

A Review of the Health Sector in Kenya

Paul K. Kimalu

Nancy N. Nafula

Damiano K. Manda

Arjun Bedi

Germano Mwabu

Mwangi S. Kimenyi

Social Sector Division

Kenya Institute for Public Policy Research and Analysis

KIPPRA Working Paper No. 11

March 2004

KIPPRA IN BRIEF

The Kenya Institute for Public Policy Research and Analysis (KIPPRA) is an autonomous institute whose primary mission is to conduct public policy research leading to policy advice. KIPPRA's mission is to produce consistently high quality analysis of key issues of public policy and to contribute to the achievement of national long-term development objectives by positively influencing the decision-making process. These goals are met through effective dissemination of recommendations resulting from analysis and by training policy analysts in the public sector. KIPPRA therefore produces a body of well-researched and documented information on public policy and in the process assists in formulating long-term strategic perspectives. KIPPRA serves as a centralized source from which the government and the private sector may obtain information and advice on public policy issues.

© Kenya Institute for Public Policy Research and Analysis, 2004
Bishops Garden Towers, Bishops Road
PO Box 56445, Nairobi, Kenya
tel: +254 2 2719933/4
fax: +254 2 2719951
email: admin@kippra.or.ke
website: <http://www.kippra.org>

ISBN 9966 949 50 X

The KIPPRA Working Paper Series disseminates results of on-going research at the Institute. The papers in this series cover specific policy issues in detail and are meant to provide policy makers and researchers with background information that can be used in developing refined discussion and policy papers. The papers are authored and reviewed by KIPPRA researchers and are disseminated to provoke debate and solicit comments. Opinions expressed in the papers are entirely those of the author or authors and do not necessarily reflect the views of the Institute.

KIPPRA acknowledges generous support from the European Union (EU), the African Capacity Building Foundation (ACBF), the United States Agency for International Development (USAID), the Department for International Development of the United Kingdom (DfID) and the Government of Kenya (GoK).

ABSTRACT

Since independence in 1963, Kenya has continued to design and implement policies aimed at promoting coverage of and access to modern healthcare in an attempt to attain the long-term objectives of health for all. On attaining independence, the Government committed itself to providing "free" health services as part of its development strategy to alleviate poverty and improve the welfare and productivity of the nation. The development and expansion of health services and facilities in terms of spatial coverage, training of personnel, and in tertiary healthcare delivery services since independence has been commendable. Though the physical infrastructure for health provision in Kenya has expanded rapidly, distribution and coverage remains uneven especially in rural areas. Maintenance of public sector health facilities has been a big problem and a major burden for the Ministry of Health. Healthcare policy reforms have therefore been adopted as a strategy of supplementing government budgets to revitalize healthcare delivery systems. The most notable health reforms the Government has adopted include decentralization and cost sharing. The health achievements between 1960 and 1992 have been encouraging. During this period, there were improvements in infant, child and maternal mortality and morbidity rates, crude death rate, and life expectancy, among others. However, since the early 1990s, there has been a declining trend in the health status of the population. Mortality rates started increasing in 1993. Infant and under five mortality rates increased from 51 and 74 in 1992 to 74 and 112 in 1998, respectively. Chronic malnutrition or stunting prevalence remained at 33 percent in the period 1993 and 1998. The greatest challenge to independent Kenya has been the emergence of the HIV/AIDS pandemic. It is estimated that 2.2 million Kenyans are now living with HIV infection, representing about 14 percent of the sexually active population. Over 1.5 million Kenyans have died of AIDS since the epidemic started. The HIV/AIDS pandemic is becoming much more than a health problem as it encompasses economic, social, and cultural dimensions. The epidemic continues to exert pressure on the healthcare delivery system. Although there has been a massive expansion of health infrastructure since independence, increasing population and demand for healthcare outstrips the ability of the government to provide effective health services. Provision of effective health services requires that the government addresses issues of inadequate health personnel, financing, drugs, health infrastructure, inefficiency in health delivery, and inequality in delivery of healthcare.

Contents

1. Introduction	1
2. Health Indicators	4
2.1. Infant and Under-five Mortality Rates	4
2.2. Life Expectancy	5
2.3. Crude Birth and Death Rates	6
2.4. Fertility Rates	9
2.5. Nutritional Status	10
2.6. Morbidity	12
2.7. Indicators of Environmental Health	14
3. Kenya's Health System	17
3.1. Health Policies and Objectives	18
3.2. Health Facilities	20
3.3. Health Personnel	24
3.4. Immunization Coverage	26
4. Health Quality and Financing in Kenya	28
4.1. Healthcare Quality	28
4.2. Financing of Healthcare	29
5. Reforms in the Health Sector	35
5.1. Decentralisation	35
5.2. Cost Sharing	36
6. Health and HIV/AIDS	41
7. Health and Poverty	47
8. Health Crises and Challenges	48
9. Conclusion	52
References	54
Annex	57

1. Introduction

According to the World Health Organisation (WHO), health is a state of complete physical, mental and social well being and not merely the absence of disease or infirmity (WHO, 1978). WHO has further proclaimed that “the health of all the people is fundamental to the attainment of peace and security and is dependent upon the fullest co-operation of individuals and states”, and that “the enjoyment of the highest attainable standards of health” is one of the fundamental rights of every human being.

Achievement of good health is critical in enhancing human development. A sound healthcare delivery system, good nutritional status, food security and absence of epidemic diseases are the conditions that produce healthy people capable of participating in a country’s economic, social and political development.

Human health has a major role to play in economic development. There is a direct link between the health of a population and its productivity, and this relationship has been demonstrated in industrial countries, which are now benefiting from years of investment in health services (Schultz, 1993). Provision of good health services satisfies one of the basic human needs and contributes significantly towards maintaining and enhancing the productive potential of the people. Improving health services reduces production losses caused by worker illness, permits the use of national resources that had been totally or nearly inaccessible because of disease, increases the enrolment of children in school, and increases learning ability. In Kenya, the central government, local authorities, church missions, industrial health units and private institutions and individuals are the main providers of health services.

Healthcare is both a consumer good as well as an investment good. As a consumption good, healthcare improves welfare, while as an investment commodity, healthcare enhances the quality of human capital and improves labour productivity, partly by increasing the number of days available for productive activities. Increasing consumption of health services in the population is therefore an important policy issue in many countries. In this regard, understanding private healthcare demand should help in formulating better health policies.

In the analysis of healthcare demand, it is important to bear in mind that the quantity of health services demanded by an individual does not depend

solely on healthcare prices. In addition to the cost of treatment, demand for healthcare from any particular provider depends on the underlying epidemiology, individual perception of illness, expected transport costs, expected time costs, healthcare decision makers within households, household income, and distribution of household resources within a household (USAID, 1994).

To understand how the above factors affect utilisation of health facilities, both by the poor and non-poor, one has to consider the uncertain and unpredictable nature of healthcare demand. The onset of illness or the cost of care in the event of sickness, for example, are factors that affect demand but which are unpredictable. Moreover, there is an externality factor to be considered in an analysis of healthcare demand. One person's health has a bearing on the health status of others, and this issue should be taken into account when analysing health maintenance of an individual. A person's ill health may have an adverse impact on health of others through a variety of channels. For example, a person with a communicable disease can affect other people's health by spreading the disease. Loss in productivity due to disease can mean loss in income for persons dependent on earnings of the sick person, as happens when a household head becomes sick, and so on. Furthermore, healthy persons can suffer income losses because of the need for them to care for the sick. The benefit of treating a sick individual therefore extends beyond that individual.

Unlike the market for many other goods and services, government should intervene in the market for healthcare services, generally because of the presence of market failure, which is why actions of producers and consumers alone will not yield a socially optimal or economically efficient result. Governments have an important role to play in supporting the provision and consumption of services that are more public in nature (e.g. sanitation) or have important positive externalities (such as the prevention and treatment of communicable diseases). In addition, governments need to take measures to address the average consumer's relative lack of information (compared to providers) regarding his or her health and the options available to improve it. Government intervention can take several forms, including direct provision of services, financing of services, regulation of private service provision or a combination of these. Poverty alleviation is another rationale for government involvement. One way to reduce poverty is to increase the human capital of the poor by increasing their access to basic healthcare, education and nutrition.

Health indicators in Kenya are worsening and the gap between the demand for and supply of health services continues to widen. There is also a problem of service quality. The sector has not been able to expand as rapidly as the population to ensure adequate coverage, accessibility and acceptable quality of health services. This situation has been exacerbated by low levels of financial resources, the emergence of new diseases, and the growing appreciation of modern healthcare.

This paper is motivated by the desire to understand the continued decline in the health status of Kenyans from the early 1990's despite heavy government investment in health infrastructure since independence. The emergence of new diseases such as HIV/AIDS and the re-emergence of diseases such as tuberculosis, which require more resources to combat is another motivating force. Financial allocations to the health sector have been dwindling over the 1990's and this is alarming given the declining health status in the country.

The broad objective of the paper, however, is to review the performance and structure of the health sector in Kenya since independence in 1963. The specific objectives are to:

- Assess the development of the country's health system;
- Analyse financing mechanisms of the health system;
- Evaluate the trends in health indicators;
- Evaluate health reforms and their impact on the health delivery system; and
- Identify emerging issues in the health system in Kenya.

The remaining parts of the paper are organised as follows. Section 2 of the paper provides various health indicators in Kenya. Section 3 analyses Kenya's health system in terms of objectives, policies, facilities and performance while section 4 looks at healthcare quality and financing. Section 5 is a review of the reforms in the health sector in Kenya while section 6 deals with the interrelationship between health and HIV/AIDS. Section 7 relates health and poverty while section 8 looks at the health crises in Kenya and the challenges to be overcome. Section 9 provides conclusion on the key issues emerging from this review.

2. Health Indicators

The achievement of the physical and mental well being of the people is critical to the development of human resources. The development and expansion of health services and facilities in terms of spatial coverage, training of personnel and in tertiary healthcare delivery services in Kenya have been impressive since independence. This has resulted in improved life expectancy and reduced mortality rate.

The health status of the population can be assessed by a number of indicators including infant, child and maternal mortality and morbidity rates, crude death rate, life expectancy at birth, and the number of medical staff and facilities available per unit of population. These are the basic indicators of a country's health, socio-economic situation, and quality of life.

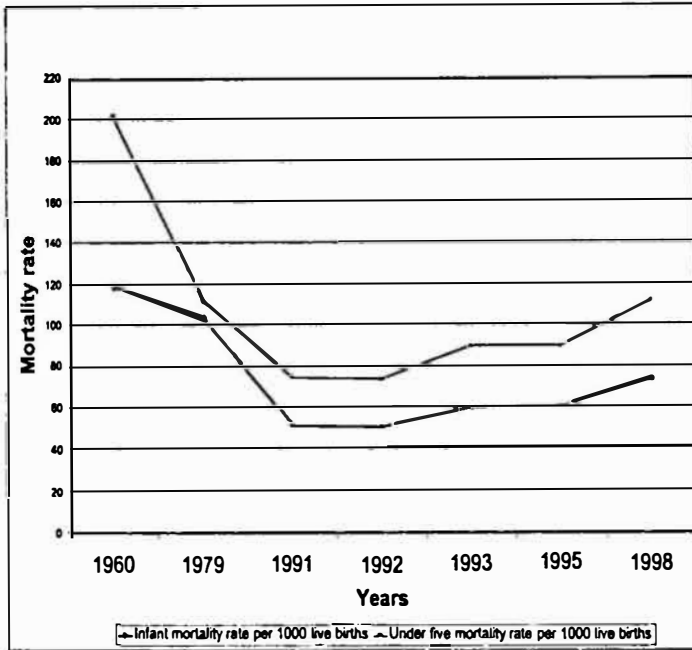
2.1 Infant and Under-five Mortality Rates

Infant mortality rate is the probability of dying between birth and exactly one year of age, expressed per 1,000 live births, while under-five mortality rate is the probability of dying between birth and exactly five years of age, expressed per 1,000 live births.

The health achievements between 1960 and 1992 were encouraging. Infant mortality rate dropped from 119 to 51 per 1000 live births and the under-five mortality rate dropped from 202 to 74 per 1000 live births (Government of Kenya, 2000). However, there was a reversal in the direction of change in the health status of the population in most of the 1990s as reflected by the increase in mortality and morbidity indicators.

Infant and under five mortality rates increased from 51 and 74 in 1992 to 74 and 112 in 1998, respectively. According to the Kenya Demographic and Health Survey 2003 (Government of Kenya, 2003), infant and under-five mortality have increased further to 78 and 114 in the year 2003, respectively. Increasing poverty may be the major cause and a consequence of the trend. The other contributing factors may include a decline in per capita, inavailability of food, deteriorating quality of, and poor access to health services due to introduction of user fees, increased incidence of HIV/AIDS, and limited budget allocations to the health sector.

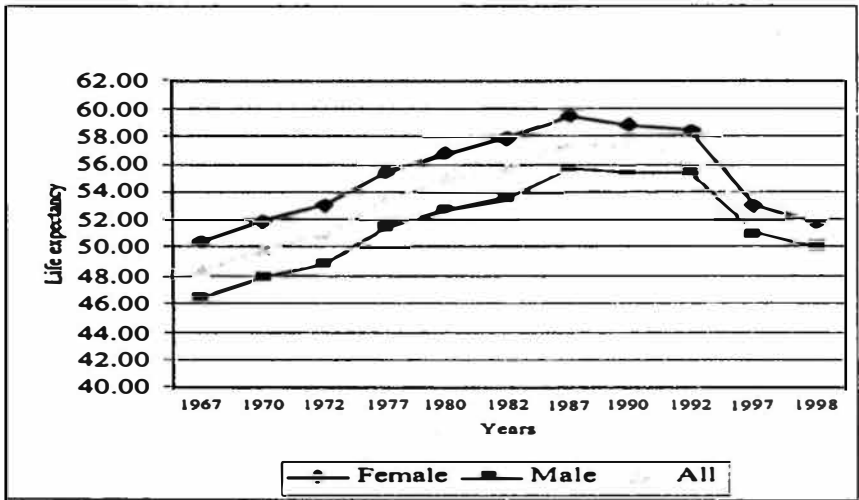
Figure 2.1: Mortality indicators in Kenya (selected years)



2.2 Life Expectancy

Life expectancy at birth is the number of years a new born infant would live if prevailing factors of mortality at the time of birth were to stay the same throughout the child's life. Life expectancy rose from 40 years in 1963 to 60 years in 1993 (Government of Kenya, 1994c). According to the World Bank (2001), female life expectancy was 50.5 years in 1967 and 46.5 for male (four years lower). Life expectancy increased during the first three decades after independence. However, from early 1990s, a declining trend started, with life expectancy declining from 60 years in 1993 to 51 in 1998. Female and male average years of living declined from 58.4 and 55.3 in 1992 to 51.9 and 50.2 in 1998, respectively. The decline may be partly explained by increased poverty and the HIV/AIDS scourge.

Figure 2.2: Life expectancy by gender (selected years)



2.3 Crude Birth and Death Rates

Crude birth rate is the number of births per 1,000.

$$\text{Crude birth rate} = \frac{\text{Number of live births}}{\text{Estimated midyear population}} \times 1000$$

Crude death rate is defined as the number of deaths per 1,000 and is calculated as follows:

$$\text{Crude death rate} = \frac{\text{Number of deaths}}{\text{Estimated midyear population}} \times 1000$$

Both crude birth and death rates are important determinants of population size. An increase in crude birth rate may lead to an increase in population size if the crude death rate remains constant. Many countries in the world have faced declining birth rates. The reasons for the trend in birth and death rate are not the same everywhere. In some countries, birth rates have declined because people chose to have smaller families in order to enjoy greater material wealth. In other countries, poor people chose to have smaller families because contraception was made available.

According to the World Bank (2001), the crude birth rate in Kenya declined from 52 per 1000 in 1963 to about 35 per 1000 in 1998. The decline in crude birth rate may be explained by the increased awareness campaign of family planning, which has led to increased use of family planning methods. Crude death rate per 1000 population declined from 20 in 1963 to about 9 in 1992 and then increased to around 12 in 1998.

