



68156



UNITED NATIONS  
ECONOMIC AND SOCIAL COUNCIL

Distr.: GENERAL

E/ECA/PSD.5/43  
September 1987

Original: ENGLISH

ECONOMIC COMMISSION FOR AFRICA

Fifth session of the Joint Conference  
of African Planners, Statisticians  
and Demographers

Addis Ababa, Ethiopia, 21 - 28 March 1988

POPULATION PROJECTIONS AND NATIONAL DEVELOPMENT  
PLANNING IN AFRICA

TABLE OF CONTENTS

PARAGRAPH

1. Introduction .....	1 - 7
2. Perception of the problem of population growth in African Countries .....	8 - 12
3. Uses of population projections in African Development Plans and Programmes .....	13 - 15
3.1 The uses of sectoral and subnational population projections .....	16 - 35
3.2 The use of population projections in economic-demographic models .....	36 - 43
3.3 Past uses of population projections in African development plans .....	44 - 63
4. Problems with population projections in Africa .....	64 - 72
5. Conclusions and recommendations .....	73 - 80

## I. INTRODUCTION

1. The past few years have witnessed a heightened awareness of the importance of population factors in social and economic development plans and programmes in Africa. In this connexion, the Kilimanjaro Programme of Action on population that came out of the Second African Population Conference in Arusha in January 1984 advocated that, "national efforts to create greater awareness of the interrelationship between population and development should include the provision of greater information to politicians, policy-makers and the public on the dynamics of population change and the impact of such changes on current and future development."<sup>1/</sup>
2. Earlier, the World Population Plan of Action that was adopted by the United Nations World Population Conference in Bucharest in 1974, recommended that, "population measures and programs should be integrated into comprehensive social and economic plans".<sup>2/</sup>
3. In this context, it should be mentioned that since the 1970s, changes have occurred in the conceptualization of development namely, by viewing the phenomenon more broadly, beyond aggregate economic indicators, which have implications for demographic data requirements.
4. Economic and social planning consist of two major aspects : (a) the translation of general objectives into a set of consistent and **quantified targets**; and (b) the selection and determinations of the measures and means necessary to achieve these goals.<sup>3/</sup> The general objectives could include: increasing total or per capita income and employment, ameliorating spatial population maldistribution and redressing balance of payments imbalances. Overall, however, the enhancement of the rate of economic growth has been the overriding objective of African plans.
5. Population projections have applications in planning at the national and sub-national levels because of the role demographic factors play as determinants and consequences of socio-economic development. Explicitly population projections provide the quantitative basis for planning the provision of future requirements for economic goods and services and social amenities. However, to date, the integration of population projectors in African development planning has been unsatisfactory.
6. The present paper attempts a review and evaluation of current, potential and past uses of population projections and related statistics, such as, the rate of population growth, future school-age and working age populations in African development plans and programmes. The objectives of the exercise are to identify

<sup>1/</sup> ECA, Kilimanjaro Programme of Action on Population (RAF/86/PO2) (Addis Ababa: 1984).

<sup>2/</sup> Summary Country Statements Concerning Population Change and Development, World Population Conference, Bucharest, 19-30 August, E/CONF.60/CBP/33.

<sup>3/</sup> UN, The Determinants and Consequences of Population Trends, Vol. 1. (ST/SOA/SER.A/50) (New York, 1973).

past problems with the full integration of various types of population projections in these plans and programmes and make suggestion about improvements in this area in the future.

7. In this context, mention should be made of the following recent studies and reports of seminars and workshops by ECA, aimed at fostering the integration of population variables in African development plans and programmes, whose recommendations should complement those of this present paper: "The Role of Demographic Variables in the Formation of Development Policies and Plans", a paper presented to the Third Session of the Joint Conference of African Planners, Statisticians and Demographers, in March 1984;<sup>4/</sup> the report of the seminar on the Application of Demographic Data in Development Planning, held in Moscow from 21 August to 4 September 1983;<sup>5/</sup> the reports of the regional training workshop on Demographic Estimates and Projections in Africa, held in Accra from the 15 to 29 July 1985;<sup>6/</sup> and "Integration of Population Variables and Policies in Development Plans in Africa", a 1985 working paper of the Population Division.<sup>7/</sup>

## 2. PERCEPTION OF THE PROBLEM OF POPULATION GROWTH IN AFRICAN COUNTRIES

8. Population growth and size, because they determine, in some ways, the general pace of economic and social progress have profound implications for social and economic development planning. Explicitly, the integration of population projections and other demographic data in development plans and programmes is important in countries such as in Africa where population growth is significant, and/or the rate of population growth is considered a problem for the attainment of economic growth. As a background to the subsequent discussion on the uses of population projections in African countries this section of the paper reviews the current perceptions of ECA member States regarding the problem of population growth.

9. The perception of the problems of population growth appears to be changing in Africa. For a long time the view that Africa was under-populated and that population growth could spur or at least not jeopardize economic development enjoyed currency. However, according to a 1981 survey by the United Nations Population Division in New York, on Governments' perception of the effects of natural increase on development, its acceptability and the desirability of intervention to change rates, 19 African countries out of 51, that is 37 per cent, considered their population growth rates to be too high, as against 6, that is 11 per cent, which considered theirs to be too low. Among the 19 countries that wanted to achieve a lower natural growth rate, 12 had comprehensive intervention policies with emphasis on mortality and fertility changes.<sup>8/</sup>

<sup>4/</sup> E/ECA/PSD.3/5

<sup>5/</sup> ECA/PD/WP/1983/22

<sup>6/</sup> RAF/84/P28, Volumes 1 and 2

<sup>7/</sup> ECA/PD/WP/1985/12

<sup>8/</sup> UN, World Population Trends and Policies: 1981 Monitoring Report, Vol. II (New York, 1982), and ECA, Fifth Population Inquiry Among Governments: ECA Member States Perception and Policies on Demographic Trends in relation to Development as of 1982, ECA/PD/WP/1984/3.

