

United Nations
Economic Commission for Africa

**Assessment of Achievements of Mortality Levels,
Trends and Differentials in Relation to the
Goal of Health for All by the Year 2000
in some ECA Member States**

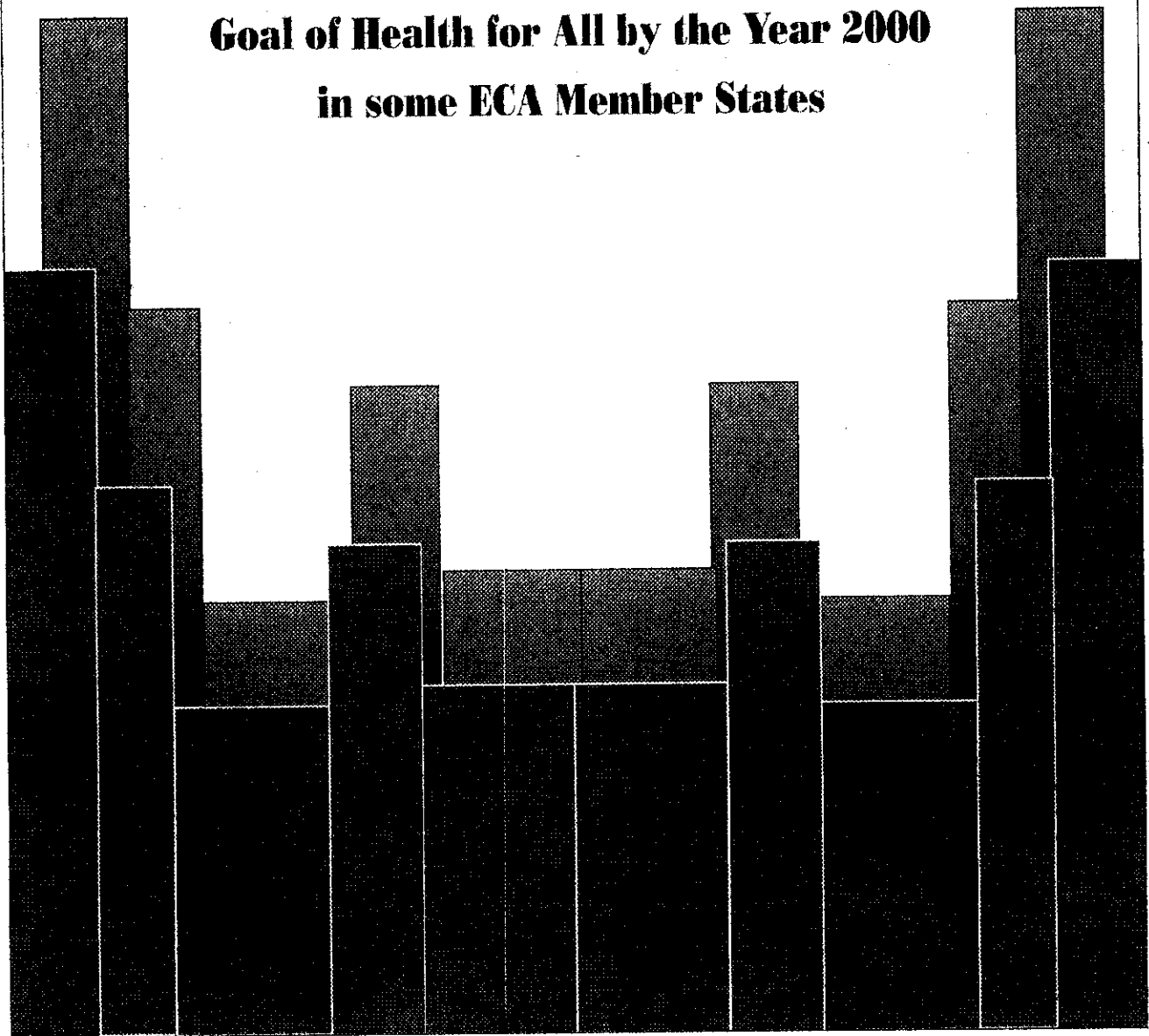
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I. INTRODUCTION

1. The period between 1960 and 1980 witnessed most countries in Africa gaining independence from their erstwhile colonial masters. These political achievements marked important changes in the social, economic, cultural and traditional developments which exerted tremendous implications on health of the people throughout Africa region and within newly independent countries, themselves.

2. The African governments, during this period and beyond became more aware of the importance of development of their countries and the role of health of the people in achieving the objectives enhancing development of their countries. It is therefore, imperative that many fora within the continent and worldwide such as the world population conference held at Bucharest in 1974 and its regional post-Bucharest held in Lusaka in 1975, the Alma Ata conference of 1978, the world population conference of 1984 held in Mexico, the KPA and the Dakar/Ngor Declarations of the second and third Africa Population Conferences respectively and most recently, the International Conference on Population and Development (ICPD) held in Cairo, in autumn 1994 and many meetings of the World Health Assembly have all emphasized the crucial role in development played by health aspect of the people.

3. For example, the Health Assembly decided in 1977 that the main social targets should be to attain by all citizens of the world by the year 2000 of level of health that will permit people to lead a socially and economically productive life, or known as 'Health For All by the year 2000'^{1/}. The contribution made by these different fora on the thinking of African governments led to according greater attention to conditions of health of the people.

4. Assessment of conditions of health, therefore became paramount, both among member States and international organizations such as the United Nations Commission for Africa (ECA). This study is the result of the concern of health component in the overall development of the

^{1/} WHO, Implementation of the global strategy for Health for All by the year 2000, Vol.1, Geneva 1993.

continent. In order to better understand the importance of social and economic concerns of development, particularly in health sector, it is necessary that studies such as this one provide critical knowledge to facilitate formulation and implementation of health development policies among African countries.

Objectives and scope of coverage of study

5. Demographic research provides greater awareness and knowledge about population problems and most invariably facilitate policy formulation and programme implementation to design workable solution. Population and development have been found to be intertwined together such that one component influences the magnitude and direction of the other. For example, the quality of life of the people is generally linked to level of development. Therefore, this means that to improve the quality of life of the people such as increasing life expectancy at birth or reducing levels of infant and child mortality most likely entails instituting development mechanisms, like increasing coverage of safe drinking water, sanitation, etc.

6. The driving force by ECA in deciding to include this programme element regarding studies on mortality and health was to enable member States of the secretariat to have greater awareness of population information necessary for integrating in the policy formulation and programme implementation of development plans. Therefore, the objectives of this study have the goals of assessing the achievements of mortality reduction efforts and provide information about likelihood of African governments to attain the goals of ideals of Health for All (HFA) by the year 2000.

7. In order to achieve this objective, demographic data from selected countries will have to be analyzed to estimate mortality levels and trends. Analysis of mortality differentials between countries will be confined to indices of mortality. However, there are other factors that would influence the pace of mortality reduction measures, like existing disease patterns and available medical technology, instituted health policies and general economic malaise, etc. For lack of

adequate data and information pertaining to these factors, it was not feasible to include them in this analysis of assessment of mortality achievements in countries covered by the study.

8. In section two of the study report, we have considered the demographic and socio-economic position, as well as health conditions of countries in West Africa selected for this analysis. The primary health care (PHC) strategies for implementation to achieve set targets of the HFA as they evolved over the years prior to the Alma-Ata Conference and thereafter are in the third section. The fourth part of the study focuses on measurement and analysis of mortality levels, trends and differentials for selected countries. Assessment of conditions of mortality and health to achieve the objectives of HFA have been synthesized and presented in part five. The study report concludes with suggestions for consideration towards achieving goals of HFA.

II. DEMOGRAPHIC, SOCIO-ECONOMIC AND HEALTH SITUATION

9. In order to be able to ascertain the capacity of countries to attain the set targets for mortality reduction by the year 2000, it is important that the exist situation of countries is known. It is therefore necessary that demographic and socio-economic trends are established for countries covered by the study. Furthermore, the prevailing conditions of health care and services should also be determined. This chapter, therefore analyzes these conditions.

A. Demographic and socio-Economic background

10. Among the components of population change there exist, increasingly, a very strong interrelationship between mortality and conditions of health. Poor environmental health conditions such as lack of adequate sanitation, safe drinking water, unhygienic living conditions, poor nutrition or inadequate food availability all have implications on health and heightened mortality levels. In most cases where levels of mortality are very high the survival chances of infants and children, in particular, pose difficult conditions of mortality and generally, reflect on levels of socio-economic development, etc.

11. In addition, studies have shown that mortality, particularly among infants and children has a fairly strong interrelationship between fertility and development. The inverse relationship being suggested is that where child mortality is very high the society tends to have high levels of fertility. The argument has been that people tend to act involuntarily to have more children, either as an insurance against expected child deaths or as possible measure to replace those that die. In countries where chances of child survival are high such that children survive to old age of their parents, levels of fertility are reduced, as well as enhanced levels of development^{2/}. In this section, the demographic and socio-economic situation of countries covered by the study has been analyzed. Table 1 presents selected demographic and socio-economic parameters of countries.

^{2/} ECA, Infant and childhood mortality and socio-economic factors in Africa (Analysis of national world fertility survey data), RAF/84/po7, Addis Ababa 1987.

Table 1: Demographic and socio-economic parameters of countries in west Africa

COUNTRY West Africa	Pop(000) (1992)	r% (1992)	CBR (1992)	CDR (1992)	TFR (1992)	% M/F(1992)	GDP\$ 1992	Adult Lit.(1992) Fem.	Total
Benin	5042	3.0	46	16	6.2	49/52	432	16	23
Burkina Faso	9537	2.9	47	17	6.5	47/50	306	9	18
Cote d'Ivoire	12841	3.6	45	12	6.6	53/59	788	40	54
Gambia	929	2.9	47	20	6.5	44/45	360	16	27
Ghana	15824	3.2	44	12	6.1	53/57	436	51	60
Guinea	6048	2.8	48	20	6.5	44/44	530	13	24
Guinea-Bissau	1022	2.0	46	25	6.0	38/39	215	24	36
Liberia	2719	3.0	44	14	6.2	53/57	450	29	39
Mali	8962	2.9	50	18	7.1	47/50	315	24	32
Mauritania	2082	2.8	49	18	6.8	46/50	573	21	34
Niger	8171	3.3	52	19	7.4	44/48	287	17	28
Nigeria	101884	2.9	43	14	5.9	50/53	300	39	51
Senegal	7845	2.7	43	16	6.1	46/49	801	25	38
Sierra Leone	4354	2.6	48	22	6.5	40/45	160	11	21
Togo	3899	3.2	45	13	6.5	53/56	413	31	43
AFRICA	501932	3.0	45	15	6.5	49/52	340	38	50

Source: World Bank, Better Health in Africa, Washington D.C., 1994; UNFPA, The State of World Population 1995, New York.

12. Data in table 1 present different demographic and socio-economic information which has implications for health in countries of West Africa subregion. In terms of population size, Nigeria is by far the most populated with a population of over 100 million, follow by Ghana and Cote d'Ivoire at about 15 and ten per cent of its population, respectively. The rest of the countries have population of less than ten million in each one of them. The Gambia has the smallest population size of about one million, only. It appears that almost all countries in the subregion have fast growing population growth rates of about three per cent per year.

13. The other demographic indices in the table are indicative of existence of very high levels of fertility and mortality. The crude birth rates (CBR) in these countries are all more than forty birth per 1000 population per year. However, two countries, Mali and Niger seem to have highest levels of fertility because the estimates of CBR were 50 and 52, respectively. The rest of the countries had their estimates of CBR in a narrow range lying between 43 and 49 inclusively. It is not surprising therefor, that total fertility rates were six or more children.

14. If we consider the crude death rate (CDR) as a measure of mortality among the countries in the subregion, it is therefore indicative that there exist very high levels of mortality. However, there are countries with CDR greater or equal to twenty deaths per 1000 population. The worst hit among these are Guinea-Bissau (with CDR of 25), Sierra Leone(22), and Gambia and Guinea with 20 each. These indicators of high levels of fertility and mortality classify these countries among those with short span of life. The estimates of life expectancy at birth (e_0) cluster closely between 44 and 50 years for males and between 49 and 57 for females. However, there are e_0 s on both extremes. Cote d'Ivoire showed highest estimates of e_0 for males and females and Guinea- Bissau having the least estimates of life expectancy at birth for males and females of less than forty years.

15. The socio-economic indicators in the table throw some light about the position of these countries. The values of gross national product per capita in United States Dollars (GNP) for 1990/91 are indicative that these countries lie with the range of poor developing countries. Except for Senegal, Cote d'Ivoire and Mauritania, which had GNP greater than for the Africa

region, the rest of countries had GNP of about US\$ 340 or there about. This indicator, despite its limitations, provides a measure of comparing performances of African countries in the subregion. It is apparent that as most African countries have agricultural based economies characterized by mono-export raw or semi-processed products have little infrastructure for manufacturing industries. Therefore, African countries still remain lagging behind many developing countries of Latin America or south west Asia.