Figure 2.3: Crude birth and death rates

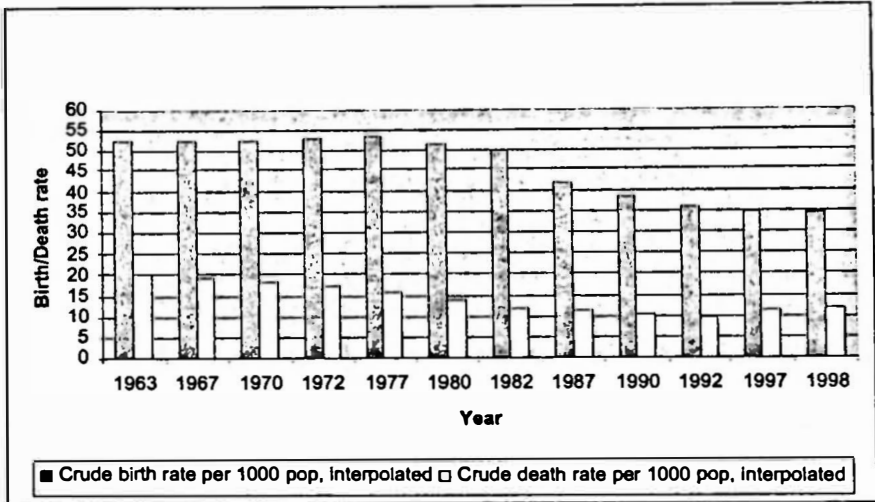


Table 2.1 below summarises trends in some demographic indicators for the 1963-1998 period.

Table 2.1: Demographic indicators

Indicator	1963	1990	1993	1998
Fertility rate	8.1	6.7	5.4	4.7
Crude death rate	20/1000	10/1000	12/1000	12/1000
Crude birth rate	52	49/1000	46/1000	35/1000
Life expectancy at birth	40	58	60	51
Infant mortality rate	30/1000	74/1000	67/1000	74/1000
Immunisation coverage	<30%	74%	79%	65%

Source: Government of Kenya, 1994a and 1998; World Bank, 2001

Kenya's progress in the health sector has been quite favourable as compared to other countries in sub-Saharan Africa. High rates of diseases incidence and premature mortality in sub-Saharan Africa are costing the continent dearly. Poor health causes pain and suffering, reduces human energies and makes millions of people less able to cope with life, let alone enjoy it. The economic consequences are immense. Poor health shackles development of human capital, reduces returns to learning, impedes entrepreneurial activities and holds back growth of GNP. Mortality differentials among African countries are less striking. From some selected African countries (Table 2.2), the mortality of children under five ranges from more than 200 deaths per 1000 live births in Democratic Republic of Congo, Malawi and Zambia to fewer than 100 in Botswana, South Africa, Swaziland and Zimbabwe in 1999 (UNDP, 2001). Kenya under-five mortality of 118 per 1000 was lower than the sub-Saharan African rate of 172 but higher than the world rate of 80 per 1000 in 1999. Among selected countries, Ghana had the highest life expectancy of 56.3 years while Rwanda had the lowest of 39.4 years. Kenyan life expectancy of 52.2 years was lower than the

Table 2.2: Health indicators (selected African countries)

Country	Life expectancy			Infant mortality rate per 1000		Under-five mortality rate per 1000		Maternal mortality ratio per 100,000
	1970-1975	1995-2000	1999	1970	1999	1970	1999	1980-1999
South Africa	53.7	56.7	53.9	80	54	115	69	-
Swaziland	47.3	50.8	47.0	140	62	209	90	230
Botswana	53.2	44.4	41.9	99	46	142	59	330
Zimbabwe	56.0	42.9	42.9	86	60	138	90	400
Ghana	49.9	56.3	56.6	111	63	186	101	210
Kenya	51.0	52.2	51.3	96	76	156	118	590
Nigeria	44.0	51.3	51.5	120	112	201	187	700
Sudan	43.7	55	55.6	104	67	172	109	550
Tanzania	46.5	51.1	51.1	129	90	218	141	530
Uganda	46.4	41.9	43.2	110	83	185	131	510
Democratic Rep. of Congo	46.0	50.5	-	147	128	245	207	-
Zambia	47.2	40.5	41.0	109	112	181	202	650
Malawi	41.0	40.7	40.3	189	132	330	211	620
Rwanda	44.6	39.4	39.9	124	110	210	180	-
Burundi	44.0	40.6	40.6	135	106	228	178	-
Developing countries	55.5	64.1	-	109	61	167	89	-
Sub-Saharan Africa	45.3	48.8	-	138	107	226	172	-
World	59.9	66.4	-	96	56	147	80	-

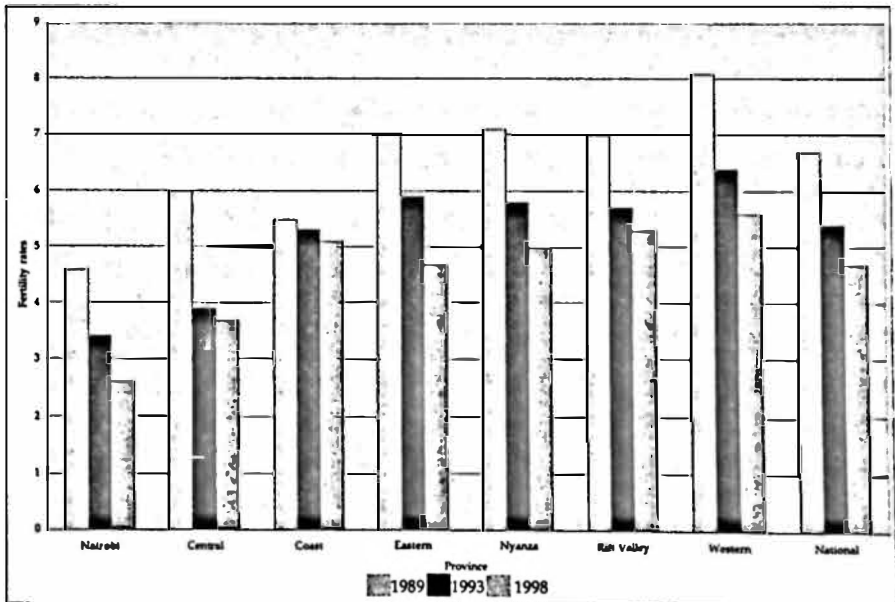
Source: UNDP, 2001

developing countries and the world average of 64.1 and 66.4 years, respectively, for the period between 1995 and 2000.

2.4 Fertility Rates

Total fertility rate is the number of children a woman would have by the end of her childbearing years if she were to pass through those years bearing children. Analysis of fertility rates plays an important role in determining population growth rate, which in turn helps in planning for social provisioning. According to the Demographic and Health Survey of 1998 (Government of Kenya, 1999), the total fertility rate in Kenya has declined dramatically from 8.1 children per woman in mid-1970s to 6.7 in 1989, 5.4 in 1993 and 4.7 in 1998. However, fertility has increased to 5.0 in 2003 with rural areas having a higher fertility rate of 5.6 compared to 3.3 in urban areas (Government of Kenya, 2003). There are variations across provinces with Nairobi Province having the lowest fertility rate of 2.6 children in 1998, while Western Province had the highest rate of 5.6 children. The Survey also shows that fertility rate is higher in rural areas than in urban areas. In 1998, a rural woman was expected to have 5.2 children compared to 3.1 children for an urban woman. Women without secondary school

Figure 2.4: Fertility trends



Source: Government of Kenya, 1989, 1993, 1998

education had a fertility rate of 5.8 children compared to 3.5 children for women with secondary school education.

2.5 Nutritional Status

The nutritional well being of young children reflects household, community, and national investments in family health and contributes in both direct and indirect ways to the country's development. The nutritional status of children is summarised using anthropometric indices (height and weight), which reflect past deprivation.

Malnutrition is a major source of ill health and premature death in developing countries. Undernourished people are those whose food intake is insufficient to meet their minimum energy requirements. Stunting (insufficient height for age, indicating chronic under-nutrition) is an indication of cumulative deficient growth linked to long-term deprivation of both food and non-food requirements. Wasting (insufficient weight for height, indicating acute under-nutrition) associated with short-term deprivations changes rapidly and is sensitive to acute food deprivation and morbidity. Low weight for age indicates chronic and acute under-nutrition.

According to UNDP (2001), underweight for age-children under age five-includes moderate and severe underweight, which is defined as below two standard deviations from the median weight for age of the reference population. Under-height for age-children under five-includes moderate and severe stunting, which is defined as below two standard deviations from the median height for age of the reference population.

In Kenya, chronic under-nutrition is the most common form of malnutrition, mainly associated with insufficient dietary intake because households lack adequate resources to secure basic food requirements. The 1998 Kenya Demographic and Health Survey (Government of Kenya, 1999) estimate of the prevalence of chronic malnutrition or stunting is 33 percent, which is the same as the 1993 estimate, suggesting that there was no improvement in the nutritional status of young children between the two periods. There are variations across regions with Coast Province having the highest prevalence of stunting at 39.1 percent followed by Eastern and Western provinces with 36.8 and 35.0 percent, respectively. Nairobi Province has the lowest prevalence rate of 25.7 percent.

Table 2.3: Nutritional status of children by background characteristics (% below 2 standard deviations)

Background characteristics	Height for age		Weight for height		Weight for age	
	1998	2003	1998	2003	1998	2003
Child's sex						
Male	35.2	33.6	5.9	6.6	22.2	22.3
Female	30.8	27.8	6.2	4.8	22.0	18.1
Residence						
Urban	24.7	23.3	5.1	4.3	13.3	12.7
Rural	34.7	32.2	6.2	6.0	23.9	21.7
Province						
Nairobi	25.7	18.4	7.1	4.4	11.4	6.8
Central	27.5	26.7	5.6	4.1	14.3	15.0
Coast	39.1	35.6	4.3	6.0	27.4	25.9
Eastern	36.8	32.9	4.7	4.0	25.7	21.7
Nyanza	30.8	30.8	7.0	2.3	22.2	15.4
Rift Valley	33.1	32.6	7.4	8.0	24.9	24.4
Western	35.0	30.3	4.6	4.2	19.1	18.6
Mother's education						
No education	46.4	35.5	8.8	14.9	36.8	32.9
Primary incomplete	39.7	35.1	6.5	5.1	26.9	22.4
Primary complete	31.5	31.3	6.4	2.7	19.9	17.5
Secondary plus	19.2		3.9		11.0	
Total	33.0	30.7	6.1	5.7	22.1	20.2

Source: Government of Kenya, 1998, 2003

According to Kenya Human Development Report (UNDP/Government of Kenya, 1999), approximately 1.5 million Kenyan children under-five years old were chronically under-nourished in 1994. Increasing poverty and declining access to health services may partly explain this situation. Therefore, improvement in basic health service delivery, increased food production, and poverty reduction should go hand in hand to stem the increase in infant mortality and morbidity and the prevalence of poor nutrition among children.

A comparison of Kenya with some selected countries shows that 43 percent of Kenya's population were undernourished between 1996 and 1998 compared to 14, 10, and 8 percent for Swaziland, Ghana and Nigeria, respectively. The percentage of underweight for age children for Kenya was 22 percent while under-height for age children was 33 percent.

Results from the 2003 Kenya Demographic and Health Survey (Government of Kenya, 2003) show that the percentage of underweight for age and underheight for age children has declined to 31 and 20 percent, respectively.

Table 2.4: Malnutrition

Country	Undernourished people (as a % of total population)	Children underweight for age (% of under age 5)	Children under-height for age (% under age 5)
	1996/98	1995-2000	1995-2000
South Africa	-	9	23
Swaziland	14	10	23
Botswana	27	17	29
Zimbabwe	37	15	32
Ghana	10	25	26
Kenya	43	22	33
Nigeria	8	31	34
Sudan	18	34	33
Tanzania	41	27	42
Uganda	30	26	38
Democratic Republic of Congo	61	34	45
Zambia	45	24	42
Malawi	32	30	48
Rwanda	39	27	42
Burundi	68	37	43
Developing Countries	18	27	31
Sub-Saharan Africa	34	30	37
World	-	24	28

Source: UNDP, 2001

2.6 Morbidity

The major causes of morbidity and hospitalisation in Kenya have not changed over the past two decades. Malaria and acute respiratory infections account for almost half of the reported visits to outpatient facilities. Other diseases are skin infections, intestinal worms, and diarrhoea.

Malaria is endemic in most parts of Kenya and is a common cause of hospital admission for all age groups. Of the total reported visits to outpatient facilities in 1990, malaria constituted 25.4 percent of the morbidity followed by respiratory infection, skin infection and intestinal worms with 22.5, 8.5, and 4.3 percent, respectively. Malarial morbidity increased to 32.62 percent by 1999, despite other diseases showing a stabilising trend.

Figure 2.5: Out-patient morbidity

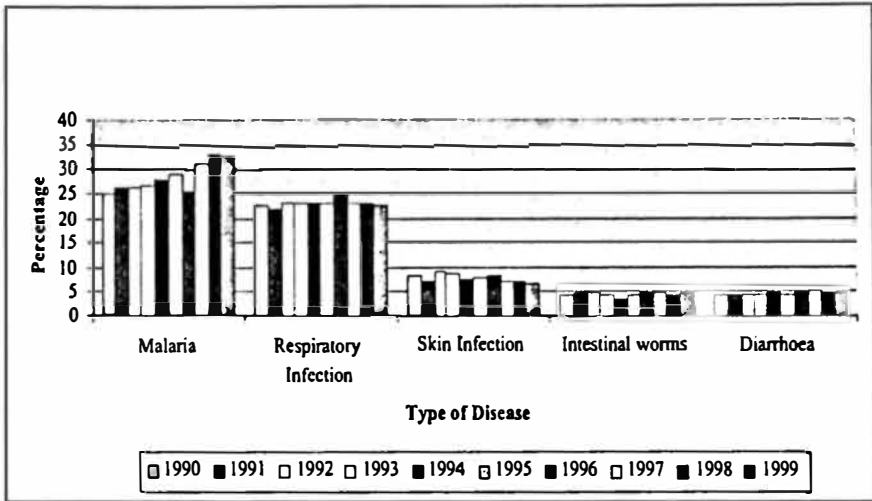


Table 2.5: Out-patient morbidity statistics (percentage)

Year	Malaria	Respiratory infection	Skin infection	Intestinal worms	Diarrhoea
1990	25.43	22.51	8.53	4.26	4.17
1991	26.36	21.83	7.16	4.58	4.08
1992	26.62	23.20	9.14	4.45	4.36
1993	27.10	23.25	8.73	4.20	4.14
1994	28.24	23.16	7.87	3.53	4.53
1995	29.35	23.64	7.92	4.26	4.31
1996	25.81	24.75	8.36	4.45	4.73
1997	31.00	23.50	7.30	4.50	5.40
1998	33.52	23.12	7.14	4.42	4.70
1999	32.62	22.52	6.94	4.52	4.65

Source: Government of Kenya, Statistical Abstracts (various issues)

2.7 Indicators of Environmental health

The problem of environmental sanitation in low-income countries is contamination of water supply and food by soil and human waste. Many infectious, parasitic, and respiratory diseases that afflict these countries are waterborne, with typhoid, dysentery, and cholera leading. Although most urban residents in developing countries have access to piped water, public water supply is often rendered unsafe by contamination in the distribution process as a result of faulty and or non-existent sewage systems.

A second type of environmental sanitation problem arises from housing with insufficient space, ventilation, and access to sunlight. This situation, which is more likely to occur in urban areas, promotes the spread of air-borne diseases such as tuberculosis.

The population using improved water sources is the percentage of the population with reasonable access to an adequate amount of drinking water from improved sources. Reasonable access is defined as the availability of at least 20 litres of water per person per day from a source within one kilometre of the user's dwelling. Improved sources include household connections, public standpipes, boreholes with handpumps, protected dug wells, protected springs and rainwater collection (not included are vendors, water bowsers, and unprotected wells and springs).

The proportion of population with adequate sanitation facilities, such as a connection to a sewer or septic tank system, a pour/flush latrine, a simple pit latrine or a ventilated improved latrine is the percentage of population using adequate sanitation facilities. A waste disposal system is considered adequate if it is private or shared (but not public) and if it hygienically keeps human waste from human contact.

According to the Kenya Demographic and Health Survey of 1993 (Government of Kenya, 1994), only 19.4 percent of the population had piped water. This improved to 23.2 percent in 1998 (Government of Kenya, 1998). The population in urban areas has more access to piped water compared to rural areas. Over 50 percent of urban population had access to piped water in 1993 and 1998 while rural population had less than 13 percent access to piped water. More than 40 percent of rural population uses river and stream water sources. There are variations across regions with 0.4 percent of Nairobi population using river/stream water while Nyanza and Western provinces had 52.7 and 50.1 percent of respective populations using a similar source in 1998 (Table 2.6).

