HOUSEHOLD RESOURCE MOBILISATION CAPACITY AND PRE-SCHOOL CHILDHOOD MALNUTRITION:

A CASE STUDY OF KALOLENI DIVISION, KILIFI DISTRICT

By

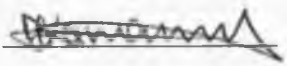
KAMAU ANNE Wairimu

Thesis Submitted in Partial Fulfilment of the Requirements for the Degree of Masters of Arts, Department of Sociology, University of Nairobi

April, 1999

DECLARATION

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



Kamau Anne Wairimu

This thesis has been submitted for examination with my approval as the university supervisor.

Dr. E.H.N. Njeru

Department of Sociology

University of Nairobi

P.O. Box 30197

Nairobi, Kenya.

DEDICATION

To my parents:

This thesis is dedicated to you for your love and sacrifice which has enabled me get to this level.

TABLE OF CONTENTS

List of Tables.

List of Maps

List of Abbreviations.

FAO	Food and Agriculture organisation
WHO	World Health Organisation
AMREF	African Medical Research Institute
NGO's	Non Governmental Organisations
UNICEF	United Nations Children's Fund
PCM	Protein Calorie Malnutrition
MCH	Maternal and Child Health
IMR	Infant Mortality Rate

ACKNOWLEDGEMENTS

I wish to express my sincere thanks to all those who in one way or another contributed to completion of this study. First, I extend my thanks to the University of Nairobi for the scholarship without which this work could not have been accomplished.

Special thanks go to my supervisors Dr. E.H. Njeru and Dr. C.B. Nzioka for their detailed comments, suggestions and close supervision which made this study a success.

To the Kamau's and my friends for their encouragement while writing this thesis, I say thanks to you all. Special thanks go to Alex and Githinji for their support.

My thanks also go to Tom and Joseph who carried out the statistical analysis and my colleagues for their encouragement. I also wish to sincerely thank Mwangi for assisting with the computer without which this work could not have been typed.

ABSTRACT

This study set out to explore the relationship between household's capacity for resource mobilisation and children's nutritional status in Kaloleni Division, Kilifi District of the Coast Province of Kenya. Kilifi District was chosen because it had one of the highest rates of childhood malnutrition in the county. The broad objective of the study was to explore the relationship between households' resource mobilisation capacity and children's nutritional status in Kaloleni Division of Kilifi District.

The study specifically sought to explore the relationship between social and economic factors, resources mobilisation capacities, the patriarchal authority structures and children's nutritional status. The social and economic variables under investigation were educational levels, household sizes, number of dependants and household incomes. Investigations on the patriarchal authority structures focused on role performance, decision making and resource control.

Relevant literature on the nature and extent of malnutrition, resource mobilisation and allocation patterns, patriarchal authority structures and gender relations were reviewed. The study made use of the Household Production of Health Behavioural Approach (HHPH) to demonstrate how households and community resources could be utilised to improve the health status of the children. The household economic models were also used to show the different patterns of resource distribution within the household level.

The data for the study were drawn from a randomly selected sample of 110 households with pre-school aged children. The data was collected using a self-administered questionnaire. Nutritional assessment was done using the weight for age (W-A) nutritional assessment. Analysis of data was done using the statistical package for social scientist (SPSS).

Analysis of data revealed that thirty five percent of the children were malnourished. The poor nutritional status of pre-school children in the district could be attributed to *inter alia* number of dependants, parental educational levels and household incomes. Gender relations with regard to food provision, decision making and resources control were found to influence the household resource allocation and distribution patterns and had an impact on the nutritional status of the children. Parents' knowledge of the causes and symptoms of malnutrition was limited. This lack of knowledge as highlighted by the HPPH Behavioural Approach contributes greatly to the problem of childhood malnutrition as it hampers effective prevention and treatment of the illness.

It was concluded that the existing intervention programmes fail because they do not address household internal dynamics which adversely affect the nutritional status of the children. The study recommended that parental education and in particular maternal education, nutritional education and inequalities in power relations be addressed for effective control and prevention of childhood malnutrition. Besides the provision of food and training on basic feeding habits, the government and other stakeholders should endeavour to pursue pragmatic policies that enhance the well being of the children.