10. In a 1985 up-date of the above-mentioned survey<sup>9/</sup> it was established that 25 African countries considered their present rates of growth of their populations as unsatisfactory, the majority of them, that is 23, because they were too high (table 1).

11. The views of Nigeria and Morocco are representative of the latter set of countries. In Nigeria, the Government considers the overall rate of population growth to be significant, imposing an excessive burden on the economy.<sup>10/</sup> While in Morocco, the Government has indicated that it regards the population growth rate as "too high". The current level and trend are seen as a threat to the socio-economic equilibrium of the country.<sup>11/</sup>

12. Congo and Gabon, however, are the exceptional African countries which currently consider their present rates of population growth as unsatisfactory because they are too low. Both countries desire a rise in their fertility levels in view of their past history of pathological sterility, which for many years depressed fertility levels. In addition, 13 countries expressed satisfaction with the current rates of growth of their populations (table 1)

### 3. THE USES OF POPULATION PROJECTIONS IN AFRICAN DEVELOPMENT PLANS AND PROGRAMMES

13. The use of population projections in national development plans and programmes is one important way by which population measures can be integrated in social and economic development planning. The reason for this is that planning should be concerned with the provision of future goods and services for consumption, investment and saving. Since people are the source of the supply of manpower needed to produce future goods and services as well as constitute the market demand for such goods and services, knowledge of the future size of the population and its major distribution, are required for national planning.

14. More generally, population projections can be used in the following ways:  
(a) to facilitate the integration of population variables in socio-economic development planning and programmes, (b) to take into consideration the consequences of rapid population growth in planning the allocation of scarce resources, (c) for formulation, implementation, evaluation and monitoring of action programmes such as family planning and maternal health projects and programmes; and (d) for assisting in understanding the complex relationship between population and development variables.

15. These uses of population projections are further elaborated in the next two sub-sections of the paper on sectoral and subnational projections and economic-demographic models. It should be pointed out that the discussion on the uses of sectoral and sub-national projections is not intended to be exhaustive. Rather, the aim is to illustrate the uses of population projections for a selected number of strategic sectors and subnational populations/areas.

9/ UN, Population Policy Briefs: The Current Situation in Developing Countries, 1985, (New York, 1986).

10/ idem, p. 33

11/ idem, p. 31

ECA MEMBER STATES' PERCEPTION OF POPULATION GROWTH, 1985

SATISFACTORY (No. = 13)	NOT SATISFACTORY <sup>a/</sup> (No. = 25)	NO VIEWS EXPRESSED (No. = 4)
Angola	Algeria (TH)	Botswana
Benin	Burundi (TH)	Djibouti
Burkina Faso	Cameroon (TH)	Guinea-Bissau
Côte d'Ivoire	Congo (TL)	Togo
Libya	Egypt (TH)	
Mali	Ethiopia (TH)	
Mauritania	Gabon (TL)	
Mozambique	Gambia (TH)	
Niger	Ghana (TH)	
Sao Tome and Principe	Guinea (TH)	
Somalia	Kenya (TH)	
Sudan	Lesotho (TH)	
Zaire	Liberia (TH)	
	Malawi (TH)	
	Mauritius (TH)	
	Morocco (TH)	
	Nigeria (TH)	
	Rwanda (TH)	
	Senegal (TH)	
	Sierra Leone (TH)	
	Swaziland (TH)	
	Tunisia (TH)	
	Uganda (TH)	
	Tanzania (TH)	
	Zimbabwe (TH)	

<sup>a/</sup> TH = too high; TL = too low

Source: Summarised from, UN, Population Policy Briefs: The Current Situation in Developing Countries, 1985 (New York: 1986)

### 3.1 The Uses of Sectoral and Subnational Population Projections

#### (a) Agricultural Planning

16. According to estimates of the Food and Agriculture Organization (FAO), the agricultural population constitutes a minimum of 50 percent of the total population in African countries. Out of the 50 ECA member States, only 8 countries had lower percentages of their total populations in agriculture, with the percentage ranging from 33 (Congo) to over 38 percent (Rwanda) in sub-Saharan Africa in 1984.<sup>12/</sup>

17. Within the past few years, the food situation has become one of the most critical area of concern in Africa. One reason for this is that during the 1970s population growth outstripped food production: while population was growing at an annual rate of 2.8 percent, total food production was rising by about 1.5 percent. The drought of 1983-1985 exposed the precarious imbalance between population and food production and brought into focus the following characteristics of African agriculture: low productivity, limited capacity for adjustment, inappropriate policies and weak demand for Africa's agricultural exports.

18. Given this unsatisfactory situation, revitalization of the agricultural sector is a priority developmental concern in the region. For instance, the African submission to the special session of the United Nations General Assembly on Africa's economic and social crisis, in line with Africa's Priority Programme of Economic Recovery (APPER), emphasised actions for increasing levels of agricultural productivity and production.

19. In this context, the integration of population factors in the formulation implementation and monitoring of agricultural plans and programmes cannot be over-emphasized. To this end estimates and projections of the agricultural population are needed for estimating future labour requirements for the production of staple and export crops as well as assessing consumption levels and patterns of marketable surplus of agricultural production.

