

**POVERTY SITUATION IN KENYA:
THE CASE OF KAKAMEGA DISTRICT**

BY

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of Master of Arts Degree in Economics at the University of Nairobi.**

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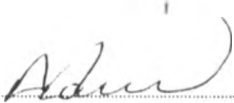
September, 2005.



DECLARATION

This research paper is my original work and has not been presented for a degree in any other university.

Signed



Date

24/10/2005

MARGARET GONGI N.

This research paper has been submitted for examination with our approval as University supervisors.

Signed

Date

PROF. GERMANO MWABU

Signed



Date

07/11/2005

MR. BETHUEL KINYANJUI

DEDICATION

***To my dear loving Heavenly Father, Creator and Maker, Jehovah God;
my dear parents, my husband Samson Gongi P., children: Jireh F.,
Shalom A., and Shaddai M., niece Nazarene O. and nephew Oliver K.***

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ACRONYMS

ASAL.....	Arid and Semi Arid Lands
AMREF.....	African Medical Research Foundation
CBN.....	Cost-of-Basic-Needs
CBS.....	Central Bureau of Statistics
FAO.....	Food and Agricultural Organization
FEI.....	Food-Energy-Intake
FGT.....	Foster, Greer and Thorbecke
GOK.....	Government of Kenya
ILO.....	International Labour Office
IRS.....	Integrated Rural Surveys
MPND.....	Ministry of Planning & National Development
NASSEP.....	National Sample Survey for Evaluation Programme
NGO's.....	Non-Governmental Organizations
NPEP.....	National Poverty Eradication Plan
PPA.....	Participatory Poverty Assessment
PRSP.....	Poverty Reduction Strategy Paper
PUA.....	Participatory Urban Appraisal
UN.....	United Nations
UNDP.....	United Nations Development Programme
WHO.....	World Health Organization
WMS.....	Welfare Monitoring Survey

ABSTRACT

This research paper assesses empirically the poverty situation in Kakamega District. The third Welfare Monitoring Survey data was used. The survey was done by Central Bureau of Statistics, Ministry of Finance and Planning.

The model developed by Foster, Greer and Thorbecke in 1984 was used in this study to compute poverty measures. The model uses the FEI-based poverty lines that were computed from the same data to construct poverty measures.

The results indicate that more than half the population of Kakamega District live in poverty, especially in the rural areas. The results also show that rural poverty is too high as compared to urban poverty. As it was found from the results, it is important to disaggregate data to the lower levels like the district than always using national and combined data because it gives more accurate estimates of poverty. There are also measures suggested in the study that should be considered for poverty eradication in Kakamega and other regions in Kenya in general.

CHAPTER ONE : INTRODUCTION

1.1 BACKGROUND

World over, poverty is persistent, even from the ancient days and the times of Jesus Christ on earth (Mathews 26: 9, 11). Of the world's approximately 6 billion people, 2.8 billion, almost half of the world population, live on less than 2 dollars a day; and 1.2 billion, a fifth of the population, live on less than one dollar a day, with about 44 per cent living in South Asia. The poor live without fundamental freedoms of action and choice that the better-off take for granted. They often lack adequate food, shelter, education and health, deprivations that keep them from leading a decent life (World Development Report, 2000/2001).

Poverty is a complex multi-dimensional phenomena whose relative levels vary considerably over space and time, and its causes remain a subject of heated controversy. Obtaining comprehensive, reliable, and timely spatial indicators of poverty situation is therefore a prerequisite to designing an elaborate and all inclusive pro-poor agenda for development and, in particular, for poverty reduction. However, availability of such information has for long been a formidable challenge facing both policy makers and development partners in the world nations. Poverty has continued to be a key impediment to human development and economic progress despite the many poverty-alleviation programs and campaigns that have been developed overtime and across regions (GOK, 1998; MPND, 2003).

According to the then President of the World Bank, McNamara (1975), poverty, especially in rural areas, is reflected in poor nutrition, inadequate shelter and low health

standards. These in turn affect the productivity of the rural poor and their quality of life. They cannot access credit to facilitate them in farming due to lack of sufficient collateral and because of the high administrative costs of small loans.

According to McNamara (1975), poverty is viewed as emerging from private land-ownership, monopoly and State control. Man's relationship to land, and pattern of land holding and land use, are shaped by the interaction of a complexity of forces: climatic, cultural, religious and political. The political ideologies of governments have a bearing on the relationship between people and land. In general, land can be exploited, held and traded by individuals for private gain. Under some other ideologies, individuals do not have the opportunity to acquire and accumulate land; the right to own land may be vested solely in the State or in semi-public Institutions, and it is the State which organizes and controls the land according to its own criteria. To the extent that the State owns and controls land, the allocative process may serve any number of ideological ends. In some cases, large unearned incomes from rising land values accrue to unproductive landowners, whose prosperity is paid for by the capitalists and workers. McNamara (1978) described absolute poverty as a condition of life so limited by malnutrition, illiteracy, disease, squalid surroundings, high infant mortality and low life expectancy as to be beneath any reasonable definition of human decency (The World Bank Publication, 1975).

Dorothy Chiredze (1995), defines the poverty situation of the world's poorest people in relation to insecurity and vulnerability. The poorest families lack the capacity to cope with stress, and suffer acute difficulties such as sickness, physical weakness, and economic impoverishment. This reduces productivity, which lead to low income and less

food. Vulnerability leads to a downward spiral, as events that suddenly make people poorer also reduce their assets.

The poverty situation globally is on the increase. This has led the World Bank to come up with international development goals most of which are targeted for the year 2015. They include reducing income poverty and human deprivation in many dimensions, the benchmark figures being for 1990. These goals are to: Reduce by half the proportion of people living in extreme income poverty, ensure universal primary education, eliminate gender disparity in primary and secondary education by 2005, reduce infant and child mortality by two-thirds, reduce maternal mortality by three quarters, ensure universal access to reproductive health services, and implement national strategies for sustainable development in every country by 2005, so as to reverse the loss of environmental resources by 2015. The goals are viewed together for they are mutually re-enforcing. They can be met with a combination of effective domestic and international actions.

1.1.1 Poverty in Kenya

Poverty in Kenya worsened when colonialism was introduced in the country (Cole 1976). This had a lot to do with the mode and means of production in the colonial economy. European settlers owned big farms; Asians involved themselves in trade and shop keeping and Africans supplied unskilled labour. Africans worked in European farms and plantations because they were not allowed to grow cash crops on their shambas. Wages in the rural were kept low and in the urban areas wages were made high by the colonial government to attract workers to the cities. After World War II, the more affluent urban areas drew more and more Africans into Nairobi and Mombasa to provide cheap labour.

This led to a dual society, with well-paid jobs for the better educated in urban areas and the low income ones in rural areas. There was abject poverty in the countryside, and it has kept on worsening over the years in the post-independence era.

At the time of independence in 1963, poverty was identified as a major challenge facing Kenya. In the Sessional Paper number ten of 1965 on African Socialism and its applications to planning in Kenya, the government identified illiteracy, disease, ignorance and poverty as the main problems to be addressed in the post-independence era in order to achieve Sustainable National Development. Forty one years since independence, poverty has persisted; it is on the increase and its situation has kept on worsening despite government's effort to combat it through National Development programs. It has become a national crisis in Kenya and a major concern to the population. Many people are expressing concern about their deteriorating living standards. As the poverty situation worsens, the gap between the poor and the rich is growing even bigger. This is in danger of creating two groups of people in the nation: one of rich people living in luxury and the other of the poor living in want. There is therefore need for continued evaluation of the poor, especially those who may be in dire need.

Various researches and studies on poverty have been done in Kenya by GOK and development partners in order to come up with measures to tackle the high poverty levels in the country. The Government Policy Monitoring activities and analysis were intensified in Kenya in 1992 through the Welfare Monitoring Surveys (WMS's). There were three WMS's that were carried out in 1992, 1994 and 1997; and Kenya's poverty situation analysis have been done using the three surveys (GOK, 2000). The 1994 WMS II shows that the incidence of poverty in Kenya has deepened in the recent years.

Many of the previous studies on poverty found that there is high incidence of poverty in the rural areas than urban areas. From the WMS's, overall rural poverty nationwide rose from 43.8 per cent in 1994 to 52.3 per cent in 1997, and the urban poverty rose from 46.8 per cent to 52.9 per cent in the same period (GOK, 2000). About 34.8 per cent of the population in the rural and 7.6 per cent of the population in the urban live in extreme poverty. They are unable to meet their food needs even after devoting their entire resources to food. From the WMS II, 1994, it was found that 47 percent of the rural population and 29 percent of the urban population lived below the poverty lines. From the WMS III, 1997, it was found that poverty was on the increase with about 52 percent of the population falling below poverty line. In absolute terms, it is estimated that about 13.3 million Kenyans out of the approximate total population of 31 million live in absolute poverty (Republic of Kenya, 2003).

