infertility per se. Gonorrhoea, it was observed, caused both primary and secondary infertility. The importance of children to the African made the problem of infertility a community rather than a personal problem and therefore a public health priority. The entire society should direct its efforts and resources towards the prevention of venereal disease through health education and extensive maternal and child health services. In view of the complexity of the problem and the lack of adequate information, more research on subfertility and infertility in Africa was required.

X. THE SIGNIFICANCE OF BREAST-FEEDING FOR FERTILITY AND MORTALITY IN AFRICA

84. The universality of breast-feeding in developing countries as well as the varied intensity and duration of the practice were underlined. It was pointed out that the practice in Africa usually accompanied by sexual abstinence to ensure the child's physical well-being as well as that of the mother. The duration of such abstinence also varied from a few weeks to three years and in some cultures normally exceeded the period of lactation.

85. Based on evidence obtained from the Yoruba of Nigeria, as well as in other parts of Africa, it was shown that prolonged lactation and prolonged abstinence were associated and were both declining with ubranization and duration of schooling. This explained why urban fertility was not lower than rural fertility. Evidence was further adduced to show that breast-fed infants had a better growth pattern than artificially fed ones during the first few months of life.

86. The lively discussion which followed demonstrated that most participants were already aware of the available evidence linking breast-feeding and sexual abstinence with improved child growth and health, as well as with longer birth-interval and lower fertility. However, a call was made for more research into the relative effects of breast-feeding, on the one hand, and of post-partum abstinence, on the other, on the health and growth of the child and on fertility and birth interval. It was pointed out that such research would, of course, not be easy, since in Africa, breast-feeding and sexual abstinence were almost always practised together. Mothers should be encouraged to prolong the breast-feeding of their children.

XI. NUTRITION, DISEASE AND MORTALITY IN YOUNG CHILDREN

87. In the presentation of this topic, it was stated that young children in tropical countries tended to suffer from several diseases at the same time, and that, in tropical Africa, it was the synergism between malnutrition and infection which appeared to be largely responsible for the age pattern of mortality in children under six. A review was then made of some of the available evidence on nutrition and disease in infant and child mortality, policy and implications, and suggestions for reducing child morbidity and mortality.

88. The evidence from the developed world indicated that mortality declined as a result of improved levels of living, including better nutrition, environmental sanitation and other public health measures. There was evidence that this was being repeated in the developing world, though at a much faster rate in the past perhaps due to imported medical technology. Furthermore, in a review of the evidence on the role of malnutrition in infant and child mortality, it was reported that the available data indicated that between 20 and 70 per cent of children under six in developing countries showed some form of protein-calorie malnutrition. There was also evidence that malnutrition was one of the four most important causes of infant and child deaths and was a major secondary or contributory factor in deaths from other causes.

89. Suggested ways whereby parents or mothers could increase the survival chances of their children were described; these included provision of adequate nutrition, prevention of infection of all kinds, provision of prompt, effective treatment for illnesses, and appropriate utilization of available health facilities. The difficulties faced by the average African mother in carrying out those suggestions were examined and the responsibilities of governments in developing national policies to ensure better health care for the entire population, and especially for children, were emphasized. In this connexion, government programmes and policies should, for maximum effectiveness, be developed as components of a carefully integrated national child survival strategy, involving the agricultural, social welfare, health and educational sectors of the economy.

90. The objectives of a child survival strategy should broadly and comprehensively involve educating mothers in child care, nutrition, sanitation, and disease; improving mothers' access to the necessary resources, in cash or kind; creating a supportive social environment for good child care; and a general policy of including child survival as part of the over-all goal of economic development, with agriculture and rural development being given high priority.

91. Demographers and other population scientists were called upon to undertake more research into the complex interrelationships among socio-economic development, fertility, and infant and child mortality in Africa. Also required was research into ways of monitoring the effects of given development policies and programmes on infant and child mortality, as well as of forecasting the probable impact of other factors and policies. It was also necessary to improve knowledge of the interrelationships between prematurity and child survival.