Table 2.6: Water sources and types of sanitation facilities

Region	Source of Drinking Water						Sanitation Facility					
	Piped into residence		Public tap		River, stream		Own Flush Toilet		Traditional pit latrine		No facility	
	1993	1998	1993	1998	1993	1998	1993	1998	1993	1998	1993	1998
Urban	55.8	58.2	31.4	25.9	1.6	3.5	23.5	24.7	42.3	42.3	2.1	2.6
Rural	10.7	12.3	8.9	6.3	41.2	49.3	1.1	1.5	71.4	73.3	20.3	18.6
Nairobi	65.0	77.6	27.3	14.5	0	0.4	19.3	26.9	36.5	29.7	3.1	0.8
Central	27.4	30.9	10.7	6.5	33.2	34.9	2.0	2.8	83.3	85.3	0.8	0.6
Coast	15.8	21.3	37.4	33.9	12.1	17.8	5.9	9.1	58.1	50.1	23.7	26.9
Eastern	14.8	17.5	11.6	12.1	45.8	43.8	2.1	3.8	73.4	69.8	17.8	18.8
Nyanza	3.5	5.9	8.4	6.6	43.7	52.7	1.5	3.1	61.7	67.4	29.9	24.2
Rift Valley	15.9	18.1	9.8	9.1	44.0	42.5	6.9	5.8	55.6	62.8	26.0	20.7
Western	14.4	13.4	5.3	8.1	23.2	50.1	7.2	6.4	80.2	82.2	7.6	4.3
Total	19.4	23.2	13.2	11.0	33.6	38.4	5.4	7.0	65.8	65.9	16.8	14.8

Source: Government of Kenya, 1994 and 1999

On sanitation, only 1.5 percent of the rural population had a flush toilet by 1998 compared to 24.7 percent in urban areas. Over 20 percent of the population in Coast, Nyanza and Rift Valley provinces had no sanitation facilities by 1998.

Compared to other countries, the percentage of Kenyan population using adequate sanitation facilities was higher than in most African countries. By 1999, 86 percent of the Kenyan population had adequate sanitation facilities while Zimbabwe, Uganda and Rwanda had 68, 75 and 8 percent respectively. On improved water supplies, Kenya was ahead of Rwanda but behind all the other selected countries.

Table 2.7: Sanitation and improved water supplies

	Population using adequate sanitation facilities	Population using improved water supplies
Country	1999	1999
South Africa	86	86
Zimbabwe	68	85
Ghana	63	64
Kenya	86	49
Nigeria	63	57
Sudan	62	75
Tanzania	90	54
Uganda	75	50
Zambia	78	64
Malawi	77	57
Rwanda	8	41

Source: UNDP, 2001

3. Kenya's Health System

The level of a nation's development depends upon the economic and social conditions and the extent and quality of health services provided to the population. Therefore, the healthcare we have today is a result of policies made some years ago. Immediately after independence in the early 1960s, many African governments were desirous to reverse the adverse effects of colonial oppression and subsequently declared war on three common enemies, namely ignorance, poverty and disease. This declaration was popular and was consistent with the aspirations of the people. However, many African countries have entered the new millennium with many unfulfilled promises, with greater absolute numbers of poor and deprived persons, declining living standards of their people, and a mounting disease burden.

The development of healthcare system in Kenya goes back to the pre-colonial era. With the establishment of mission stations in Kenya in the 1890s and the arrival of the Imperial British East Africa Company (IBEAC) in 1888, western medicine entered the country. The Church Missionary Society (CMS), the Church of Scotland Mission (CSM) and the Catholic Missionary Holy Ghost Fathers began their activities in East Africa between 1898 and 1903. Simultaneously, the Church of Scotland set up a station in Kikuyu in 1898, which gave medical help.

In 1901, a medical department was created as one of the civil departments of the central administration. This was the first step towards establishment of colonial medical organisations supported and controlled by the state. In 1903, medical administrators were requested, first, to preserve the health of the European Community, second, to keep the African and Asiatic labour force in good working condition, and third, to prevent the spread of tropical diseases.

Medical education in East Africa took a major stride when Makerere University College started a medical degree course in 1950. In 1967, the University of East Africa established a faculty of medicine at University College, Nairobi, which in 1970 became the University of Nairobi.

After independence, the government continued to expand health facilities in the country as its main social concern at the time of independence was elimination of poverty, illiteracy and disease (Government of Kenya, 1965). In 1964, the pre-independence user fees on medical services were

discontinued and free outpatient services and hospitalisation for all children in public health facilities introduced. Subsequently, there was rapid growth in the number of public health facilities and medical personnel. Most of the expansion occurred in the first two decades after independence.

At independence, Kenya inherited a three-tier health system in which the central government provided services at district, provincial and national levels; missionaries provided health services at sub-district levels; and local government provided services in urban areas. This system operated until 1970 when the government established a system of comprehensive rural health services in which health centres became the focal points for comprehensive provision of preventive, promotive and curative services. Today, alongside government services, missionaries and NGOs provide health services at delivery points that range from dispensaries to hospitals. The government's healthcare delivery system is pyramidal, with the national referral facilities at Kenyatta National Hospital (Nairobi) and Moi Teaching and Referral Hospital (Eldoret) forming the peak, followed by provincial, district and sub-district hospitals, with health centres and dispensaries forming the base.

3.1 Health Policies and Objectives

The main mandate of a health system is to ensure that people enjoy long lives that are relatively free from the burden of disease and ill health. Health policies and strategies are aimed at reducing incidence of disease and improving the health status of Kenyans. Some progress has been achieved in this regard, as indicated by increase in life expectancy, reduction in mortality rates and improvement in the nutritional well-being of the general population and children in particular. Health policy in Kenya revolves around two critical issues, namely: how to deliver a basic package of quality health services to a growing workforce and their dependants, and how to finance and manage those services in a way that guarantees their availability, accessibility and affordability to those in most need. The overall goal of the government is to promote and improve the health status of all Kenyans by making all health services more effective, accessible and affordable. This is to be achieved by the government increasing its budget to the health sector and creating an enabling environment for increased involvement of the private sector, NGOs and the community in the

provision of health services. Health service providers are putting more emphasis on the preventive than the curative medicine.

As mentioned earlier, improvement in the health status of the people is an investment in human capital. The government's main objectives for development of health services since independence have been:

- Strengthening and carrying out measures for eradication, prevention and control of disease. Such measures include protection of the environment against health hazards, vector disease control, immunisation against disease, early detection and treatment of diseases and health education.
- Provision for adequate and effective diagnostic, therapeutic and rehabilitative services for the whole population at hospitals, health centres, dispensaries and mobile units.
- Promotion and development of biomedical and health services' research as a means of identifying improved and cost effective methods for the protection of the health of the people (Government of Kenya, 1984).

The main health policies in Kenya include:

- Increasing coverage and accessibility of health services in rural areas;
- Further consolidating urban, rural, curative and preventive and promotive services;
- Increasing emphasis on maternal and child health and family planning services in order to reduce morbidity, mortality and fertility;
- Strengthening Ministry of Health management capacities with emphasis at the district level;
- Increasing inter-ministerial coordination of health service delivery; and
- Increasing alternative financing mechanisms.

The Ministry of Health is the main provider of health services in the country and has the following functions:

- Formulation and implementation of a national health policy;
- Preparation and implementation of national health development plans;
- Organisation and administration of central health services;

- Development of health Acts and regulations;
- Training of health and allied personnel;
- Promotion of medical science and maintenance of medical and health standards;
- Liaison and coordination with other government departments and non-governmental agencies; and
- Internal health regulations.

3.2 Health Facilities

Since attainment of independence in 1963, the Kenya government has given high priority to improvement of health status of Kenyans through recognition that good health is a prerequisite to socio-economic development. This commitment is borne out by the health budget and the phenomenal growth of the network of government health facilities across the country since independence. Government policy since independence has been geared to providing health services within easy reach of Kenyans with emphasis on preventive, promotive and rehabilitative services while still recognising the need for curative services.

There are three types of health facilities in Kenya, namely: hospitals, health centres and health sub-centres including dispensaries and mobile clinics. Dispensaries and health centres are the first contact facilities for people seeking medical care. Hospitals also serve as primary healthcare institutions for many in the respective catchment areas. The rural poor rarely use hospitals and depend largely on health centres, dispensaries and mission facilities. According to the Kenya Human Development Report, UNDP (1999), utilisation of health services is affected by three factors, namely: absolute access to services, which is determined by the distance travelled or cost incurred to reach the service facility; relative access to service, which is determined by the crowding and waiting time at the service delivery point; and availability of medical services.

Kenya has followed a strategy of pluralism in healthcare provision, therefore allowing a large and diverse non-government health sector to develop. Out of the 4,125 health facilities in the country in 1997, the public sector operated about 51 percent of them while private companies, Christian

mission organisations and the Ministry of Local Government operated the remaining 49 percent. The public sector has a dominant representation in health centres (79%), sub-health centres (92%) and dispensaries (60%). Non-government health providers are a significant part of Kenya's overall healthcare provision capacity. The NGO sector is dominant in the health clinics, maternity and nursing homes (94%) and medical centres (86%) (Owino, 1997). Private and mission health facilities and public hospitals are important sources of health services for the non-poor in Kenya while health centres in rural areas and urban slums are the mainstay healthcare providers for poor patients. Therefore, improvement in rural and basic urban health facilities would be more beneficial to the poor.

Table 3.1: Ministry of Health and other healthcare providers

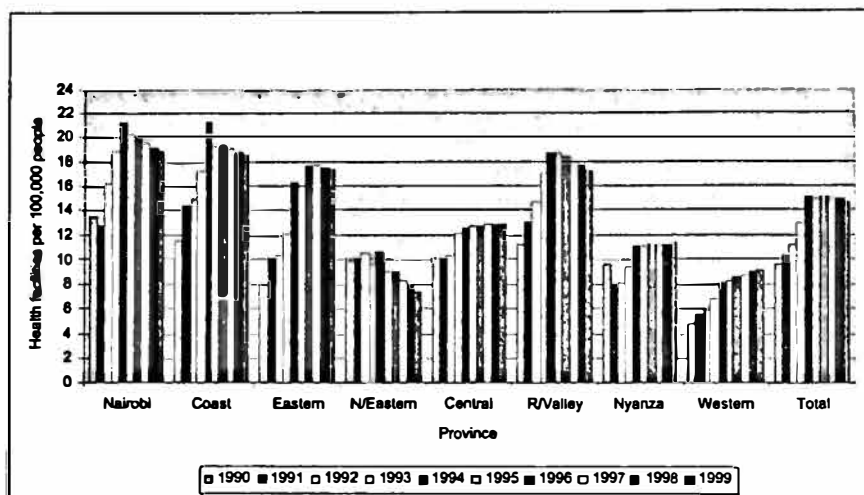
Provider	Expenditure (%)	Facilities (%)	Manpower (%)
Ministry of Health	43.26	55.34	69.48
All others	56.74	44.66	30.52

Source: Government of Kenya, 2000

The central government through the Ministry of Health is the largest provider of health services in Kenya. In 1967, 37 percent and 59 percent of the total hospitals and hospital beds in the country, respectively, were provided by the central government while churches operated 46 percent of hospitals and 29 percent of hospital beds.

The number of health institutions increased from 861 in 1967 to 2,131 in 1990 and to 4,235 in 1999. On regional distribution of health facilities, Rift Valley Province had the highest number followed by Eastern Province. North Eastern Province, partly due to its low population, had the lowest concentration of health facilities between 1990 and 1999. The number of health facilities in North Eastern Province increased from 40 in 1990 to 71 in 1999 while in Rift Valley Province the number increased from 583 to 1,207 over the same period.

Figure 3.1: Number of health facilities per 100,000 by province



Although the number of health facilities in the country increased by 99 percent between 1990 and 1999, this did not keep pace with the population growth rate. The number of health facilities per 100,000 people increased from 10 in 1990 to 13 in 1993 and then stabilised at around 15 between 1994 and 1999. Across the provinces, for the period 1990 to 1999, Nairobi Province had the highest number of health facilities per 100,000 people followed by Coast Province. Western Province had the least number of health facilities per 100,000 people over the same period. The growth of health facilities per 100,000 people was 53 percent for the 1990 to 1999 period.

In line with the government policy to increase access to healthcare, the number of hospital beds has been increasing over the years. The number of beds and cots in health facilities increased from 11,344 in 1963 to 54,378 in 1999. Most of the beds (65 percent) were in hospitals, with 16 percent were in health centres and 17 percent in nursing and maternity homes. According to Vogel (1974), 59 percent of the hospital beds in 1967 were in government hospitals, followed by hospitals of the the Catholic church which had 18 percent and those of the Protestant churches with 11 percent.

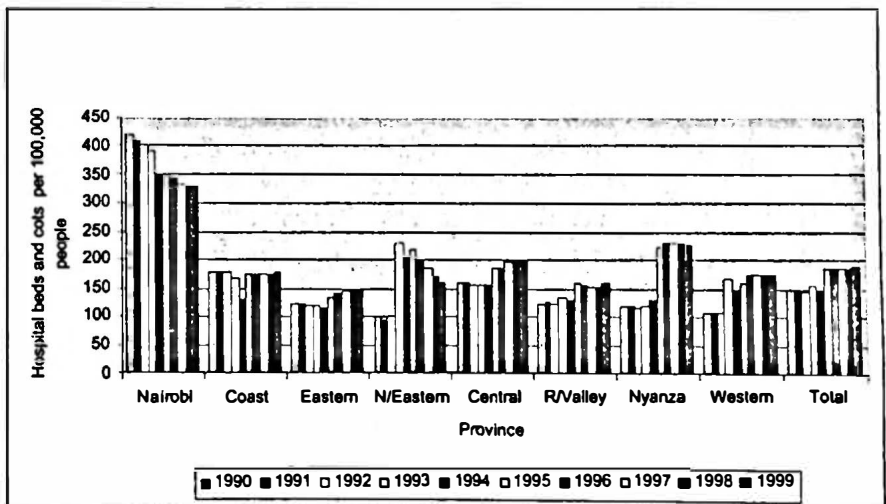
Table 3.2: Hospitals and hospital beds by operating agency (1967)

Agency	Hospitals		Beds	
	Number	%	Number	%
Central Government	74	37	8076	59
Local Government	2	1	153	1
Catholic Church	58	29	2461	18
Protestant Church	33	17	1554	11
Private Hospitals	26	13	1075	8
Company Hospitals	6	3	296	2
Total	199		13615	

Source: Vogel, 1974

There are large variations in distribution of hospital beds and cots across the regions. The variations may partly be explained by population size of the regions. Rift Valley Province, with 11,240 hospital beds and cots in 1999 was leading while Nyanza, Nairobi and Eastern provinces followed with 10,006, 7,005 and 6,736 beds and cots, respectively. North Eastern Province had the least number of hospital beds and cots followed by Coast Province. Hospital beds and cots in Rift Valley Province increased from 6,474 in 1990 to 12,240 in 1999, an increase of 89 percent, while in North Eastern Province, the number increased by 270 percent from 414 to 1,537 over the same period.

Figure 3.2: Number of hospital beds and cots per 100,000 people by province



The number of beds and cots per 100,000 population increased from 150 in 1990 to 190 in 1999, an increase of 32 percent. Nairobi Province had the highest ratio of beds to 100,000 people during the period. Over the same period, the total number of beds and cots increased by 64 percent.

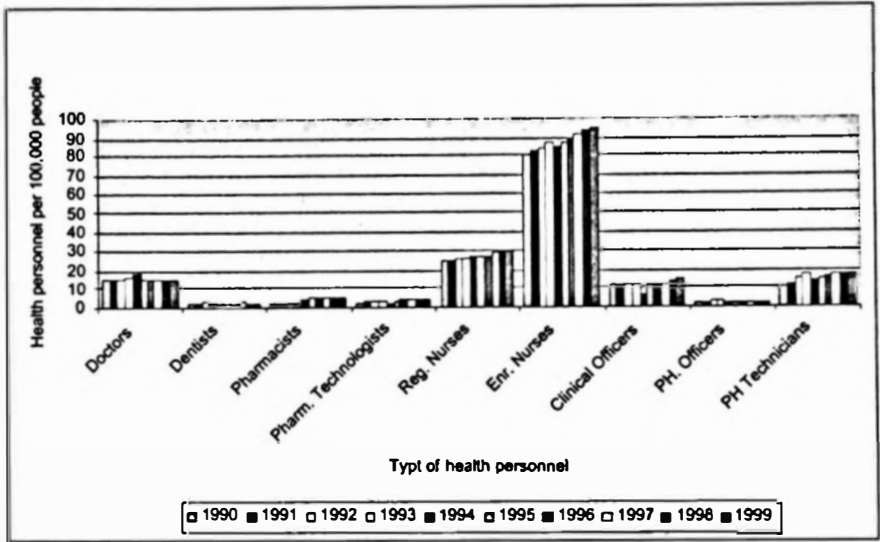
It should be noted that the growth in fixed capital and facilities in the country since independence was not matched by the growth of recurrent budget allocations. This has resulted in both chronic and sometimes acute shortage of essential and critical inputs for healthcare delivery. According to the First Report on Poverty in Kenya (Government of Kenya, 1998), 9 percent of the entire population did not visit a government health facility because it was too costly, and 13 percent of the population indicated that government facilities were too far. About 54 percent of the population indicated that they did not visit public facilities because of non-availability of drugs. The report also shows that 76 percent of the population did not visit a private health facility because it was too expensive, while church affiliated facilities were considered either too costly or too far.