Kenya's poverty situation is worrying because it has even led to increased crime and insecurity in the country, indulging in commercial sex, diseases including HIV/AIDS, degradation of environment, imperiles sustainable development. Due to this GOK took a different approach in addressing the poverty situation in the country. Towards the late 1990's and the early part of the 21st Century, the strategy in addressing Kenya's poverty problem is to focus on the key sectors of the economy, that is , Agriculture and Rural Development, Physical Infrastructure, Trade, Tourism and Industry, Public Safety, Law and Order, National Security, Public Administration, and Information Technology (PRSP, 2001).

1.1.2 Overview of poverty in Kakamega District

More than half the population of the district live in poverty. It is one of the districts in the country with poverty density hotspots comprised of relatively small areas with very high number of poor people. Poverty in the district is attributed to gender inequity, corruption and bribery, poor infrastructure, HIV/AIDS and prevalence of other diseases, high cost of education, high population growth rate, insufficient and poor markets, high deforestation, lack of credit, poor agricultural methods, food insecurity, retrogressive cultures and traditions among others. Agriculture being the main activity in the district, the majority of the people, especially in the rural, depend on it for their livelihood. Most of them get very low incomes from agriculture rendering them poor. Rural households are vulnerable to poverty because they lack certain access to sources of subsistence and income. The infrastructure of the district, especially in the rural areas is poorly developed. This makes transportation difficult even when transporting agricultural products to the markets. Though the district is blessed with a lot of rainfall, many people are lazy and idle and don't emulate the spirit of hard work, and therefore they remain poor (PRSP Report, 2001; MPND, 2003).

1.2 Measurement Issues

In order to come up with poverty measurement, poverty lines are used. A poverty line is a measure of standard of living against which all individuals can be compared. A poverty measure is the aggregate indicator of the magnitude of poverty. The FGT Index that was developed by Foster, Greer and Thorbecke (1984) is the one popularly used in measuring poverty (Mwabu et al, 2000a). Poverty being complex and multidimensional, manifesting itself in various forms, its definition in simple terms is bound to be inadequate. It can be

defined in absolute and relative terms. The absolute term defines a minimum level of income required to sustain life. In other words, the absolute term attempts to specify the levels of absolute deprivation on the basis of norms which identify the minimum requirements in terms of food and non-food universally considered adequate to satisfy the minimum basic needs. The relative approach defines poverty of one group relative to an appropriate comparator group. This is when one cannot purchase a bundle of basic needs available to a reference social group, such as people within a median income level. In the second PPA for Kenya by AMREF, (GOK, 1997), poverty was defined as the inability to meet basic needs such as food, clothing, housing, health and education.

1.3 Causes and Indicators of Poverty

From the earlier studies, the key cause of poverty is inequality, which is manifested in form of land ownership, distribution of wealth and income, access of economic and social goods, remunerative employment and participation in social and political processes. The 1994 WMS II indicated that the bottom 20 percent of the rural population received 3 percent of the income whereas the top 20 percent received more than 60 percent of the income. The top 10 percent amassed 48 percent of the total income. Although growth is essential for poverty reduction, it is ineffective when there is high level of inequality. The issue of inequality requires to be addressed focusing on human development process and the barriers that are constraining to the ability of the poor to growth. All these inequalities do exist in the country in different combinations across regions and over time. Women are the most affected when it comes to poverty. More women are poor as compared to men; most of them therefore have less access to education and health than men, majority of them don't own property like land and are not economically empowered. There are

also gender disparities in earnings and employment both in public and private sectors, which are dominated by men, most of who are better paid than women.

Other principal causes of poverty are low agricultural productivity and poor marketing, large families and high population growth, insecurity, State superstructure and policy, landlessness, legal, institutional and resource allocation bias, lack of or slow economic growth, inadequate roads, gender imbalance, the cost of social services, disability, bad governance and weak democratic institutions, tribal clashes and corruption, strong urban bias in the design of development programs, drought, floods in low lying areas, reluctance to use family planning, eviction of squatters, geographic isolation of some groups. HIV/AIDS is a recent emerging cause of poverty. In 1999 the GOK declared it as a top priority disaster that must be given urgent attention (Mwabu et al, 2000a)

Poverty and Environment

In the rural and peri-urban slums of the developing world, overcrowding, inadequate safe water and sanitation, indoor pollution, inadequate shelter and contaminated food are environmental threats to the health of humanity. The poor are the most affected because most of them live in such areas. Also as a result of poverty the poor engage in activities such as poor farming practices, burning of trees to make charcoal, poor sewage disposal, etc. These activities have negatively affected the environment and reduced the land potential especially in the Arid and Semi Arid areas, making the struggle for survival hard and leading to over exploitation of land and water resources (GOK, 1998).

Poverty and population

High population lead to high levels of poverty. Kenya's population in 1962 was 8,365,942 Africans, in 1969 was 10,942,705, in 1979 was 15,327,061, in 1989 was 21,448,774, and in 1999 was 28,686,607. The growth rate is 2.4. The population density in 1989 was 37 persons per square kilometer and in 1999 it rose to 49 persons per square kilometer. As the population has been increasing over the years the density has also been increasing thereby exerting increasing pressure on land and other resources; causing the land to be over-cultivated, leading to poor yields and hence to poverty. In the recent years in Kenya, the economy has performed poorly as the population has been increasing rendering many people poor. Rapid population growth is generally viewed as one of the main causes of deterioration in living standards (Republic of Kenya, 1999)

Poverty and Education

Past studies on this show that poverty is highest among people with no schooling. Enrolment is higher for children from non-poor households than for those from poor households, dropout is high for children from poor households than for children from non-poor households, and completion of different levels of education is high for those from non-poor households than for those from poor households. More boys seem to enroll than girls. The bottom 10 percent of households have a net enrolment rate of at best 63 percent compared with more than 90 percent for the top 10 percent. In Kenya, with the introduction of free education in 2003, enrolment rates for boys and girls have improved and is high. It is a worthwhile step towards encouraging female labour force participation in the long-run. (Mwabu et al, 2001).

Poverty and Agriculture

Earlier studies show that approximately 80 percent of Kenya's population depends on agriculture for their livelihoods (GOK, 2002). Most of the poor, including the hardcore poor, are concentrated in rural areas. The hardcore poor remain food poor even after spending all their income on food. The strata of the society who cultivate and make their living from land are more prone to poverty than those groups with other sources of income. Earnings in agricultural sector which is dominated by women, are lower than earnings from such sectors as finance, insurance, real estate and business services which are dominated by men. Therefore, in most cases, it is women who bear the main burden of poverty.

Poverty and Health

Accessibility to health care is important in helping people acquire capabilities that enable them to move away from poverty. The poor have few sources of basic health care. Access to health services by the poor, that is, availability, affordability and physical accessibility of drugs and consultation, is limited due to such factors as cost sharing, and long distances to health facilities. The poor view health care in private clinics and hospitals as too expensive (AMREF 1998b). From the 1997 WMS III, 35.6 percent of the children born to poor households are delivered at health facilities, compared with 52.3 percent of children born in non-poor households. Also the malnutrition was found to be higher in the poor than in non-poor households, as are stunting, wasting and weight deficiency among children.

Poverty and Gender

From the PPA findings, women are the most vulnerable to poverty. The highest prevalence of poverty amongst women and female-headed households is due to the large amount of time women spend in unpaid labour, that is, non-market activities in the home and informal sector, thus leaving them with less time to spend earning income. There is gender disparity in sharing economic power which is a major factor of poverty among women. Women's rights to land are put at risk by widowhood or divorce; and lack of land jeopardizes women's incomes and economic well-being. Legislation needs to be enacted to remove formal legal obstacles to women's effective rights to land for income generation purposes and seek to remove constraints within Customary Law systems.

Poverty and Insecurity

The poor people are the most insecure in the society because they are exposed to a wide array of risks that make them vulnerable to income shocks and losses of social welfare benefits. Insecurity among the poor comes in form of illness and injury, crime and domestic violence, old age problem, harvest failure, fluctuations in food prices and low demand for labour (World Bank, 2000a).

Poverty and Corruption

Corruption is too destructive. It widens the gap between the rich and the poor in many countries. Corruption is abuse of office for private gain. It exists at three levels, namely, petty, grand and looting. It deepens poverty and inequalities, undermines vital governance institutions and renders principles of honesty and hard work unattractive. It denies the poor equitable access to social services, prevents policy and institutional reforms, and creates conditions of private affluence and public squalor. It also constrains

investment as it increases the cost of starting business. It retards economic growth through distortion on efficient allocation of resources and choice of less viable investment projects (Corruption Report 2001).

Poverty and Income

Studies indicate that high degrees of inequality in income distribution can have a negative effect on growth and increase in poverty. Both poor and non-poor households depend mainly on wage earnings for the largest part of their income. In urban areas, wage employment is the main source of income, and in rural areas, livestock and crops are the main sources of income, although there is also income from wages in rural areas. The non-poor in Kenya get their income from cash crops (GOK 2000b). Subsistence farmers are the poorest and most vulnerable groups.

Poverty and expenditure

Being poor means devoting insufficient resources to consumption. Overall the non-poor households spent around two and a half times more than the poor on expenditure (GOK 1998). This agrees with Engel's Law which says relative to the non-poor, the poor spend a higher proportion of their income on food (Mwabu et al 2001).