#### (b) Rural and regional planning

20. Recent surveys of the perception of African Governments about population concerns by the United Nations Population Division in New York indicate that a majority perceive uneven spatial population distribution as their prime population problem.<sup>13/</sup> The problems of population maldistribution take three major forms in Africa: the disproportionate concentration of the urban population and development in a single metropolitan centre, the high rates of rural-to-urban migration, and the uneven spatial distribution of the rural population.

<sup>12/</sup> FAO, "Population and the Labour force in Rural Economies," Economic and Social Development Paper, No. 59, Rome, 1986; and African Development Bank/ECA, Economic Report on Africa, 1986, March 1986, C.F.

<sup>13/</sup> ECA, Fifth Population Inquiry among Governments: ECA member States Perception on Development Trends in Relation to Development as of 1982, ECA/PD/WP/1984/3.

21. Since the 1970s when development started to be viewed in broader terms, a number of African countries have expressed the wish to alter the spatial distribution of their populations in order to correct regional imbalances in resource distribution. For example, in Morocco, the National Development Plan (1981-1985) calls for decentralization and reduction in regional disparities by the creation of growth poles and encouragement of agricultural and industrial development in rural zones.<sup>14/</sup> Similarly, in Liberia, the government's development policies attempt to improve the spatial distribution of the population by slowing the flow of migrants into urban areas and by adjusting the urban and rural configurations.<sup>15/</sup>

22. Accordingly, regional development plans are now increasingly included as an integral component of national development plans in many African countries. For this exercise, regional or rural development planners and economists in formulating, implementing and monitoring sound plans and programmes need information on future population sizes and age distributions and other socio-economic characteristics of the country's urban and rural areas.

c) Educational Planning

23. Given the importance of human resources in the development process, education and training should be accorded importance in development plans and programmes. In this connection, the UNESCO Conference of Ministers of Education held in Addis Ababa in 1961 called on African Governments to make effort to eliminate illiteracy and provide universal and free primary education.

24. Over the years, although African Governments have allocated a significant proportion of their public expenditure on education, the goals of attainment of universal and free primary education and the eradication of illiteracy have still to be achieved by many;

25. An important constraint standing in the way of achieving the above-mentioned objectives has been ascribed to the large increases in the numbers in the school-going ages, an outcome of the past history of high fertility as well as relatively high but falling mortality.<sup>16/</sup> With the expected fall of mortality levels in the future, the school-age populations is destined to increase even more in the future. According to the 1984 UN medium population estimates and projections the population aged 6-23 in Africa will increase by 59 percent, from 228 to 364 million, from 1985 to 2000.<sup>17/</sup>

---

<sup>14/</sup> UN, Population Policy Briefs, op.cit., p. 31.

<sup>15/</sup> Idem, p. 27

<sup>16/</sup> ECA, "Population Growth and Educational Expenditures in ECA member States," African Population Studies Series, No. 6, E/ECA/SER.A/4, 1983.

<sup>17/</sup> UN, World Population Prospects, (New York, 1986.

26. An ECA study estimated that in 1980, out of an expected 172 million persons aged 6-23 who should have been enrolled in about 45 ECA member States with data on school enrolment, only about 40 percent were actually enrolled. This study recommended that more attention should be paid to action oriented programmes aimed at the integration of population factors in development planning and the formulation of appropriate population policies.<sup>18/</sup>

27. Against this background of current and expected substantial sizes of the school-going population and unmet potential enrolment places, it is imperative to include estimates and projections of the school-age population in social and economic plans and programmes in order to assess future requirements for teachers, classrooms and school equipment.

#### d) Health Planning

28. Over the years, African Governments have shown interest in improving the health conditions of their citizens. However, despite progress that have been made within the past few years, mortality levels - major indicators of health status - are still very high in the region. For example the crude death rate for Africa was 17 deaths per thousand in 1986 compared with 10 for the more developed regions and 11 for the less developed regions. Also the life expectancy rate during the period 1980-85 was estimated as 49 years compared with 55 years for South Asia, the next lowest life expectancy region.<sup>19/</sup>

29. These figures indicate that African Governments have still to build more hospitals and health centres, train more doctors and other health workers and buy equipment and drugs to make health facilities available to the majority of the population. As members of the World Health Organization (WHO) ECA member States have pledged to work together with other nations to attain the goal of health for all the people of the world by the year 2000.<sup>20/</sup>

30. In order to assess the progress they are making towards attainment of acceptable levels of health for their citizens, African planners should make an effort in planning and evaluating their health programmes. Health planning, for which population projections of the total population by age and sex are required, should be undertaken in order to measure changes that have taken place as result of specific policies, programmes and efforts as well as to indicate variations in the provision of health services and facilities to various regions of the country.

---

<sup>18/</sup> ECA, "Population Growth and Educational Expenditures....."

<sup>19/</sup> UN, World Population Prospects; op. cit.

<sup>20/</sup> WHO, Global Strategy for Health for All by the Year 2000. (Geneva, 1981)



e) Labour and Manpower Planning<sup>21/</sup>

31. The provision of adequate employment is among the most pressing economic problems of African countries. For sometime now, the creation of employment in the modern sector -- the preferred sector of employment for the vast majority of job-seekers, especially in urban areas - has not kept pace with the supply of labour. The recession years aggravated the unemployment problem in the modern sector. In Côte D'Ivoire, one of Africa's more resilient economies, employment in the modern sector declined by more than 12 percent per annum between 1979 and 1981 and the share of non-skilled employment decreased in the sector from 69 percent in 1979 to 60 percent in 1981.