16. The other socio-economic indicator which has implication for health included in the table is the adult literacy index. The definition of literacy varies between countries and among societies. In this report it is understood to mean the proportion of the population fifteen years old and over who can read and write. The implication, as many studies have shown that maternal education is associated with chances of child survival in many countries and societies. Educated women in all societies in Africa have higher chances of child survival or lower estimates of child mortality than children of women without education^{3/}. If the index of adult literacy rates for females can be used as proxy for educational status, data in the table is indicative of very low levels of education among women in the west Africa subregion. However, there are large differences among the different countries, such that Ghana has the highest level of female literacy, and indeed the highest for the total population in the subregion. On the other hand, Burkina Faso, Sierra Leone, Guinea, the Gambia and Niger have very low rates of literacy implying very low educational status among women in these countries. In the next section, we present the way mortality and health issues evolved among African countries to associate themselves with international community to address concerns on mortality.

^{3/} ECA, *op.cit*, 1987

UN, Socio-Economic Differentials of Child Mortality in Developing Countries, New York 1985.

B. The health situation of countries

17. The world population conference which was held in Bucharest in Romania in 1974 came up with the recommendations usually referred to as the World Population Plan of Action (WPPA) to which many African countries ascribed. As regarding mortality and health, the WPPA state that all countries should strive to reduce their levels of mortality. Few years later in 1977, the World Health Organization (WHO) at its World Assembly decided to request all countries by the year 2000 to attain highest levels of health to permit them to lead a productive life. This recommendation was later referred to as the doctrine of 'Health for All'.

18. Among the countries in Africa, efforts have been registered about their concern for high levels of mortality and poor conditions of health. In 1984, at the second African Population Conference held in Arusha Tanzania, important recommendations regarding mortality and health were adopted. These recommendations are usually referred to as the Kilimanjaro Programme of Action and Self-reliant Development (KPA). The KPA called on African countries to, among other issues, (1) to intensify efforts to reduce current high levels of infant, childhood, and maternal morbidity and mortality; (2) to review and intensify national health services systems to attain the objectives of the Alma-Ata Declaration which would encompass the aims of the primary health care (PHC); (3) for governments to provide safe drinking water, improved sanitation and nutrition as principal means of reducing high levels of morbidity and mortality. In addition, (4) governments were expected to integrate health policies and programmes in other sectors of development like education, employment, housing and regional planning^{4/}.

19. Almost a decade after the Arusha conference, the third Africa Population Conference was held in Senegal in latter part of 1992. As a clear transparent of the KPA, African governments reiterated the concerns expressed in the KPA and agreed on defined targets to achieve in order to partly attain objectives of HFA and alleviate poverty among member States. The Dakar/Ngor

^{4/} ECA, Kilimanjaro Programme of Action for African Population and Self-Reliant Development, Arusha U.R.Tanzania, 1984.

Declaration (DND) that came out as the recommendations of the Conference spelt out the aims and objectives directed at African governments to improve conditions of health and hence reduce current high levels of mortality, especially among infants, young children and their mothers. Specifically, the DND requested African countries, to implement programs (1) to reduce population growth from 3 per cent in 1992 to 2.5 per cent by the year 2000; (2) to increase life expectancy from 45 years to 55, infant mortality rate of less than 50 per 1000 live births, under-five mortality rate of 70 or less by the year 2000 and consequently to reduce by half maternal mortality from 1990 levels. The DND also encourages governments to integrate population policies and programmes into development strategies and plans^{5/}.

20. About two years after the Dakar conference, the International Conference on Population and Development was held in Cairo in September, 1994. Regarding health, morbidity and mortality, the ICPD recommended a very wide range of activities designed to reduce high levels of morbidity and mortality, particularly for young children and women, by the turn of the century and beyond. In order to achieve the aims of the WPPA and the Declaration of Alma-Ata adopted by the International Conference on Primary Health Care in 1978 and therefore the ideals of HFA, it was found necessary to emphasize action in the primary health care and health-care sector. Thus all countries were required to make access and attain full coverage of basic primary health care and health promotion for reducing morbidity and mortality. It was, accordingly recommended that countries should aim at achieving greater life span and reducing infant, child and maternal morbidity and mortality through embracing the package of PHC as the strategy for achieving goals of HFA. Measures to improve the quality of life and health should have highest priority by ensuring a safe and sanitary living environment and ensuring access to clean water and sanitation. In this connection governments should monitor regularly the environmental problems affecting health, particularly that of vulnerable groups in rural and urban areas.

^{5/} UNFPA, Making a difference: Twenty-five years of UNFPA experience. New York 1994.

UNECA, Dakar/Ngor Declaration on Population, Family and Sustainable Development, E/ECA/POP/APC.3/94/1, Addis Ababa 1992.

21. For the sector of child survival and health, the ICPD observed that improvements have been slower in sub-Saharan Africa child survival chances were still low as 1 in 10 children born alive would die during first year of life. Poverty, malnutrition and inadequate or lack of sanitation and health facilities were some of the factors associated with high infant and child mortality. In some African countries, civil strife and wars, short birth intervals, lack of spacing, early and late pregnancies also contribute to high infant and child morbidity and mortality rates. In addition, HIV infection can be transmitted from mother to child before or during childbirth, and young children whose mothers die are at a very high risk of dying themselves at a young age.

22. Over the years, situation of health in Africa has not changed much for the better. data on health and development indicators for the beginning of the 1990 decade suggest that adult literacy for females was below 50 percent in the continent, particularly for countries in west Africa. Burkina Faso (9 %) followed by Sierra Leone (11 %), Guinea (13 %), Gambia (16 %) and Niger (17 %) were too far below the average of 38 % for the region. It was only Ghana (51 %), Cote d'Ivoire (40 %) and Nigeria (39 %) were above the literacy rate for Africa at 38 %. Comparing these rates to those for the world as a whole with 55 % or for developed countries with 95 %, it is clear that adult literacy rates for women are far below the expectations^{9/}.

23. Other indicators of health status also point to the fact that Africa still lags behind other regions of the world. The percentage births attended by health personnel were only 34 % compared to 55 % for the world or 42 % for all developing countries. In west Africa, births attended by trained health personnel were below 50 % except for Cote d'Ivoire, Gambia and Togo. Similarly, only a small proportion of GDP was spent on health. For Africa it was about 4.5 % compared to 8 per cent for the world. In west Africa countries such as Sierra Leone (2.4 %) and Nigeria (2.9 %) spent the least amount allocated to health out of the respective GDP. Coverage of access to safe water, sanitation and health services remain far below that for the

^{9/} World Bank, Op.cit, 1994

world as a whole or developing countries as a group. Immunization coverage of tetanus, BCG, DPT3 POL3 and measles fall below that for the world or the group of developing countries^{2/}.

24. Against these sombre health conditions among the countries in west Africa is the position of the targeted diseases for the expanded programme of immunization (EPI). The specific diseases that fall under EPI are measles, tetanus, polio, tuberculosis, pertussis and diphtheria, all of which are commonly referred to as childhood diseases that are largely preventable^{3/}. Latest data about coverage of immunization for some countries in west Africa are presented in table 2.

^{2/} World Bank, Op.cit, 1994

^{3/} Richard G. Feachem and Dean T. Jamison, Disease and mortality in sub-Saharan Africa, pages 173-186, World Bank Washington, 1991.

Table 2: Percentage Coverage of Health Status Access to Water, Sanitation, Health care Services and immunization indicators

COUNTRY/REGION West Africa	HEALTH STATUS ACCESS INDICATOR 1985-1990			IMMUNIZATION COVERAGE 1991				
	SAFE WATER	SANITATION	SERVICES	TETANUS	BCG	DPT	POLIO	MEASLES
Benin	50	41	32	60	81	68	68	60
Burkina Faso	67	10	49	26	60	38	38	36
Cote d'Ivoire	83	36	60	35	47	42	42	47
Gambia	77	77	30	77	97	85	89	87
Ghana	56	30	76	33	99	51	51	65
Guinea	33	24	32	25	47	35	35	33
Guinea-Bissau	25	21	80	44	94	63	63	52
Liberia	50	15	34	20	62	28	28	55
Mali	23	23	27	9	68	34	34	39
Mauritania	66	...	40	40	60	26	26	29
Niger	59	9	30	44	26	17	17	23
Nigeria	32	13	67	58	72	58	57	59
Senegal	53	32	40	37	85	51	53	48
Sierra Leone	43	43	30	77	71	56	57	54
Togo	70	23	30	83	91	61	61	62
AFRICA	37	26	54	30	61	45	45	45
World	81	66	91	33	88	82	84	80

Source: World Bank, Better Health in Africa, Washington D.C., 1994, and Compiled from country database at PanAfrican Centre for Emergency preparedness and response, WHO, Addis Ababa.

25. Table 2 presents data on vaccine uptake for the six childhood diseases excluding pertussis. These diseases are usually referred to as childhood diseases, they are a targeted group by EPI under direct supervision of WHO because they can be prevented by vaccination. Africa is associated with low vaccine uptake compared to other regions^{9/}. Data in table 2 indicative of this low vaccine uptake, particularly for these countries in west Africa. Even though these data are affected by under-notification, hospital based and scarce, available information is that they are associated with deaths of 17 per cent of all children. Measles being the biggest killer followed by pertussis and TB^{10/}.

26. From table 2 it appears that immunization against neonatal tetanus was greater in Togo and Benin and lowest in Ghana. Coverage for diphtheria (DPT) was almost even in all the countries, with Nigeria, Togo and Ghana covering more than half of total children having been immunized. For measles which is a biggest killer of the childhood diseases less was done in Benin and Cote d'Ivoire to prevent childhood deaths from the viral disease. Polio preventive measure were accorded a lot of attention in all countries except for Benin and Cote d'Ivoire. The fact that TB is closely associated with the HIV pandemic entails greatest effort to immunize children and adults in order to contain other health problems. It is encouraging that universal approach to immunization of all children against TB was almost achieved in some countries such as Ghana, Togo, Senegal or Nigeria.

27. Since conditions of health have been of great concern by governments and international organizations over many decades after the second world war, efforts were taken to formulate health policies which would influence mortality reduction. Chapter three discusses the primary health care strategy for achieving global goals for health for all by the year 2000.

^{9/} Richard G. Feachem and Dean T. Jamison, OP.CIT., page 185, Washington, 1991

^{10/} Richard G. Feachem and Dean T. Jamison, OP.CIT., page 173, World Bank, 1991

III. PRIMARY HEALTH CARE AND HEALTH FOR ALL

28. In 1978, the WHO, UNICEF and others organized a conference at Alma-Ata in the former Soviet Union and now called Kazakhstan. That conference was the milestone in the founding of the doctrine referred to as the HFA.

A. Primary health care strategy

29. The strategy for implementing the recommendations of the conference regarding achieving the specific targets for HFA was formulated in 1981. Since the efforts have been undertaken to implement the strategy, by all countries. Therefore, indicators of monitoring and the implementation of primary health care (PHC) programme were agreed upon. Over the years, these global indicators have been reformulated and the following indicators have been agreed upon by all countries, including those in west Africa.

1. HFA endorsement by countries at highest levels
2. Community involvement at all levels
3. Percentage of GNP spent on health, nearly 5 per cent is recommended
4. Percentage of national health expenditure devoted to local health services
5. Resources for primary health care with equitable distribution
- 6.1 Aid received for health, not necessarily documented thoroughly by countries in Africa
- 6.2 Aid given for health, as above, this is not thoroughly documented
- 7.1 Safe water improving mostly in urban areas
- 7.2 Adequate excreta-disposal facilities, mostly urban population coverage
- 7.3.1 Percentage of infants immunized against six EPI diseases
- 7.3.2 Immunization of infants by DPT vaccine
- 7.3.3 Immunization of infants by measles vaccine
- 7.3.4 Immunization of infants by poliomyelitis vaccine
- 7.3.5 Immunization of infants by BCG vaccine

- 7.4 Immunization of pregnant women by tetanus toxoid vaccine
- 7.5 Local health services coverage of population
- 7.6 Prenatal care coverage by trained personnel
- 7.7 Childbirth attendance coverage by trained personnel
- 7.8 Infant care coverage by trained personnel
- 7.9 Contraceptive use of women of childbearing age
- 8.1 Birth weight percentage of newborn weighing at least 2500 grammes
- 8.2 Acceptable weight for age percentage of all children
- 9.1 Infant mortality rate
- 9.2 Maternal mortality rate
- 9.3 Under-five mortality rate, q_5
- 10 Life expectancy at birth for both sexes
- 11 Adult literacy rate
- 12 Per capita gross national product

30. These indicators listed above constitute the primary health care strategies which are regularly reviewed to facilitate implementation of projects to achieve goals of health for all by the year 2000, among all countries, including those in west Africa.

B. Health For All goals

31. At the same time the global targets for achieving the goals of HFA were determined to be the following:

- 1. All people in every country will have ready access at least to essential health care and to first level referral facilities
- 2. All people will be actively involved in caring for themselves and their families as far as they can and in community action for health

3. Communities throughout the world will share with governments responsibility for the health care of their members
4. All governments will assume overall responsibility for the health of their people
5. Safe drinking water and sanitation will be available to all people
6. All people will be adequately nourished
7. All children will be immunized against the major infectious diseases of childhood
8. Communicable diseases in the developing countries will be of no greater public health significance in the year 2000 than they are in developed countries in the year 1980
9. All possible ways will be applied to prevent and control noncommunicable diseases and promote mental health through influencing life styles and controlling the physical and psychosocial environment
10. Essential drugs will be available to all

32. These global indicators and the targets have been endorsed at highest level of governments to be implemented in order to achieve set targets of the HFA^{11/}. In this study the analysis limits itself to assessing achievements for mortality reduction targets for the year 2000. Therefore, some global indicators and targets listed above will constitute relevance of application in the study.