Poverty and Household amenities

The rural poor depend mainly on collected firewood, and the urban poor have access to both charcoal and paraffin. The type of cooking fuel a given household uses is an important indicator of its standard of living. From the 1994 WMS II, 97.5 percent of the poor and 85.4 percent of the non-poor used firewood for cooking in rural areas. The poor had fewer consumer durables, like radios, bicycles, cemented walls and iron sheet roofs.

Poverty and Governance

Good governance is crucial in fighting poverty. Good governance ensures that political, social and economic priorities are based on broad consensus in society and that the voices of the poorest and most vulnerable are heard in making decisions over resource allocations. Good governance is characterized by participation, transparency, accountability, the rule of law, effectiveness and equity.

Poverty and Rural-Urban Dimensions

As concerns the rural-urban dimensions of poverty, it has been found that the place of residence is associated with poverty level. Factors strongly associated with poverty such as education level, household size, agricultural activities, are the same in both rural and urban areas (Mwabu et al 2001). According to the PUA, the poor urban residents perceive poverty as characterized by low incomes, lack of access to income earning opportunities, lack of assets and savings, lack of access to health care and education, and poor environmental conditions (Mwabu et al 2000, Republic of Kenya 1999).

1.4 STATEMENT OF THE PROBLEM

Poverty in Kenya and in particular, Kakamega District, has been on the increase despite the GOK effort to combat it. This is depicted by the poverty figures in Kimenyi Mwangi et al 2001. The GOK launched a 15-year National Poverty Eradication Plan (NPEP) in 1999 with an aim of poverty alleviation. The plan, which was prepared in the context of a participatory poverty assessment is aimed at reduction of poverty in both rural and urban by 50 percent by the year 2015. It stresses the need to strengthen the capabilities of the poor and the vulnerable groups to earn adequate income, the reduction of gender and

geographic disparities, the provision of basic needs and the need for broad-based economic growth. The poor understand and can explain well what poverty is because it is their everyday life. Past mechanisms that have been used to combat poverty have not involved them, their voices have been left out. Their participation in poverty programs is important. Further more, the past poverty situation analysis has concentrated on the development of rural, urban and overall poverty measures and lines, but not at district level. The present study should be viewed on this background in order to bridge this knowledge gap. In addition, the strategies, policies and implementation mechanisms adopted before may not have been taken seriously, or have been ineffective and inadequate in addressing the problem, or the real causes of poverty have not been identified due to non-participation of the poor. These need to be understood in order to put in place proper implementation strategies that will tackle the widening poverty situation.

1.5 THE OBJECTIVES OF THE STUDY

The study aims at empirically assessing the poverty situation in Kenya, Kakamega District being the case study. Specifically, the objectives are to:

1. Construct poverty measures for Kakamega District using the 1997 WMS III data.
2. Give an insight on the poverty situation in Kakamega District.
3. Come up with the policy recommendations based on the findings of the study.

1.6 JUSTIFICATION OF THE STUDY

Poverty has afflicted the majority of the Kenyan population and the situation has kept on worsening over the years after independence in 1963. From earlier studies, the figures

show that as the population has continued to grow, poverty has also been increasing. Poverty and population are positively correlated. In most cases, the population has grown at a higher rate than the economy in the past years.

The persistence of poverty throughout Kenya's history, despite GOK's efforts to combat it, suggests that the adopted policies may not have been effective and adequate in addressing the problem, and the real causes of poverty have not been understood. This necessitates a fresh look at the poverty situation in Kenya, requires change of policy measures that have been used in the past to combat it, and proper implementation mechanisms on poverty put in place.

Although there have been various studies and researches on poverty in Kenya, this particular study attempts to assess poverty situation by measuring poverty at district level and getting the insight of poverty in the district. It is important to know and understand why poverty situation in Kenya has continued to worsen despite earlier measures to tackle it. Assessment of poverty situation in the country is important as it helps and guides in drawing policy recommendations that will enable the ministries concerned (Ministry of Finance, MPND) to be focused and particular, and examine ways of re-allocating financial resources to reduce poverty and improve its situation at the district level in order to bridge the gap between the rich and the poor.

The study will also provide useful information to the Non-Governmental Organizations (NGO's), the donors and other partners involved in the programs of poverty. The study will add to the scarce empirical literature on poverty, fill the knowledge gap and be a source of reference for both policy makers and scholar.

CHAPTER TWO : LITERATURE REVIEW

2.1 THEORETICAL LITERATURE

In 1984, a group of economists, Foster, Greer and Thorbecke, developed an FGT poverty measure (index) which has been found manageable in presenting information on poverty. It is an Index that summarizes information on the incidence, intensity and severity of poverty for any poverty line, food, overall or hardcore poverty. The poverty index has been used by various researchers to measure poverty. It was used in this study to compute the poverty measures for Kakamega District. It is additively decomposable with population share weights. It is justified by a relative deprivation concept of poverty. It satisfies the basic properties on poverty measurements because according to monotonicity axiom, *Given other things, when the income of a person below the poverty line is reduced, the poverty line increases the poverty measure.* Also, according to transfer axiom, *A pure transfer of income from a person below poverty line to a richer person increases the poverty measure* (Sen 1976).

The poverty index was developed after the failure of the Sen (1976) poverty measure. Sen's monotonicity axiom ensures that poverty measure is responsive to the severity of poverty of each individual. The headcount ratio, the oldest and most popular indicator of poverty, does not conform to this axiom because it does not reflect increased poverty as the poor get poorer. The transfer axiom captures the concept of relative deprivation which requires that a poverty measure should be sensitive to the well-being of the poor.

The three economists, Foster, Greer and Thorbecke (1984), defined a measure of poverty,

the FGT Index, as $P(y, z) = (1/nz^2) \sum_{i=1}^q g_i^2$, where z is a pre-determined poverty line, $y = y_1, y_2, \dots, y_n$ is household incomes vector in increasing order, $g_i = z - y_i$ is the shortfall of income of the i th household, $q = q(y, z)$ is the number of poor households (those with income not greater than z), and $n = n(y)$ is the total number of households. The FGT Index (1984) takes the adoption of a 'rank order' weighting scheme, contrasting Sen's measure, because p takes the weights to be shortfalls themselves. Deprivation depends on the distance between a poor household's actual income and the poverty line, both the number of households lie between a given household and the poverty line. The FGT Index (1984) shows that p satisfies Sen's axioms and is associated with the inequality measure, the squared coefficient of variation, $p_{\alpha=2}$.

Kakwani proposed a sensitivity transfer axiom that: *If a transfer $t > 0$ of income takes place from a poor household with income $y_i + d$ ($d > 0$), then the magnitude of the increase in poverty must be smaller for larger y_i .* The FGT Index (1984) generalized

them to a class with poverty measures that satisfy this transfer sensitivity axiom. Hence

for each $\alpha \geq 0$, p_α is defined by $P_\alpha(y, z) = 1/n \sum_{i=1}^q (g_i / z)^\alpha$, which is the FGT

Index (1984) class of poverty measures. P_0 is the headcount ratio, $H = q/n$ measures

poverty incidence and p_1 is the measure of income gap which reflects the average

distances of the poor below the poverty line. p_2 measures the incidence, depth and

poverty distribution among the poor and hence it is a more superior index. According to

FGT (1984), this family of measures satisfy the monotocity axiom for $\alpha > 2$, the transfer

axiom for $\alpha > 1$ and Kakwani's transfer sensitivity axiom for $\alpha > 2$.

Poverty is usually defined in terms of consumption and income. It is the inability to attain a certain predetermined minimum level of consumption at which basic needs are assumed to be satisfied. In many countries, especially developing countries, Kenya included, researchers have used consumption expenditure (as a measure of economic welfare) in analyzing and explaining poverty. Therefore, the expenditure used in the present study is consumption expenditure.

The monetary indicator of well-being developed for measuring poverty in Kenya is based on household consumption expenditures on food and non-food items. An individual or a household is considered poor if, despite prudent management of consumption resources at its disposal, it still finds that it cannot attain some recommended food energy intake. There are two issues here: First, items of consumption other than food are taken into account. Second, a family which may not meet its calorific requirements but has a relatively high income is not necessarily poor. The requirement level of nutrient intake used here is 2250 kcalories a day per adult plus a minimum allowance for non-food consumption. The calorific requirement can be less or more depending on the life style, body size, age and sex of an individual and the climate of the place.

Preference of consumption to income is based on the life cycle hypothesis developed by Brumberg and Modigliani (1954) which states that the individual uses saving and borrowing to smoothen consumption. It assumes that consumption is a function of total resources: the human and non-human resources. What is happening in the present period and expectations in the future cannot be ignored.

In most developing countries, incomes of the poor in rural areas are derived from

agriculture. Such incomes do fluctuate and are uncertain and therefore likely to produce inaccurate measures. Researchers therefore suggest that the poor should be defined using consumption expenditure data since households have a tendency of maintaining a fairly stable living standards which is considered a function of permanent or long-run income. The poor in rural areas acquire ways of improving their standards of living by saving money or goods to help them smoothen their consumption. They use the consumption tendency to save income in good years and to dis-save in bad years. This is supported by the permanent income hypothesis and other inter-temporal models.