32. However, with reference to the informal sector, the alternative employment outlet in African towns, the rise in unemployment in the modern sector seems to have reinforced the sector by a transfer of a significant portion of the demand for modern sector goods to there. Nonetheless, this growth in the informal sector is not without some social costs, given its low productivity and low income status in the economy.

33. More generally, studies done about unemployment in Africa and other developing countries indicate that both open unemployment and disguised employment are high, with the phenomenon more serious in urban than in rural areas, and within urban areas, it is more serious for those aged 15 to 24 than for the total population, for females than for males, and, at least up to post secondary education, for the more educated than for the less educated.<sup>22/</sup>

34. African Governments are striving to come to grips with current and future unemployment problems in the face of rising numbers in the working age population. According to estimates, the population in the working age, (15 to 64), in ECA member States is expected to more than double between 1986 to 2010, from 245 to 635 million.<sup>23/</sup>

35. These problems make manpower planning, which involves the projection of labour force supplies and demands, based on which governments would take action to reconcile the two components, important in African countries.

<sup>21/</sup> ILO, "Effects of Recession on African Countries", JASPA Bulletin, No. 7, July 1984; and Jobs and Skills Programme for Africa (JASPA) of the ILO, The Challenge of Employment and Basic Needs in Africa (Nairobi, Oxford University Press, 1986).

<sup>22/</sup> Lyn Squire, Employment Policy in Developing Countries (New York: Oxford University Press, 1981), p. 68.

<sup>23/</sup> UN, World Population Prospects, op. cit.

### 3.2. The Use of Population Projections in Economic-Demographic Models

36. The other important use of population projections is with respect to the integration of population factors in economic and social development plans and programmes. It has been remarked that "improved population projections are a basic requisite for integrating demographic factors into the planning process"<sup>24/</sup>

37. The use of economic-demographic models has been suggested as one method which facilitates this integration by assisting policy-makers in assessing the direct and indirect effect of population policies and enhancing "appreciation of interdependencies between patterns of population change and patterns of development".<sup>25/</sup>

38. A typical interaction between demographic variables, on the one hand, and development variables, on the other, and vice versa, can take the following form: the age structure of the population has an influence on the pattern of consumption and the size of the labour force as well as the demand for social services. Conversely, developmental factors also have an influence on the patterns and levels of fertility, mortality and migration.

39. Figure 1, schematically presents the relationship between demographic and economic models in development planning and implicitly the role of population projections in economic-demographic models. Disaggregated population data (that is, national, subnational and sectoral projections) play a vital role in the demographic model by making it possible to relate demographic variables to the economic model.

40. In economic-demographic models, linkages are established between the economic and demographic sectors which result in feedback effects from variables in one sector to another. Two examples will illustrate the point. Changes in the levels of fertility and mortality have an effect on average household sizes and thus food consumption. Also, the rates of rural-to-urban migration have an impact on food consumption patterns, agricultural productivity (by rural areas losing manpower) and income distribution (by migrants sending remittances).

41. The tracing of these linkages helps to deepen understanding of the relationship between population and development variables and should strengthen the formulation of sound population policies and programmes.

42. Among the best documented, comprehensive economic-demographic model on an African country is the ILO BACHUE model of Kenya. The Kenya-BACHUE comprised two components: partial analysis on the determinants of major economic demographic variables and a stimulation model, the centre piece of the study, which attempts a comprehensive case study of economic-demographic relationships.<sup>26/</sup>

<sup>24/</sup> UN, Population and Development Modelling (ST/ESA/SER.A/73), (New York: 1981).

<sup>25/</sup> Idem

<sup>26/</sup> Richard Anker and James C. Knowles, Population Growth, Employment and Economic-Demographic Interactions in Kenya: BACHUE-Kenya (New York: St. Martin's Press, 1983).

The stimulation model had highly endogenised demographic sectors which made use of a number of disaggregated population variables.

43. An UN expert group on population and development modelling in 1979 recommended that efforts to develop economic-demographic models should be continued because of their value in integrating demographic factors into planning. It however noted that such models have not been widely used in LDCs, for example in Africa, because of two factors: (a) the recency of their developments and (b) the lack of available data and computational facilities.<sup>27/</sup>

### 3.3 Past uses of population projections in African development plans

44. In the past problems such as inadequate and/or defective data, lack of trained manpower in statistical and planning offices, lack of computational facilities and the poor understanding of the relationship between demographic and development variables made it difficult to integrate population factors, such as population projections into comprehensive, social and economic planning and programmes. It should be noted that some of these problems still persist in a number of African countries. The result has been, as it is still in these countries, that the demographic and social contents of African development plans were - and are - fragmentary.

#### a) Past uses of population projections in African development plans: A Cross-sectional Analysis

45. A paper on the demographic contents of African development plans presented at the African Population Conference in Accra, Ghana, in 1971, reported that the then existing development plans: (a) focussed unduly on the size of the population to the neglect of other characteristics of the population such as high fertility, dependency ratio and the rate of growth of the population, (b) population issues were not considered in their totality, and (c) detailed national, sub-national and sectoral projections were usually not included.<sup>28/</sup>

46. A study of development plans of the 1960s of Less Developed Countries (LDCs) by Stamper, similarly concluded that, (a) most countries used very little demographic data in their plans, and (b) most of the plans did not make provision for the consequences of short-term population growth nor projected future needs.<sup>29/</sup>

---

<sup>27/</sup> United Nations, Population and Development Modelling, Proceedings of the United Nations/UNFPA Expert Group Meeting on Population and Development Modelling, Geneva, 24-28 September 1979. (New York: 1981).