3.3 Health Personnel

Healthcare delivery systems involve a variety of actors, including physicians, nurses, hospital administrators, and pharmacists, many of whom interact with each other and with patients. Most, especially physicians, can influence the nature, quantities, and quality of healthcare goods and services delivered and consumed. According to the UNDP (2001), a physician includes graduates of a faculty or school of medicine in any field (including medical, teaching, research and administration). Physicians' routine practice of making appointments, diagnosing illness, recommending and administering treatment, offering counselling and health information, charging for services and materials, and referring patients to their colleagues greatly affects utilisation, efficiency, and quality of healthcare services.

The Government of Kenya recognises this fact and has invested heavily, both in expansion of health personnel and health infrastructure. It has continued to train and staff health institutions with appropriate medical personnel. In 1965, Kenya had 734 doctors, 26 dentists and 148 pharmacists. The number of medical personnel increased to 4,411 doctors, 734 dentists and 1,650 pharmacists by 1999. This reflects an improvement in the ratio

Figure 3.3: Number of health personnel per 100,000 people by type of personnel



of medical personnel to population from 7.8 doctors, 0.3 dentists, and 1.6 pharmacists per 100,000 people in 1964 to 14.1, 2.4 and 5.1 per 100,000 people, respectively, in 1996 and 15.3, 2.5, and 5.7 in year 2000, respectively. There was near parity in the ratio of doctors and clinical officers per 100,000 people by 1999, with the ratio standing at 15.3 and 14.9, respectively. The ratio of enrolled nurses per 100,000 people is the highest while public health officers and dentists have the least ratio.

Although the policy of the government on medical personnel is to increase the personnel at the periphery level in order to reduce the workload at the hospitals, and although there has been a tremendous increase in medical personnel in absolute terms since independence, their distribution is very uneven. The heavy concentration of government medical staff in Nairobi is particularly noticeable and underlies the very low doctor population ratios in many parts of the country. About 80 percent of the doctors and dentists in 1997 were working in urban areas, which had 20 percent of the

Table 3.3: Registered medical personnel per 100,000 population in selected years

Personnel	1964	1969	1974	1979	1983	1986	1989	1992	1995	1996	2000
Doctors	7.8	11.9	9.6	10.7	12.6	14.4	14	15	14.7	14.1	15.3
Dentists	0.3	0.5	0.7	0.92	1.53	2.1	2	2.8	2.6	2.4	2.5
Pharmacists	1.6	1.5	1.6	1.78	0.60	1.6	2	2.3	5.2	5.1	5.7
Reg. nurses	22.8	28.3	37.8	42.76	45.52	45.5	24	46.9	26.4	25.2	31.2
Enr. nurses	29.9	35.4	-	54.36	54.15	54.1	65	82.9	85.4	83.2	94.5
Clinical Officers	-	10.1	9.5	10.03	10.23	10.2	11	11.8	11.3	10.9	15.2
PH officers	-	-	0.8	1.50	1.80	2.1	2	2.9	1.8	2	2.1
PH Technicians	6.4	6.9	6.7	7.60	8.7	10	14.6	14.6	14.9	-	17.1
Pharmacy technologists	-	-	-	-	2.10	-	2	2.9	3.4	3.4	4.2

Source: Statistical Abstracts (various issues)

population. The rural areas have been most hit by this staff imbalance, which has negatively affected healthcare provision.

Government health institutions are faced with staffing problems, which include overstaffing at the lower cadres and deficits at professional categories, over concentration of key personnel in urban areas, and the mushrooming of private clinics resulting in many experienced staff leaving the public service for the private sector. Another problem is poor remuneration and low morale in the civil service, which seems to make doctors to seek better opportunities elsewhere. The situation is of concern as most government facilities in rural areas face an acute shortage of doctors and middle-level personnel.

3.4 Immunization Coverage

According to the WHO, a child is considered fully vaccinated if he has received one dose of Bacterium of Calmette Guerin (BCG), three doses each of Diphtheria Pertussis and Tetanus (DPT) and polio, and one dose of measles vaccine. BCG should be given at birth or at first clinic contact; it protects against tuberculosis. DPT protects against diphtheria, pertussis, and tetanus. DPT and polio require three vaccinations at approximately 6, 10 and 14 weeks of age. Measles should be given at or soon after reaching

nine months of age. The WHO recommends that children receive the complete schedule of vaccinations before 12 months of age (Government of Kenya, 1998). Immunisation coverage rose to 79 percent in 1993 from less than 30 percent in 1963.

According to the Kenya Demographic and Health Survey of 1998 (Government of Kenya, 1999), the percentage of children with a vaccination card dropped from 69 in 1993 to 55 in 1998. This may indicate decreased access to services. Full coverage (all vaccines) increased from 63 percent in 1989 to 79 percent in 1993 but dropped to 65 percent in 1998. Between 1993 and 1998, there was a general decline in immunisation across the provinces. In 1998, 84.8 percent of the children aged 12-23 months in Central Province had received all the vaccination compared to 92.6 percent in 1993. Nyanza and Western provinces recorded all vaccination coverage of 46.5 and 56.2 percent in 1998, respectively, compared to 69.7 and 69.5 percent in 1993, respectively. Children of mothers with secondary education and above had the highest level of vaccination (79.2%) in 1998 while those with mothers with no education had the lowest level of 53.4 percent.

Table 3.4: Vaccinations by background characteristics (% of children 12-23 months with all vaccinations)

Background characteristics	Fully vaccinated 1993	Fully vaccinated 1998	Fully vaccinated *2003
Child's sex			
Male	78.4	66.0	50.7
Female	79.0	64.8	52.4
Residence			
Urban	80.9	70.5	53.5
Rural	78.3	64.2	51.1
Province			
Nairobi	86.7	72.7	54.4
Central	92.6	84.8	74.2
Coast	81.1	71.9	62.8
Eastern	85.0	74.9	57.7
Nyanza	69.7	46.5	32.4
Rift valley	75.9	69.3	53.2
Western	69.5	56.2	41.8
Mother's Education			
No education	63.3	53.4	32.8
Primary incomplete	74.5	58.2	48.6
Primary complete	83.6	67.3	56.3
Secondary+	88.5	79.2	
Total	78.7	65.4	

Source: Government of Kenya, 1998

4. Healthcare Quality and Financing in Kenya

Health financing is a key input in the provision of quality healthcare. Financial resources are mainly used for the provision of health facilities, purchase of drugs and health equipment, personnel remuneration, and operations and maintenance.

4.1 Healthcare Quality

There are many different definitions of quality of medical care. Quality of medical care can be assessed from the point of view of drugs purchased, the physician consulted, or the health facility visited and from the perspective of health service management. Therefore, quality of medical care is more difficult to measure than costs and activities of medical care. Quality is narrowly defined as a customer's satisfaction with the services received. Healthcare quality has six features: service accessibility, its relevance to need, acceptability, effectiveness, efficiency, and its equity dimension.

There has been a rapid expansion of interest in healthcare quality issues in developing countries, which has focused on the view of quality as "conformity with standards." Quality care in this sense is the degree to which actual care resembles the standards adopted by a health service programme.

The quality of medical care service can vary considerably and it has numerous dimensions, including the direct effectiveness of the treatment, the costs it imposes on patients (in respect to visits, side effects), the politeness of providers, the opening hours of a health facility, cleanliness at a facility, and time taken to wait for service at a facility.

It should be noted that quality improvement could reduce the demand for healthcare by improving the health status of an individual. For example, if higher quality care reduces the need for repeat visits, the demand for care would fall as quality increases (Mwabu *et al*, 1993).

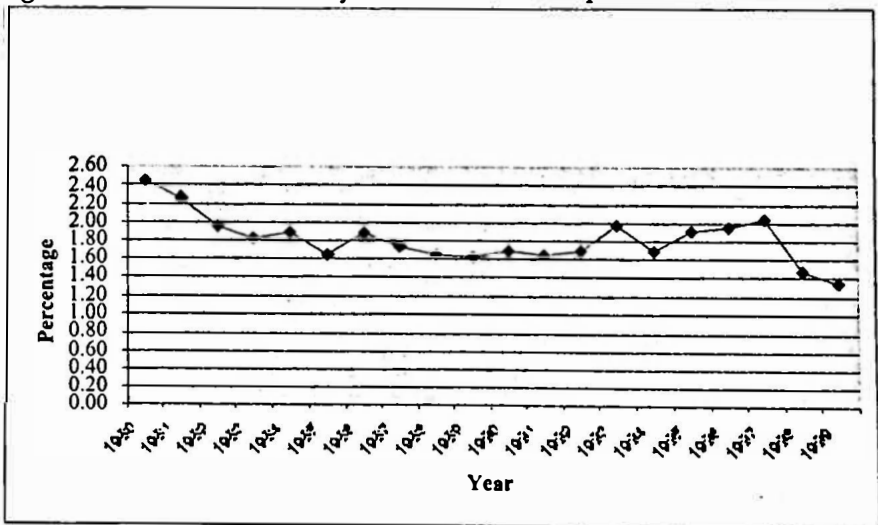
Kenya has invested heavily in healthcare in terms of infrastructure and health personnel training but the quality is still low due to various reasons including inadequate financing, inadequate medical supplies, lack of transport, and imbalances in staffing.

4.2 Financing of Healthcare

Health services and programmes in Kenya are financed from three main sources: the government through the Exchequer both, directly to the ministry of Health and indirectly to other sectors with health-related functions (National Council for Population and Development, Ministry of Water Development, Ministry of Home Affairs, National Heritage, Culture and Social Services); donors who fund Ministry of Health programmes; the private sector and NGOs. The Ministry of Health has used several financing mechanisms to support the health sector, for example cost sharing, social insurance, taxation, harambee and direct community contributions. The Ministry of Health is the main provider of health services to majority of Kenyans through its network of dispensaries, health centres, district, provincial and national referral hospitals.

According to the Kenya Human Development Report (1999), government financing of health expenditure is about 60 percent of what is required to provide minimum health services, therefore implying that healthcare delivery in Kenya is under-funded. This is accentuated by inefficiency of the system, including lack of cost-effectiveness in service delivery. According to Obonyo *et al* (1997) the government finances 50 percent, private payments (insurance and out of pockets) finances 42 percent and donors, NGOs, missions and other institutions finance 6 percent of recurrent healthcare costs. However, preliminary information from Kenya's national health accounts shows that the financial contributions of households (out of pocket expenses) exceed those of the government.

Figure 4.1: Share of Ministry of Health total expenditure to GDP



Although the total expenditure of the Ministry of Health has been increasing in nominal value since independence, its share to GDP has been declining since 1980. The share declined from 2.4 percent in 1980 to 1.7 percent in 1994 and then declined further to 1.3 percent in 1999.

Most African governments have endorsed the principles of primary health care laid out in the Alma Ata declaration of 1978. Often, however, patterns of investment and recurrent resource allocation are not consistent with official statements of health sector strategy (USAID, 1995). Kenya has also adopted the elements of primary healthcare all targeting priority causes of morbidity and mortality and received strong donor support in their implementation. However, recurrent expenditure allocations of the Ministry of Health remain skewed in favour of curative care, which accounts for about 70 percent of the total.

Analysis of the recurrent budget for health indicates that in 1990/91 about 70% of the resources went to curative services (mainly hospitals) while only about 19% went to promotive and preventive healthcare including, rural health centres. About 80% of the budget went to personnel emoluments. The government spends a higher share of the Ministry of Health recurrent expenditure on curative care despite the fact that the major causes of morbidity and mortality are conditions that can be prevented

Table 4.1: Ministry of Health recurrent budget expenditure (internal allocations as % of Government total and in US\$)

Year	Curative	Rural & primary healthcare	Administration & training	Non-drug supplies & research	Recurrent as % of government recurrent budget	Per capita recurrent expenditure (US\$)
1989/90	69.39	18.92	10.58	1.11	7.87	5.54
1990/91	69.76	19.87	9.17	1.19	7.82	5.08
1991/92	67.77	21.62	9.28	1.32	8.51	4.50
1992/93	68.72	22.02	8.65	0.61	8.46	4.60
1993/94	62.74	25.49	9.17	2.60	7.65	2.99
1994/95	67.23	20.95	9.65	2.16	7.59	3.44
1995/96	67.11	21.38	9.28	2.22	7.60	3.22
1996/97	66.86	21.39	9.58	2.17	7.61	3.09

Source: Government of Kenya, 1994a

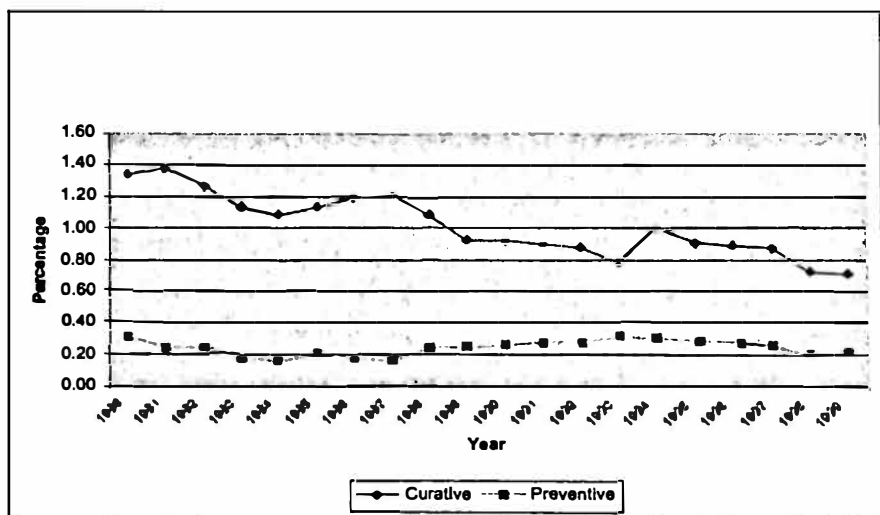
through aggressive primary and preventive healthcare programmes. The impact of this pattern of funding manifests itself in poor quality of services and frequent shortages of essential inputs (including drugs) to health delivery. Failure to adequately fund preventive and promotive services in a sustainable manner implies that the existing facilities will continue to be burdened with cases of illness that could have been averted. Therefore, the Ministry of Health should be more health-oriented and not disease-oriented as is the case at present.

In order to improve the allocative efficiency of health sector resources, the Kenya Health Policy Framework (Government of Kenya, 1994) advocates a shift towards increasing financial resources to community programmes and preventive measures, which are more cost effective in reducing disease incidence and burden. Donor funding under the development vote has been shifted to promotive and preventive health services.

There has been a decline in both the share of Ministry of Health curative and preventive expenditures to GDP. The share of curative expenditure to GDP declined from 1.34 percent in 1980 to 0.72 percent in 1999, while the share of preventive expenditure declined from 0.31 percent to 0.21 percent over the same period.

A comparison of the recurrent expenditure for education with other government sectors shows that education, administration, and defense have a higher recurrent budget share than health. During the 1990/91 financial

Figure 4.2: Curative and preventive expenditure as a percentage of GDP



year, 37.9, 20.6 and 11.4 percent of the total government recurrent expenditure went to education, administration and defense respectively. During the same year, health recurrent budget share was 9.6 percent of the total government recurrent expenditure.

Table 4.2: Central government recurrent expenditure by functional classification (as a % of total ministries' recurrent expenditure)

Budget category	1986/87	1987/88	1988/89	1989/90	1990/91
Education	25.8	33.1	37.0	37.6	37.9
Health	9.8	8.1	9.1	9.2	9.6
Housing and social welfare	3.7	3.5	3.6	3.6	3.6
Agriculture and livestock	7.1	6.0	6.1	6.1	6.0
Administration	20.0	19.3	20.5	20.2	20.6
Defense	11.9	19.9	12.5	12.4	11.4
Energy	0.3	0.3	0.5	0.4	0.4
Transport and communication	5.0	3.9	4.7	4.7	4.7
Other production sectors	6.6	5.4	6.9	6.7	6.6

Source: Government of Kenya, 1994b

Although the government has several avenues to raise funds for healthcare, some of the methods have not borne fruit. The hope of generating more resources through the National Hospital Insurance Fund (NHIF) is limited and uncertain due to weak administrative systems, poor investment portfolio, and low claims settlement, which have characterised the Fund. The use of cost sharing has had little impact on revenue generation, as less than 3 percent of the total government recurrent health budget is realised through cost sharing.