^{11/} WHO, Implementation of the Global Strategy for Health for All by the Year 2000 Second evaluation, Volume 1 pages 37-48 and pages 167-174, Geneva, 1993.

33. More specifically, we should analyze global indicators concerning endorsement of PHC at highest level of government, those associated with coverage of safe water and sanitation, immunization coverage and demographic indices such as life expectancy at birth, e_0 , infant mortality rate and probability of dying before age five, q_5 . While implementation of non-demographic indicators were to be 100 per cent implementation by all countries, specific value targets were agreed upon regarding e_0 to be 60 years or greater, IMR of 50 or less by 1000 live births and q_5 of 70 or less per 1000 child population under five years of age. At most recent African Population Conference the e_0 target was revised to be at least 55 years^{12/}.

34. Since it was the consensus that in order to meet targets for the HFA, monitoring of the indicators was critical in assessing implementation of the PHC. These indicators have frequently been reviewed and the list extended to include many more. The WHO have since started to evaluate and assess the implementation of the HFA by all countries. The ECA, in its concern for development of the Africa region has been undertaking studies to assess achievements of mortality reduction in relation to the goal of Health for All among African countries. The section that follows analyzes mortality in order to be able to assess current position which will be projected to target date to facilitate achievements.

IV. MEASUREMENT AND ANALYSIS OF MORTALITY

35. Indices of mortality, especially infant and early child mortality under age 5, as well as life expectancy at birth e_0 are useful as key indicators of development as well as being used to measure success in health policy formulation and implementation. The Alma Ata Declaration of ideals of HFA recommended for monitoring and assessing achievements of attaining the targets of HFA are the life expectancy at birth, e_0 , infant mortality rate IMR, child mortality by age 5 q_5 and the maternal mortality rate, MMR. In this analysis, we have often used the e_0 and q_5 . In order to illustrate interpretation of results some ratios like proportions of coverage of population

^{12/} ECA, Dakar/Ngor Declaration on Population, family and Sustainable Development, Addis Ababa, 1992.

such as immunization, access to safe drinking water or sanitation will also have to be applied. Sources of mortality data and evaluation of these data are covered in the section that follows.

A. Mortality data sources and quality

36. In countries where registration of vital events is complete, mortality data are reliable and can be used to derive estimates of indices of mortality such as infant mortality rates or for young children under five years of age, as well as estimates of life expectancy at birth and other ages. However, majority of countries in Africa and particularly in west Africa, vital registration system does not exist at all and where vital events are recorded, the system is considered to be incomplete. Therefore, mortality data had to be obtained from other sources.

37. The advent of independence among African countries in the subregion consolidated the practice and tradition of conducting censuses of population. However, only very few countries have followed this practice. Population censuses have continued to be the major sources of mortality data in countries such as Burkina Faso (1985 only), Ghana (1960, 1970 and 1984 censuses), Liberia (1974 only), Mali (1976 only), Nigeria (1991 only), and Sierra Leone (1974 , 1984 censuses). Information gathered in this different series of censuses have provided data that have been used for mortality analysis of respective countries.

38. However, the majority of countries in west Africa have conducted more demographic surveys than censuses. As demographic surveys, like other surveys are cheaper to pay costs and easier to conduct, many more countries in west Africa rely on surveys as sources of mortality data. Most recently there have been two internationally conducted surveys, the World Fertility Survey (WFS) and the Demographic and Health Surveys (DHS), both of which have standard and comparable socio-economic and demographic data. Nearly all countries in the subregion

participated in one or both of these surveys. For example, Benin (WFS 1982), Cote d'Ivoire (1980 WFS), Ghana (1979 WFS, 1988 DHS), Liberia (1986 DHS), Mali (1987 DHS), Niger (1992 DHS), Nigeria (1981 WFS, 1990 DHS), Senegal (1978 WFS, 1986 DHS) and Togo (1988 DHS).

39. The fact that these mortality data we have used here come from similar sets of demographic surveys, such as WFS and DHS, enriches the quality of data for this analysis. It also makes it possible to ascertain the reliability of estimates of indices of mortality. However, it is important to test reliability of reporting by women about information on live births and number of dead children. The simple procedure is to calculate the average proportion of live births (P_i) and dead children (D_i). Data are regarded as reliable if the P_i and D_i values increase progressively by advancing ages of women^{13/}.

40. Data presented in table 3 indicate strongly that reporting of parity information was reliable in all the countries. However, the increasing pattern demonstrated by either the P_i or the D_i values does not reveal discrepancy in reports by individual groups of women. Secondly, we do not know the magnitude or the size of data reporting errors among women in different countries.

^{13/} Brass, et al, Demography of Tropical Africa, Princeton University Press, 1968.

Table 3: Average Parity and Proportion of children dead by age of women and country.

COUNTRY	AGE GROUPS OF WOMEN BY AVERAGE PARITY AND PROPORTION OF DEAD CHILDREN													
	15-19		20-24		25-29		30-34		35-39		40-44		45-49	
	P _i	D _i	P _i	D _i	P _i	D _i	P _i	D _i	P _i	D _i	P _i	D _i	P _i	D _i
BENIN	0.29	0.138	1.53	0.183	3.12	0.186	4.72	0.231	5.75	0.257	6.06	0.309	6.27	0.316
BURKINA FASO	0.307	0.143	1.668	0.173	3.154	0.198	4.420	0.212	5.588	0.260	6.082	0.304	6.310	0.329
COTE D'IVOIRE	0.506	0.175	1.909	0.163	3.337	0.193	4.740	0.210	5.865	0.238	6.726	0.271	6.857	0.318
GHANA	0.22	0.07	1.25	0.14	2.65	0.15	4.18	0.16	5.47	0.16	6.58	0.18	7.25	0.22
LIBERIA	0.5	0.184	1.8	0.213	3.2	0.236	4.2	0.226	5.3	0.259	5.9	0.264	6.8	0.308
MALI	0.63	0.238	1.90	0.247	3.39	0.245	5.01	0.291	5.97	0.323	6.98	0.360	7.14	0.396
NIGERIA	0.35	0.143	1.79	0.151	3.21	0.153	4.32	0.150	5.07	0.179	5.13	0.220	5.84	0.235
SENEGAL	0.32	0.153	1.57	0.171	3.09	0.201	4.74	0.215	6.17	0.269	6.83	0.281	7.27	0.297
SIERRA LEONE	0.750	0.315	2.102	0.335	3.301	0.360	4.311	0.394	4.931	0.411	5.017	0.444	5.165	0.460
TOGO	0.26	0.11	1.38	0.12	2.87	0.15	4.60	0.18	5.73	0.19	6.89	0.22	7.28	0.23

Source: Kenneth Hill and Abdo Yazbeck, Trends in Child Mortality, 1960-90: Estimates for 84 Developing Countries, World Bank Background Paper Number 6, October 1994
U.N., Child Mortality since the 1960s A Database for Developing Countries, New York 1992

B. Measurement and analysis of mortality

41. In this report we utilized average parity and proportion of children dead in our analysis of mortality among countries in west Africa. These were the only data we considered to be most reliable for comparative analysis and measurement of mortality. In addition, our interest of measurement of mortality was to derive estimates of early age mortality, especially for infant mortality rates (IMR) and that for all children under age five q_5 which are the recommended indicators used for monitoring and assessing achievements of HFA.

42. The relevant mortality data suitable for this comparative analysis of mortality in the subregion are presented in table 3. To assess the reliability of these data, one condition is that average parity data should increase progressively as age of women increases. If there is no break in this pattern, therefore reported information should be considered to be reliable. It is therefore very obvious that these data from all the countries would provide reliable estimates of mortality under five years of age.

43. Since data on average parity and proportion of children dead were available for all countries included in this study report, and new developments in demographic research have so far contributed to indirect techniques of mortality analysis. The Qfive demographic software developed by the UNICEF to measure under five mortality from such data was used. In addition, the estimates of under five mortality rates q_5 are not only robust in the interpretation of results, these estimates are very comparable between countries and overtime because q_5 are not sensitive to pattern of models selected for mortality analysis. Furthermore the q_5 estimates are increasingly used as indicators of development, particularly of health conditions^{14/}. Since the description and procedures for using this method are widely available in different literature, we have applied the method to derive the estimates of mortality by using available data. The results of our analysis are presented in table 4.

^{14/} UN, Step-by-Step Guide to the Estimation of Child Mortality, New York 1990.
--- OFIVE: Microcomputer Program for Child Mortality Estimation, New York, 1990.

Table 4: Estimates of child mortality based on parity and proportion of children dead for countries in west Africa.

COUNTRY	AGE GROUPS OF WOMEN BY PARITY, PROPORTION DEAD CHILDREN AND PROBABILITY OF DYING AGE 5																				
	15-19			20-24			25-29			30-34			35-39			40-44			45-49		
	Q ₀	e ₀	DATE	Q ₀	e ₀	DATE	Q ₀	e ₀	DATE	Q ₀	e ₀	DATE	Q ₀	e ₀	DATE	Q ₀	e ₀	DATE	Q ₀	e ₀	DATE
GUINEA	227	44.4	1981.3	234	43.4	1980.0	203	47.1	1978.2	227	44.4	1976.1	234	43.4	1973.8	261	40.9	1971.2	244	43.4	1968.3
GUINEA FASO	247	42.2	1984.8	220	45.1	1983.5	212	45.8	1981.5	204	46.8	1979.1	231	43.9	1976.6	251	41.6	1973.8	250	41.6	1970.9
COTE D'IVOIRE	243	42.6	1979.2	192	48.4	1977.8	202	47.1	1975.8	202	47.1	1973.6	213	45.8	1971.3	225	44.6	1968.7	243	42.6	1965.9
GUINEA	109	59.2	1987.1	181	49.5	1985.8	164	51.7	1984.1	159	52.3	1982.0	146	54.0	1979.7	151	53.2	1977.1	167	51.3	1974.3
GUINEA BISSAU	242	42.6	1984.6	250	40.3	1983.2	249	40.3	1981.3	219	45.1	1979.2	234	43.4	1977.0	221	44.9	1974.6	237	43.4	1971.8
GUINEA BISSAU	248	42.2	1985.4	278	38.9	1984.0	259	40.9	1982.3	288	37.9	1980.4	301	36.7	1978.5	313	35.5	1976.3	318	35.0	1973.7
GUINEA BISSAU	245	42.4	1981.1	188	48.8	1979.7	160	50.5	1977.7	142	54.4	1975.2	157	52.5	1972.5	178	50.0	1969.7	173	50.5	1966.8
GUINEA BISSAU	254	41.4	1985.2	218	44.6	1983.8	217	44.6	1982.0	210	46.4	1979.8	242	42.6	1977.3	234	43.4	1974.7	227	44.6	1971.8
GUINEA BISSAU	321	34.7	1973.2	358	31.5	1971.6	363	31.0	1969.6	375	29.8	1967.5	374	29.8	1965.3	380	29.5	1962.9	365	31.0	1960.3
GUINEA BISSAU	176	50.0	1987.4	152	53.3	1986.2	164	51.8	1984.4	178	49.8	1982.4	173	50.5	1980.1	185	49.0	1977.5	175	50.3	1974.7

44. Estimates of early child mortality by age 5 and the corresponding life expectancy at birth computed from data on average parity and proportion of children dead. The results for each country reveal significant variations in mortality levels, trends and differentials within and among countries in west Africa. In all countries mortality levels remain still very high as measured in terms of the q_5 estimates.

45. These estimates of child mortality exceed 200 deaths per 1000 population during the 1970 decade and early 1980s particularly for Benin, Burkina Faso, Cote d'Ivoire, Liberia, Mali, Senegal and Sierra Leone. In Mali and Sierra Leone the estimates were greater than 300 child deaths during the latter part of the 1970s. This indicated that conditions of mortality were poorest there of all countries in the subregion. In Ghana, Togo and to some extent for Nigeria conditions of mortality were more favourable than elsewhere in west Africa. In these three countries the values of q_5 were less than 200, but greater than 150 during the 1970s and 1980s. However, estimates for latter part of the 1980 decade indicated a rising trend which might have suggested reversal of mortality decline such as in Ghana or Nigeria.

46. Graphs presented in figures 1 and 2, suggest that Mali and Sierra Leone are both way above the linear graphs for all countries, which indicates that both countries have highest mortality levels. Ghana, Togo and Nigeria have graphs that are lower than for the other countries. The apparent rising trend in values of q_5 can also be noticed for the 1980s in Ghana, Nigeria and Cote D'Ivoire as well as in Togo. This observation requires more research in order to establish any factors responsible for reversing the apparent reductions in mortality. Economic policy changes and the resulting declines in standards of living of the people could influence the emerging mortality conditions.

47. The estimates of e_0 presented in table 4 were derived from values of q_5 . The life expectancy at birth presented in that table indicate that the e_0 for most countries lie within narrow range, i.e. there are marginal differences, in general. In addition, these estimates are at low levels of life span at birth. Life expectancy at birth is better in Ghana and Togo than all other countries. Ghana for example, the e_0 was above 50 years throughout the 1970s and the first

half of 1980 decade. The apparent drop observed for latter part of 1985 indicated a seemingly deceleration of mortality reduction. Regarding Togo, estimates of e_0 remained constant around 50 years between second half of the 1970s and latter part of 1980s. Results of our analysis indicate that e_0 remained, most probably above 50 years, throughout the 1980s and beyond.