<sup>28/</sup> ECA, "A Review of the Demographic Content of African Development Plans," E/CN.14/POP/50, Addis Ababa: November 1971.

<sup>29/</sup> B.M. Stamper, "Population Policy in Development Planning," Report on Population/Family Planning, No. 13, 1973.

47. Stamper in another study, a comprehensive review of twenty-two African development plans of the late 1960s and early 1970s, estimated that 64, 54 and 59 percent included information on projections of future population size, future school-age and working-age populations, respectively.<sup>30/</sup>

48. The situation appears to have further improved according to a recent study based on an in-depth analysis of a select number of African development plans of the 1970s and 1980s, (table 2). One finding of the study reported in table 2 was that, all the development plans included information on the rate of population projections and estimates of the school-age population, respectively.<sup>31/</sup>

49. An assessment of the methodology (for e.g. the type of projection technique used and assumptions about population changes) is difficult since this topic is hardly discussed in the plans. However, a review of some of the plans came out with the following findings:

i) A smaller number of countries did not use nationally prepared projections. Rather, projections prepared by the United Nations were utilised. For example, in the Gambia, for the 1980/81 - 1985/86 plan estimates of the future sizes of the population from the UN 1978 assessment, while in Sierra Leone, for the 1974/75-1978/79 National Development plan the medium variant for 1960-1965, were used; and

ii) For a number of countries, global projections (totals only) were mostly used since the concern about population was with calculating the target GDP per capita and estimating plan targets.

b) Uses of Population Projections in the National Development Plans of Selected African Countries

50. In this sub-section of the paper four African development plans: Botswana, Cameroon, Kenya and Lesotho - are reviewed with respect to their uses of population projections. The findings of the content analysis should complement those of the above cross-sectional analysis.

a) BOTSWANA: The National Development Plan, 1985-1991<sup>32/</sup>

51. In this plan, extensive use was made of population data such as population projections, derived from the 1984 population census. However, with reference to population trends, only long-term implications were considered, since the planners argued that in the short run, population sub-groups- such as children entering primary school in the five years from the beginning of the plan period- were given.

---

<sup>30/</sup> B.M. Stamper, Population and Planning in Developing Nations (New York: The Population Council, 1977), chapter 1.

<sup>31/</sup> ECA, "Integration of Population Variables and Policies in Development Plans," (ECA/PD/WP/1985/12) Addis Ababa: Sept. 1985.

<sup>32/</sup> Republic of Botswana, National Development Plan, 1985-1991 (Gaborone- 1985).

Table 2

POPULATION PROJECTION INFORMATION INCLUDED IN SOME RECENT  
DEVELOPMENT PLANS OF ECA MEMBER STATES

Country and period of development plan (no. of plans = 15)	Population Projection Information included					
	Pop. Growth Rate	Estimates and Projections of				
		Total Population	Rural Population	Urban Population	Agric. Population	School Enrolment
<u>Egypt:</u>						
1980-1984	X	X				X
1982-1986	X	X	X	X		X
<u>Ethiopia</u>						
1984-1993	X	X	X	X	X	X
<u>Kenya</u>						
1979-1983	X	X	X	X	X	X
1984-1988	X	X	X	X	X	X
<u>Lesotho:</u>						
1975-1980	X			X	X	X
1980-1985	X			X	X	X
<u>Nigeria</u>						
1975-1980	X	X			X	X
1981-1985	X	X			X	X
<u>Tanzania</u>						
1976-1981	X	X	X	X	X	X
1981-1986	X	X	X	X	X	X
<u>Tunisia</u>						
1977-1981	X	X	X	X		
1982-1986	X	X	X	X	X	X
<u>Zambia</u>						
1972-1976	X	X	X	X		
1979-1983	X	X	X	X		
<b>TOTAL</b>	<b>15</b>	<b>13</b>	<b>10</b>	<b>12</b>	<b>10</b>	<b>12</b>

Source: Economic Commission for Africa, "Integration of Population Variables and Policies in Development Plans in Africa," ECA/PD/WP/1985/12 September 1985

52. The plan utilizes a macro-economic model based on a revised input-output model prepared in 1976/77, whose revision for use in the present plan did not take into account changes in population factors.

53. The special section of the plan which examined the long-term implications of population trends (1981-2011) focussed on the following population sub-groups: school-age and working-age as well as the total population. Population estimates and projections were presented for these three population groups according to three variants, medium, low and high, based on which the following conclusions were made.

i) The planners argued that the economy had to expand faster than the population if a sustained increase in average standards was to occur. Explicitly, they reasoned that a 3 per cent per annum population growth by the medium variant, instead of 2.4 per cent by the low variant, required 25 per cent more economic growth simply to keep per capita incomes constant; and

ii) On the implications of the growth of the school-going population the planners noted that the difference between the high and low projections translated into a requirement for an extra 66,000 primary and junior school places by the year 2001. The core of the problem they noted was the high rate of growth of the school-age population, which, at 3.6 per cent per annum was high because of the young population even by the low variant.

iii) Overall, two major conclusions were arrived at:

a) that in all conceivable scenarios population growth would necessitate very rapid economic growth if living standards were to improve appreciably; and (b) that population growth rates under the low variant would make the long run tasks of achieving Botswana's development objectives less difficult.

b) CAMEROON: The Fifth Five-Year Economic, Social and Cultural Development Plan 1981-1986

54. The plan has a chapter entitled: "The Population of Cameroon and its Growth Prospects during the fifth Plan"<sup>33</sup> which made extensive use of the 1976 population census results in discussing the various implications of population trends during the plan period.