In Kenya, donors have a higher percentage share in the government health development budget. They contribute over 75 percent of the total development budget. During the 1992/93 financial year, donors contributed 78 percent of the development budget. This increased to 86 percent the following year and it was 83 percent during the 1995/96 financial year.

Although the recurrent expenditure for the Ministry of Health has been increasing over the years, it has not kept pace with the population growth. The per capita recurrent expenditure has declined over the past two

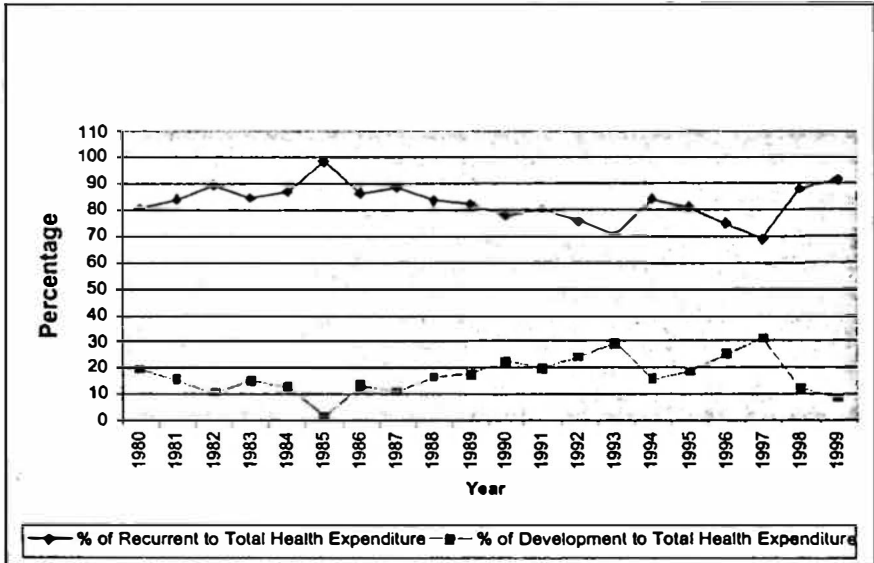
Table 4.3: Development budget by source (%)

Source	1992/93	1993/94	1994/95	1995/96
Government of Kenya	22.02	14.49	24.08	16.91*
Donors	77.98	85.51	75.92	83.09*

Source: Government of Kenya 1994a

*Estimates

Figure 4.3: Health recurrent and development expenditures as a % of total health expenditure



decades. The per capita recurrent expenditure declined from US\$9.55 in 1980/81 to US\$ 3.09 in 1996/97 financial year.

In comparison with some selected countries, Kenya has a higher percentage of public health expenditure to GDP than Ghana, Nigeria, Tanzania, Uganda, Rwanda and Burundi. In 1998, public health and private health expenditures to GDP in Kenya were 2.4 and 5.4 percent, respectively. Kenya's per capita health expenditure of US\$79 in 1998 was low compared to US\$623, 148 and 267 for South Africa, Swaziland and Botswana, respectively.

Figure 4.4: Per capita recurrent health expenditure (US\$)

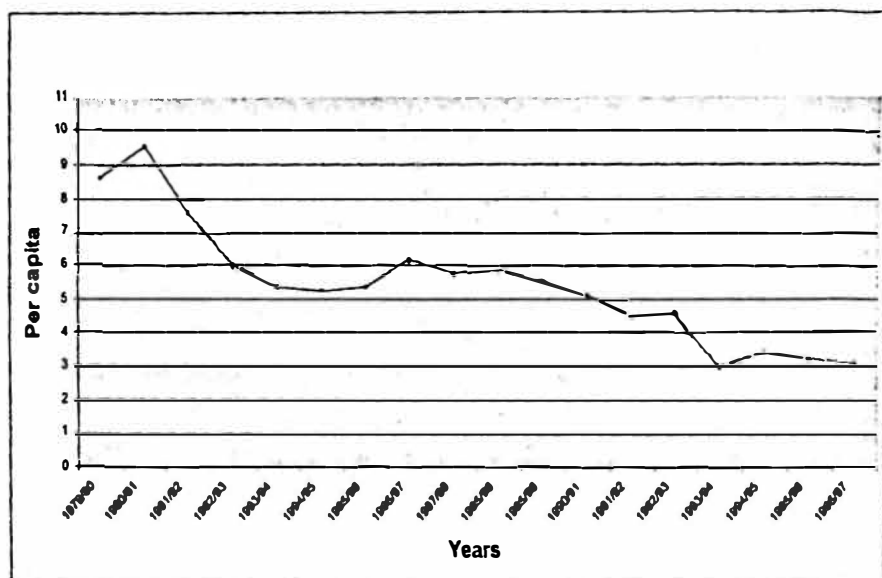


Table 4.4: Health expenditure as a percentage of GDP (selected countries)

Country	Public health expenditure as a percentage of GDP		Private health expenditure as a percentage of GDP	Per capita health expenditure (ppp US\$)
	1990	1998	1998	1998
South Africa	3.1	3.3	3.8	623
Swaziland	1.9	2.7	1.0	148
Botswana	1.7	2.5	1.6	267
Ghana	1.3	1.8	2.9	85
Kenya	2.4	2.4	5.4	79
Nigeria	1.0	0.8	2.0	23
Tanzania	1.6	1.3	1.8	15
Uganda	-	1.9	4.1	65
Zambia	2.6	3.6	3.4	52
Malawi	-	2.8	3.5	30
Rwanda	1.7	2.0	2.1	34
Burundi	1.1	0.6	3.0	21
Namibia	4.0	4.1	3.7	417
Cameroon	0.9	1.0	-	-
Algeria	3.0	2.6	1.0	-

Source: UNDP, 2001

5. Reforms in the Health Sector

Since independence in 1963, Kenya has continued to design and implement policies aimed at promoting access to modern healthcare in an attempt to attain its long-term objectives of health for all. Though the physical infrastructure for health in Kenya has expanded rapidly since independence, maintenance and upkeep of public sector health facilities has become an inseparable burden for the Ministry of Health recurrent budget.

On attaining independence in 1963, the Government of Kenya committed itself to providing “free” health services as part of its development strategy to alleviate poverty and improve the welfare and productivity of the nation. Despite the rapid expansion of the sector, various constraints made it impossible for the government to continue financing increased demands for healthcare. Inefficiencies and inequities also characterised the delivery system due to poor management and inappropriate pricing of services (Ngugi, 1999). Healthcare policy reforms have therefore been adopted as a strategy of supplementing government budget to revitalise healthcare delivery systems. The most notable health reforms the government has adopted include decentralisation and cost sharing.

5.1 Decentralisation

Decentralisation is the transfer of responsibility for planning, management, resource generation and allocation away from the central government and its agencies. It can take the form delegation, devolution and privatisation. Decentralisation in Kenya reduced the users’ cost of travel to the health facilities, provided more time for policy analysis and formulation, and increased their performance in financial respect (Obonyo *et al*, 1997).

Many African countries, including Kenya, are moving towards decentralisation of health systems. The objectives of decentralisation are to improve management, efficiency, accountability, and responsiveness of health services (to increase the population’s exposure to), and control of modern healthcare. Kenya has decentralised her health system through restructuring and strengthening of the Ministry’s district level management capacity under the District Focus for Rural Development Strategy programme started in 1983; creation of District Health Management Teams (DHMT) and District Health Management Boards (DHMB) in 1992 to

represent community interest in health planning and coordinate and monitor the implementation of health projects at the district level; and granting of autonomy to Kenyatta National Hospital in 1987.

5.2 Cost Sharing

Many African countries are struggling to meet debt obligations amidst adverse and declining economic growth rates. The adoption of structural adjustment programmes and economic/trade liberalization policies have thrown many households into deprivation and despair. Many governments have been forced to cut down on public expenditure, abolishing free and subsidised healthcare in favour of market-oriented health services backed by cost sharing and user fees (WHO, 2001a).

The cost sharing programme was mooted in the 1984/88 Development Plan and its implementation started in December 1989 through a Cabinet Paper. The main objective of the policy was to encourage increased cost recovery from users of public health facilities to generate additional revenue and augment the financing of the under-funded non-wage recurrent expenditure items, reduce excessive use of services, improve the functioning of the referral system, and improve access by the poor to health services. The rationale was to charge those who make most use of the curative care and those who are most able to pay and channel the subsidies to those least able to pay (Owino *et al*, 1997b).

Cost sharing was brought about by decline in government health spending and decline in donor support. With increasing budgetary pressure, it became a reality that the health sector was financially unstable as the government could not fully support the health sector single handedly. This led to the development of alternative financing mechanisms such as cost sharing. Specifically, cost sharing was aimed at improving effectiveness and efficiency of health programmes, generate more revenue for the health sector, improve the quality of healthcare, improve equity in the health delivery system and control expenditure in the public sector spending or curative care.

According to the Health Management Information System (Government of Kenya, 2001), the guiding principles of the cost sharing programme are:

- (i) All revenue collected be retained at the local level. Seventy five (75) percent of the revenue was to be allocated to the health facility which collects the funds and 25 percent for preventive/promotive activities (P/PHC) in the district in which the funds are collected.
- (ii) Local planning for the use of the funds.
- (iii) Revenue is additive and “not fixed year”. Treasury will not reduce Ministry of Health allocation because of cost sharing revenue, and unspent funds can be carried forward to the next fiscal year.
- (iv) Inpatients and outpatient fees would be higher at hospitals, lower at health centres, and almost non-existent at dispensaries to encourage the first use of lower level facilities (some dispensaries, have, however, opted for locally arranged revenue generation alternative ex-user charges in order to cater for such services as night security, among others).
- (v) Vigorous pursuit of National Hospital Insurance Fund (NHIF) reimbursement for inpatients.
- (vii) Exemptions and waivers would be used to ensure access to the poor and to protect the medically vulnerable.

Table 5.1 shows that cost sharing revenue has been increasing for the period 1995 to 1999. The total revenue increased from Ksh 191 million in 1995/96 to Ksh 325 million in 1998/99. Over this period, Rift Valley Province generated the highest cost sharing revenue followed by Central Province. North Eastern Province had the lowest revenue generated.

Figure 5.1 shows the trend in cost sharing revenue from 1990/91 to 1998/99. Total revenue generated from cost sharing (excluding Kenyatta National Hospital) increased from Ksh 28.5 million in 1990/91 to stand at Ksh 324.9 million in 1998/99.

Although cost sharing revenue has been increasing, the collection has been far below the projected targets. During the 1993/94, 1994/95 and 1995/96 years, 31.4, 26.1 and 18.1 percent of the projected revenues from user fee were collected, respectively. The revenue collected represented only 2 percent of the recurrent total budget of the Ministry of Health. This poor performance may be attributed to institutional and implementation weaknesses which had to be resolved to make cost sharing a more effective means of generating additional financial resources for health.

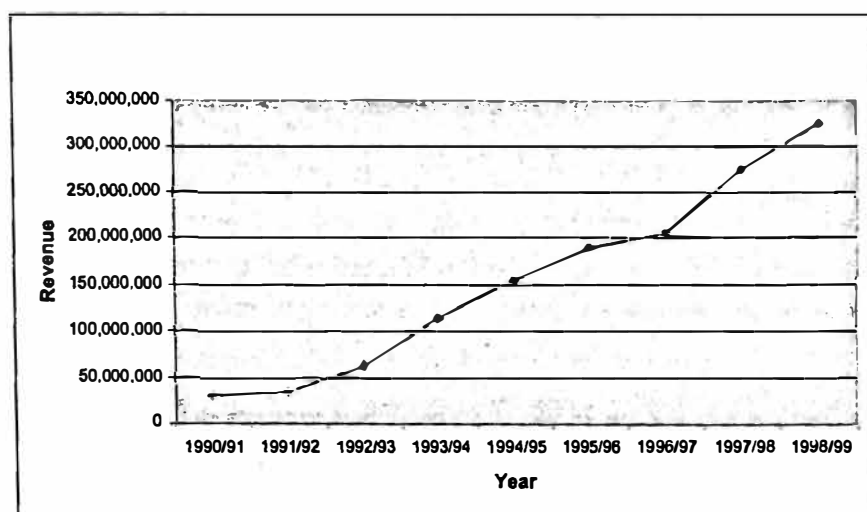
Table 5.1: Cost sharing revenue (Ksh) by province

Province	1995/96	1996/97	1997/98	1998/99
Central	40,694,603	44,007,907	48,311,333	64,430,841
Coast	28,627,843	23,048,250	35,772,210	46,361,592
Eastern	37,961,778	36,829,751	48,615,407	49,354,843
Nairobi*	5,446,699	8,991,801	11,527,876	21,816,611
North Eastern	3,179,507	2,982,128	3,031,414	2,371,536
Nyanza	24,522,422	31,656,040	51,636,642	54,961,722
Rift Valley	41,573,776	41,500,077	56,466,439	75,108,000
Western	8,937,540	16,099,086	20,592,396	10,489,739
Total	190,944,168	205,115,040	275,953,717	324,894,884

* Excluding Kenyatta National Hospital (KNH)

Source: Government of Kenya, 2001

Figure 5.1: Trend in cost sharing revenue (excluding KNH)



According to USAID (1995), user fees in sub-Saharan Africa have contributed a small percentage, less than 5 percent, of operating revenues for publicly-provided services. This could be attributed to:

- Setting prices at low levels relative to service costs, especially in hospitals where government recurrent resources are concentrated;

Table 5.2: Contribution of cost-sharing to healthcare financing (%)

Cost sharing collections	1993/94	1994/95	1995/96
Target	31.4	26.1	18.1
Ministry of Health recurrent budget	2.62	2.56	1.69
Ministry of Health budget	1.7	2.2	1.16

Source: Owino, 1997

- The poor quality of services and the low-incomes of most of the population, which limits the willingness to pay for government health services; and
- Many users who are able to pay but avoid paying because public user fee schemes are poorly administered and exemptions that exist for non-indigent persons.

More than a decade after its implementation, the cost sharing programme has not fully addressed the problems of the vulnerable and has not promoted access to modern healthcare. Implementation problems and institutional weaknesses mar the programme and there has not been corresponding improvement in the quality of healthcare. There is also an array of other exemptions that run contrary to equity goals, such as exemptions for civil servants and members of the armed forces from cost-sharing. Fee exemption policies do not therefore promote equity. It is also administratively difficult, even where exemption policies are pro-poor, to accurately determine a patient's income, particularly when most income is generated through subsistence farming and patients have little incentives to be truthful about their economic status.

The findings of the Second Participatory Poverty Assessment Study in Kenya (Government of Kenya, 1997) indicate that patients are made to pay user fee and only end up receiving prescriptions without actual drugs. They are forced to purchase drugs from private chemists at exorbitant prices. In Kisumu, it was reported that long queues are common and patients have to provide exercise books for writing prescriptions. The study also indicated that health facilities exist in most areas but the poor have limited or no access to them due to high cost.

Since the Bamako Initiative was launched in 1988, many African governments embarked on primary healthcare programmes relying on revenue generated through user fees to revitalise healthcare systems. Experience from the Initiative where community is involved in cost sharing mechanisms in support of primary healthcare suggests that cost sharing in local health centres can pay significant dividends. In countries like Benin, Guinea and Nigeria, where experience has been closely monitored, approximately 40-46 percent of local operating costs (including salaries) are being covered by user fees in facilities participating in the Bamako Initiative (World Bank, 1994).