48. Among the very high mortality countries where e_0 estimates were below 40 years were Mali and Sierra Leone. In the case of Sierra Leone, conditions of mortality remained so poor throughout the 1960s and first part of 1970s that e_0 trends never approached life expectancy at birth of 40 years. This kind of mortality situation is not comparable elsewhere at all and it presents greatest concern for the country to achieve levels of mortality expected in the ideals of HFA. The rest of countries indicated conditions of mortality that reflected e_0 estimates to lie between 40 and 50 years.

49. Linear graphs presented in figures 3 and 4 illustrate the trends and differentials of mortality in the subregion of west Africa. The graph for Ghana is quite above the rest while that for Mali is not only at the bottom, but it shows a continuing declining trend, and the same appears to be similar case for Sierra Leone. For the other countries, it appears that there are indications of e_0 remaining about the same, but below 50 years throughout the 1980s and probably beyond. The future situation of mortality by the year 2000 is analyzed in later section on assessment of HFA.

C. Mortality differentials

50. Mortality differential analysis is critical in identifying determinants of variation in levels and trends of mortality for policy formulation and programme implementation designed to reduce mortality differentials among categories of people. In this part of the report we have only been able to study differential mortality among countries in the west Africa subregion, but not within countries themselves because available data were not desegregated.

51. Estimates of life expectancy at birth presented in table 4 suggest that conditions of health vary considerably among different countries in west Africa. During the 1980 decade Ghana and Togo appeared to have had higher estimates of life expectancy at birth than all their neighbours whose life expectancies were less than 50 years. Among these countries Sierra Leone had poorest conditions of health because in that country life expectancy was less than 40 years. Further, estimates of child mortality under five years were highest in Sierra Leone and comparatively lowest in Ghana and Togo. However, estimates of q_5 were about 200 per 1000 population in nearly all the countries. The demographic and health factors influencing these conditions of mortality and health constitute the subject matter of the next chapter on assessment of achievements in mortality reduction.

V. ASSESSMENT OF ACHIEVEMENTS OF MORTALITY REDUCTION

52. The concern of governments about unacceptable conditions of mortality and health were much more emphasized by the Alma-Ata Declaration of 1978. That conference set targets of improvement in conditions of health and agreed on specific measures to implement strategies of mortality reduction. The primary health care concept, together with all its principles was adopted in order to attain the goals of Health For All by the year 2000.

53. As all governments that attended the conference agreed to the modalities of the PHC strategy for implementing the HFA, several studies have been conducted mainly by the WHO to evaluate and assess efforts of implementing strategies of PHC to achieve aims of HFA. As first step, nearly all countries have adopted the PHC strategy in health policy legislation. The recent study by WHO showed that nearly all developing countries endorsed, at their highest levels, the principles of HFA. In addition, all countries have achieved greater coverage of immunization among infants against preventable childhood diseases^{15/}.

^{15/} WHO, OP.CIT., pages 167-174 Geneva, 1993.

A. Regression analysis of mortality reduction trends

54. The HFA set itself the target date of the year 2000 when specified levels of mortality were due to be attained. Since then governments have reassessed these targets. Most recently, the Dakar/Ngor Declaration endorsed at the Second African Population Conference revised downwards the targets for mortality. It is therefore expected that African countries should attain, by the year 2000, life expectancy at birth of 55 years, an infant mortality rate of 50 or less per 1000 live births and under five child mortality of 70 or less. At the same time to develop and implement programmes to reduce maternal mortality^{16/}. It was therefore, perceived that defined increments in e_0 and certain decrements in q_5 or IMR determined. For example, in high mortality countries effort should aim at adding one-half year per year to life expectancy, as one of basic assumptions in projections and estimates of population.

55. Therefore, in applying the hypothesis of prediction of achievements of mortality reduction in the future, regression analysis was found to be suitable. It should be noted that the relationship between mortality reduction processes and over time is complex and cannot be perfectly linear. However, the basic relationship for regression analysis can be expressed by the equation defined below as :

$$Y=a+bX$$

where a and b are population parameters, and Y and X are regressors representing either e_0 or q_5 and period over time in years, respectively.

56. The analysis of estimates of mortality trends presented in table 4 were used in regression analysis to enable derive estimates of e_0 and q_5 for the target date of the HFA which was set at the year 2000. Like any mathematical derivation, certain assumptions were basic in applying the

^{16/} ECA, DAKAR/NGOR Declaration on Population, Family and Sustainable Development. Dakar Senegal, December 1992.

technique. It was therefore, understood that achievement of mortality reduction by the target date of the year 2000 will be determined by the prevailing trends of estimates.

57. In principle, regression analysis is useful for time series data which are preferably at equal time intervals. This particular requirement is not fully satisfied by the type of our demographic data on trend estimates of life expectancy at birth denoted by E and the q_5 values, represented by Q. Nevertheless, the general equation of regression analysis was satisfied. The set of equations for each country were the following:

1. Benin

$$Y = 0.2 \sum E - 351.396$$

This equation provided the e_0 estimate for the year 2000 as 47.6 years of life expectancy at birth.

$$Y = -2.346 \sum Q + 4868.24$$

Equation 2 gave estimate of q_5 for the year 2000 as 176.

2. Burkina Faso

$$Y = .197 \sum E - 346.358$$

This equation for estimate of e_0 as being 47.6 years by the year 2000

$$Y = -1.687 \sum Q + 3568.596$$

The estimate of q_5 based on equation 4 as 195 for the year 2000

3. Cote d'Ivoire

$$Y = .18 \sum E - 309.221$$

By the year 2000, estimate of e_0 should be 50.8 years

$$Y = -1.573 \sum Q + 3321.427$$

The estimate of q_5 is projected to be 175 childhood deaths per 1000 child population

4. Ghana

$$Y = .194 \sum E - 332.03$$

The e_0 should be about 56.0 years in the year 2000

$$Y = -1.321 \sum Q + 2771.947$$

The projected estimate of q_5 by the year 2000 is 130

5. Liberia

$$Y = -.244 \sum E + 526.442$$

This equation 10 gave the estimate of e_0 to be 38.4 in the year 2000

$$Y = 1.405 \sum Q - 2544.99$$

Equation number 11 provided the estimate of q_5 in the year 2000 as 265

6. Mali

$$Y = .592 \sum E - 1135.02$$

The estimate of e_0 should be about 49.0 by the year 2000

$$Y = -5.864 \sum Q + 11898.9$$

The estimate of q_5 by the year 2000 is 171

7. Nigeria

$$Y = -.361 \sum E + 762.312$$

The estimate of e_0 by the year 2000 was projected to be 40.3 years of life expectancy at birth

$$Y = 2.941 \sum Q - 5629.12$$

The q_5 should be about 253 by the year 2000

8. Senegal

$$Y = -.061 \sum E + 164.76$$

The e_0 by the year 2000 was estimated to be 42.8 years

The estimate of q_5 for the year 2000 was 232

$$Y = .153 \sum Q - 73.972$$

9. Sierra Leone

$$Y = .25 \sum E - 461.358$$

The estimate of e_0 for the year 2000 was 38.6 years

$$Y = -2.889 \sum Q + 6045.107$$

The estimate of q_5 for Sierra Leone by the year 2000 was 267

10. Togo

$$Y = .158 \sum E - 263.33$$

The e_0 estimate for the year 2000 should be 52.7 years

$$Y = -1.259 \sum Q + 2666.369$$

The q_5 was projected to be 148 by the year 2000.

58. To be able to compare these estimates of e_0 and q_5 for the different countries the results have been presented in table 5, together with set targets of the HFA and DND.

Table 5: Mortality reduction targets by the year 2000 for selected countries

Country	e ₀ Target			q ₅ Target		
	Estimated	HFA	DND	Estimated	HFA	DND
Benin	48.6	60	55	176	70	70
Burkina Faso	47.6	60	55	195	70	70
Cote d'Ivoire	50.8	60	55	175	70	70
Ghana	56.0	60	55	130	70	70
Liberia	38.4	60	55	265	70	70
Mali	49.0	60	55	171	70	70
Nigeria	40.3	60	55	253	70	70
Senegal	42.8	60	55	232	70	70
Sierra Leone	38.6	60	55	267	70	70
Togo	52.7	60	55	148	70	70

59. Additional analysis of trends of mortality by the target date set at the year 2000 were also illustrated in figures 5, 6, 7 and 8 for life expectancy at birth and childhood mortality, respectively.

60. In figures 5 and 6 it appears that almost all countries gained in life expectancy since the 1960s, but will probably have to experience reduction by the turn of the century. However, some countries such as Benin, Burkina Faso, Cote d'Ivoire and Mali will probably continue to gain in life expectancy by the year 2000. On the other hand Ghana which made more advances in reduction of mortality than any other country in west Africa will apparently have lower estimate of e_0 than what should have been. Other countries to follow Ghana are likely to be Liberia and Togo.

61. Illustrations of childhood mortality presented in Fig 7 and 8 majority of countries have estimates of q_5 greater than 200. It also appears that the trend has been of increasing q_5 values such as for Liberia, Nigeria, and Senegal. By the year 2000, it also appears that only Benin, Burkina Faso, Cote d'Ivoire and Mali will have lower estimates of q_5 than the preceding decades. Finally, all countries will have q_5 estimates of greater than 100.

B. Assessment of achievements of targets of the HFA

62. All governments have demonstrated commitments to improve health conditions of the people as shown by the endorsement of the principles of health for all by the year 2000. In the most recent evaluation conducted by WHO regarding implementation of the goals for HFA nearly 80 per cent of developing countries had the HFA endorsed at highest level, that is at the level of president or prime minister of government^{17/}.

^{17/} WHO, OP.CIT., Geneva, 1993

63. Further more most developing countries had achieved, by 1990 full immunization coverage of infants for diphtheria, measles, poliomyelitis and TB. Almost full coverage was also attained regarding immunization of tetanus for pregnant women. However, just about half (53 %) of all births in developing countries in 1991 were attended by trained personnel at birth. At the same time underfive mortality among these countries was greater than one hundred (117) per 1000 population and an estimated e_0 of about 62 years and that 50 years for least developing countries, of which most are in Africa and nearly all in west Africa^{18/}.

64. The sombre performance of achievements of goals of HFA by developing countries as a group only indicates a probable worse situation for countries in Africa, particularly those in west Africa. Estimates presented in tables 2 and 5 suggest existence of difficulties in attaining the goals of HFA. For the period between 1985 and 1990 health status access indicator coverage for safe water, adequate sanitation and availability of health care services was very poor for Africa compared to the world as a whole and other developing countries. Within west Africa coverage of safe water was below 50 per cent in countries such as Guinea, Guinea-Bissau, Nigeria and Sierra Leone.

65. However, most affected by poor coverage was the availability of adequate sanitation for the region as a whole and almost all countries in west Africa. In terms of population coverage of adequate sanitation, it was only the Gambia where more than 70 per cent of population had adequate sanitation. Considering the disease pattern associated with poor sanitation, it should be

^{18/} WHO, *ibid*, Geneva, 1993

most likely that majority of people, particularly infants and young children, in west Africa are most affected by water-borne diseases.

66. Availability of health facilities is another indicator of health status of the people. Again, just about half of the population in Africa had health services at their disposal, compared to 91 per cent for the whole world and 89 % for all developing countries. Although availability of services may not imply their adequate utilization, lack or inadequacy of services has a significant element on health status for curative or preventive measures against diseases. The majority of countries in west Africa had coverage of health services of far below the coverage for the continent. It was only Guinea-Bissau (80 %), Ghana (76 %), Nigeria (67 %) and Cote d'Ivoire that had services available to more than 50 per cent of population. The inadequacy of services in most countries of west Africa could also explain the low percentage of less than 50 per cent of all births attended by trained personnel^{19/}.

67. The implementation of HFA to achieve its global goals depended very much on immunization of vaccine preventable diseases. It was therefore agreed upon by governments through the WHO, UNICEF and other partners to set up the Expanded Programme of Immunization (EPI), particularly targeting six childhood diseases. Available data on immunization coverage presented in table 2 suggest that countries in Africa face a difficult future to immunize all children against preventable childhood diseases. The continent, by 1991 had not achieved 50 per cent coverage in all diseases except the BCG vaccine. In west Africa tetanus vaccine was

^{19/} World Bank, OP > CIT, Washington D.C., 1994.

provided to 50 per cent or more only in five countries like Benin, the Gambia, Nigeria, Sierra Leone and Togo. Immunization coverage against measles was equally low although the disease is a big child killer. The majority of countries in west Africa had a coverage of less than 50 per cent. The BCG vaccine, from the available data had a significantly adequate coverage. The majority of countries in west Africa were about to achieve universal coverage for BCG vaccine.

68. Data regarding achievement of global targets of HFA suggest that majority of countries in the region, particularly in west Africa will not at all be able to attain set targets for health for all by the year 2000 or indeed the revised targets contained in the Dakar/Ngor Declaration. Estimates of life expectancy at birth for majority of countries in west Africa lag many years behind the HFA target of 60 years or indeed the DND target set at 55 years. Similarly, estimates of infant and child mortality under five years still remain very high. Child mortality reduction has been reversing its trends recently, that by the target date of HFA many, if not all countries in west Africa will not reach anywhere near the target of IMR of 50 or less and under-five child rate of less than 70.

69. The factors and other related causes hindering efforts of countries to achieve their global targets of mortality reduction are numerous and complex. Efforts taken to implement the PHC strategy for achieving the HFA have encountered many obstacles of implementation. Among them is the concept itself about what PHC entails. There has been misinterpretation of PHC concept in terms of primary level care, community workers and community participation without empowerment. Furthermore, selective PHC strategies imply choosing priority diseases.