55. Specifically, estimates and projections of the population within the age groups, up to 4, up to 5, 6-14, for the periods 1976, 1981 and 1986 were used to review the implications of population trends during the plan period, 1981 to 1986.

56. Three major implications of population growth were elucidated by the planners, namely: (i) that the anticipated growth in the population structure, in the sense that it will grow younger, would entail an increase in responsibilities of each working person, in such areas as education, training, health, and in general, the provision of decent standard of living conditions; (ii) that the problems of

33/ Cameroon, The Fifth Five-Year Economic, Social and Cultural Development Plan, 1981-1986 (Yaounde: 1981).

migration and urbanization brought out by the analysis of the data on these subjects called for more rational organization of urban and rural areas during the fifth plan period; and (iii) the problems of increasing dependence burden was emphasised.

c) KENYA: Development Plan, 1979-1983<sup>34/</sup>

57. At the time of the preparation of the plan, the fourth development plan of the country, the planners and other government policy makers had at their disposal the results of two decennial post-independence censuses and a series of demographic surveys. Information from these on population dynamics had drawn attention to the problems of high rates of population growth.

58. Consequently, the implications of high population growth with respect to employment creation, primary education, housing, medicare and general levels of living, were assessed. In particular the consequences of population for the school-age and working-age population along with the populations aged, under 15 and over 65, were evaluated through alternative projections - constant and declining birth rates - between 1983 and 2000.

59. The major policy recommendation that emerged from the analysis was that the Government ought to adopt policies for the reduction of birth rates during the plan period.

d) LESOTHO: Third Five-Year Development Plan 1980-1985<sup>35/</sup>

60. The plan relied on the results of the 1976 population census for most of the population data used, including population projections. One of the most revealing demographic information that emerged from the results of this census was that nearly one-third of the economically active population was working in South Africa.

61. An underlying factor behind the out migration, the planners noted, was the high rate of population growth. In this context, they pointed out that the fast rate of growth of the labour force during the 1980-85 plan period was creating problems in the provision of school places and health care. Specifically, projections of the labour force for the plan period, 1980-85, estimated an increment of 77,000 potential workers, which was far above their expected demand from the migrant and domestic labour markets.

62. Also, use was made of projections of the population of town dwellers from information contained in the 1976 census, to guide the formulation and implementation of urban development policies.

---

<sup>34/</sup> Republic of Kenya, Development Plan 1979-1983 (Nairobi: 1979)

<sup>35/</sup> Kingdom of Lesotho, Third Five-Year Development Plan, 1980-1985 (Maseru: 1980).

63. Three major conclusions emerge from the analysis of the uses of population projections in national development plans in African countries:

i) A growing number of African countries include population projections in their national development plans. This development has been made possible partly by the increasing realization on the part of a number of countries, of the importance of population factors in development and partly by the recent availability of data especially from population censuses.

ii) The implication of population trends for social and economic development mainly addressed by current African plans relates to population size having an adverse effect on aggregate economic growth. Also the consequences of population trends on, for example, school-age and the working-age populations are now being addressed by development plans.

iii) Overall, however, African development plans do not fully integrate population factors such as population projections. This is due to two major factors, namely - planning models do not cater for the ~~exogenous~~ treatment of population; and the poor understanding of the relationship between population and development variables.

#### 4. PROBLEMS WITH POPULATION PROJECTIONS IN AFRICA

64. Population projections are numerical estimates of future populations, national, subnational or sectoral, usually derived by extrapolating past and present trends. The simplest method of estimating future populations, the mathematical method, involves the use of constant growth rate functions. Earlier population projections of a number of African development plans, because of data problems, were derived by the mathematical method.

65. Currently, the component method is the preferred technique of projections. Unlike the mathematical method, this approach uses past and present trends in the major components of population change-fertility, mortality and migration - in deriving future populations. In essence, the method begins with the age-sex distribution of an initial base-year population, normally from a population census, applies age- and sex-specific fertility, <sup>36/</sup>mortality and migration rates to each sub-group to obtain future populations.

66. One of the reasons for the failure of African countries to incorporate population projections in African development plans is related to difficulties in preparing population projections, especially those by the component method. These problems take two basic forms; (a) the inadequacy and inaccuracy of the base-year data, and (b) poor understanding of the relationship between population trends and development variables.

<sup>36/</sup> For more information on the methodology of the component projection, especially the UN Population Division component-cohort technique see, ECA/RIPS, Report of the Regional Training Workshop on Demographic Estimates and Projections in Africa, Vol. 1 (RAF/84/P28 (March: 1986)).



67. At the outset it should be noted that the accuracy of, for example, the base-year age-sex data has an important effect on the outcome of the projection results. For instance, an error in the amount of females in the child-bearing ages will result in errors in the projected numbers of births as well as the future numbers of births as well as the future numbers of youths. Also, errors in the estimates of persons in the older ages result in significant errors especially for backward projected age-distributions. Consequently, "it is scarcely no exaggeration to say that the age-sex distributions are the foundations on which the entire edifice of modern demography of estimation and projection is built."<sup>37</sup>

68. However, for a variety of reasons such as culture and the recency of demographic data collection experience, the age-sex data from African censuses, for example, the 1970 and 1980 rounds have been found to be severely affected by errors of misreporting, under and over-enumeration.<sup>38/</sup> Thus, a major element of the projection exercise of African countries, involves the evaluation and correction of the age-sex data.