A study by Mwabu et al (2000a) constructs the FEI-based food and overall poverty lines. Poverty lines are useful in the computation of poverty measure. There are three types of poverty lines; namely: food, overall and hardcore poverty lines. A food poverty line entails the diagnosis of the magnitude of food poverty defined as food consumption levels below a pre-set normative minimum standard, taking into account nutritional needs. An overall poverty line captures the basic minimum non-food allowances in addition to the minimum food consumption. A hard-core poverty line assesses those households who would not meet their minimum food requirements even if they allocated all their income on food. Food and overall poverty lines will be used to compute poverty measure. Cost-of-Basic-Needs (CBN) and Food-Energy-Intake (FEI) are the popular methods that have been used by researchers to compute poverty lines. The CBN approach sets the poverty line at the cost of a basic diet for the main age, gender and activity groups, plus a few essential non-food items. A survey then establishes the proportion of people living in households with consumption (or sometimes income) below this line. The basic diet may consist of the least expensive foods needed to meet basic nutritional requirements, the typical adult requirement in the lowest consumption quintile or the

investor's notion of a minimal but decent diet. The choice of both the food and the non-food components included is necessarily arbitrary. The method aims to control for differences in purchasing power over basic consumption needs. But its major weaknesses are: First, the poverty lines it generates can be interpreted as *laspeyres* cost-of-living numbers. So it ignores utility compensated substitution effect in consumption. Second, it has a problem of setting non-food basic needs and in valuing their cost at local prices. The FEI method sets the minimum food requirement by finding the consumption expenditure level at which food energy intake is just sufficient to meet the pre-determined average food energy requirements for normal bodily functions. To identify the food poor, a food poverty line is needed. It indicates the income level below which people cannot meet their minimum basic food requirements. As mentioned earlier, the Kenya food poverty line is the cost of consuming 2250 kcalories per adult person. This is the figure recommended by Food and Agricultural Organization (FAO) of the UN and World Health Organization (WHO) on food consumption for specific age groups (GOK 1998b).

2.2 EMPIRICAL LITERATURE

Poverty is a key impediment to human development and progress. Globally, many societies have no clear-cut valuations of poverty and basic needs and use a variety of methods and estimates.

Among the early studies of poverty, the work of Seebohm Rowntree is important. In 1899, he collected detailed information about families in York. He defined families whose total earnings are insufficient to obtain the minimum necessities for the

maintenance of merely physical efficiency as being poor. He said that a family is regarded as being in poverty if its income minus rent fell short of the poverty line. He used the CBN approach to come up with poverty lines. His method has been used in a number of studies in both industrialized and developing countries to construct poverty lines (Poverty in the United Kingdom, 1979).

Ravallion and Datt (1995) performed a study on poverty in India, by estimating the effects of farm yield. They used Time Series estimation method and calculated headcount ratio. They found that poverty had increased in rural India during the early 1970's and late 1980's.

Ravallion and Sen (1996) conducted a case study for Bangladesh on poverty. They illustrated that choice of data base and methods in poverty research are critical because they determine the kind of poverty alleviation strategies one is likely to adopt. They dismissed claims by other studies in Bangladesh that urban poverty had overtaken rural poverty incidence because they found rural poverty to be higher than urban poverty.

Aigbokhan (1997) carried out a study to investigate poverty profile for Nigeria in the context of structural policy reforms and the policy reversals introduced in 1994. It was found that despite there having been real positive economic growth, poverty and inequality of income had increased during the twelve-year period that the study took. From the study, the male-headed households in rural and northern geographical zones were more prone to poverty. It means the 'trickling down' phenomenon with the view that economic growth improves poverty and inequality was not supported by the data used. Also the macroeconomic policies that underlie it did not favour the poor. From the

study, it was recommended that there should ensure use of the main assets owned by the poor. There is also need for redistribution of income and improvements in provision of socio-economic infrastructural facilities.

According to the study by Mwabu et al (2000a), the FEI-based food and overall poverty lines are derived from the regression equation:

$$\text{Log Food Expenditure} = \alpha + \beta (\text{calories}) + \varepsilon \text{-----(1)}$$

$$\text{LogCalories} = \gamma + \tau_1 (\text{Log Total Expenditure}) + \tau_2 \text{Log (Expenditure)}^2 + v \text{---(2)}$$

Where,

Log Food Expenditure = Log of Household Expenditure per adult equivalent per month;

Log Calories = Log of Calories per adult equivalent per month.

ε and v = disturbance terms and α and β , γ and τ are parameters to be estimated.

Equation (1) is the one used by FGT (1984) and by Greer and Thorbecke (1986a,b) to estimate food poverty lines.

From equation (1),

$$\text{Food poverty line} = \text{Exp} \{ \alpha + \beta \text{Calories} \} \text{-----(3)}$$

Equation (1) represents the cost of achieving a desired level of calories which is analogous to the cost of producing a given level of output in production theory.

The parameters in equation (1) are estimated and then substituted in equation (3) to calculate the food poverty line.

Equation (2) is used to compute the overall poverty line. The parameters are estimated. It is a quadratic Engel curve and it relates income to the demand for commodities; it is derived from an income needed to reach 2250 kcalories per adult equivalent in equation (2) includes an allowance for non-food items (Mwabu et al 2000a).

Kenya's poverty situation is on the increase and this has attracted considerable research attention from individual academic researchers, donors and the government. Early estimates of poverty in Kenya were made by researchers using the surveys conducted within the framework of the Integrated Rural Surveys (IRS) from 1974/1975 to 1978/1979, the 1981/1982 Rural Household Budget Surveys conducted by GOK, and the 1992, 1994 and 1997 WMS I, WMS II and WMS III respectively (Tables 4, appendix I).

Studies on poverty in Kenya by Collier and Lal (1980), Greer and Thorbecke (1986a, 1986b), GOK (1998, 1999) and Mwabu et al (2000) indicate that the poor are grouped into various social categories such as the unskilled and semi-skilled casual labourers, beggars, the handicapped, subsistence farmers, AIDS orphans, street children and families, the landless, households headed by females, households headed by people without formal education and pastoralists in drought prone districts. There is high incidence of poverty in the rural areas because of its connection to agriculture and land. Most of the poor are found in the rural. Poverty in the rural is attributed to low access to physical assets (like land), low agricultural productivity and lack of non-farm employment opportunities, than to lack of income. The WMS II (1994) shows that the four very poor provinces in Kenya are Western, Eastern, Coast and North Eastern. Two poor provinces are Nyanza and Rift Valley. One province that is relatively well-off is Central. Poverty is exceptionally high in Arid and Semi-Arid areas of the country like Marsabit, Turkana, Isiolo, Samburu and Tana River Districts (GOK 1997).

In their study on Kenya, Greer and Thorbecke (1986) used the FEI method to construct poverty lines for Kenya. FEI method is an alternative to CBN method. Following Greer and Thorbecke (1986a,b) and Sahn (1994) formulation, a study by Mwabu et al (2000a)

on Situational Analysis of Poverty in Kenya, using 1994 WMS II, constructed food and overall poverty lines for Kenya. The national food poverty was Kshs.625 using CBN method and Kshs.609 using FEI method per month per adult equivalent. The CBN method yielded higher poverty lines than the FEI method. As explained in the study, FEI method yields less poverty lines than the CBN method because calculation of FEI-based lines takes into account substitution of cheaper goods for more expensive goods, which is not possible when the CBN method is used to construct a poverty line. Food poverty rates for Kenya were found to be 37% for CBN-based poverty lines and 35% for FEI-based poverty lines. Overall poverty measure indicated that using CBN-based poverty lines, 39% of Kenyan households were found to be poor, and 33% were found to be poor by the use of FEI-based poverty lines. Besides FEI method, Mwabu et al (2000a) also uses CBN method to construct food and overall poverty lines. This involved the construction of 15-item food basket assumed to be bought by all households. The overall poverty line is then obtained by adding to the poverty line the non-food expenditure of the households around the food poverty line. The same methodology was used by the Republic of Kenya (1998).

The WMS series, initiated by GOK in the early 1990s to monitor the possible socio-economic effects of Structural Adjustment Programs has played a crucial role in creating awareness about Kenya's living conditions. It was through the 1992 WMS I and 1994 WMS II that the government realized the problem of absolute poverty was indeed widespread and deepening. The FGT index,

$$P_{\alpha} = \frac{1}{N} \sum_{i=1}^q (1 - Y_i/Z)^{\alpha}$$

was then used to calculate poverty figures. The 1994 WMS II figures showed that the

food poverty rate was 37 percent and the absolute poverty rate was 39 percent. The number of the poor in 1994 was about 11.5 million and in 1997 was 12.6 million. The 1997 WMS III shows that the poor constitute 52.3 percent of the Kenyan population and that urban poverty situation has deteriorated further with 49.2 percent of this population being poor.