CHAPTER ONE

1.1 BACKGROUND INFORMATION AND PROBLEM STATEMENT

Various studies have revealed that malnutrition is a major cause of child mortality in developing countries and that several major factors have been associated with this problem. These include poverty, breast-feeding practices, poor weaning practices, inadequate child spacing, family breakdown and maternal illness (Eileen *et al.,* 1993; Janet *et al.,* 1994; Maina 1988; Republic of Kenya, 1995; Popoola 1976).

Other factors include maternal education, income levels, cultural beliefs and practices, ignorance and sex bias (Otiato 1990; Republic of Kenya 1994; Youri 1990; Wandati 1984).

In Kenya, malnutrition is the fourth leading cause of child mortality (WHO 1975; Wandati 1984) and was reported to be highest in the Coast Province (Republic of Kenya, 1995). Protein energy malnutrition (particularly stunting as opposed to wasting) is the most serious and widespread nutritional problem (FAO/WHO 1975; Mwangi and Mwabu 1986; Wright 1988).

In the Coast Province, stunting remained persistently high in Kwale and Kilifi Districts in 1994 compared to 1987 (Republic of Kenya, 1995: 37). Kilifi district had the highest rates of malnutrition with 42% stunting levels according to the third Kenya National

Child Nutritional Survey. As noted, malnutrition appeared to be more serious in Kilifi District than in Kenya as a whole (Republic of Kenya, 1994: 62). The worst affected divisions in Kilifi District between 1992 and 1994 were Kaloleni, Malindi and Magarini (Owour and Okello, 1995).

These high rates of malnutrition observed in Kilifi District led to attempts by the government and voluntary organisations to undertake intervention programs with the aim of improving food security in the region. The International Fund for Agricultural Development (IFAD) for example, initiated the District Nutrition Committee (DNC) to assist in planning and implementation of Kwale and Kilifi Development Program (KKDP) (Owour and Okello 1995: 4).

AMREF in collaboration with the Kenya government undertook a health program in Kaloleni Division in 1990 whose aim was to improve the health status of the people in the area and particularly address the problem of malnutrition. At the end of the project in 1995, there was recorded improvement in food production (particularly of vegetables), childhood immunisation coverage, contraceptive acceptance rate, ante-natal clinic attendance, access to protected water, waste disposal and use of latrines. The district also experienced a decline in diarrhoea among children among other health components (Mwangi *et al.,* 1995: 11).

With these improvements, a reduction in malnutrition was expected. However, to the contrary, malnutrition rates remained high and increased from 35% in 1990 to 36% in

1995 (Mwangi *et al.*, 1995:11). This study therefore sought to explore factors accounting for the persistence of malnutrition in Kilifi District despite intensive and aggressive efforts by an array of change agents to contain the problem.

Specifically, this study was to investigate whether households' resource mobilisation capacities have an impact on the nutritional status of the children in Kaloleni Division. In particular, the study sought to answer the following research questions.

(a) What are the household's socio-economic and demographic patterns?

(b) Does gender as a factor influence household resource distribution and utilisation patterns?

(c) Do these patterns influence the nutritional status of the children?

These were the very research questions investigated in this study.

1.2 OBJECTIVES OF THE STUDY

Household resource mobilisation capacity is influenced by a number of factors, which form the basis, and objectives of this study.

1.2.1 Broad Objective

The major objective of the study was to explore the relationship between households' resource mobilisation capacity and children's nutritional status in Kaloleni Division of Kilifi District.

1.2.2 Specific Objectives

Specifically, the objectives of this study were to:

(a) Explore the relationship between household socio-economic and demographic factors and children's nutritional status.

(b) Investigate the impact household income levels on the nutritional status of the children.

(c) Examine the relationship between gender power relations at the household level and children's nutritional status.

1.3 STUDY HYPOTHESES

The study was guided by the following hypotheses.

1. There is a relationship between household size and children's nutritional status.
2. There is a positive relationship between the number of dependants and children's nutritional status.
3. Parents' educational levels have an impact on the nutritional status of the children.
4. The well being and nutritional status of the children is a consequence of household incomes.
5. The patriarchal authority structures influence the nutritional status of the children.