69. A second problem pertains to the use of vital rates derived from retrospective questions from demographic sample surveys and population censuses, in making assumptions about population dynamics. Answers to retrospective questions are usually susceptible to errors like memory lapses and time displacement of events, which compromise efforts at detecting trend patterns in vital rates.<sup>39/</sup>

70. Also, international migration data, important for projection exercises for countries like Burkina Faso, Côte D'Ivoire, Ghana and the Southern African countries of Botswana, Lesotho and Swaziland are deficient because of incomplete coverage of returns from land-border points.

71. Moreover, tabulations on small areas and small groups from population census results, needed for subnational and sectoral projections are most times not produced, partly because of coding and data processing complications and partly because of the low priority assigned to such tabulations as against aggregate tables.

---

<sup>37/</sup> Shigemi Kono, "Estimation and adjustment of Current Population and Its Sex-Age Composition," in U.N., Population Projections Problems and Solution (TCD/CEM. 81/3) (New York: 1981).

<sup>38/</sup> "Adjustment of Errors in the reported Age-Sex Data from African Censuses", Paper presented to the Fourth session of the Joint Conference of Africa Planners, Statisticians and Demographers, Addis Ababa, Ethiopia, March 1986, E/ECA/PSD.4/57.

<sup>39/</sup> W.I. Brass, "Population Data Needs for Development Planning," in S.H. Ominde and C.N. Ejiogu (eds.) Population Growth and Economic Development in Africa (London: Heinemann, 1972), p. 346.

72. Lastly, the basis for making assumptions about future trends in fertility and mortality in Africa, and elsewhere, are currently not well grounded. This is mainly due to the poor understanding of the determinants of vital rates and changes in socio-economic development.

## 5. CONCLUSIONS AND RECOMMENDATIONS

73. This paper has attempted an evaluation of the uses of population projections in African development plans and programmes. Among the major problems identified as obstacles to comprehensively incorporating population projections in African development plans and programmes were: the lack of fairly accurate demographic data set, incomplete knowledge of the role of demographic variables in planning models, limited experience in integrating population variables in development plan and poor understanding of the relationship between population and development variables.

74. Significant changes have taken place in the field of demographic data collection, especially population censuses, which have resulted in the generation of substantial demographic data in many countries. Although further improvements relating to the quality of the data have still to occur, it is fair to say that the basic set of demographic data needed for incorporating population projections in future African Development plans is available in a majority of African countries.

75. However, current economic models and planning procedures used by African planners are not capable of comprehensively integrating demographic variables in development plans. As an example, the interdependence between demographic and development variables is hardly operationalised by existing planning procedures. The treatment of population variables in African development plans has almost exclusively been with the implications of total population size, sometimes, school-age and work-age population sizes, for aggregate economic growth such as total or per capita income. Economic-demographic models which provide a more satisfactory treatment of the interdependencies between population and development variables have yet to be experimented in the formulation of African development plans.

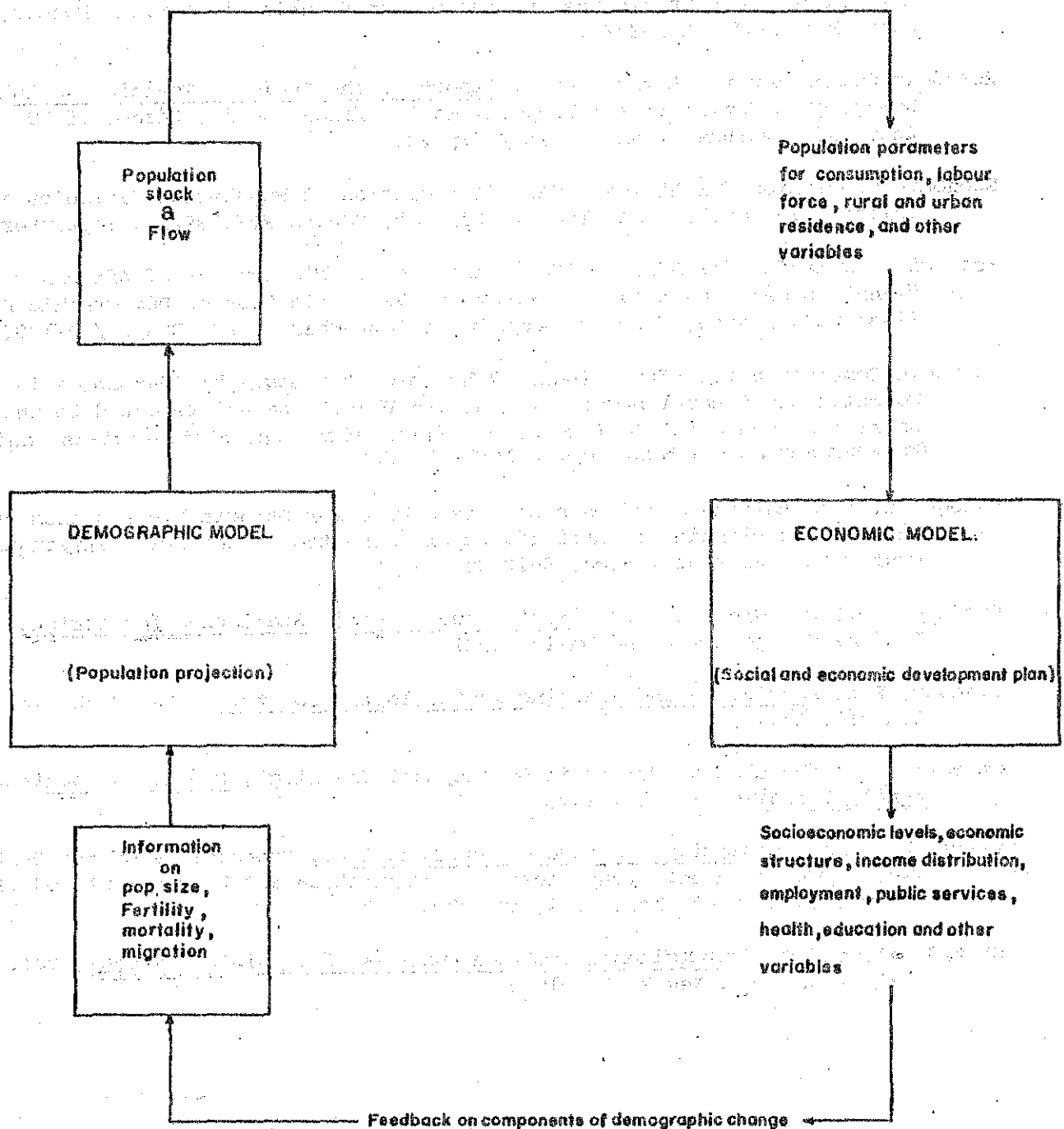
76. In the light of these conclusions, a systematic approach for integrating population projections in development plans and programmes in African countries is suggested below.