Resistance to change attitudes together with centralized management and planning are some of the difficulties in the way of implementation of PHC to attain the goals of HFA^{20/}. The compounding result has been difficulties to prevent diseases through EPI programme in Africa where vaccine uptake remains low^{21/}.

70. Other difficulties in achieving global goals of HFA and therefore reduced levels of mortality should be associated with fragility of African economies and unavoidable competition for scarce resources from other sectors. The share of GDP to health remains quite low for Africa compared to allocation by other regions. For example while only about 4.5 % of GDP is for health care, the average for the world is 8.0 % or more.

71. The coming to the fore of new diseases and challenges of drug resistance etc. will certainly slow down the successes desired to be achieved by programme of HFA. The spread of human immunodeficiency virus that causes immunodeficiency syndrome (HIV/AIDS), combined with strains from TB, preventable diseases like malaria, malnutrition, poverty and so forth constrain efforts to achieve set targets of mortality reduction and attain global strategies of health for all.

^{20/} Andrew Green, An Introduction to Health Planning in Developing Countries, pages 53-69, Oxford University Press, 1992.

^{21/} Richard G. Feachem and Dean T. Jamison, OP > CIT, page 185, Washington, 1991

VI. SUMMARY

72. The purpose of the study was to assess the pace and extent to which it was possible for countries to achieve global targets of health for all by the year 2000 among ECA member States in west Africa. The study focused on selected countries in west Africa. Although there are 18 countries in the subregion, our analysis covered only some of them. Countries such as Gambia, Guinea, Guinea-Bissau, Mauritania and Niger were partially treated in the body of the report because of lack of demographic data for estimating indices of mortality trends. In addition, it was not possible to include analysis of health policies and disease patterns for the subregion because of inadequate information available at ECA.

73. The demographic estimates suggested that mortality levels were too behind and that countries would not attain the set targets of Health For All and not even targets recommended by the Dakar/Ngor Declaration in most of these countries, and particularly those in west Africa. The HFA recommended that by the year 2000, all countries should have full coverage of immunization against six childhood diseases, adequate sanitation and safe drinking water, access to health services. These actions when implemented fully would have the effect of reducing high levels of mortality in order to achieve life expectancy at birth of 60 years or more, infant mortality rates of 50 or less per 1000 live births or attain under-five child mortality of 70 or less. The results of our analysis suggest that nearly all the countries will not have achieved desired rates of coverage and not even attain the set targets of life expectancy at birth and infant

and child mortality. Unless the PHC strategies were implemented fully, the HFA targets would not be achieved in the near future.

74. There are many factors contributing to slowing down of efforts to improve health conditions and thereby reduce mortality levels. Widespread poverty, fragile African economies, coupled with inadequate health policy formulation and implementation, misinterpretation of concept of the Primary Health Care strategy adapted for achieving global targets for Health for All by the year 2000, resurgence of preventable diseases with resistance to drugs and finally, emerging new diseases such as the human immunodeficiency virus that causes acquired immunodeficiency syndrome (HIV/AIDS) with no cure in the immediate future, are some of the factors impeding progress in achieving goals of health for all by the year 2000.

75. Since the results of this study reveal possible delays in achieving improved health conditions among countries in Africa, it is therefore recommended that action is taken to reformulate health policies and devise another strategy for their implementation. More data and updated information, particularly of health statistics should be in place to facilitate similar studies to identify factors that cause slowing down of mortality reduction among African countries, and particularly those in west Africa.

ANNEX

A. FIGURES

- Figure 1: q_5 mortality trends for Benin, Burkina Faso, Cote d'Ivoire, Ghana, Liberia and Mali
- Figure 2: q_5 mortality trends for Nigeria, Senegal, Sierra Leone, and Togo
- Figure 3: e_0 trend estimates for Benin, Burkina Faso, Cote d'Ivoire, Ghana, Liberia and Mali
- Figure 4: e_0 trend estimates for Nigeria, Senegal, Sierra Leone, and Togo
- Figure 5: e_0 extrapolated to the year 2000 for Benin, Burkina Faso, Cote d'Ivoire, Ghana and Liberia
- Figure 6: e_0 extrapolated to the year 2000 for Mali, Nigeria, Senegal, Sierra Leone and Togo
- Figure 7: q_5 extrapolated to the year 2000 for Benin, Burkina Faso, Cote d'Ivoire, Ghana and Liberia
- Figure 8: q_5 extrapolated to the year 2000 for Mali, Nigeria, Senegal, Sierra Leone and Togo

Figure 1: q_5 mortality trends for Benin, Burkina Faso, Cote d'Ivoire, Ghana, Liberia and Mali

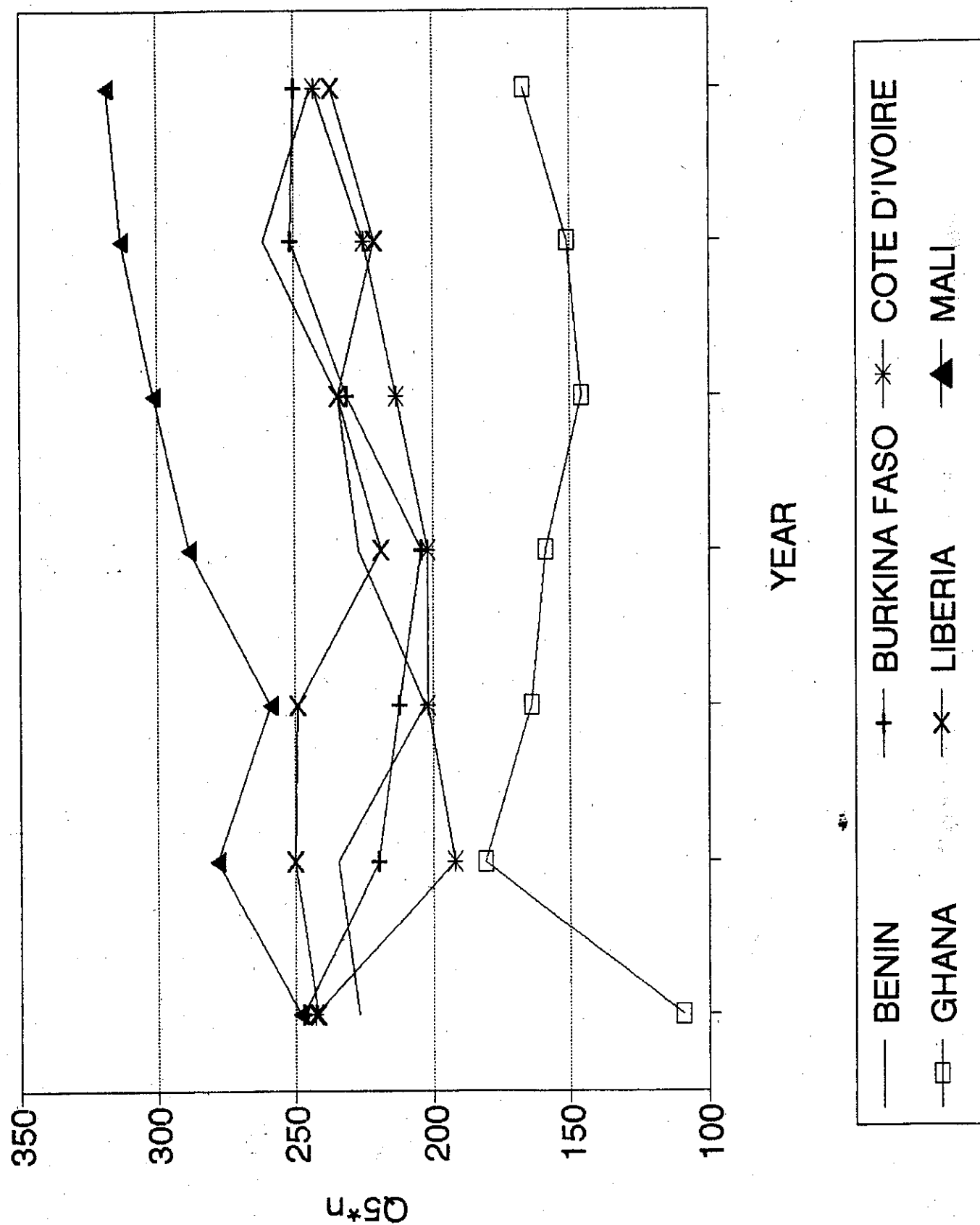


Figure 2: q_5 mortality trends for Nigeria, Senegal, Sierra Leone, and Togo

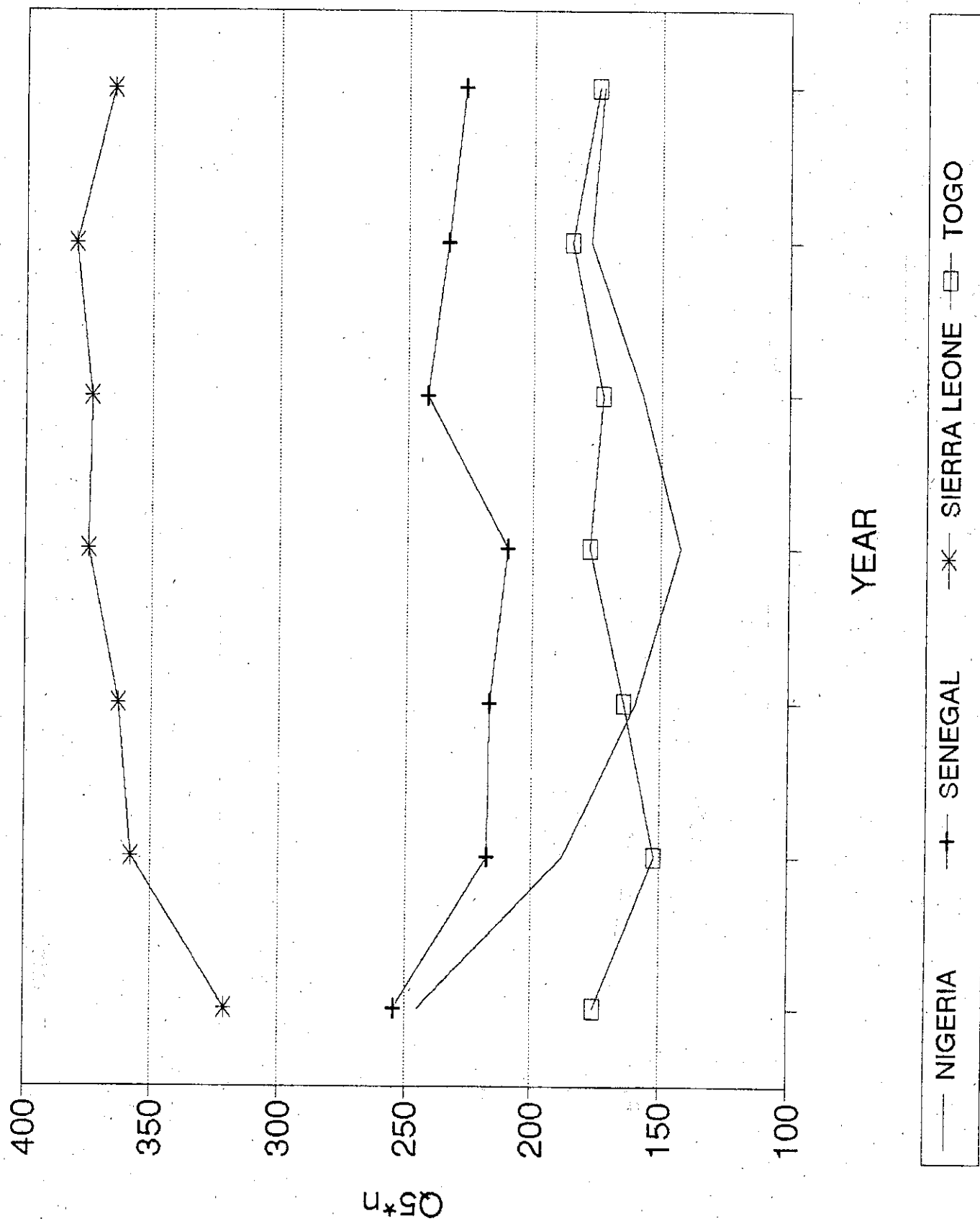


Figure 3: e_t trend estimates for Benin, Burkina Faso, Cote d'Ivoire, Ghana, Liberia and Mali