1.3.1 CONCEPTS AND VARIABLES

Dependent variable

Nutritional status:

This refers to the condition of the body as a result of presence or absence of essential food nutrients in the body. Welcome and Waterloo gives the classification of nutritional assessment such as weight for age (W-A), weight for height (W-H), height for age (H-A) and clinical evaluation (Njeru and Macharia, 1996: 8). This study adopted the W - A classification to determine the nutritional status of the children.

Independent variables

Social and economic factors

The social and economic factors refer to the factors, which influence household composition and means through which households meet their wants. These include age, sex, education, occupation, marital status, number of dependants, household size and income levels. For purposes of testing the hypothesis, only four variables were considered. These were education levels, number of dependants, household size and incomes levels, and were defined as follows: -

Education levels:

Educational level in this study refers to the highest level of formal education attained in school. Parents educational levels were investigated and their impact on the nutritional status of the children assessed.

Number of dependants:

This refers to the total number of children in a household to be provided for.

Household size:

This refers to actual number of persons living in one unit, who eat and cook together.

Income levels

This refers to the total monthly earnings accruing from various sources given by the respondents. In this study, the incomes that were considered were those accruing from wages and salaries, farm and livestock produce, remittances and businesses.

Concepts

Household

The household was the centre of focus in this study. The household is the overall unit of production and the main unit of consumption. The household was defined in this study as

a unit comprising of persons who cook and eat together. These include fathers, mothers, their children and any other persons sharing the unit.

Patriarchal authority structures

The patriarchal authority structures in this study refer to the gender based social relations in the study communities. Among the issues that were considered to have an effect on children's nutritional status were food provision and control of resources. These were defined as follows: -

Food provision:

In this study, food provision was taken to refer to the roles played by parents and their ability to provide food to the children. It was envisaged that if parents, both mothers and fathers, participated in providing food and ensured that adequate food was provided for the children, the chances of children getting malnourished would be minimised.

Control of resources:

Resources are means by which a system's demand are satisfied (Engberg, 1990). At the household level, resources are available means by which households produce goods and services to satisfy their wants. In this study, household resources refer to incomes raised from various sources as those listed above. Control of resources means participation of the parents in deciding how the household resources obtained from various sources could be utilised.

1.4 JUSTIFICATION OF THE STUDY

This study was carried out in Kaloleni Division, Kilifi District. The study was necessary owing to the persistent high rates of childhood malnutrition in the area despite intervention measures taken by the Kenya government and non-governmental organisations to address the problem.

The study also sought to address the problem of childhood malnutrition, which is still a major health problem and one of the leading causes of childhood mortality in the country.

The gender component was deemed important in this study because the focus of the study was households where key decisions concerning the acquisition and distribution of food are made. Gender relations to some extent determine the patterns of resource distribution and this has implications for the nutritional status of the children.

It was hoped that the findings of this study would be useful to policy makers and those involved in improving the nutritional status of the people in the study area, particularly the children. The recommendations can be used in initiating nutritional programs in the study area aimed at promoting the health status of the children.

1.5 SCOPE OF THE STUDY

Due to time and money constraints, it was not possible to cover the entire population of Kaloleni Division estimated at 230,489 (Republic of Kenya, 1997 projections). The study was thus carried out in one location, Jibana, in Kaloleni Division.

The study targeted households with pre-school going children aged 1 - 60 months, as they are more vulnerable to malnutrition. The sample comprised 110 households with children aged 1 - 60 months.

Information relating to children's age, nutrition and households socio-economic and demographic data was obtained from the parents using a questionnaire. The weights of the children (totalling to 142) were taken to determine their nutritional status.

CHAPTER TWO

2.0 LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 LITERATURE REVIEW

2.1.1 Nature and extent of malnutrition

Malnutrition is a major childhood killer in the world. According to Bellamy (1998) malnutrition is a *`silent emergency'*, whose persistence has profound and frightening implications for children, society and the future of human. Malnutrition is not, as many think, a simple matter of whether a child can satisfy her appetite, because a child who eats enough to satisfy immediate hunger can still be malnourished (Bellamy, 1998: 9).

Child malnutrition, though mainly found in developing world, is also found in some industrialised countries which are experiencing widening income disparities and reductions in social protection. Even though there has been a dramatic reduction in child malnutrition in some parts of the world like Latin America and East Asia, the overall number of malnourished children world-wide has grown (Bellamy, 1998).