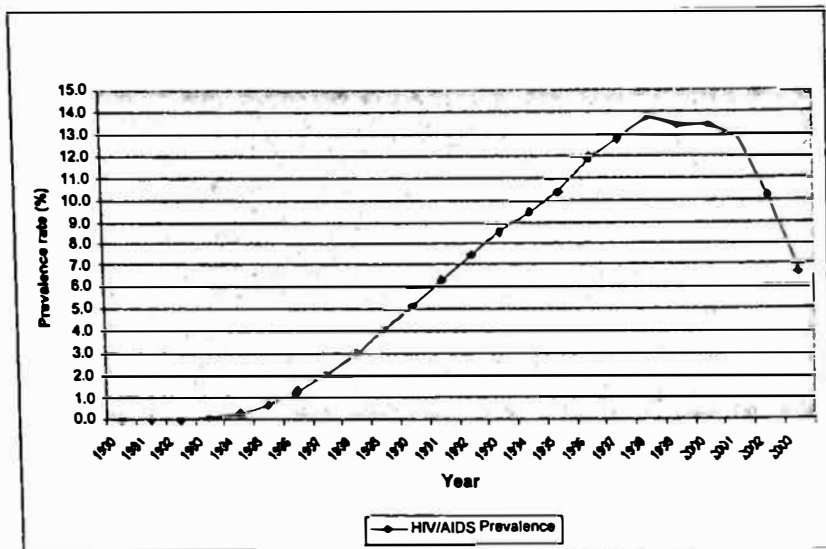
6. Health and HIV/AIDS

HIV/AIDS has emerged as one of the most serious diseases facing the developing world, with consequences that reach far beyond the health sector. The spread of AIDS has significant effects not only on the demographic composition of a country's population, but also on the social and economic structure of the country. The epidemic has spread in its short history until it has become one of the leading causes of deaths in adults worldwide. By the end of 2000, an estimated 36 million persons were living with HIV infection (WHO, 2001b). In sub-Saharan Africa, the pandemic has moved from a health issue to a development crisis. In 1995, AIDS was reported to be the leading killer of men and women aged 15-39 years in sub-Saharan Africa. The adult AIDS prevalence has increased from 5 percent in 1990 to stand at 13 percent in 2000 in the region. The pandemic has led to destruction of social capital, weakening of institutions, and deepening of poverty. In Kenya and sub-Saharan Africa, the rapid pace at which the epidemic moves through society and the growing number of AIDS-related deaths provide impetus for change to more effective control policies. In order for health systems to respond effectively and remain strong in the face of the epidemic, it is necessary for policy changes to be shaped by well-planned strategies to engage people at all levels in identification of issues and in advocacy.

HIV/AIDS pandemic is the single most important health challenge that Kenya has faced in its post-independence history. It is the only health problem that is believed to have reversed the significant gains made in life expectancy and infant mortality during the first three decades of independence. The HIV/AIDS pandemic is becoming much more than a health problem as it encompasses economic, social, and cultural dimensions. The epidemic continues to exert pressure on the healthcare delivery system, yet prospects for finding a vaccine for the treatment of AIDS remain elusive.

The AIDS situation in Kenya, like in many other sub-Saharan countries, has progressed from one case in 1984 to 200,000 cases by the end of 1996. By the year 2000, there were over 2.13 million HIV-positive cases in the country. Between 1990 and 2000, Kenya has witnessed an increase in HIV/AIDS prevalence as shown in Figure 6.1. The pandemic represents not only a health threat to the individual, and social and economic threat to families

Figure 6.1: Adult HIV/AIDS prevalence in Kenya



and communities, but has eroded development gains acquired since independence. The incidence of deaths due to AIDS is increasing. In Kenya it was projected that during the 1995-2000 period, deaths due to AIDS among people aged 15-39 could be three times the number of deaths due to all other diseases combined (Government of Kenya, 1997). HIV/AIDS has changed demographic variables for Kenya, including mortality, life expectancy and infant survival. The impact on child survival is severe both directly through increased perinatal infections, and indirectly through increased number of orphans, who put severe stresses on communities' ability to maintain them.

According to the 2001 Economic Survey (Government of Kenya, 2001), urban adult prevalence was 17.5 percent in 2000 while rural adult prevalence was 13 percent. The total HIV-positive population stood at 2,130,074 in 2000 of which 1,473,963 were rural people. Nyanza had the highest prevalence rate of 20.8 percent, followed by Eastern Province with 16.2 percent. North Eastern Province, with 2.8 percent had the least prevalence rate.

Table 6.2 shows the trend of HIV/AIDS prevalence in Kenya over the 1990-1998 period. The total number of people infected with HIV in Kenya has creased from 513,941 in 1990 to 1,944,623 in 1998. The rural prevalence te increased from 4.1 percent in 1990 to 13.0 percent in 1998 while the an prevalence rate increased from 8.8 percent to 18.1 percent over the

Table 6.1: National estimates of HIV prevalence, 2000

Province	Urban infected	Rural infected	Total infected	Prevalence rate (%)
Nairobi	174,747	-	174,747	15.9
Central	32,112	204,383	236,495	12.7
Coast	61,508	71,772	133,280	10.5
Eastern	47,824	330,315	378,139	16.2
North Eastern	2,620	12,188	14,808	2.8
Nyanza	63,681	382,712	446,393	20.8
Rift Valley	82,677	293,709	376,386	10.5
Western	16,195	178,884	195,079	11.5
Total	656,111	1,473,963	2,130,074	13.5

Source: Government of Kenya, 2001

Table 6.2: HIV/AIDS prevalence in Kenya

Year	No. of adult HIV + ve	Urban adult HIV + ve (%)	No. of urban adult HIV + ve	Rural adult HIV + ve (%)	No. of rural adult HIV + ve	No. of HIV + ve children	Total HIV +ve population
1990	485,762	8.8	144,422	4.1	341,340	28,179	513,941
1991	636,625	10.5	180,618	5.3	456,006	36,930	673,555
1992	798,119	12.0	216,941	6.5	581,178	46,298	844,417
1993	965,910	13.4	252,721	7.7	713,190	56,032	1,021,942
1994	1,136,066	14.5	287,615	8.9	848,451	65,902	1,201,968
1995	1,305,056	15.5	321,490	10.0	983,566	75,705	1,380,761
1996	1,469,832	16.3	354,333	11.0	1,115,500	85,264	1,555,096
1997	1,627,975	16.9	366,198	11.9	1,241,777	94,438	1,722,412
1998	1,838,002	18.1	432,756	13.0	1,405,246	106,621	1,944,623

Source: National AIDS/STDs Control Programme (NASCO), 1999

same period. However, there is some evidence that the HIV/AIDS prevalence in Kenya is beginning to decline. According to Government of Kenya (2003), the prevalence rate declined from 10.2 in 2002 to 6.7 in 2003.

In recognition of the gravity of HIV/AIDS problem, the government prepared and adopted a national policy on AIDS in Sessional Paper No. 4 of 1997 on AIDS in Kenya. The government also established the National AIDS Control Council, under the Office of the President, to fight the scourge.

The existing health facilities, both public and private, are over-stretched by the AIDS disease. It is estimated that over half of all hospital beds in the country are occupied by AIDS patients. Home-based care coping mechanisms have not been very successful as majority of households are overburdened by social service costs after the introduction of cost sharing

under the structural adjustment programmes in 1980s. Also, poverty is biting hard as 56 percent of Kenyans live below the poverty line. AIDS is treated as any other disease in the country, yet it has far reaching health and social economic effects. HIV / AIDS should be seen as not only a medical or health issue but also as an issue of human security and development. This will enable policy makers to determine the level of attention that can be accorded to the epidemic and whether or not it will be placed on political agendas of the country.

Although urban areas have higher AIDS prevalence than rural areas, rural areas have more people suffering from the disease, as over 80 percent of the Kenyan population lives in the rural areas. National urban AIDS prevalence was 18.1 percent in 2000 compared with 12.5 percent for rural areas. Only 656,111 people in urban areas were infected with AIDS compared to 1,473,963 infected people in rural areas. Agriculture is the mainstay of Kenya's economy accounting for approximately one third of the Gross Domestic Product (GDP), about 70 percent of export earnings (excluding refined petroleum) and employing more than two thirds of the labour force. The AIDS pandemic is a threat to the agricultural sector in Kenya and more emphasis on AIDS prevention and mitigation is required in rural areas. Rural subsistence households are more acutely affected by the epidemic (relative to urban residents) and this fact should be reflected in the rural development strategy.

According to Sessional Paper No. 4 (1997), AIDS kills young economically productive people, brings hardship to families, increases expenditure on healthcare and adversely affects the country's development. By depriving the economy of qualified and productive labour force, restricting the tax base, and raising the demand for social services due to the increased number of orphaned children and widows, AIDS poses a great challenge to Kenya's development (Saitoti, 2002). The main reasons for the rapid spread of AIDS in Kenya are ignorance, poverty, high incidence of sexually transmitted diseases, socio-cultural beliefs and practices, and deficient public health infrastructure.

In Kenya, AIDS threatens effective labour force because up to 80 percent of the infected people are in the age group 15-49 years. According to the Institute of Economic Affairs (2001), the total cost of AIDS in Kenya was projected to reach Ksh 4.1 billion in 2000, and Ksh 5.5 billion by 2005. The AIDS impact on the Kenya economy is expected to reduce Gross Domestic

Product (GDP) by 14.5 percent in the next 10 years—comparing a case with no AIDS—and the per capita income is projected to drop by 10 percent.

Although the HIV/AIDS epidemic affects all sectors of society, poor households suffer the most in terms of the burden caused by the disease because they have the least ability to cope with the epidemic and its consequences. Many households have to provide care in cramped housing with limited or no access to basic amenities such as water and sanitation. Initial household impact due to HIV status and societal discrimination can include loss of insurance and medical benefits. The cost of pre-AIDS treatment or attempts to find a cure are also enormous. Once a household member develops AIDS, increased medical and other costs such as transport to health service occur simultaneously with reduced capacity to work, creating a double economic burden to the family.

Experience with HIV-infected victims in Kenya takes many forms. Stigmatisation and discrimination against people with AIDS, particularly among women in both rural and urban areas is common. Women who are HIV positive are often excluded from society and frequently even from their own or their spouses' families. The bitterness that follows one's discovery of infection is so severe that some go on a revenge mission, infecting as many people as they can before they die. In some Kenyan societies, HIV/AIDS is considered as a 'celestial punishment' for an immoral and indecent life.

The AIDS pandemic at the household level has impacted negatively on production and earnings, investment and consumption, household health and composition and psychic health. Production and losses in earnings occur through reduced income, reduced productivity, and inefficient reallocation of labour. Investment and consumption losses entail medical, funeral, and legal costs, de-saving, and reductions in consumption and investment. Psychic costs include disutility of the disease to individual and grief and pain suffered by survivors. Additionally, educational opportunities are reduced, as children are withdrawn from school to care for the sick or to do odd jobs for extra income due to the death of the breadwinner. HIV/AIDS also weakens the traditional community safety nets due to the economic losses and large medical and funeral costs it entails. Due to the high dependency ratio as a result of increased AIDS orphans and widows, the epidemic tends to increase demand for health services.

The costs related to HIV/AIDS are both direct and indirect. Direct costs include cost of drugs, laboratory tests, radiology and hospital overhead costs. Indirect costs include average productive life years lost. According to the Sessional Paper No. 4 (1997), the combined costs of AIDS were estimated at Ksh 573,240 (US\$ 7400) per case. This cost is very high for a low-income economy like Kenya. HIV/AIDS is often excluded from insurance schemes and therefore tends to leave low-income sero-positive patients impoverished, financially ruined, and exposed to more health problems.

According to households surveys in Africa and Asia (UNAIDS, 1999), families living with HIV/AIDS suffer income reduction of 40-60 percent. This loss is compensated by drawing down savings, borrowing, and reduced consumption. The social response strategies involve dissolution or part dissolution of families; sending children away to live with relatives; migration of a spouse or a child to earn an income for the family; and relocation of a spouse, especially widows.

More diversified financing mechanisms are necessary to combat the rapid spread of AIDS. In Rwanda, for example, after introduction of prepayment schemes, members access to care increased significantly to one visit per capita per year compared with non-members who still had 0.2 visits per capita per year (UNAIDS, 1999). For the government to meet the costs of treating AIDS and related diseases, there is need to adopt a strategy of partnership with the private sector, NGOs, donor agencies and the community in healthcare financing. The government has recognised the need for a multi-sectoral approach to AIDS prevention, treatment and control and the importance of effective mobilisation and coordination of activities and resources from various agencies. The government established district inter-sectoral AIDS coordinating committees to create district capacity to implement HIV/AIDS prevention programmes. The private sector needs to be mobilised to provide resources in view of the enormous impact of the pandemic on the workforce and on economic development.

The major constraints that plague AIDS control efforts include the slow pace of change of sexual behaviour; resource limitations; poverty; harsh effects of structural adjustment programmes on vulnerable groups, particularly widows and orphans; rapid increase in the number of people developing AIDS and needing medical care and social support; and lack of a clear policy to guide the various agencies fighting the disease.

7. Health and Poverty

Poverty is multi-dimensional in its causes as well as its cures. Poor health is a major contributor to poverty and good health status is one of the means to prevent poverty or, a means to overcome poverty. Therefore, it is not practical to make any meaningful or sustainable impact on poverty reduction without addressing conditions that keep the poor in ill-health.

According to WHO (2001), there is a general agreement that poverty not only increases the risk of ill-health and vulnerability of people, it also has serious implications for delivery of effective healthcare such as reduced demand for services, lack of continuity or compliance in medical treatment, and increased transmission of infectious diseases. Poverty may lead to inequities in access to healthcare, which in turn has implications both for health service capacity and costs, which are reflected in, for example, higher rates of complications due to late arrival of patients. At the same time, lack of adequate free or low cost health services for those unable to pay contributes to further impoverishment of the poor. Poverty-linked diseases and conditions include malnutrition, communicable and non-communicable diseases, STD/HIV/AIDS, childhood illness and poor maternal health. These diseases are responsible for high mortality and morbidity rates, which have a direct effect on productivity. Control and prevention of these diseases has a direct impact as the poor capture the resulting benefits.

In Kenya, slow economic growth combined with rapid population growth has led to decline in per capita income. The 1990s have been characterised by economic decline and a high population growth rate. All these have resulted to widespread poverty where about 56 percent of the total population fall below the poverty line (Mwabu *et al*, 2002a). Due to high levels of poverty, 40 percent of the rural population have no access to health services; 25 percent of total households in Kenya are located more than 8km from any health facility (Government of Kenya, 2000). Health facilities may be existing but the poor have limited or no access to them due to a variety of factors. The First Report on Poverty in Kenya Vol. II (Government of Kenya, 1998) shows that about 60 percent of non-poor children were delivered in a hospital and 41 percent at home. On the other hand, 62 percent of children from poor households were delivered at home. This is an indicator of limited access to health services by the poor.

8. Health Crises and Challenges

The policy of the Government of Kenya at independence was to provide "free" medical care. In pursuit of that policy, the government embarked on an expansion of health facilities countrywide, including extensive training of health personnel. In response to the health crises in the country, the new government elected in December 2002 has slightly modified the independence-era manifesto of "free" healthcare for all to a policy of 'affordable' healthcare for all.

Provision of health services countrywide is still grossly inadequate. In addition, the health system suffers from inequitable spatial distribution of health services; shortages of health personnel; poor management of health services; inadequate funding; lack of medical supplies; low level of hospital operational efficiency; and lack of proper public health information and education (Government of Kenya, 1989; 1994).

Inefficiency in the Kenyan health system is one of the major concerns in promoting coverage and access to healthcare. Inefficiency in the public health sector results from a combination of financial, managerial and organisational problems. Obonyo and Owino (1997) identify the causes of inefficiencies as imbalances in staffing; limited input hours by health staff as they spend more time at private facilities; malfunctioning machines and equipment; and poor transport, which often leads to delays in patient transfer to referral facilities, and in turn causes high mortality rates. Owino *et al*, (1997a) have estimated efficiency in the public health sector at around 70 percent, indicating a 30 percent inefficiency rate.

Many people in Kenya lack access to basic health and adequate nutrition. A quarter of Kenyan households are located more than 8 kilometres from any form of health facility. There are also inadequate medical supplies, which is occasioned by poor administration and distribution procedures, and general inefficiency in the central procurement system.

The inadequacy of medical supplies in public health facilities is partly due to changes in macroeconomic situations, procurement decisions, poor institutional set-ups, decline in donor support, and corruption. For example, drug expenditure allocation favours big hospitals. District hospitals are allocated 38 percent, provincial hospitals 18 percent, rural health facilities 18 percent and Kenyatta National Hospital 14 percent of the total drug budget of the Ministry of Health (Kimuyu *et al*, 2000).

There are major disparities between immunisation coverage rates across provinces and districts. For example, immunisation coverage varies from 13 percent in some areas to 90 percent in other areas in the country. According to the 1998 Demographic and Health Survey, child immunisation in Kenya declined from 77 percent in 1993 to 67 percent in 1998. Taita Taveta and Nyeri districts had immunisation coverage of 92 and 90 percent respectively in 1998, while South Nyanza and Siaya districts had rates of 23 and 43 percent, respectively.

According to AMREF (1995), Kenyan laws concerning provision of healthcare by the private sector appear to regulate the quality of inputs only. There are significant gaps in laws affecting non-government healthcare providers, particularly those addressing the development of private practice by non-physicians. The laws are very poorly enforced and do not have the desired effect. Although the private sector plays a big role in health delivery, it is also faced with the problem of poor service, quality and inefficiency. Because of poor enforcement of public health regulations, there has been a mushrooming of private clinics and pharmacies operated by unqualified people. This has a direct effect on quality and efficiency. Other problems in this sector include inadequate access to credit and poor medical infrastructure especially in rural areas.