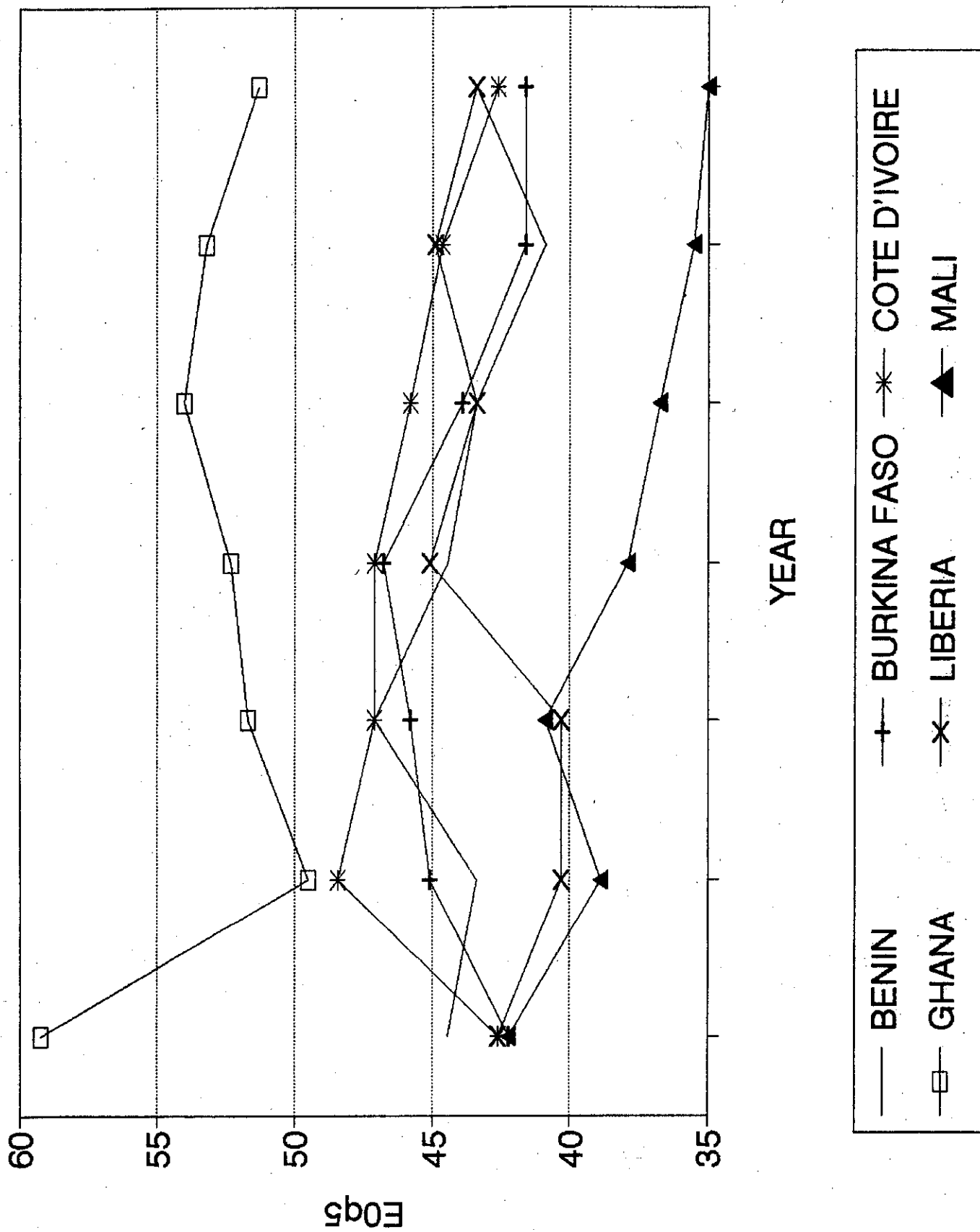


Figure 4: e_0 trend estimates for Nigeria, Senegal, Sierra Leone, and Togo

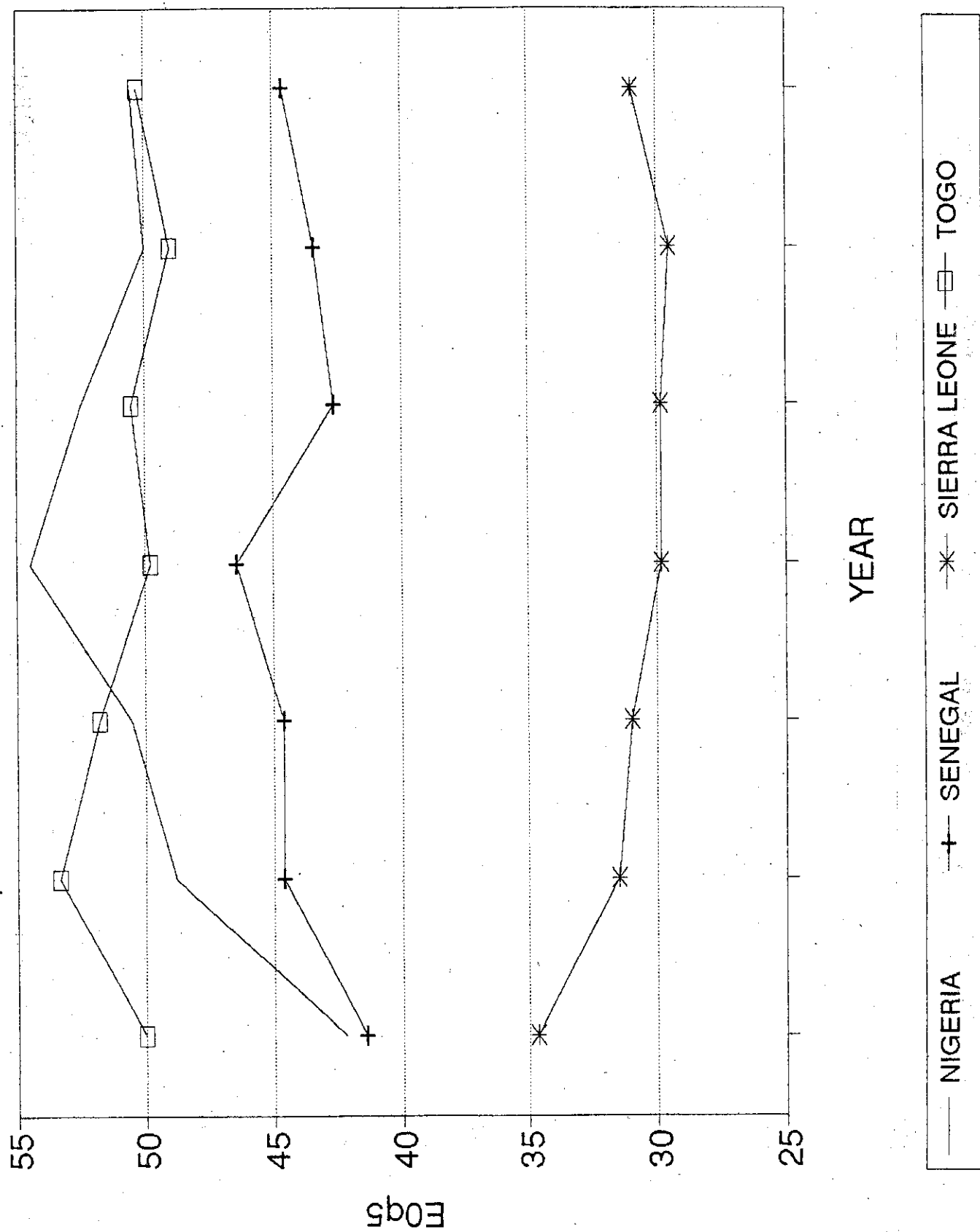


Figure 5: e_t extrapolated to the year 2000 for Benin, Burkina Faso, Cote d'Ivoire, Ghana and Liberia

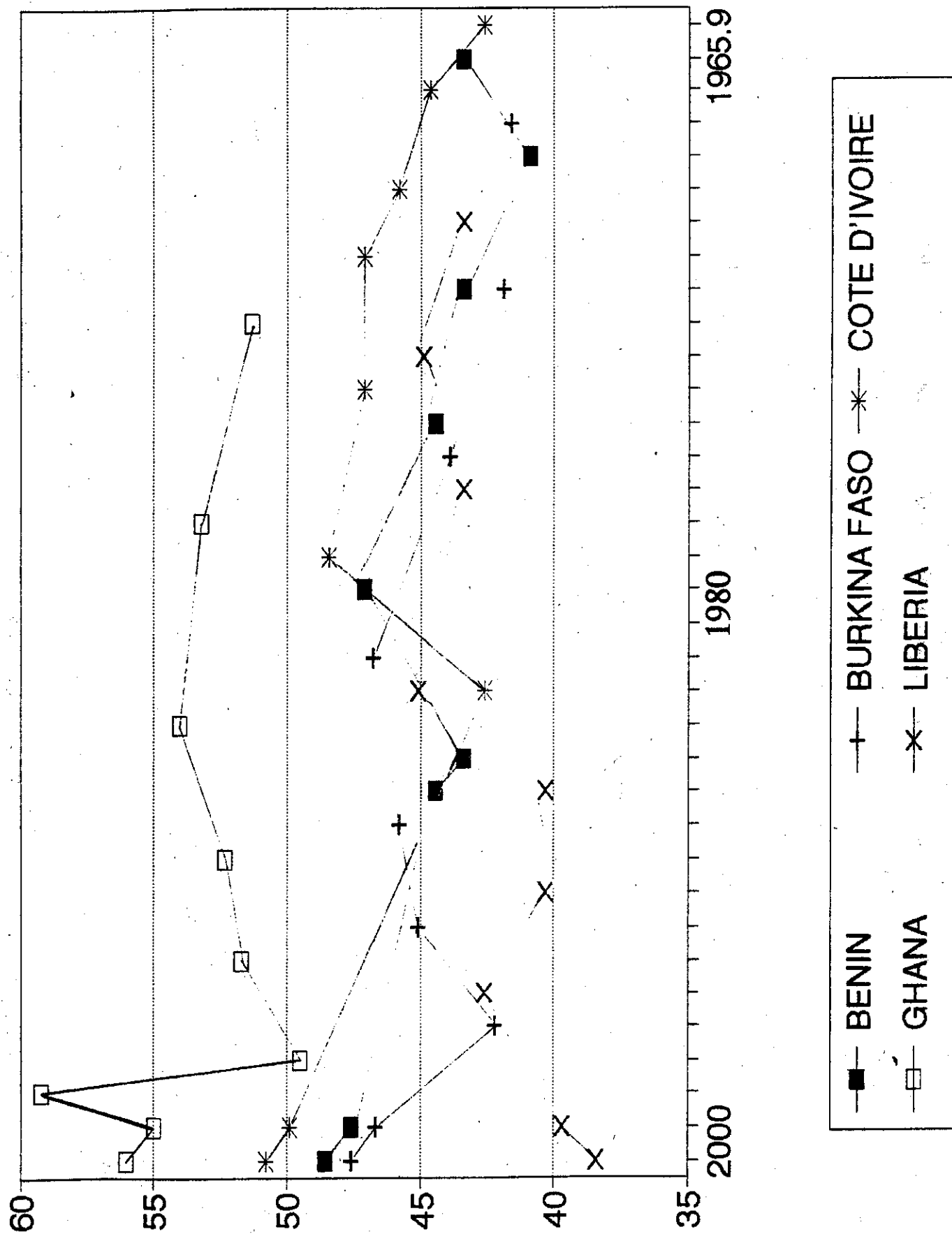


Figure 6: e_0 extrapolated to the year 2000 for Mali, Nigeria, Senegal, Sierra Leone and Togo

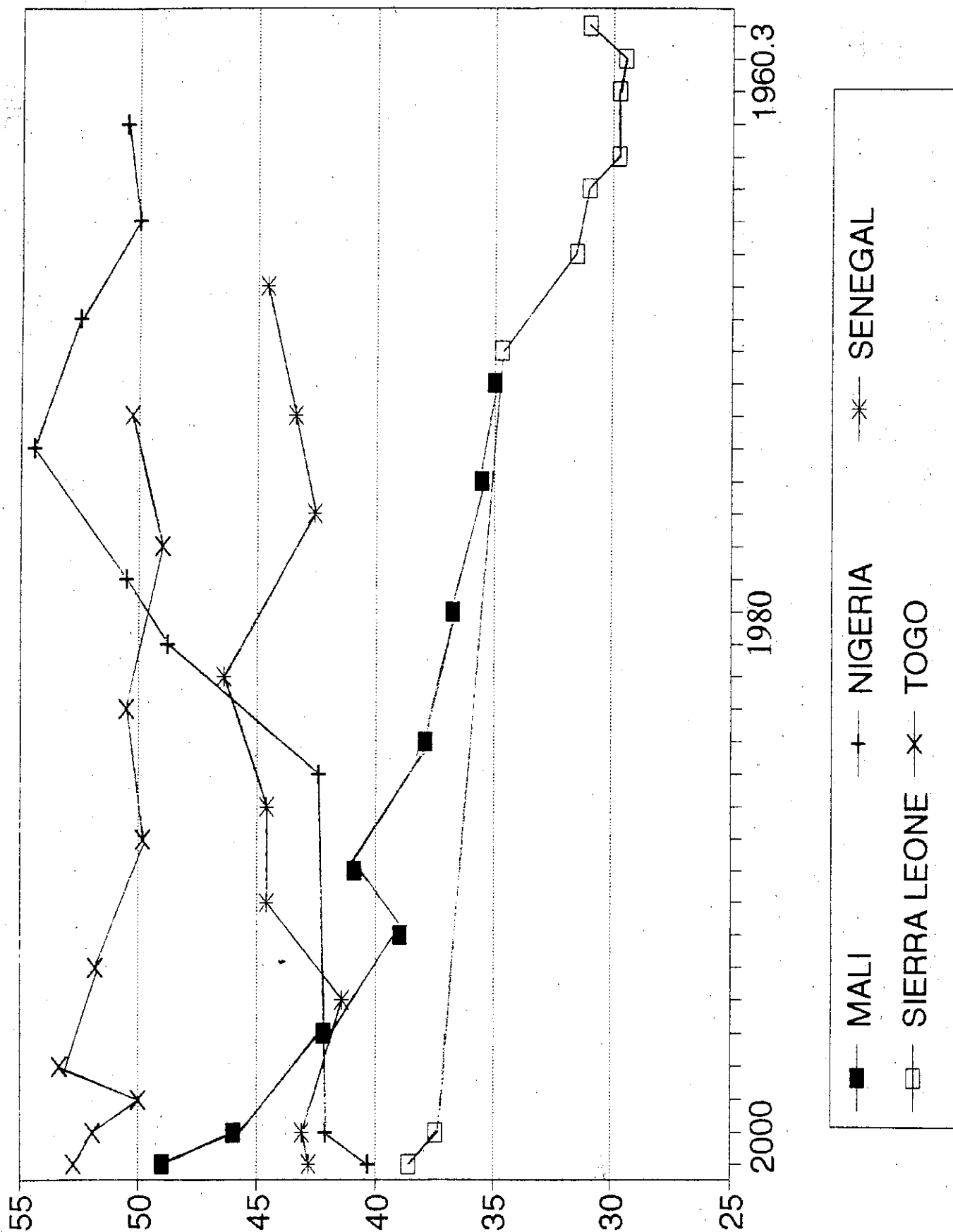


Figure 7: q_t extrapolated to the year 2000 for Benin, Burkina Faso, Cote d'Ivoire, Ghana and Liberia