77. The first phase of the programme would involve an inventory of available demographic data. The aim is to assess gaps in the available demographic data. The second phase includes the preparation of an inventory of the types of demographic data needed for social and economic development planning. This part of the assignment should pay particular attention to the needs for national, subnational and sectoral projections. The exercise will help to reveal areas where gaps exist, thus requiring attention for improvement.

78. The third phase consists of estimating the data requirements for research on the integration of population variables in economic and social development plans and programmes and understanding of the relationship between demographic and development variables. Experimentation with constructing of, for example, simple economic-demographic models could also take place during this phase.

79. Also, in order to further enhance the integration of population projections in economic and social planning in Africa, the following suggestions are put forward, namely:-

- i) There should be more co-ordination between population data producers and planners especially during the planning of population censuses and demographic sample surveys and in the formulation of development plans;
- ii) African census offices should endeavour to minimise delays which often occur in the completion of the processing and analysis of the census results. This will enable the results of the latest census to be available, in a timely manner, for use in the formulation of current development plans;
- iii) In African countries where demographic sections or population units have not been established, provision should be made for their creation; while in those countries where they are already in existence, these institutions should be strengthened. Among the major functions of these institutions, the co-ordination of demographic studies and the preparation of population projections should be assigned high priority;
- iv) Lastly, greater use should be made by African countries of the new developments in computer technology micro-computers and software packages on population projections for the preparation of population projections.

**Figure 1. Relationship Between Demographic and Economic Models in Development planning**

SELECTED BIBLIOGRAPHY

- Anker, R., and J. C. Knowles, Population Growth, Employment and Economic-Demographic Interactions in Kenya: BACHUE-Kenya, New York: St. Martin's Press, 1983.
- Brass, W.I. "Population Data Needs for Development Planning", in S.H. Ominde and C.N. Ejiogu (eds.) Population Growth and Economic Development in Africa, London: Heinemann, 1972.
- Economic Commission for Africa (ECA), "Types of Demographic and Social Statistics Required in Development Planning in Africa", paper presented to the Working Group on Possible Approaches to the Integration of Demographic, Social and Related Economic Statistics in Development Planning in Africa, Moscow, September 1987, WG.DSS/87.
- Economic Commission for Africa (ECA), Report of the Regional Training Workshop on Demographic Estimates and Projections in Africa, Accra, Ghana, 15-29 July 1985, Volumes 1 and 2, RAF/84/p 28.
- Economic Commission for Africa (ECA), "Integration of Population Variables and Policies in Development Plans in Africa", ECA/PD/WP/1985/12, September 1985.
- Economic Commission for Africa (ECA), "The Demographic Content of African Development Plans", paper presented to Seminar on the Application of Demographic Data in Planning", Moscow, USSR, 21 August - 4 September, 1983, ECA/PD/2P/1983/10.
- Economic Commission for Africa (ECA), "The Role of Demographic Variables in the Formulation of Development Policies and Plans", paper presented to the Third Session of the Joint Conference of African Planners, Statisticians, and Demographers, 5-14 March 1984, E/ECA/PSD.3/5.
- Ejiogu, C. "The Relevance and Uses of Census Data for Demographic Research and Development Planning in Africa", paper presented at the IUSSP International Conference, Florence, Rome, 5-12 June 1985.
- Kpedekpo, G.M.C., and P.L. Arya, Social and Economic Statistics for Africa, London: George Allen and Unwin, 1981.
- Stamper, B.M. Population and Planning in Developing Countries, New York: The Population Council, 1977.
- Stamper, B.M. "Population Policy in Development Planning", Report on Population/Family Planning, No. 13, 1973.
- United Nations, Population and Development Modelling, Proceedings of the United Nations/UNFPA Expert Group Meeting on Population and Development Modelling, Geneva, 24-28 September, 1979, New York: 19
- United Nations, The Determinants and Consequences of Population Trends, Vol. 1, ST/SOA/SER.A/50, New York: 1973.