XII. EVOLUTION OF CAUSES OF DEATH AND THE USE OF RELATED STATISTICS IN MORTALITY STUDIES IN AFRICA

92. In the first document under this heading, the characteristic causes of deaths were reviewed, and a plea made that scientific studies of mortality should increasingly include a thorough understanding of its causes. After the evolution of the list of causes of deaths had been traced, the principles of the international list of causes of death were presented and discussed. It was regretted that the International Classification of Deaths (ICD) list was seldom used in Africa, the primary

reasons being the poor status of vital registration in the continent, and the failure to use available hospital data. The improvement and extension of vital registration systems in Africa as sources of morbidity and mortality data, and the extraction of more information from hospital data and in certifying deaths medically were therefore recommended. In the discussion that followed, the limitations of hospital records of causes of death were pointed out, and a call was made for the development of a scheme for the collection of information on the probable causes of non-hospital deaths. Data from such sources could be published separately from data from hospital records. A scheme based on symptoms of diseases was suggested, and it was mentioned that a pilot feasibility test of this scheme had been carried out.

93. The document "Mortality and Causes of Death in Ethiopia" regretted the absence of any vital registration system and the fact that the country had never taken a census in its entire history. Mortality and causes of death in the country were therefore derived from the scanty sample survey data and medical reports available. Despite the paucity of data, the adjusted crude death rates obtained were considered to be comparable to the figures for other parts of Africa. However, the infant and child mortality rates derived left a lot to be desired. Under-reporting of infant and child deaths was found to be a remarkable feature, even though some decline in infant and child mortality seemed to have taken place between 1967 and 1970. The traditional causes of infant and childhood deaths were mainly measles, malnutrition, diarrhoea, and related diseases.

94. During the ensuing discussion, participants recommended extreme care in the use of models for estimating parameters from data of the kind presented. In particular, concern was expressed over the indiscriminate use of the Coale-Demeny North Model for estimating mortality levels in Africa. In the discussion on the paper on mortality and morbidity in Lagos, it was pointed out that there was a need for a more coherent and convincing explanation of the observed sex differentials in mortality decline in Lagos.

XIII. FAMILY PLANNING AND FERTILITY IN TUNISIA AND MAURITIUS

95. This presentation together with the ensuing discussion highlighted the impact of family planning activities in the two countries concerned on the rate of population growth. Both countries had an official government-backed population policy supported by family planning programmes. In Tunisia, the government policy which had evolved in the mid-sixties had clearly stated objectives of bringing down the rate of population growth. Though adequate data were lacking, it was indicated that this objective was being realized through the annual reduction of the birth rate by 1 per cent per annum since 1966, and that these changes had been the result of a vigorous national family planning programme.

96. The above-mentioned changes had occurred in response to changes in marital patterns. Specifically, it was estimated that 65 per cent of the changes were due to changes in marital patterns affecting mainly the age at marriage. Further significant features of the family planning programme were the acceptance and continuation rates, which were as high as 75 per cent for the first 12 months and 60 per cent for the next 24

months. Although it was stated that the fall in the growth rate from 2.4 per cent to 1.5 per cent in five years was the consequence of the family programme, it was the general consensus that the use of other indices to ascertain the cause of this decline would be desirable.

97. The account of the Mauritius family planning programme highlighted the development of that programme initially by a voluntary organization (the Mauritius Family Planning Association); it subsequently received assistance from the Government and from other non-governmental organizations. The main programme activities had been the reduction of the birth rate and the over-all population growth rate, as exemplified by the fall in the total fertility rate from 5.9 births in 1962 to 3.4 in 1972. Furthermore, those changes had occurred as a consequence of late marriages and of the general acceptance of the programme by almost all levels of Mauritian society. It was also observed that the fertility rates of non-acceptors did not change; that was a further confirmation that the observed trends were due to the family planning programme activities.

98. However, recent trends which exhibited an upward tendency in the growth rate and stabilization of age-specific fertility rates tended to indicate that Mauritian fertility has at least temporarily reached a plateau; however, even though the current users mean age at first acceptance of contraception had decreased, no attempt was made to explain the causes of the cessation of fertility decline.

99. The ensuing discussion concentrated on the effectiveness of the family planning services, and on the observed unpopularity of modern methods in Mauritius, as opposed to Tunisia, where even abortion was faily common. It was also pointed out that more work was needed to determine whether the observed reductions in fertility were due to the family planning services or to other causes, and whether those reductions would not lead to an excessive proportion of elderly people in the population in the near future, with all its attendant problems.