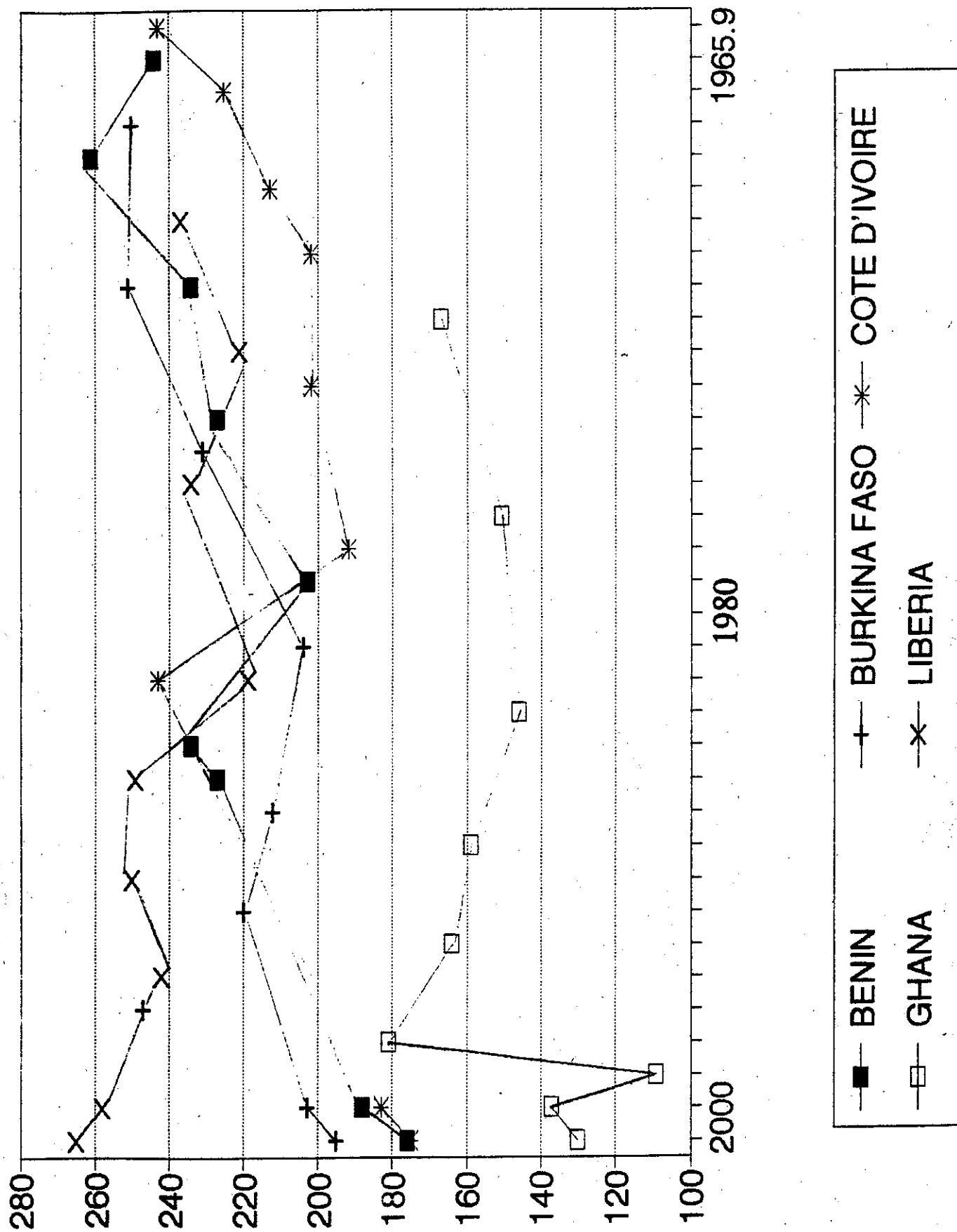
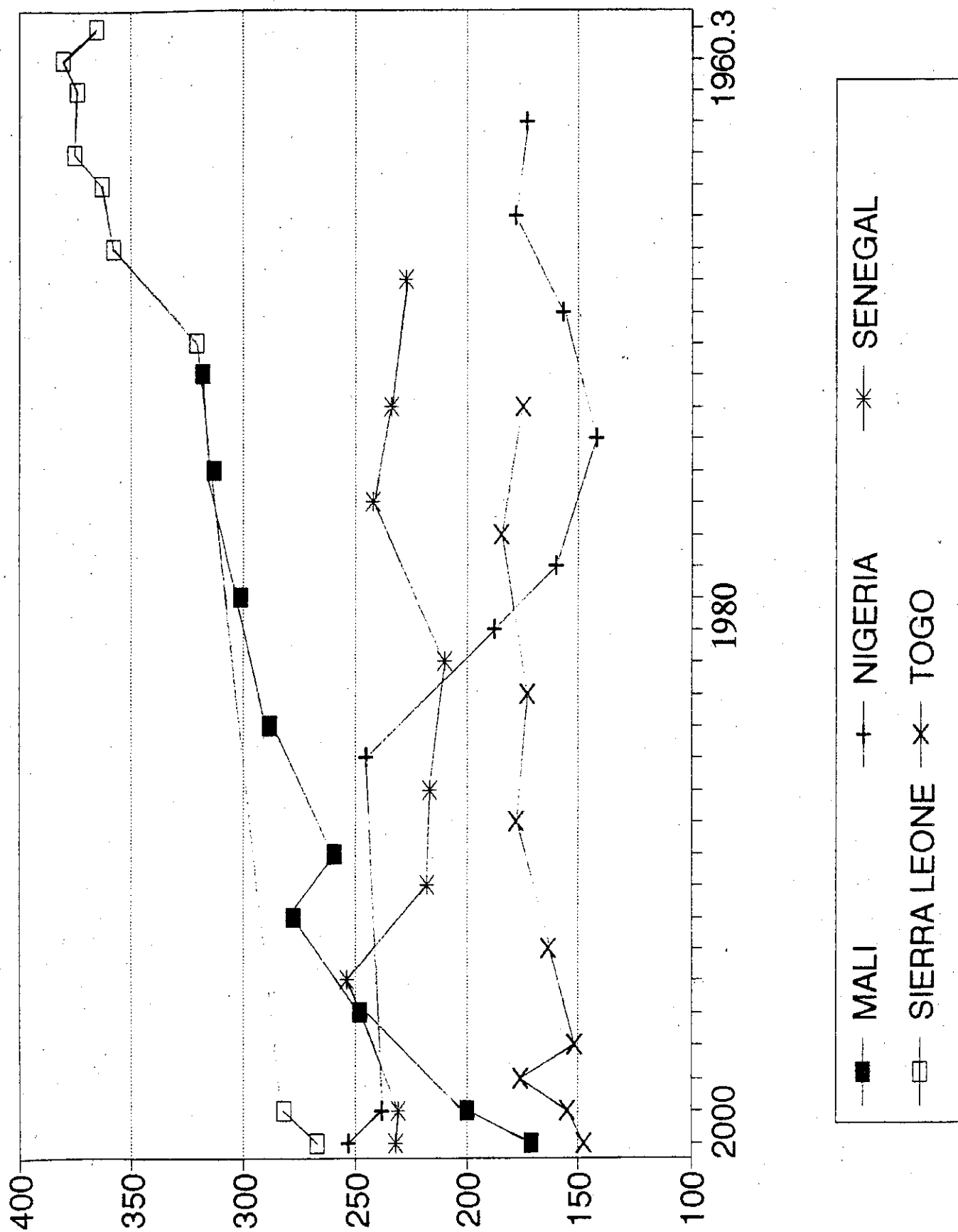


Figure 8: q , extrapolated to the year 2000 for Mali, Nigeria, Senegal, Sierra Leone and Togo



B. TABLES

Table 1B: Mortality and fertility indices for countries in West Africa.

Country W.Africa	IMR	USMR	MMR	e ₀	TFR
Benin	89	147	800	47.6	7.1
Burkina Faso	119	150	750	47.4	6.5
Cape Verde	47	60	200	64.7	4.3
Cote d'Ivoire	95	124	680	51	7.4
Gambia	138	220	1000	45	5.6
Ghana	86	170	700	56	6
Guinea	149	230	1000	44.5	7
Guinea-Bissau	146	239	1000	43.5	5.8
Liberia	134	217	600	55.4	6.8
Mali	111	220	850	46	7.1
Mauritania	122	206	800	51.5	5.4
Niger	123	320	850	46.5	7.4
Nigeria	84	191	750	50.4	6.5
Senegal	84	145	750	49.3	6.1
Sierra Leone	148	249	1000	39	6.5
Togo	96	137	600	55	6.6

Source: UN, World population prospects, various data charts.

Table 2B: Trends in childhood mortality estimates 1960-90, based on Kenneth Hill and Abdo Yazbeck, for West Africa.

BENIN								
sources 1982 WFS survey					UN Data Base developing countries**			
YEAR/AGE	U5MR	IMR	e_{0i}	pi	Di	q₅*N	DATE	e_{0q5}
1960/15-19	307	183	36.0	0.29	0.138	227	1981.3	44.4
1965/20-24	278	165	38.0	1.53	0.183	234	1980.0	43.4
1970/25-29	252	149	40.9	3.12	0.186	203	1978.2	47.1
1975/30-34	228	135	43.4	4.72	0.231	227	1976.1	44.4
1980/35-39	206	123	45.9	5.75	0.257	234	1973.8	43.4
1985/40-44	187	112	48.4	6.06	0.309	261	1971.2	40.9
1990/45-49	170	103	50.8	6.27	0.316	244	1968.3	43.4
BURKINA FASO								
Sources 1976 PES, 1985 Census								
YEAR/AGE	U5MR	IMR	e_{0i}	pi	Di	q₅		
1960/15-19	318	183	36.0	0.307	0.143	247	1984.8	42.2
1965/20-24	296	171	39.2	1.668	0.173	220	1983.5	45.1
1970/25-29	275	162	40.2	3.154	0.198	212	1981.5	45.8
1975/30-34	254	152	40.9	4.420	0.212	204	1979.1	46.8
1980/35-39	217	135	45.0	5.588	0.260	231	1976.6	43.9
1985/40-44	186	120	48.2	6.082	0.304	251	1973.8	41.6
1990/45-49	159	107	50.8	6.310	0.329	250	1970.9	41.6
COTE D'IVOIRE								
Sources 1978 MRS, 1980 WFS								
YEAR/AGE	U5MR	IMR	e_{0i}	Pi	Di	q₅		
1960/15-19	260	174	38.2	0.506	0.175	243	1979.2	42.6
1975/20-24	260	174	38.2	1.909	0.163	192	1977.8	48.4
1970/25-29	253	169	40.0	3.337	0.193	202	1975.8	47.1
1975/30-34	194	131	47.8	4.740	0.210	202	1973.6	47.1
1980/35-39	149	104	51.5	5.865	0.238	213	1971.3	45.8
1985/40-44	116	82	56.7	6.726	0.271	225	1968.7	44.6
1990/45-49	90	66	60.6	6.857	0.318	243	1965.9	42.6