The primary purpose of the WMS was to gauge the present and the future net socio-economic consequences of structural adjustment in Kenya. The specific objectives were: First, to establish an information system that will provide timely indicators on living standards of different regions and socio-economic groups; second, to monitor changes in living standards, particularly of the vulnerable segments of the population, and third, to develop government's in-house analytical capability to relate changes in living standards to national policies and programs. There are variations among regions in poverty incidence in Kenya.

2.3 OVERVIEW OF THE LITERATURE

The Literature Review guides into the methods of measuring poverty. It further explains the importance of the FGT Index that was developed by Foster, Greer and Thorbecke (1984) in the measure of poverty rates. The index has been preferred to Sen's (1976) method as a measure of poverty because it has been found manageable in presenting information on poverty. The pre-determined poverty lines are then used to compute poverty rates. The study uses the FEI-based poverty lines. As discussed earlier, many studies have found the FEI method more attractive despite its estimation problems because it is more direct and does not require data on prices, which in a country like

Kenya where availability of accurate data is not possible is crucial. It is also a more consistent method because it involves less arbitrariness in its application and it is therefore preferred. It also reflects other determinants of welfare like access to provided public goods and services; it automatically includes non-food basic needs in the poverty line computation.

It is important to disaggregate data to levels lower than the provincial level and use it to compute poverty measures for those lower levels. This gives the true picture of the poverty situation for the regions which make it easy to assess the poverty situation so that proper measures can be undertaken to tackle poverty. As discussed earlier, Ravallion and Sen (1996) conducted a case study for Bangladesh on poverty. They illustrated that choice of data base and methods in poverty research are critical because they determine the kind of poverty alleviation strategies one is likely to adopt. They dismissed claims that in Bangladesh urban poverty had overtaken rural poverty incidence because they found rural poverty to be higher than urban poverty. The poverty measures constructed are then used to assess the poverty situation and give the insight of poverty in the district.

CHAPTER THREE: METHODOLOGY

3.1 THEORETICAL FRAMEWORK

The study measured poverty rates for Kakamega District that were used to assess the poverty situation in the district. It uses consumption expenditure rather than the incomes because, as discussed earlier, the incomes of poor people, especially in the rural are unreliable. For instance, in developing countries, incomes of the poor in rural areas are derived from agriculture. Such incomes do fluctuate and are uncertain and therefore likely to produce inaccurate measures. Researchers therefore suggest that the poor should be defined using consumption expenditure data since households have a tendency of maintaining a fairly stable living standards which is considered a function of permanent or long-run income.

In measuring poverty, we consider the following:

- Poverty line, which includes food poverty, hardcore poverty and the absolute (overall) poverty line.
- Unit of measurement, which includes adult overall equivalent, household and individual.
- Headcount ratio: this is a ratio of people living in poor households in total population.
- Poverty gap, which measures the shortfall of the average income of the poor relative to the poverty line.
- Poverty intensity (or severity), which gives us an indication of how deep poverty is in the country.

The FGT Index developed by Foster, Greer and Thorbecke is used to measure the level of poverty. This particular study computes poverty measures for Kakamega District. This will guide in the assessment of poverty situation in the district. Poverty in the district has been increasing than decreasing as has been observed from the 1992, 1994 and 1997 WMS I, II, III respectively. Kakamega District is one of the districts in Western Province worst hit with high incidences of poverty and it is important to measure the levels and give the insight of poverty in the district.

3.1.1 Model Specification

Poverty measures are computed using the FGT Index and the pre-determined poverty lines. The FGT Index shows the magnitude (or level) of poverty in a society and is given by the formular,

$$P_{\alpha} = \frac{1}{N} \sum_{i=1}^q (1 - Y_i / Z)^{\alpha}$$

where,

P_{α} = a measure of absolute poverty, food poverty included,

Y_i = the total expenditure of household i expressed in per adult equivalent,

($i = 1, \dots, N$),

Z = the poverty line, expressed in per adult equivalent,

N = the total number of households,

q = the total number of poor households, and

α = the FGT poverty aversion parameter, $\alpha > 0$.

It is an index that summarizes information on the incidence (level), intensity (depth) and severity (inequality) of poverty for either poverty line, food, overall or

hardcore poverty in a society.

When $\alpha = 0$, then

$P_0 = q/N = H$ which gives the headcount ratio of poverty, that is, the number of the poor people as a percentage of the total population. It is a useful indicator for assessing the overall progress in reducing poverty but it has some limitations. First, it does not take into consideration how far below the poverty line each poor person is. In other words, it ignores the inequality among the poor. Second, it forces overall poverty index to remain constant even when the welfare of the poor has improved or worsened. Third, when there is income transfer from a very poor person to a person just below the poverty line, making them to cross the line, would show a reduction in poverty despite the decline in the income of the very poor person (Mwabu et al 2001).

When $\alpha = 1$, then

$$P_1 = \frac{1}{N} \sum_{i=1}^q (1 - Y_i/Z) = I$$

which gives poverty gap. This is the average of the poverty gaps expressed as a fraction of the poverty line. It measures the shortfall of the average income of the poor relative to the poverty line. It can be used to estimate the resources that would bring the expenditure of every poor person up to the poverty line, hence eliminating absolute poverty. Its limitation is that when it is used to assess welfare, the degree of inequality among the poor cannot be reflected by it.

When $\alpha = 2$, then

$$P_2 = \frac{1}{N} \sum_{i=1}^q (1 - Y_i/Z)^2$$

which gives a measure of severity of poverty among the poor. This is a superior measure of poverty than the first two. The severity of poverty is measured by the square of

poverty gap, and it increases more than proportionately with the poverty gap. Therefore, the higher index mainly serves for inter-temporal comparison, in order to find out if poverty has become more or less severe.

When $Y_i = Z$, $P_\alpha = 0$, meaning there are no poor people in the population. Further more, as FGT parameter, α , approaches infinity, the poverty measure P_α also approaches infinity. This means the poorest household therefore, accounts wholly for the magnitude of poverty in the population. It makes the poorest person the focus of poverty eradication efforts in the society. When $Y_i > Z$, $P_\alpha = 0$ because by definition, there is no poverty when household income is above poverty line.

3.2 DATA TYPES AND SOURCES

The data that was used in this analysis was from the WMS III 1997 that was done by the Central Bureau of Statistics (CBS), Ministry of Finance and Planning. Since the WMS data was processed by CBS in collaboration with GTZ of Germany and the World Bank, Kenya Office, it is quality data. The survey gathered information on socio-economic indicators like health status, child nutrition, income, education, crop production, food and non-food expenditure. The survey covered Kakamega District and the data for the district is available. In the 1997 WMS III, the district has a total of 29 clusters: 24 rural and 5 urban, a total of 277 households: 227 rural and 50 urban, a total of 1244 respondents: 1057 rural and 187 urban. The survey was done using the NASSEP III Frame.

CHAPTER 4 : DATA ANALYSIS AND RESULT INTERPRETATION

4.1 Analysis of Results

The methods and data sets described earlier were used to come up with the results. The summary statistics of the data sets used for the district are presented in appendix IV Table 9. The composition of the food items that were used in Kakamega District is represented in appendix I.

The district poverty lines are presented in Table 1. The summary statistics, computation of the rural and urban poverty lines are presented in appendix IV, Tables 10 and 11.

Table 1: Rural and Urban Food and Overall Poverty Lines

(sample size=277clusters).

Rural food poverty line (Kshs. Per month per adult equivalent)	Overall rural poverty Lines (Kshs. Per month Per adult equivalent)	Urban food poverty Line (Kshs. Per month Per adult equivalent)	Overall urban poverty Line (Kshs. Per month per adult equivalent)
939.0	1188.1	2005.0	2599.5

Source : Computed from Welfare Monitoring Survey Data, 1997.

The district rural food and overall poverty lines are Kshs. 939.0 and Kshs.1188.1 respectively. The urban food and overall poverty lines are Kshs.2005.0 and Kshs.2599.5 respectively. The poverty lines differ slightly from the national ones indicated in appendix I Table 3. This could be attributed to differences in the food basket prices. It is

also important to note that provinces were treated as homogeneous entities in the study done by the Republic of Kenya (2000). Therefore data on variables like food expenditure and calorie consumption were aggregated at the provincial level. Prices were assumed to be uniform within provinces. This study used the FEI method to compute the district poverty lines for both rural and urban.

4.1.1 District Poverty Measures

The poverty lines in Table 1 at district level were used to compute the district poverty measures for both rural and urban as shown in Table 2.

Table 2 : Poverty measures at District level (sample size=277 clusters)

Poverty Measure	Magnitude of Poverty (%)							
	Rural food poverty Line (Kshs.939.0 per month per adult equivalent)	Overall poverty Line (Kshs.1188.1 per Month per adult Equivalent)	Urban poverty Line (Kshs.2005.0 per Month per adult Equivalent)	Urban Food poverty Line (Kshs.2599.5 per Month per adult Equivalent)				
Headcount Index, Po For $\alpha=0$	59.98	60.34	45.99	54.55				
Inequality Index, P1 For $\alpha=1$	22.91	23.4	14.14	15.42				
Severity Index, P2 For $\alpha=2$	11.16	11.5	6.33	6.93				

Source : Computed from Welfare Monitoring Survey Data, 1997.