Kenya has both public (National Hospital Insurance Fund) and private health insurance schemes. Private third party insurance is a growing industry, but still quite small and limited to urban areas and covering primarily those employed in the formal sector. The National Hospital Insurance Fund (NHIF) was established in 1968 to provide care for the contributors and their families for inpatients in registered hospitals. The Fund is characterised by problems of weak administrative system, poor investment portfolio and low claim settlement. Most of the registered health facilities with NHIF are rarely used by the poor (Mwabu *et al*, 2002b). The poor use local clinics and dispensaries, which are not registered by the Fund, and therefore do not get reimbursed for the medical expenses they incur even though they are members of the Fund. The pattern of healthcare financing implies that the poor are subsidising the rich as the poor rarely claim for reimbursement from the Fund.

After independence, many health facilities were established by the government in pursuit of its policy of "free health for all." However, the corresponding health equipment were not installed and where they were

installed they were not well maintained. There is lack of spare parts, poor maintenance and servicing of machines and equipment and also lack of necessary medical inputs and supplies. Some of the machines and equipment in government health facilities have become obsolete, and there are no plans to replace them. The above factors translate into inefficiency and poor quality healthcare services as evidenced by lack of inputs for curative care such as x-ray films, theatre drugs, and equipment. Sharing of beds, long waiting lists at referral hospitals, poor or inappropriate diagnosis and ineffective treatments are other symptoms of inefficiency in the public health sector. Some healthcare programmes such as the Nyayo Wards of 1980s introduced inefficiencies in the healthcare system as they established structures without providing the necessary machines and equipment. Transport is also grossly inadequate in public hospitals. In many district hospitals, there is only one vehicle available for patients and staff and this affects transportation of medical supplies and causes delays in transferring patients to referral hospitals.

Training of healthcare personnel has also not kept pace with population growth. For example, the population-doctor ratio has increased from 5,600:1 in 1994 to 6,800:1 in 1996. This increase has affected the quality of healthcare in the sense that a doctor will need to cater for more patients. There is also the problem of imbalance in staffing. Non-professional staff cadre is usually over-staffed whereas professional staff is under-staffed. The 1994/96 National Development Plan indicates that there is over-concentration of key personnel in urban areas with over 80 percent of doctors based in urban areas, which account for less than 20 percent of the total population.

Many experienced health personnel employed in the public sector are also operating own clinics and hospitals, or are employed in the private sector, a situation which limits hours the staff can work in public health facilities. For example, consultant doctors in government hospitals work 8 hours per week instead of 24 hours (Kimuyu *et al*, 2000). The conclusion is that when private practice is combined with public employment, the latter suffers because of consultant's lateness or absence at public clinics and delays in performing operations and diagnostic tests.

Majority of Kenyans have limited access to essential drugs or pay high prices for the available drugs. Non-availability, or unsteady drug supplies in government health facilities has led many patients to rely on private

The First Report on Poverty in Kenya Vol. II indicates that 8.9 percent of Kenyans do not visit government health facilities because these facilities are costly, 12.7 percent because they are too far, while 54.2 percent do not attend them because of non-availability of drugs. The attempt to sell low-cost drugs through community pharmacies (the Bamako Initiative) to the poor has been unsuccessful due to inability to sustain the drug funds.

Table 8.1 below shows that only 36 percent of the Kenyan population had access to essential drugs in 1999. Kenya is in a worse situation in this respect compared to Swaziland and Botswana where 100 percent and 90 percent of the respective population have access to essential drugs.

Table 8.1: Access to drugs in some selected countries

Country	Population with access to essential drugs (1999)
South Africa	80
Swaziland	100
Botswana	90
Zimbabwe	70
Ghana	44
Kenya	36
Nigeria	10
Sudan	15
Tanzania	66
Uganda	70
Zambia	66
Malawi	44
Rwanda	44
Burundi	20

Source: UNDP, 2001

The emergence of new diseases in Kenya has affected the quality of healthcare. The HIV/AIDS scourge has meant that more funds need to be allocated to control the disease. In Kenya, there is an increase in cases of some diseases, especially tuberculosis and polio, which had shown a continuous decline some years back. This surge in new diseases suggests that more resources need to be allocated to fight the diseases.

9. Conclusion

The universal goal of *healthcare for all* was declared at Alma Ata in 1978. The goal has not been attained and the status of health continues to decline in many developing countries, Kenya included. With the prevailing socio-economic crises, dwindling donor support and implementation of structural adjustments that require budget cuts in the social sector spending, resources are drying out for the health sector. The government, faced with an inelastic revenue base and a growing demand for health services, finds itself in a situation in which devoting relatively more resources to the health sector would compromise overall growth and employment goals. Therefore, the issue at hand now is how to enhance efficiency in the public health sector in an effort to ensure that the limited resources are used in a more cost-effective manner.

According to the 1999 Kenya Human Development Report (UNDP/ Government of Kenya, 1999), the positive gains Kenya had achieved in reducing mortality rates between 1960 and 1992 appear to have been reversed. This is confirmed by the 1998 Kenya Demographic Health Survey report which shows that infant mortality rate has gone up from 51 in 1992 to 74 in 1998 per 1000 live births. The under-five mortality rate has increased from 74 in 1992 to 90 in 1995 and to 112 in 1998. This is alarming as a significant portion of the gains made during the first 25 years of independence were rapidly eroded in just six years. The underlying factors contributing to this deterioration in health include deterioration in the quality and quantity of health services, an overall decline in food availability and nutrition, decreased immunisation coverage, increased incidence of HIV/AIDS, and increasing poverty. Immunisation coverage has declined from 79 percent in 1993 to 65 percent in 1998.

Despite a massive expansion of the health infrastructure since independence, increasing population and demand for healthcare outstrips the ability of government to provide effective service. An overwhelming majority of the poor cannot afford private healthcare (70 percent in rural areas and 81 percent in urban areas) and rely on public health facilities. However, 20 percent of the urban poor and 8 percent of the rural poor find even public health charges unaffordable. Furthermore 58 percent of the urban poor and 56 percent of the rural poor reported that they do not seek public healthcare because of the unavailability of drugs. Only 37 percent

of poor mothers gave birth in hospitals in 1994 compared to 58 percent of the non-poor mothers (Government of Kenya, 2000).

Introduction of macroeconomic reform measures including user fees for healthcare in the late 1980s adversely affected healthcare access and affordability of government health services by the poor. The advent of cost sharing in Kenya, together with declining GNP per capita, make protection of the poor an especially important issue. The issue now is how to identify persons who are too poor to pay fees for health services and ensure that they have access to needed services while guaranteeing that the non-poor pay the designated fees.

The Ministry of Health has a surplus of staff in lower cadres and deficits in the number of professional staff. The distribution of professional staff does not reflect real needs, and there is over-concentration of personnel in urban areas and in hospitals. This situation is made worse by the increasingly large number of staff leaving the public service to engage in private practice or doing so while in public employment.

References

- Africa Medical Research Foundation (1995). "Kenya: non-governmental healthcare provision". Data for decision making project.
- Ching, A and T.G. Mcquire (1997). "Optimal health insurance and provider payment." *The American Economic Review*, Vol. 87, No. 4, p685-704.
- Cuddington, J.T. (1993). "Modeling the macroeconomic effects of AIDS, with an application to Tanzania." *The World Bank Economic Review*, Vol. 7, No. 2, p173-190.
- Fuchs, V.R. (1996). "Economics, values and healthcare reforms." *The American Economic Review*, Vol. 86, No. 1.
- Government of Kenya (2003). *Kenya Demographic and Health Survey, 2003; Preliminary Report*, Nairobi, Kenya.
- Government of Kenya (2001). "Health Management Information System: 1996-1999 Report." Nairobi: Ministry of Health.
- Government of Kenya (2000). *Interim Poverty Reduction Strategy Paper for the Period 2000-2003*. Nairobi: Government Printer.
- Government of Kenya (1999). *Kenya Demographic and Health Survey, 1998*. Maryland: Macro International Inc.
- Government of Kenya (1998). *First Report on Poverty in Kenya: Poverty and social indicators*. Nairobi: Government Printer.
- Government of Kenya (1997). *National Development Plan: 1997-2001*. Nairobi: Government Printer.
- Government of Kenya (1997). "The Second Participatory Poverty Assessment Study, Kenya, Vol 1." Nairobi: Government Printer.
- Government of Kenya (1994a). *Kenya's Health Policy Framework*. Nairobi: Government Printer.
- Government of Kenya (1994b). *National Development Plan: 1994-1996*. Nairobi: Government Printer.
- Government of Kenya (1994c). *Kenya Demographic and Health Survey, 1993*. Maryland: Macro International Inc.
- Government of Kenya (1989). *National Development Plan: 1989-1993*. Nairobi: Government Printer.
- Government of Kenya (1984). *National Development Plan: 1984-88*. Nairobi: Government Printer.
- Government of Kenya (1979). *National Development Plan: 1979-83*. Nairobi: Government Printer.

- Government of Kenya (1974). *National Development Plan: 1974-78*. Nairobi: Government Printer.
- Government of Kenya (1965). *Sessional Paper No. 1 on African Socialism and its Application to Planning in Kenya*, Nairobi: Government Printer.
- Government of Kenya (various). *Economic Survey*. Nairobi: Government Printer.
- Government of Kenya (various). *Statistical Abstracts*. Nairobi: Government Printer.
- Institute of Economic Affairs (2001). *Kenya at a crossroads: scenarios for our future*. Nairobi: Institute of Economic Affairs.
- Kimalu, P. K. (2002). *Debt relief and healthcare in Kenya*. World Institute for Development Economic Research (WIDER) Discussion Paper No. 2002/65. United Nations University.
- Kimuyu, P. K., M. Wagacha and O. Abagi (2000). *Kenya's strategic policies for the 21st century*. Nairobi: Institute for Policy Analysis and Research.
- Mwabu, G., J. Wang'ombe, B. Nganda and O. Gakuru (2002b). "Medical care financing through insurance: lessons from household and community-level analysis in Kenya". *African Development Review*, Vol. 14., No. 1 (forthcoming).
- Mwabu, G., M. Ainsworth and A. Nyamete (1993). "Quality of medical care and choice of medical treatments in Kenya: An empirical analysis." *Journal of Human Resources*, Vol. 28, No. 4.
- Mwabu, G., M. S. Kimenyi, P. K. Kimalu, N. Nafula and D. K. Manda (2002a). *Predicting household poverty: a methodological note with a Kenyan example*. KIPPRA Discussion Paper No. 12. Nairobi: Kenya Institute for Public Policy Research and Analysis.
- National AIDS/STDs Control Programme (1999). *AIDS in Kenya: background projections, impact, intervention policy* (Fifth edition). Nairobi, Kenya.
- National Health Research and Development Centre (1994). *Proceedings of the convention on national health research plan*. Nairobi, Kenya. Ngugi, R. (1999). "Health seeking behaviour in the reform process for rural households: the case of Mwea Division, Kirinyaga District." AERC Research Paper No. 95. Nairobi: African Economic Research Consortium.
- Obonyo, B. and W. Owino (1997). "Promoting access to healthcare through efficiency improvements: priorities and policy options." IPAR WR. No. 08/97. Nairobi: Institute for Policy Analysis and Research.

- Odwee, J.A., F.N. Okurut and A. Adebua (2000). "The determinants of healthcare demand in Uganda." African Economic Research Consortium (AERC) Report.
- Owino, W. and M. Were (1998). "Enhancing healthcare among the vulnerable groups: the questions of waivers and exemptions." IPAR Discussion Paper No.014/98. Nairobi: Institute for Policy Analysis and Research.
- Owino, W. and J. Korrir (1997a). "Public health sector efficiency in Kenya: estimation and policy implications." IPAR Discussion Paper No. 007/97. Nairobi: Institute for Policy Analysis and Research.
- Owino, W. and M. Were (1997b). "Delivery and financing of healthcare services in Kenya: critical issues and research gaps." IPAR Discussion Paper No. 002/97. Nairobi: Institute for Policy Analysis and Research.
- Owino, W., J. Korrir, P. Ocholla and K. Oloo (2000). "Decentralisation and health systems development: the question of planning, budgeting and financial structures." IPAR Discussion Paper No. 025/2000. Nairobi: Institute for Policy Analysis and Research.
- Perkin H.D., S. Raddelet, D. Snodgram, M. Gillis and M. Roemer (2001). "Economics of Development (Fifth edition). New York: W.W Norton & Company.
- Saitoti, George (2002). *The challenges of economic and institutional reforms in Africa*. Aldershot: Ashgate Publishing Company Limited, UK.
- Schultz, P.T. and A. Tansel (1993). Measurement of returns to adult health: Living standards measurement study. Working Paper No. 95. Washington D.C: The World Bank.
- Task Force on National Essential Health Research (1991). *Proceedings of the convention on essential health research in Kenya*. Nairobi, Kenya.
- UNAIDS (2000). *Epidemiological fact sheet on HIV/AIDS and sexually transmitted infections*. Geneva, Switzerland.
- UNAIDS (1999). *A review of household and community responses to the HIV/AIDS epidemic in the rural areas of sub-Saharan Africa*, Geneva Switzerland
- UNDP/GoK (1999). *Kenya Human Development Report, 1999*, Nairobi, Kenya
- UNDP (2001). *Human Development Indicators, 2001*.
- USAID (1995). *Setting priorities for research, analysis and information dissemination on health sector financing and sustainability in sub-Saharan Africa: health and human resources analysis in Africa project*. Washington DC.

-
- USAID (1994). *Improving feeding practices during childhood illness and coalescence: Lessons learned in Africa*, Washington DC: USAID.
- Vogel, L.C., A.S. Muller, R.S. Odingo, Z. Onyango and Geus (1974). *Health and diseases in Kenya*. Nairobi: Kenya Literature Bureau.
- Walle, D. V. (1994). "The distribution of subsidies through public health services in Indonesia, 1978-87". *The World Bank Economic Review*, Vol. 8 No. 2.
- World Bank (2001). *African Development Indicators*. Washington DC: The World Bank.
- World Bank (1994). *Better health in Africa: experience and lessons learned*. Development in Practice, Washington DC: The World Bank.
- World Health Organisation (WHO, 2001a). *Macroeconomic and health: investing in health for economic development*. Report of the Commission on Macroeconomic and Health, Geneva, Switzerland.
- World Health Organisation (WHO, 2001b). *Countries most affected by HIV/AIDS are least able to pay for prevention and treatment*. Press release, AIDS/18, DEV/2339, PoP/1804.
- World Health Organisation (WHO, 1978). "The Declaration of Alma Ata." WHO Policy Statement, Geneva, Switzerland

Annex

Annex Table 1: Number of HIV positive adults (2000)

District	Urban	Rural	Total	Prevalence (%)
Rift valley				
Baringo	1,688	8,279	9,966	7.4
Bomet	1,891	21,311	23,202	11.9
Nakuru	45,587	93,942	139,530	22.9
Nandi	1,476	18,950	20,426	6.9
Narok	544	6,589	7,133	3.9
Buret	1,561	17,593	19,153	11.9
Keiyo	-	2,663	2,663	3.7
Kericho	2,324	26,195	28,519	11.9
Kajiado	1,074	7,279	8,353	4.0
Koibatek	879	4,311	5,190	7.4
Laikipia	2,663	8,247	10,911	6.6
Marakwet	-	2,645	2,645	3.7
Samburu	1,218	2,158	3,376	4.7
Trans Mara	258	3,122	3,380	3.9
Trans Nzoia	6,802	29,357	36,159	12.3
Turkana	-	8,926	8,926	3.7
Uasin Gishu	14,117	26,583	40,700	12.9
West Pokot	595	5,559	6,154	3.9
Western				
Vihiga	2,641	30,966	33,608	13.3
Busia	2,689	34,043	36,731	20.4
Butere/Mumias	1,897	22,238	24,135	10.0
Bungoma	3,882	36,326	40,208	8.9
Kakamega	2,401	28,146	30,547	10.0
Lugari	861	10,095	10,957	10.0
Mt. Elgon	805	7,531	8,336	11.9
Teso	1,019	9,539	10,559	11.9
Nyanza				
Siaya	2,684	56,946	59,629	24.9
Suba	786	18,868	19,654	24.9
Rachuonyo	1,553	37,252	38,805	24.9
Nyando	17,833	22,502	40,335	27.1
Bondo	1,336	28,354	29,690	24.9
Gucha	2,146	24,306	26,452	11.3
Homa Bay	1,467	35,196	36,663	24.9
Kisii Central	2,252	25,511	27,763	11.3
Kisumu	30,022	37,882	67,904	27.1
Kuria	766	18,384	19,151	24.9
Migori	2,606	62,531	65,137	24.9
North Kisii	2,313	26,192	28,504	11.3

continued next page

Annex Table 1: Number of HIV positive adults (2000)