XIV. FERTILITY AND MORTALITY IN NATIONAL DEVELOPMENT

100. The document entitled "Fertility, Morbidity and Mortality in National Planning" outlined various development strategies that had been tried out in the developing countries with the aim of enabling them to modernize their economies. The inherent weaknesses of those strategies, their promotion of unequal development and their failure to achieve the desired levels of development in the LDCs were pointed out. It was suggested that a strategy for development with equity must address itself, among other things, to the question of how to monitor progress in the elimination of underdevelopment, poverty, malnutrition, poor health, bad housing, poor education and unemployment through the use of indicators which measured changes in those variables at the national and local levels.

101. Demographers, it was stressed, could play a leading role in national plan formulation, implementation and monitoring. They could provide policy makers with demographic information on the size and other relevant characteristics of the population of local communities in a form which planners and policy makers could utilize. Quantitative indicators of

fertility, morbidity and mortality could also play a central role in development planning by indicating population groups and areas which should be given priority in development. Demographic and other social indicators could also be used in monitoring the quality of life of population groups, in conjunction with other items of fundamental social concern, such as health, availability of food and services, physical environment, personal safety and the administration of justice, social, economic, cultural and other forms of dependence.

102. The dissatisfaction with the results of current strategies of development had led to experiments by eight countries, including Ghana and Nigeria, in formulating and implementing national plans for development which had development with equity as one of the goals. New social indicators had been evolved to monitor the progress of development at the national and local levels, and mortality, morbidity and fertility rates had been shown to be of great use in such monitoring. Demographers therefore had a leading role to play in this type of monitoring, which was being used to set up a system of regular social analysis and reporting that would provide an integral input into national development plan formulation and implementation.

103. The demographic and cost information available showed that health and education were priority areas in development in Africa. Integrated and inexpensive forms of health care delivery in the form of integrated packages of malaria control, nutritional education, immunization, sanitation and good water supply could drastically reduce mortality and morbidity rates at a fraction of the cost of current hospital-based health care delivery. Innovations in the organization of education now made it possible for every African country to provide mass education for its population within the limits of present budget, with consequent positive effects for development.

104. It was clear that, in order to achieve development with equity, demographers and policy-makers should ensure that there was regular monitoring of socio-economic differentials in mortality and morbidity rates, since such differentials essentially measured inequality in a society; such monitoring and reporting should be undertaken at all levels of national developing planning. In a continent where four and a half million children less than 5 years died every year, it was the responsibility of demographers to show planners at the political levels of decision-making, as well as the people themselves, the magnitude and consequences of this appalling waste of human lives.

XV. RECOMMENDATIONS

i. The meeting noted with concern the fact that fertility and mortality data for a majority of African countries were now twenty years out of date and that the quality of such data had not improved. It therefore recommended:

(a) that efforts should be directed towards collecting and analyzing fertility and mortality data by the use of both direct and indirect techniques;

(b) that ECA, UNFPA and other international and national organizations should support country efforts to improve both the supply of data and analytical work on census and other existing data.

In this regard, the meeting appreciated the efforts of the US Bureau of the Census to make available computer packages for this purpose. Furthermore, greater attention should be given to the institutionalization and support of comprehensive vital registration systems, as well as to inter-regional co-operation in data processing and analysis.

ii. The meeting drew attention to the fact that population growth was more rapid in Africa than in any other continent and that that would continue to be the case for a long time to come. However, Africa was unique in that it contained a large number of thinly populated countries with inadequate facilities for properly collecting and analyzing their own data. It was proposed that ECA should play a major role in co-ordinating and in helping to improve the collection and analysis of demographic data, and its Population Division should be equipped for this task.

iii. The meeting regretted the lack of an adequate data base for United Nations projections, and urged closer collaboration between the United Nations offices and regional and national institutions.

iv. Given the fertility and mortality differentials observed in many African countries, the meeting called on the ECA secretariat to redouble their efforts to spearhead and encourage research in this area. It particularly called for greater collaboration between the secretariat and national research institutions in studying the influence of marriage and nuptiality on fertility behaviour, and the causes of infant mortality in Africa.

v. Following a review of the factors affecting fertility, such as breast-feeding, sexual abstinence, venerial disease and nutritional status, the meeting called on the ECA secretariat and the World Health Organization to collaborate in research work in those fields.