From Table 2, the rural food and overall poverty rates are 59.98% and 60.34% respectively. These figures are slightly higher than those obtained using the national

aggregated data but the difference is small. This is a robust finding because it shows the importance of using disaggregated data in data analysis. As said earlier, the headcount ratio is the ratio of the number of poor people to the total population. It means that more than half of the population in the rural areas of the district is poor.

The Inequality Index or the income gap of those in food poverty is 22.91% and those in overall poverty is 23.4% in the rural parts of the district. Poverty gap is a measure of the shortfall of the average income of the poor in relation to the poverty line. It shows how unequal the poor are in terms of their income. In this study, the proportional income shortfall of the poor is 22.91% (for food poverty) and 23.4% (for overall poverty) larger than the income shortfall of the people at the poverty line.

The Severity Indices of those in food and overall poverty in the rural part of the district are 11.16% and 11.5% respectively. This Index shows how severe poverty is among the poor. This being a square of the poverty gap, it increases more than proportionately with the poverty gap.

From table 2, the urban food and overall poverty rates are 45.99% and 54.55% respectively. These rates are higher than those obtained using the national aggregated data in the Republic of Kenya (2000). The Inequality indices or income gaps of those in urban food and overall poverty are 14.14% and 15.42% respectively. The severity indices of those in urban food and overall poverty are 6.33% and 6.93% respectively. These figures show the magnitude of urban poverty in the district.

A study by Mwabu et al on Situational Analysis of Poverty in Kenya computed the

projections of poverty measures by district for the period 1997-2000 using WMS III, 1997 data. The study found the poverty measures for the rural part of Kakamega District in 1997 given in percentages as: $P_0=56.69$, $P_1=23.15$ and $P_2=11.68$. The rural poverty measures differ slightly from the ones computed by this study. This could be because the study by Mwabu et al used the national poverty lines to compute the projected poverty measures, though the difference is not big. The study also computed the urban projections for other towns using the urban national poverty lines computed from WMS III, 1997. Kakamega urban centers are included in the other towns in Kenya. The study found that the poverty measures in percentages for other towns in Kenya were: $P_0=52.38$, $P_1=19.20$ and $P_2=9.22$. These figures are abit different from those computed by this study for Kakamega District urban centers but the magnitude is not too big. This could be attributed to the fact that the study by Mwabu et al combined all the urban centers in Kenya and used the national urban poverty lines to come up with urban poverty measures while this study this study used the poverty lines specifically computed for Kakamega District urban centers to compute the urban poverty measures for the district. That is why using combined data for towns to compute the poverty measures may not reflect the true poverty situation of an area. It is important to use disaggregated data to compute poverty measures of an area since this reflects the true poverty situation.

The headcount ratio, P_0 , was constant for both urban and rural. It played an important role in the assessment of the progress of poverty situation in the district. But because of its constancy, it forces the overall poverty index to remain constant even when the welfare of the poor has improved or worsened. This was as expected from theory as discussed in the theoretical framework. It also ignored the inequality among the poor in the district by the very fact that it was constant, indicating that all the poor people are at

the same level of poverty. The poverty gap, P1, in both rural and urban, measured the shortfall of the average income of the poor relative to the poverty line. It could not be used to reflect inequality among the poor as was expected from theory. As discussed earlier in the theoretical framework, it can be used to estimate the resources that would bring the expenditure of a very poor person up to the poverty line leading to elimination of absolute poverty. The measure of poverty severity among the poor for both rural and urban was indicated by P2. It was measured by the square of the poverty gap which increased more than proportionately with the poverty gap. In this study, it displayed its superiority property over the headcount index and the poverty gap in that it was able to reflect the real severity of poverty to the poor in the district. Therefore, all the Po, P1 and P2 measures that were computed for both rural and urban in the district are as was expected from theory.

From the results, it was noted that the higher the number of the household members, the higher the poverty. In other words, poverty increases with increase in the household size as was expected. The poor have large households than the non-poor. Large families dilute the family resources and divert resources from long-term investment. This is because large families tend to devote a disproportionately large share of their budget on food, leaving little for education and other investments. Rapid population growth is viewed as one of the main causes of deterioration in living standards. It was also noted from the results that households with higher food expenditures are poorer than those with lower food expenditures. As was expected, the poor spend a larger proportion of their expenditure on food than do the non-poor.

4.1.2 The computation of poverty measures using the FGT Index

After the construction of the poverty lines indicated in Table 1, they were used to compute the poverty measures Po, P1 and P2 shown in Table 2 using the FGT Index,

$$P_{\alpha} = \frac{1}{N} \sum_{i=1}^q (1 - Y_i/Z)^{\alpha} .$$

Tables 12, 13, 14 and 15 in appendix IV represent the summaries of statistics on the computation of rural food poverty rates, overall rural poverty rates, urban food poverty rates and overall urban poverty rates respectively. Defining the variables used in these tables, foodexp is the total food expenditure per month per adult equivalent, Lfoodexp is the log of food expenditure, foodpovline is the food poverty line, nonfood is the total expenditure of the non-food items, texp is the total expenditure of the food and non-food expenditures, rural indicates the rural areas, urban indicates the urban areas, fplu is the urban food poverty line, Po, P1, P2 are as discussed in the literature, dif is

$$(1 - Y_i/Z), \text{ difcum is } \sum_{i=1}^q (1 - Y_i/Z), \text{ difsq is } (1 - Y_i/Z)^2,$$

$$\text{difsqcum is } \sum_{i=1}^q (1 - Y_i/Z)^2 .$$

From the poverty index as discussed earlier, N is the total rural population, q is the rural population below the poverty line, Z is the poverty line and Yi is the total expenditure of household i expressed in per adult equivalent.

4.1.3 Poverty Measures using the National Poverty Lines (GOK, 2000)

The rural poverty rates computed by the Republic of Kenya (2000) and those computed by this study are almost similar but there are some variations. This could be attributed to differences in food item prices, regional price deflators and the different weighting measurements used for various regions and districts.

The Tables 7 and 8 in Appendix III represent the poverty measures in Kenya using the national poverty lines in Table 3. The rural food and overall poverty rates for the district are still higher, meaning more than half the population of the district live in poverty, and thus an indication of high prevalence rates of poverty in the rural parts of the district.

Tables 5 and 6 in Appendix II represent the urban poverty measures by the Republic of Kenya (2000). Urban areas in Kakamega District are included in other towns as shown by the tables. Other towns in Kenya depict higher poverty rates than those of the bigger towns like Nairobi, Mombasa and Nakuru. This is an indication of existence of poverty incidences in the urban centres. The findings of this study indicate that the food and overall poverty measures in urban centres of Kakamega District are higher than those represented by the Republic of Kenya (2000), where the poverty rates computations for all small towns were combined nationally. This is an indication that combining the towns to compute poverty rates may not give the accurate picture of poverty in the district. It is better to treat every district and region separately in the computation of district urban poverty measures. In this study, comparing the poverty measures for urban and rural, the extent of poverty in rural areas is far much higher than for urban centres. But still, there is high incidence of poverty in the urban areas of the district.

CHAPTER FIVE: CONCLUSIONS, POLICY RECOMMENDATIONS AREAS OF FURTHER RESEARCH

5.1 Conclusions

The study computed poverty rates for Kakamega District at district level by use of WMS III, 1997. The poverty rates were computed to be used to assess the extent of poverty and come up with an insight of the poverty situation in the district. The study used the FEI-based method to come up with poverty lines which were then used in the computation of poverty rates. As discussed earlier, FEI is an alternative method to CBN method. The FEI-based poverty lines are more attractive despite some limitations in estimation. It is a more consistent and direct method and does not require data on prices as discussed earlier.

As said in the literature, past studies suggest that it is better to define the poor using consumption expenditure data since there is a tendency of households to maintain a fairly stable living standards, which is a function of permanent or long-run income. One may encounter some problems with consumption-based poverty measurements because the composition of the Food Basket and the prices of food items may not be accurate. Also since the quality of food was not captured by the WMS III, 1997, it is possible for expenditures to vary within the areas or from one area to another.

The rural food and overall poverty rates of $P_0=59.98\%$, $P_1= 22.91\%$, $P_2=11.16\%$ and $P_0=60.34\%$, $P_1=23.4\%$, $P_2=11.5\%$ respectively for the district are almost similar to those computed by the Republic of Kenya (2000) but they are higher. These figures show the true picture of poverty situation using the district data when poverty rates are computed at

district level than using combined aggregated national data. The rural food and overall poverty rates of 59.98% and 60.34% respectively for the district are too high. This shows how deep poverty is in the district. The rates indicate that more than half the population of the district in the rural areas is poor. The rural food and overall poverty severity rates of 11.16% and 11.5% respectively are also quite high. This is an indication of how severe a part of the population, especially in the rural areas of the district, have been affected by poverty. It shows existence of poverty density hotspots comprised of areas with very high number of poor people in the district.