Cont'd

GHANA								
Source 1971 Census, 1979 GFS (WFS), 1988 GDHS								
YEAR/AGE	U5MR	IMR	e ₀₁	pi	Di	q ₅		
1960/15-19	213	126	45.9	0.22	0.07	109	1987.1	59.2
1965/20-24	203	121	47.8	1.25	0.14	181	1985.8	49.5
1970/25-29	187	112	49.5	2.65	0.15	164	1984.1	51.7
1975/30-34	169	103	51.9	4.18	0.16	159	1982.0	52.3
1980/35-39	150	92	53.2	5.47	0.16	146	1979.7	54.0
1985/40-44	163	100	52.6	6.58	0.18	151	1977.1	53.2
1990/45-49	178	108	51.3	7.25	0.22	167	1974.3	51.3
LIBERIA								
Source 1969 PGS, 1974 Census, 1986 DHS								
YEAR/AGE	U5MR	IMR	e ₀₁	pi	Di	q ₅		
1960/15-19	284	190	35.9	0.5	0.184	242	1984.6	42.6
1965/20-24	276	184	35.9	1.8	0.213	250	1983.2	40.3
1970/25-29	266	178	37.3	3.2	0.236	249	1981.3	40.3
1975/30-34	248	166	38.4	4.2	0.226	219	1979.2	45.1
1980/35-39	233	156	41.8	5.3	0.259	234	1977.0	43.4
1985/40-44	226	151	40.9	5.9	0.264	221	1974.6	44.9
1990/45-49	219	147	43.0	6.8	0.308	237	1971.8	43.4
MALI								
Source 1976 Census, 1987 DHS								
YEAR/AGE	5UMR	IMR	e ₀₁	pi	Di	q ₅		
1960/15-19	413	233	28.5	0.63	0.238	248	1985.4	42.2
1965/20-24	380	215	31.0	1.90	0.247	278	1984.0	38.9
1970/25-29	349	199	33.5	3.39	0.245	259	1982.3	40.9
1975/30-34	321	184	37.3	5.01	0.291	288	1980.4	37.9
1980/35-39	291	169	39.6	5.97	0.323	301	1978.5	36.7
1985/40-44	241	146	43.0	6.98	0.360	313	1976.3	35.5
1990/45-49	200	127	45.9	7.14	0.396	318	1973.7	35.0

Cont'd

NIGERIA Source 1981 WFS, 1990 NDHS								
YEAR/AGE	U5MR	IMR	e ₀₁	pi*wfs	Di	q ₅		
1960/15-19	204	121	47.8	0.35	0.143	245	1981.1	42.4
1965/20-24	202	120	48.2	1.79	0.151	188	1979.7	48.8
1970/25-29	200	119	48.6	3.21	0.153	160	1977.7	50.5
1975/30-34	198	118	48.9	4.32	0.150	142	1975.2	54.4
1980/35-39	196	117	49.3	5.07	0.179	157	1972.5	52.5
1985/40-44	193	116	48.4	5.13	0.220	178	1969.7	50.0
1990/45-49	191	115	48.7	5.84	0.235	173	1966.8	50.5
SENEGAL Source 1978 WFS, 1986 DHS								
YEAR/AGE	U5MR	IMR	e ₀₁	pi	Di	q ₅		
1960/15-19	303	175	38.2	0.32	0.153	254	1985.2	41.4
1965/20-24	289	168	40.0	1.57	0.171	218	1983.8	44.6
1970/25-29	276	162	40.2	3.09	0.201	217	1982.0	44.6
1975/30-34	265	157	41.4	4.74	0.215	210	1979.8	46.4
1980/35-39	219	130	46.5	6.17	0.269	242	1977.3	42.6
1985/40-44	184	111	50.2	6.83	0.281	234	1974.7	43.4
1990/45-49	156	96	54.0	7.27	0.297	227	1971.8	44.6
SIERRA LEONE Source 1973 Pilot Census, 1974 Census								
YEAR/AGE	U5MR	IMR	e ₀₁	pi	Di	q ₅		
1960/15-19	391	221	29.8	0.750	0.315	321	1973.2	34.7
1965/20-24	386	218	30.8	2.102	0.335	358	1971.6	31.5
1970/25-29	381	215	31.0	3.301	0.360	363	1969.6	31.0
1975/30-34	375	213	31.5	4.311	0.394	375	1967.5	29.8
1980/35-39	370	210	31.8	4.931	0.411	374	1965.3	29.8
1985/40-44	365	207	32.3	5.017	0.444	380	1962.9	29.5
1990/45-49	360	204	32.8	5.165	0.460	365	1960.3	31.0

Cont'd

TOGO Source 1971 DS, 1988 DHS								
YEAR/AGE	U5MR	IMR	e_{0i}	p_i	D_i	q_5		
1960/15-19	264	157	40.2	0.26	0.11	176	1987.4	50.0
1965/20-24	238	141	43.4	1.38	0.12	152	1986.2	53.3
1970/25-29	214	127	45.9	2.87	0.15	164	1984.4	51.8
1975/30-34	193	116	48.4	4.60	0.18	178	1982.4	49.8
1980/35-39	175	106	50.8	5.73	0.19	173	1980.1	50.5
1985/40-44	158	97	52.7	6.89	0.22	185	1977.5	49.0
1990/45-49	143	88	53.4	7.28	0.23	175	1974.7	50.3

Source: Kenneth Hill and Abdo Yazbeck, Trends in Child Mortality, 1960-90: Estimates for 84 Developing Countries, World Bank,

World Development Report 1993: Investing in Health, Background Paper Number 6.

UN, Child Mortality since 1960s: A database for developing countries, New York 1992.**

***Parity data are for the latest survey or census in each of respective countries.

*N q_5 estimates based on the North model only, computed with Qfive package if not available.

*wfs, Data for Nigeria was from 1981/82 World Fertility Survey.

Note: e_{0i} is the implied life expectancy at birth based on estimates of Infant Mortality Rates.

* the estimates of e_0 were derived from values of q_0 based on direct computation of infant mortality rates.

Table 3B: Definition of Indicators for Assessment and Evaluation

INDICATOR	COVERAGE				DESCRIPTION
	% Countries DC, LDC	% Countries DC, LDC	% Population DC, LDC	% Population DC, LDC	
1	72	80	91	90	HFA Endorsement at Highest Level
2	62	70	84	52	Community involvement: Mechanisms fully functioning/ being developed further
3*	32	12	42	9	Percent of GNP spent on health(Govt expenditure as per cent of GNP for health
4	35	34	36	25	Per cent of national health expenditure on local health services
5	20	17	44	24	Resources for PHC: equitable distribution
6.1	...	...	...	...	AID received for health
6.2	...	...	...	...	AID given for health
7.1	65	70	64	83	Safe water: population coverage
7.2	51	48	29	71	Adequate sanitation: population coverage
7.3.1	...	...	...	...	Six EPI diseases: per cent of infants immunized
7.3.2	99	100	100	100	Immunization of Infants: coverage by DPT vaccine
7.3.3	99	100	100	100	Immunization of Infants: coverage by Measles vaccine
7.3.4	99	100	100	100	Immunization of Infants: coverage by poliomyelitis vaccine
7.3.5	88	100	98	100	Immunization of Infants: coverage by BCG vaccine
7.4	78	97	67	99	Immunization of pregnant women: coverage by tetanus toxoid
7.5	25	26	38	52	Local health services: population coverage
7.6*	46	52	46	65	Prenatal care: coverage by trained personnel
7.7*	47	46	79	57	Child birth attendance: coverage by trained personnel
7.8	35	31	48	43	Infant care: coverage by trained personnel

INDICATOR	COVERAGE		DESCRIPTION
	% Countries DC, LDC	% Population DC LDC	
7.9 ^a	40 48	41 22	Contraceptive use: coverage of women of childbearing age
8.1	41 46	53 52	Birth-weight: per cent new born weighing at least 2500 gms
8.2	... ...	... ...	Acceptable weight for age: per cent of children
9.1 ^a	85 90	100 100	Infant Mortality Rate
9.2 ^f	85 99	100 100	Maternal Mortality Rate
9.3 ^b	85 87	100 100	Under-five mortality rate, q5
10 ^g	85 90	100 100	Life expectancy at birth, e ₀
11 ^m	68 70	97 79	Adult literacy rate
12	79 78	91 81	Per capita GNP/ GDP in US Dollars

Source: WHO, Implementation of the Global Strategy for Health for All by the Year 2000, Second evaluation, Geneva, 1993.

- NB:
- ^a In 1991 as in 1985, expenditure on health as percentage of GNP remained same at 0.9 %. Among the LDCs, the percentage was 1.4 in 1991 compared to 1.0 % in 1985.
 - ^b For prenatal care, 65 % of live births was attended by trained personnel among developing countries. For the least developing countries, only 53 % was attended by trained personnel.
 - ^c At childbirth, in 1991 about 53 % of live births was attended by trained personnel in developing countries. Among the LDCs, the proportion was only 32 %
 - ^d Among developing countries, only 34 % was using contraceptives. In LDCs only 8 % was contracepting.
 - ^e In 1991 the IMR was 75 among developing countries and for the LDCs it was 119 infant deaths among 1000 live births.
 - ^f Among developing countries the maternal mortality rate in 1991 was 421 compared to 737 for LDCs per 100,000 live births
 - ^g The USMR in developing countries was 117 compared to 198 for the LDCs.
 - ^h The e₀ in 1991 was 62 for developing countries and 50 years for the LDCs.
 - ^k Adult literacy for developing countries was 65 % and 40 % for LDCs.

Table 4B: Health and Development Indicators

COUNTRY West Africa	Pop(000)	r%	CBR	CDR	TFR	% M/F	GDP\$ 1992	Adult Lit. Fem.	Total
Benin	5042	3.0	46	16	6.2	49/52	432	16	23
Burkina Faso	9537	2.9	47	17	6.5	47/50	306	9	18
Cote d'Ivoire	12841	3.6	45	12	6.6	53/59	788	40	54
Gambia	929	2.9	47	20	6.5	44/45	360	16	27
Ghana	15824	3.2	44	12	6.1	53/57	436	51	60
Guinea	6048	2.8	48	20	6.5	44/44	530	13	24
Guinea-Bissau	1022	2.0	46	25	6.0	38/39	215	24	36
Liberia	2719	3.0	44	14	6.2	53/57	450	29	39
Mali	8962	2.9	50	18	7.1	47/50	315	24	32
Mauritania	2082	2.8	49	18	6.8	46/50	573	21	34
Niger	8171	3.3	52	19	7.4	44/48	287	17	28
Nigeria	101884	2.9	43	14	5.9	50/53	300	39	51
Senegal	7845	2.7	43	16	6.1	46/49	801	25	38
Sierra Leone	4354	2.6	48	22	6.5	40/45	160	11	21
Togo	3899	3.2	45	13	6.5	53/56	413	31	43
AFRICA	501932	3.0	45	15	6.5	49/52	340	38	50
WORLD	5441205	1.6	26	9	3.2	64/68	4000	55	65
DEVELOPING	4213796	2.0	29	9	3.6	62/65	900	52	63
DEVELOPED	1226756	0.5	14	10	1.9	71/78	20000	95	96

Source: World Bank, Better Health in Africa, Washington D.C., 1994; UNFPA, The State of World Population 1995, New York.

Table 5B: Mortality and Health Status Indicators

COUNTRY West Africa	MORTALITY			HEALTH STATUS						
	IMR 1992	USMR 1990	MMR 1988	c. M/F 1992	%BIRTHS ATTENDED 1985-90	ANAEMIA PREV. WOMEN	CALORIES 1989	POPUL./ DOCTOR 1985-90	POPUL/ BED	%GDP 1990
Benin	110	170	800	49/52	45	55	2383	13000	...	4.4
Burkina Faso	132	159	800	47/50	33	25	2219	50000	1400	8.6
Cote d'Ivoire	94	150	1000	53/59	65	35	2568	15000	1100	3.4
Gambia	132	231	1500	44/45	65	—	2290	13000	...	7.4
Ghana	81	170	1000	53/57	42	65	2144	15000	700	3.5
Guinea	133	236	1000	44/44	25	—	2242	40000	1700	3.8
Guinea-Bissau	147	268	1000	38/39	39	—	2690	6000	...	8.0
Liberia	131	185	—	53/57	50	—	2259	10000	...	9.0
Mali	159	200	2300	47/50	14	65	2259	18000	1500	5.2
Mauritania	117	205	1100	46/50	20	—	2447	9000	...	3.8
Niger	123	320	700	44/48	21	50	2239	35000	2250	4.9
Nigeria	84	191	800	50/53	45	45	2200	6000	1200	2.9
Senegal	80	156	950	46/49	40	55	2322	16000	1250	3.8
Sierra Leone	143	360	—	40/45	25	45	1899	13000	950	2.4
Togo	85	143	720	53/56	56	45	2269	10000	...	4.2
AFRICA	104	175	700	49/52	34	40	2100	19000	900	4.5
WORLD	63	96	400	64/68	55	33	2697	900	...	8.0.
DEVELOPING	70	106	450	62/65	42	43	2473	1500	...	4.7

Source: World Bank, *Better Health in Africa*, Washington D.C., 1994.

Table 6B: Percentage of Health Status Access to Water, Sanitation, Health care Services and immunization indicators

COUNTRY West Africa	HEALTH STATUS ACCESS INDICATOR 1985-1990			IMMUNIZATION COVERAGE 1991						
	SAFE WATER	SANITATION	SERVICES	TETANUS	BCG	DPT3	POL3	MEASLES		
Benin	50	41	32	55	81	68	68	60		
Burkina Faso	67	10	49	26	60	38	38	36		
Cote d'Ivoire	83	36	60	35	47	37	37	47		
Gambia	77	77	30	77	97	85	89	87		
Ghana	56	30	76	33	55	39	39	39		
Guinea	33	24	32	25	47	35	35	33		
Guinea-Bissau	25	21	80	44	94	63	63	52		
Liberia	50	15	34	20	62	28	28	55		
Mali	23	23	27	9	68	34	34	39		
Mauritania	66	...	40	40	60	26	26	29		
Niger	59	9	30	44	26	17	17	23		
Nigeria	32	13	67	58	57	44	44	46		
Senegal	53	32	40	33	69	51	51	46		
Sierra Leone	43	43	30	77	71	56	57	54		
Togo	70	23	30	81	79	61	61	51		
AFRICA	37	26	54	30	61	45	45	45		
World	81	66	91	33	88	82	84	80		
Developing	75	56	89	43	89	82	84	79		