vi. The meeting reviewed existing methods of estimating and validating fertility and mortality data from African censuses and surveys, and called on researchers to make good and critical use of those methods in an effort to highlight both the advantages and the problems associated with them.

vii. Although fertility in the African continent was very high, the meeting noted that there was a high percentage of childlessness in Central Africa. The meeting therefore called on the ECA secretariat and other organizations interested in population studies in Africa to mount research programmes that would, as a first step towards solving the problems of infertility and sterility in this subregion, investigate the bio-social, cultural and environmental factors associated with the phenomenon.

viii.The meeting called for the proper integration of population factors in development planning in order to evolve effective development policies directed both at improving the standard of living and at ensuring that couples attained a family size consistent with their needs, situation and aspirations. It therefore called on national governments to make more use of data from past censuses and surveys. The meeting reiterated the need to imrove the supply of information on mortality and stressed the importance of critical evaluation of the impact of existing family planning programmes on fertility. It expressed appreciation for ECA's efforts in organizing the Expert Group Meeting and recommended the organization of training workshops on the analysis of census and survey data collected in African countries.

ix. The meeting recommended that national governments should play a much more active role in the collection, processing and analysis of demographic data, and should also encourage efforts to integrate population data into development plans and programmes. It also recommended that, where this had not been the case, governments should involve their national demographers in evolving national development policies and also ensure that their views were taken into account in the application of such policies.

x. The meeting called on ECA to play a more effective role in facilitating the dissemination of demographic information in the region and urged it to establish a demographic research bulletin for that purpose.

xi. The meeting called for greater educational efforts directed towards improving the nutrition of children by encouraging mothers to breast-feed.

xii. The meeting recommended greater co-operation between ECA and WHO in mortality and morbidity sutdies aimed at understanding the pattern and causes of the present high levels of mortality in African countries.

xiii. The meeting drew attention to the deterioration of demographic studies in some parts of Africa. It therefore strongly recommended that ECA and other parts of the United Nations family should allocate personnel and funding to permit the establishment, within the ECA Population Division, of a professional group to co-ordinate the carrying out of a programme of demographic studies in Africa in order to improve both mortality and fertility information. Initial priority in this programme would be given to countries with the poorest information. Adequate processing and analysis facilities should be provided at ECA so that the proper support could be provided.

xiv. The meeting noted the experiments conducted by eight countries, including two African countries, in co-operation with the United Nations Institute for Research in Social Development (UNRISD) on monitoring progress in development at various levels, particularly the local, in a nation and instituting regular systems of social analysis and reporting as an input into national plan implementation and formulation. The meeting called on ECA to encourage this trend in development planning in the African countries. It also recommended that the Population Division of ECA, in collaboration with the Statistics Division, should mount a programme of studies to evolve suitable social indicators for monitoring development at the local and national levels, and a system of regular social analysis and reporting, as inputs into national development planning and implementation in the African countries.

XVI. CLOSING SESSION

105. Following the adoption of the report on the proceedings of the Expert Group Meeting, the General Chairman, the Honourable Philip Gadegbeku, congratulated participants on their diligence and hard work throughout the meeting. He then invited the Honourable Deputy Minister for Economic Planning, Mr. Samuel D. Greene, to deliver the closing address on behalf of the President, the Government and the people of Liberia. The Minister reviewed the deliberations at the meeting and expressed the hope that they would provide guidelines for future demographic research and for improving the quality of the demographic data needed for comprehensive and meaningful socio-economic planning in Africa. He then thanked participants for the sustained interest that they had shown and for their contribution to the meeting. He also thanked ECA, through its Executive Secretary, for organizing the meeting in Liberia.

106. Dr. O. Ayeni, on behalf of the participants, proposed a vote of thanks in appreciation of the wonderful hospitality extended by the Government and people of Liberia. After thanking the Government, the meeting adopted a resolution commending the efforts of the Government of Liberia, not only in hosting the meeting so efficiently, but also in fostering knowledge in the field of demography. On behalf of the ECA Executive Secretary, Mr. Ahmed Bahri, Chief, Population Division, also paid tribute to the participants for their valuable contributions to the discussions and recommendations. He promised that the views expressed at the meeting would be taken into account by the Commission in developing improved strategies for fulfilling its duties and responsibilities to Africa in the field of population.