The urban food and overall poverty rates are $P_0=45.99\%$, $P_1=14.14\%$, $P_2=6.33\%$ and $P_0=54.55\%$, $P_1=15.42\%$, $P_2=6.93\%$ respectively. These rates are higher than those computed by the Republic of Kenya (2000). This shows how important it is to disaggregate data and use it at a lower level like the district to compute the poverty rates. This tells the true poverty situation of the region or district. The urban food and overall poverty rates of 45.99% and 54.55% respectively are high for urban areas. They show that almost half of the population of urban areas in the district live in poverty. Urban poverty is expected to be quite low because it is assumed that most of the population that live in urban areas have sources of income that help them meet their daily basic needs and other areas of need. But urban poverty rates found for the district are high and alarming. It shows how a big percentage of the urban population in the district is affected by poverty.

Rural poverty rates are higher than the urban poverty rates in the district. This is an indication that poverty affects more people in the rural than in the urban. In this study, it was found that almost half the urban population and more than half the rural population

live in poverty. It means overall, more than half the population of the district live in poverty.

The urban poverty lines are higher than the rural poverty lines. This could be because food and non-food items in urban centers are costly. The high urban poverty rates could also be because of the rural-urban migration whereby part of the rural population leave to seek employment opportunities in urban centers. Since they are poor, they contribute to urban poverty hence increasing it.

5.2 Policy Recommendations

From the study, there is a wide difference between the urban and rural poverty. Poverty in the rural affects more than half the population of Kenya as compared to urban poverty. The implication for policy measures is that in order to reduce poverty, the GOK and other partners in development need to focus more in rural areas. There is need for Poverty Programmes to involve the participation of the poor, especially in the rural areas where poverty levels are high. The poor need to be put at the centre of poverty eradication and their voices should be heard, and proper policy implementations put in place in order to eradicate poverty.

Urban poverty was found to be high but lower than the rural poverty. There is need for poverty eradication programs to also pay attention to the urban poor with an aim of eradicating urban poverty so that there is total poverty eradication in the country. Many of the poor in urban areas live in slums in pathetic conditions. Such areas should be mapped for poverty eradication and be treated separately in poverty researches and

studies in order to come up with the true picture of the extent and magnitude of poverty. This will guide policy makers in the design proper policies and measures that will help in eradication of poverty.

Another important policy implication emerging from this study is that there is need for job creation and provision in both rural and urban areas of Kakamega District and Kenya in general as this will lead to employment opportunities hence eradicating poverty. Also when employment opportunities are created in the rural areas, this helps to stop the migration of part of the rural population to urban areas and therefore reducing the population density and poverty in urban areas.

To tackle poverty, there is need to know the extent and magnitude of poverty in a region. Therefore, rather than using the national and combined data, it is important to compute poverty measures for a region or a district using the specific data for the region, although it may be costly. This will enable the government and partners in development to know the areas where the poor are concentrated. The policy makers will be able to design policies and measures that are aimed at eradicating poverty. There is need for future research in poverty in this area.

Another area for policy implication is human resource development. The poor both in the rural and urban areas need to be built, developed and even be provided with employment opportunities so that they get involved in the labour force participation of the nation. The human resource development is very crucial for the economic growth and development of the country.

5.3 Areas for Further Research

Since the majority of the poor live in the rural areas and rely mostly on agriculture, there is need for further research in this area on the development of modern farming methods and the provision of farm inputs in all rural areas of Kakamega District and the whole country in general with a view of eradicating poverty.

There is also need for further research to find out the underlying causes and effects of poverty that should also be tackled to eradicate poverty in Kakamega District and Kenya in general.

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APPENDICES

APPENDIX I: THE FOOD BASKET, NATIONAL POVERTY LINES, PAST STUDIES ON POVERTY

Composition of Kakamega District Food Basket

- | | | | |
|---------------|------------------|-------------|------------------|
| 1. Bread | 5. Maize | 9. Milk | 13. Eggs |
| 2. Meat | 6. Fish | 10. Fruits | 14. Tea & Coffee |
| 3. Vegetables | 7. Oils and Fats | 11. Roots | |
| 4. Sugar | 8. Beans | 12. Cereals | |

Appendix Table 3: National Poverty Lines

Poverty Line	Rural	Urban
Food Poverty Line	927	1254
Overall Poverty Line	1239	2648

Source: Republic of Kenya (2000).

Appendix Table 4: Past Studies on Poverty Measurement in Kenya

AUTHOR	REFERENCE YEAR	SOURCE	POVERTY LINE (ANNUAL)	POVERTY INCIDENCE
FAO (1977)		Food Balance Sheet (1972-74)	2,137 calories	30% of population
Crawford & Thorbecke	1974/75	IRS I (1974/75)	Kshs. 2,200 for small holder HH	38.5% of HH
	1976	1976 Employment Earnings in Modern Sector, IRS II		44% of population
Collier & Lal (1980)	1974/75	IRS I Small holders	Kshs. 2,200 per HH for population	34.2% of small holder population 29% of total population
Vendermoor tele	1976	IRS I 1974/75 Nairobi HH Budget Survey (1974) Social Accounting Matrix.	Kshs. 2,269 small holder HH Kshs. 3,836 Urban HH	33.1% of small holder HH 15.3% Urban HH
Crawford & Thorbecke (1980)	1974/75	IRS (1977)	Kshs. 310 per adult equiv. Kshs. 1,570 per HH	25% of HH
Greer and Thorbecke (1980)	1974/75	IRS I (1977)	Kshs. 353 per adult equiv. Adjusted for taste and preference	38.6% of smallholder HH
Jamal (1981)	1976		Kshs. 238 per month for rural family Kshs. 208 urban	32% of population
Bigsten (1987)	1976	National Accounts	Kshs. 1,000 per worker	40%
World Bank (1991)	1981/82	1981/82 Rural Survey and Complementary Statistics	Kshs. 3,167 for smallholders	22% rural population
Government of Kenya Mukui (1994)	1992	WMS I	Kshs. 484.98 Adult equiv. Kshs. 1009.70 adult equiv.	46% of rural population 30% (Nairobi and Mombasa)
Government of Kenya (1997)	1994	WMS II	-Kshs. 978 (Rural) -Kshs. 1,490 (Urban)	46% of population (Rural) 29% of population (Urban)
Government of Kenya (2000)	1997	WMS III	-Kshs. 927 per adult equivalent (Rural) -Kshs. 1,254 (Urban)	51 % (Rural) 38 % (Urban)

HH=Household equiv.=equivalent

Source: Republic of Kenya, 1997 and 2000.

APPENDIX II : COMPUTATION OF URBAN FOOD AND OVERALL POVERTY MEASURES BY THE REPUBLIC OF KENYA, (2000)

Appendix Table 5 : Urban Food Poverty Rates

Urban centre	Headcount $P_{\alpha} = 0$	Poverty Gap $P_{\alpha} = 1$	Severity of Poverty $P_{\alpha} = 2$
Nairobi	38.38	10.40	3.90
Mombasa	38.57	10.96	4.07
Kisumu	53.39	16.61	6.88
Nakuru	26.81	6.52	2.50
Other towns Combined	37.91	10.82	4.11

Source : Republic of Kenya, (2000)

Appendix Table 6 : Overall Urban Poverty Rates

Urban centre	Headcount $P_{\alpha} = 0$	Poverty Gap $P_{\alpha} = 1$	Severity of Poverty $P_{\alpha} = 2$
Nairobi	50.24	14.07	5.47
Mombasa	38.32	14.29	6.96
Kisumu	63.76	23.09	11.42
Nakuru	40.58	10.58	3.84
Other towns combined	52.38	19.20	9.22

Source : Republic of Kenya (2000).

APPENDIX III : DISTRICT FOOD AND OVERALL RURAL POVERTY MEASURES COMPUTATION, GOK (2000)

Appendix Table 7 : District Ranking of Rural Food Poverty

District	Headcount $P\alpha = 0$	Poverty Gap $P\alpha = 1$	Severity of Poverty $P\alpha = 2$
Kiambu	24.19	6.19	2.70
Kajiado	25.17	9.63	4.84
Laikipia	26.34	7.10	2.68
Nyandarua	26.75	7.58	2.62
Tana River	31.23	9.82	4.29
Nyeri	31.77	8.99	3.85
Lamu	31.86	9.70	3.72
Muranga	32.50	9.37	3.72
Baringo	35.32	11.65	5.09
Kirinyaga	37.10	13.06	5.86
Nyambene	40.48	11.30	4.19
Meru	40.68	13.24	5.97
Nakuru	42.26	13.51	5.95
Uasin Gishu	43.62	12.46	5.04
Elgeyo-Marakweti	47.57	14.37	5.79
Narok	49.24	14.53	5.53
Kericho	50.88	16.90	7.98
Migori	51.09	14.52	5.70
Tharaka/Nithi	51.65	18.00	8.50
Siaya	52.61	17.61	7.85
Kisii	53.49	19.00	8.98
Trans-nzoia	54.21	18.76	8.47
Transmara	54.26	16.57	7.16
Embu	54.77	21.29	10.48
Nandi	55.39	21.34	10.28
Bungoma	57.12	20.42	9.57
Mbeere	57.42	20.01	9.41
Kakamega	57.99	22.60	11.10
Kwale	58.94	22.65	10.77
Vihiga	59.58	18.24	8.02
Kisumu	60.33	23.25	11.47
Busia	61.40	24.91	12.11
Tait-Taveta	62.44	22.89	10.67
Kitui	63.23	22.90	10.51
Kilifi	63.68	23.02	10.33
Bomet	63.86	24.21	11.62
Machakos	64.47	20.52	8.90
Nyamira	66.03	25.05	8.90
Homa Bay	66.94	25.45	11.57
West-Pokot	69.74	32.32	16.59
Makueni	71.43	29.32	14.77

Source : Republic of Kenya, (2000).