/continued

District	Urban	Rural	Total	Prevalence (%)
Central				
Thika	7,413	47,922	55,335	16.7
Kiambu	8,501	54,958	63,460	16.7
Kirinyaga	1,631	21,234	22,864	10.0
Maragua	1,714	17,377	19,091	10.1
Muranga	1,547	15,679	17,226	10.1
Nyandarua	1,522	22,150	23,672	10.0
Nyeri	9,784	25,063	34,847	10.7
Eastern				
Tharaka	1,595	11,708	13,303	26.2
Kitui	546	14,169	14,715	5.6
Machakos	9,605	47,169	56,774	12.4
Makueni	8,051	39,539	47,591	12.4
Marsabit	1,081	1,089	2,171	3.6
Mbeere	1,953	20,625	22,577	25.9
Meru Central	7,895	57,960	65,854	26.2
Meru North	9,600	70,479	80,079	26.2
Isiolo	757	1,007	1,764	3.4
Embu	3,127	33,023	36,150	25.9
Moyale	57	1,480	1,537	5.6
Mwingi	320	8,304	8,624	5.6
Nithi	3,237	23,763	27,000	26.2
Coast				
Kwale	-	23,612	23,612	9.4
Kilifi	4,039	25,415	29,455	10.4
Lamu	986	1,714	2,700	7.3
Mombasa	51,726	-	51,726	15.6
Malindi	2,052	12,914	14,966	10.4
Taita-Taveta	2,322	5,900	8,222	6.6
Tana River	383	2,217	2,600	2.8
North Eastern				
Mandera	339	3,220	3,560	2.7
Garissa	1,337	4,934	6,271	2.9
Wajir	944	4,034	4,977	2.9
Nairobi	174,747	-	174,747	15.9
Total	483,447	1,485,177	1,968,624	13.5

Source: National AIDS and Sexually Transmitted Diseases Control Programme (NASCOPI), 2001

Annex Table 2: Public health expenditure (Ksh '000' pounds)

Year	Health Recurrent Expenditure	Health Development Expenditure	Total Expenditure
1980	52,868	12,831	65,700
1981	59,066	11,095	70,161
1982	61,290	7,480	68,770
1983	61,770	10,970	72,740
1984	73,010	11,110	84,120
1985	81,480	1,481	82,961
1986	96,500	14,730	111,230
1987	101,010	12,940	113,950
1988	104,830	20,900	125,730
1989	115,030	24,240	139,270
1990	128,810	37,620	166,430
1991	147,830	36,520	184,350
1992	170,520	54,300	224,820
1993	233,250	97,590	330,840
1994	286,200	55,190	341,390
1995	361,110	83,750	444,860
1996	386,190	130,820	517,010
1997	442,060	197,910	639,970
1998	444,960	62,650	507,610
1999	459,444	43,268	502,711

Source: Economic Survey (various issues)

Annex Table 3: Hospital beds and cots

Province	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Nairobi	5,886	6,021	6,162	6,314	5,879	6,225	6,373	6,487	6,691	7,005
Coast	3,366	3,491	3,613	3,491	2,781	3,818	3,991	4,136	4,227	4,421
Eastern	4,769	4,769	4,803	4,849	4,881	5,724	6,168	6,361	6,516	6,736
N/Eastern	414	4 29	491	1,245	1,224	1,447	1,451	1,498	1,501	1,537
Central	5,060	5,170	5,170	5,280	5,324	6,400	6,606	7,009	72,18	7,513
R/Valley	6,474	6,729	6,729	7,587	7,751	9,818	9,928	10,158	10,401	11,240
Nyanza	4,283	4,373	4,403	4,618	5,058	8,947	9,480	9,625	9,879	10,006
Western	2,834	2,944	2,989	4,747	4,373	4,775	5,334	5,567	5,753	5,920
Total	3,3086	33,926	34,360	38,131	37,271	47,154	49,331	50,909	52,186	54,378

Source: Statistical Abstract (various issues)

Annex Table 4: Health facilities by province

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Nairobi	188	186	247	304	357	359	373	380	390	402
Coast	220	280	299	357	453	426	441	448	453	462
Eastern	308	388	417	499	679	683	771	783	793	804
N/Eastern	40	45	52	52	64	59	65	66	68	71
Central	324	318	341	405	429	441	450	462	470	481
R/Valley	583	698	814	976	1,103	1,140	1,163	1,179	1,195	1,207
Nyanza	345	282	304	359	432	446	463	473	484	498
Western	123	149	163	192	237	248	267	278	292	310
Total	2,131	2,346	2,637	3,144	3,754	3,802	3,993	4,069	4,145	4,235

Source: Statistical Abstract (various issues)

Annex Table 5: Registered medical personnel

Type of personnel	1977	1980	1986	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Doctors	1,477	1,691	2,980	3,357	3,457	3,554	3,794	4,558	3,855	3,971	4,078	4,282	4,411
Dentists	112	162	441	596	631	664	604	630	655	685	927	715	734
Pharmacists	197	60	333	443	472	542	605	1,260	1,357	1,447	1,537	1,629	1,650
Registered nurses	-	299	493	604	644	680	720	660	885	957	1,047	1,137	1,167
Enrolled nurses	6,173	6,692	9,627	5,441	5,664	5,879	6,210	6,719	6,920	7,115	8,006	8,336	8,671
Clinical officers	7,426	9,190	12,452	17,734	18,674	19,604	20,933	21,147	22,347	23,512	24,602	25,803	27,073
PH. officers	1,002	1,723	2,224	2,630	2,665	2,786	2,913	1,644	2,950	3,085	3,232	4,007	4,277
PH technicians	-	-	-	585	620	686	732	465	480	573	668	728	780
Pharm. technologists	-	-	-	2,528	2,628	3,452	4,203	3,567	3,815	4,216	4,586	4,728	4,849

Source: *Statistical Abstract, Various Issues*

Annex Table 6: Mortality indicators in Kenya (selected years)

Indicator	1960	1979	1991	1992	1993	1995	1998
Infant Mortality rate per 1000 live births	119	104	52	51	60	61	74
Under five mortality rate per 1000 live births	202	112	75	74	90	90	112
Maternal mortality rate per 100,000 births	-	-	-	150-300	150-300	365-498	-
Crude death rate per 1000 population	17	14	11	10	10	12	12

Source: *First Report on Poverty in Kenya*

Annex Table 7: Health and development indicators in some selected African countries

Country	Crude birth rate per 1000 (1992)	Crude death rate per 1000 (1992)	Total fertility rate per 1000 (1992)	Life expectancy at birth M/F (1992)	US\$ GNP per capita (1991)
Angola	47	19	6.6	45/48	-
Botswana	36	6	4.7	66/70	2,530
Burundi	46	17	6.8	46/50	210
Ethiopia	52	18	7.5	47/50	120
Kenya	45	10	6.4	57/61	340
Tanzania	45	15	6.3	49/52	100
Uganda	52	19	7.3	45/46	170
Zimbabwe	34	8	4.6	58/61	650
Africa	45	15	6.5	49/52	340
Less Developed Countries	29	9	3.6	62/65	900
More Developed Countries	14	10	1.9	71/78	20,000
World	26	9	2.2	64/68	4,000

Source: World Bank, 1994

Annex Table 8: Crude birth and death rates

Year	Crude birth rate per 1000 pop, interpolated	Crude death rate per 1000 pop, interpolated
1963	52	20
1967	52.2	19.3
1970	52.62	18.1
1972	52.9	17.3
1977	53.6	15.5
1980	51.26	13.46
1982	49.7	12.1
1987	42.1	11.1
1990	38.5	10.08
1992	36.1	9.4
1997	34.6	11
1998	34.66	11.94

Source: World Bank, 2001

Annex Table 9: Fertility rates by province

Province	1989	1993	1998
Nairobi	4.6	3.4	2.6
Central	6.0	3.9	3.7
Coast	5.5	5.3	5.1
Eastern	7.0	5.9	4.7
Nyanza	7.1	5.8	5.0
Rift Valley	7.0	5.7	5.3
Western	8.1	6.4	5.6
National	6.7	5.4	4.7

Source: Government of Kenya, 1989, 1993 and 1998

Annex Table 10: Life expectancy at birth, total years

Year	Female	Male	All
1967	50.50	46.50	48.45
1970	52.00	48.00	49.95
1972	53.00	49.00	50.95
1977	55.50	51.50	53.45
1980	56.94	52.82	54.83
1982	57.90	53.70	55.75
1987	59.50	55.70	57.55
1990	58.84	55.46	57.11
1992	58.40	55.30	56.81
1997	53.00	51.10	52.03
1998	51.88	50.20	51.02

Source: World Bank, 2001

KIPPRA PUBLICATIONS

Conference Proceedings

Report of the proceedings of the AERC-KIPPRA World Trade Organization (WTO) Workshop, 2000.

Report of the proceedings of the International Conference on Finance and Development: Evidence and Policy Issues, 2001.

Discussion Papers

The exchange rate and the interest rate differential in Kenya: a monetary and fiscal policy dilemma. Njuguna S. Ndung'u, DP No. 1, 2000: ISBN 9966 949 00 3.

Macro models of the Kenyan economy: a review. Stephen N. Karingi and Njuguna S. Ndung'u. DP No. 2, 2000: ISBN 9966 949 01 1.

A review of Kenya's current industrialization policy. Eric E. Ronge and Hezron O. Nyangito. DP No. 3, 2000: ISBN 9966 949 02 X.

Delivery of services to smallholder coffee farmers and impacts on production under liberalization in Kenya. Hezron O. Nyangito. DP No. 4, 2001: ISBN 9966 949 03 8.

Banking sector interest rate spread in Kenya. Njuguna S. Ndungu and Rose W. Ngugi. DP No. 5, 2000: ISBN 9966 949 04 6.

Beer taxation in Kenya: an assessment. Stephen N. Karingi, Mwangi S. Kimenyi, Njuguna S. Ndung'u. DP No. 6, 2001: ISBN 9966 949 09 7.

Vision and long term development strategy for Kenya's tourism industry. Moses M. Ikiara. DP No. 7, 2001: ISBN 9966 949 15 1.

Specifying and estimating partial equilibrium models for use in macro models: a road map for the KIPPRA-Treasury Macro Model. Alemayehu Geda and Njuguna S. Ndung'u. DP No. 8, 2001: ISBN 9966 949 16 X.

Determinants of poverty in Kenya: household-level analysis. Alemayehu Geda, Niek de Jong, Germano Mwabu and Mwangi S. Kimenyi. DP No. 9, 2001: ISBN 9966 949 17 8.

Kenya's exchange rate movement in a liberalized environment: an empirical analysis. Maureen Were, Alemayehu Geda, Stephen N. Karingi and Njuguna S. Ndungu. DP No. 10, 2001: ISBN 9966 949 24 0.

Theoretical base for the Kenya macro model: the KIPPRA-Treasury macro model. Free Huizinga, Alemayehu Geda, Njuguna S. Ndung'u and Stephen N. Karingi. DP No. 11, 2001: ISBN 9966 949 25 9.

Predicting household poverty: a methodological note with a Kenyan example. Germano Mwabu, Mwangi S. Kimenyi, Paul Kimalu, Nancy Nafula and Damiano Kulundu Manda. DP No. 12, 2002: ISBN 9966 949 28 3.

Human capital externalities and returns to education in Kenya. Damiano Kulundu Manda, Germano Mwabu, Mwangi S. Kimenyi. DP No. 13, 2002: ISBN 9966 949 18 6.

The decline in primary school enrolment in Kenya. Arjun Bedi, Paul Kieti Kimalu, Damiano Kulundu Manda, Nancy Nelima Nafula. DP No. 14, 2002: ISBN 9966 949 19 4.

Land laws and land use in Kenya: implications for agricultural development. Walter Odhiambo and Hezron Nyangito. DP No. 15, 2002: ISBN 9966 949 23 2.

Better understanding of the Kenyan economy: simulations from the KIPPRA-Treasury Macro Model. Maureen Were and Stephen Karingi. DP No. 16, 2002: ISBN 9966 949 31 3.

Performance of Kenya's wheat industry and prospects for regional trade in wheat products. Hezron Nyangito, Moses Ikiara and Eric Ronge. DP No. 17, 2002: ISBN 9966 949 35 6.

Impact of institutional and regulatory framework on the food crops subsector in Kenya: 1990-1999. Hezron Nyangito and Lydia Ndirangu. DP No. 18, 2002: ISBN 9966 949 36 4.

Impact of tourism on environment in Kenya: status and policy. Moses Ikiara. DP No. 19, 2002: ISBN 9966 949 37 2.

Review of government policies for the promotion of micro and smallscale enterprises in Kenya. Eric Ronge, Lydia Ndirangu and Hezron Nyangito. DP. No. 20, 2002: ISBN 9966 949 38 0.

Tobacco excise tax in Kenya: an appraisal. Jane Kiringai, Njuguna S. Ndung'u, and Stephen N. Karingi. DP No. 21, 2002: ISBN 9966 949 33 x

Analysis of Kenya's export performance: an empirical evaluation. Maureen Were, Njuguna S. Ndung'u, Alemayehu Geda, Stepehen N. Karingi. DP No. 22, 2002: ISBN 9966949 40 2.

Occasional Papers

Strengthening the link between policy research and implementation. Kang'ethe Wamaitha Gitu. OP No. 1, 2001: ISBN 9966 949 07 0.

Effective private sector representation in policy formulation and implementation. Mwangi S. Kimenyi. OP No. 2, 2001: ISBN 9966 949 27 3.

Agriculture, economic growth and poverty reduction. Mwangi S. Kimenyi, OP No. 3, 2002: ISBN 9966 949 32 1.

Post-Doha African challenges in the sanitary and phytosanitary and trade related intellectual property rights agreement. Hezron Nyangito, OP No. 4, 2002: ISBN 9966 949 34 8.

Policy Papers

Policy and legal framework for the tea subsector and the impact of liberalization in Kenya. Hezron O. Nyangito. PP No. 1, 2001: ISBN 9966 949 05 4.

Policy and legal framework for the coffee subsector and the impact of liberalization in Kenya. Hezron O. Nyangito. PP No. 2, 2001: ISBN 9966 949 06 2.

Special Reports

Legal and other constraints on access to financial services in Kenya: survey results. KIPPRA, Private Sector Development Division. SR No. 1, 2001: ISBN 9966 949 08 9.

Thinking about regulating? The better regulation guide. KIPPRA, Private Sector Development Division. SR No. 2, 2002: ISBN 9966 949 20 8.

Policy timeline and time series data for Kenya: an analytical data compendium. KIPPRA, SR No. 3, 2002: ISBN: 9966 949 30 5.

Working Papers

Road infrastructure policies in Kenya: historical trends and current challenges. Wilson S. K. Wasike. WP No. 1, 2001: ISBN 9966 949 11 9.

Policy framework of Kenya's tourism sector since independence and emerging policy concerns. Moses M. Ikiara. WP No. 2, 2001: ISBN 9966 949 12 7.

A review of poverty and antipoverty initiatives in Kenya. Damiano Kulundu Manda, Mwangi S. Kimenyi and Germano Mwabu. WP No. 3, 2001: ISBN 9966 949 13 5.

Education indicators in Kenya. Paul K. Kimalu, Nancy Nafula, Damiano Kulundu Manda, Germano Mwabu and Mwangi S. Kimenyi. WP No. 4, 2001: ISBN 9966 949 14 3.

Estimation procedure and estimated results of the KIPPRA-Treasury macro model. Alemayehu Geda, Stephen N. Karingi, Njuguna S. Ndung'u, Marein van Schaaik, Maureen Were, Willis Wassala and John Obere. WP No. 5, 2001: ISBN 9966 949 26 7.

A situational analysis of poverty in Kenya. Paul Kimalu, Nancy Nafula, Damiano Kulundu Manda, Germano Mwabu and Mwangi S. Kimenyi. WP No. 6, 2002: ISBN 9966 949 29 1.

Budget reforms and the Medium-Term Expenditure Framework in Kenya. Jane Kiringai and Geoffrey West. WP No. 7, 2002: ISBN 9966 949 21 6.

Developing a revival strategy for Kenya's cotton-textile industry: a value chain approach. Moses Ikiara and Lydia Ndirangu. WP No. 8, 2003: ISBN 9966 949 39 9

Costs and benefits of eliminating child labour in Kenya. Damiano K. Manda, Nancy Nafula, Diana Kimani, Robert K. Nyaga, John M. Mutua, Germano Mwabu, Mwangi S. Kimenyi. WP No. 10, 2003: ISBN 9966 949 49 6