Appendix Table 8 : District Ranking of Overall Rural Poverty

District	Headcount $P_{\alpha} = 0$	Poverty Gap $P_{\alpha} = 1$	Severity of Poverty $P_{\alpha} = 2$
Kiambu	25.08	6.08	2.46
Nyandarua	26.95	8.51	3.44
Kajiado	27.87	10.41	4.91
Nyeri	31.05	10.35	4.81
Laikipia	33.88	8.33	3.36
Tana River	34.22	8.97	3.77
Kirinyaga	35.70	12.43	5.62
Baringo	36.95	12.49	5.69
Muranga	38.62	11.02	4.47
Lamu	39.35	11.04	4.09
Meru	40.96	13.37	6.20
Uasin Gishu	42.22	12.05	4.92
Nakuru	45.08	14.75	6.25
Nyambene	47.29	16.13	6.90
Elgeyo-Marakweti	47.82	13.83	5.37
Mbeere	51.36	21.14	10.50
Narok	52.17	17.12	6.95
Kericho	52.42	18.11	8.50
Trans-nzoia	54.83	19.53	9.11
Bungoma	55.21	20.42	9.49
Tharaka/Nithi	55.58	18.92	8.52
Embu	55.76	23.47	11.69
Transmara	56.59	19.26	8.77
Kakamega	56.69	23.15	11.68
Kisii	57.22	22.50	11.65
Migori	57.63	16.57	6.74
Siaya	58.02	20.92	9.78
Kwale	60.55	25.25	13.14
Bomet	61.80	24.80	12.54
Vihiga	61.97	21.91	10.33
Machakos	62.96	22.85	10.53
Nandi	64.11	23.08	11.12
Kitui	64.91	25.80	12.48
Kisumu	65.44	26.70	13.87
Tait-Taveta	65.82	24.88	11.82
Busia	65.99	27.80	14.30
Kilifi	66.30	26.14	12.40
Nyamira	66.74	26.92	13.52
West-Pokot	68.46	33.98	18.86
Makueni	73.51	32.24	16.94
Homa Bay	77.49	29.54	14.63

Source : Republic of Kenya, (2000)

APPENDIX IV: SUMMARY STATISTICS OF THE DATA USED AND COMPUTATION OF RURAL AND URBAN POVERTY LINES

Appendix Table 9 : Summary statistics of the expenditure and other variables for Kakamega District

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Region	1244	8.00	0.00	8.00	8.00
District	1244	93.00	0.00	93.00	93.00
Cluster	1244	1081.53	122.12	1013.00	1373.00
Household Number	1244	63.83	44.51	1.00	230.00
Rural/Urban	1244	1.15	0.36	1.00	2.00
Sex	1244	1.51	0.50	1.00	2.00
Age	1244	21.71	17.95	0.00	86.00
Weights	1244	898.65	413.11	128.38	1940.41
Members	1244	6.63	2.54	1.00	12.00
Adult Equivalent	1244	4.71	2.14	1.00	10.30
Food Expenditure	1244	1206.98	1080.06	301.08	13208.33
Non food Expenditure	1244	301.02	269.37	75.09	3294.16
Total Expenditure	1244	1508.00	1349.42	376.16	16502.50

Source: WMS III, 1997.

Appendix Table 10 : Summary statistics, computation of the rural food poverty line

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Food expenditure	1057	998.72	732.04	301.08	6733.33
Log food Expenditure	1057	6.71	0.60	5.71	8.81
Food poverty line	1057	939.03	0.00	939.03	939.03

Source: Computed from WMS III, 1997.

Appendix Table 11 : Summary statistics, computation of urban food poverty line

Variable	observation	Mean	standard deviation	Minimum	maximum
food expenditure	187	2384.11	1764.56	533.33	13208.33
log food expenditure	187	7.60	0.56	6.28	9.49
Urban food poverty	187	2004.92	0.00	2004.92	2004.92

Source: Computed from WMS III, 1997.

Appendix Table 12 : Summary statistics, computation of rural poverty rates

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Members	634	6.87	2.38	1.00	12.00
Food expenditure	634	580.40	188.62	301.08	922.48
Log Food expenditure	634	6.31	0.34	5.71	6.83
Food poverty line	634	939.03	0.00	939.03	939.03
Non food expenditure	634	144.75	47.04	75.09	230.07
Total expenditure	634	725.15	235.67	376.16	1152.55
Difference ($1 - Y_i/Z$)	634	0.38	0.20	0.02	0.68
Cumulative sums of difference	634	114.01	69.00	0.59	242.12
Difference squared	634	0.19	0.15	0.00	0.46
Cumulative sums of difference squared	634	54.07	33.82	0.35	118.01
Headcount Ratio (Po)	634	0.60	0.00	0.60	0.60
Poverty Gap (P1)	634	0.11	0.07	0.00	0.23
Poverty Severity (P2)	634	0.051	0.03	0.00	0.11

Y_i = Total expenditure of household i expressed in per adult equivalent, Z = poverty line

Source: Computed from WMS III, 1997.

Appendix Table 13 : Summary statistics, computation of overall rural poverty rates

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Members	638	6.86	2.38	1.00	12.00
Food expenditure	638	582.70	190.26	301.08	948.16
Log Food expenditure	638	6.31	0.34	5.71	6.85
Overall rural poverty line	638	1188.10	0.00	1188.10	1188.10
Non food expenditure	638	145.33	47.45	75.09	236.47
Total expenditure	638	728.03	237.71	376.16	1184.64
Difference ($1 - Y_i/Z$)	638	0.39	0.20	0.00	0.68
Difference squared	638	0.19	0.15	0.00	0.47
Cumulative sums of difference	638	116.55	70.21	0.60	247.06
Cumulative sums of Difference squared	638	55.59	34.61	0.36	121.17
Headcount Ratio (Po)	638	0.60	0.00	0.60	0.60
Poverty Gap (P1)	638	0.11	0.07	0.00	0.23
Poverty Severity (P2)	638	0.05	0.03	0.00	0.11

Y_i = Total expenditure of household i expressed in per adult equivalent, Z = poverty line

Source: Computed from WMS III, 1997.

Appendix Table 14 : Summary statistics, computation of urban food poverty rate

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Members	86	5.28	1.72	1.00	8.00
Food expenditure	86	1388.56	418.42	533.33	1902.89
Log food expenditure	86	7.18	0.37	6.28	7.55
Non food expenditure	86	346.31	104.35	133.01	474.58
Total expenditure	86	1734.86	522.77	666.35	2377.47
Urban food poverty line	86	2004.92	0.00	2004.92	2004.92
Difference ($1 - Y_i/Z$)	86	0.31	0.21	0.05	0.73
Difference Squared	86	0.14	0.16	0.00	0.54
Cumulative sums of difference	86	16.39	7.69	0.41	26.44
Cumulative sums of difference squared	86	7.99	3.55	0.17	11.83
Headcount Ratio (Po)	86	0.46	0.00	0.46	0.46
Poverty Gap (P1)	86	0.09	0.04	0.00	0.14
Poverty Severity (P2)	86	0.04	0.02	0.00	0.06

Y_i = Total expenditure of household i expressed in per adult equivalent, Z = poverty line

Source: Computed from WMS III, 1997.

Appendix Table 15 : Summary statistics, computation of overall urban poverty rates

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Members	102	5.25	1.70	1.00	8.00
Food expenditure	102	1492.34	453.78	533.33	2075.99
Log Food expenditure	102	7.25	0.38	6.27	7.64
Overall urban poverty line	102	2599.50	0.00	2599.50	2599.50
Non food expenditure	102	372.19	113.17	133.01	517.75
Total expenditure	102	1864.53	566.95	666.35	2593.74
Difference ($1 - Y_i/Z$)	102	0.28	0.22	0.00	0.74
Difference squared	102	0.13	0.16	0.00	0.55
Cumulative sums of difference	102	17.26	8.11	0.43	28.84
Cumulative sums of difference squared	102	8.50	3.72	0.18	12.96
Headcount Ratio (Po)	102	0.55	0.00	0.55	0.55
Poverty Gap (P1)	102	0.09	0.04	0.00	.015
Poverty Severity (P2)	102	0.05	0.02	0.00	0.07

Y_i = Total expenditure of household i expressed in per adult equivalent, Z = poverty line

Source: Computed from WMS III, 1997.