In developing countries, it is estimated that one in every three children under five years old is malnourished (Ochola, 1990: 1). According to UNICEF (1982) estimates, 17 million children died in 1981 and 17 million were projected to die in 1985 from malnutrition and

other related diseases. The World Health Organisation (WHO) estimates indicate that 56 percent of twelve million deaths of under five's in developing countries are as a result of malnutrition (WHO, 1996). There is a consensus among authors that nutritional deficiency is responsible for more than 50% of deaths in children under five years in America, Africa and Asia. (Puffer and Sorono, 1973; Ochola 1990; Wandati 1984; Write 1988). It is further estimated that there will be as many as 600 million malnourished people worldwide by the year 2000 (FAO) if the situation is not effectively addressed.

Half of the South Asia's children are said to be malnourished while in Africa, one of every three children is underweight. In several countries of the African continent, the nutritional status of the children is worsening (Bellamy, 1998). The most serious and widespread nutritional problem in developing countries according to Wandati (1984) and Pelletier (1995) is Protein Calorie Malnutrition (PCM). The condition range from mild to moderate rather than severe malnutrition (Haaga *et al.*, 1985). Worldwide three-quarters of the children who die of malnutrition die of mildly to moderately malnutrition and portray no signs of problems to casual observers (Bellamy, 1998: 9).

In Kenya, malnutrition is a major cause of childhood mortality due to infection and diseases (Wright, 1988; Youri, 1990). The most common form of malnutrition in Kenya is stunting (Mwangi and Mwabu, 1986; Njeru and Macharia, 1996). Childhood mortality has been found to be high in the 'high child mortality provinces', which record high stunting levels. Low stunting levels have been reported in the 'low mortality districts' such as Nyeri. Nyandarua and Kiambu Districts (Republic of Kenya, 1991).

The findings of the Third National Child Nutrition Survey (1994) revealed that malnutrition remained high in the country particularly in the Coast Province. Kilifi District had the highest stunting levels (42%), followed by Kwale, Kitui, Makueni, Kisii, Homa Bay, Migori, Nairobi and Samburu Districts (Youri 1990: 34; Republic of Kenya, 1995; Haingura, 1995).

Most governments have embarked on intervention programmes aimed at curbing the problem of malnutrition. As far back as 1930's, the league of African Nations advocated attempts by African governments to solve the food and nutritional problems. The problem of poverty which afflicted many families was addressed in a bid to solve food and nutritional problems (FAO/WHO, 1975). The government of Kenya adopted supplementary feeding programs for vulnerable groups such as food fortification and nutritional rehabilitation programs to reduce malnutrition. Others were nutrition activities through mother and child health (MCH) and the under-five's clinics (FAO/WHO 1975: 4).

The Kenya government in collaboration with other voluntary organisations undertook preventive measures with the goal of improving the well being and quality of life of the people. Government policies particularly stressed on the need to focus on improved nutrition in formulation of development policies so as to curb the problem of malnutrition (Republic of Kenya, 1991).

In addition, most governments (Kenya included) focused on the need to increase the Gross National Products (GNP) as a way of alleviating poverty. However, increase in GNP does

not always lead to improvement of the health status of the people (FAO/WHO, 1975: 6). Aggravated poverty and malnutrition have in some cases accompanied it.

In Kaloleni Division, the Kenyan government and non-governmental organisation initiated nutritional rehabilitation programmes for the mostly affected groups. This however, did not lead to a decline in malnutrition rates and instead an increase was recorded. There was need therefore to investigate further the problem of malnutrition in Kaloleni Division to establish why the rates were increasing.

2.1.2 Households' resource mobilisation patterns

Food insecurity at both the household and national levels is a major factor contributing to childhood malnutrition. Chiuri (1992: 21) notes that household food security depends on productivity of the family members, family holding and accessibility to natural resources. Consequently, infant health and mortality depend largely on the general economic circumstances of the household (Mosley and Chen, 1984). Since children depend on parents for sustenance, the income and social class of their parents are important in determining children's access to resources. Children from higher income households tend to receive better health care and nutrition than those from poorer households (Desai, 1992: 689).

Since household members, both young and old alike compete for household resources, it is generally expected that they would contribute their separate incomes and resources (resource pooling) to the common 'family purse'[1] out of affection for one another (Desai,

1992: 691). It is not always the case that household members will agree to pool resources as some may be tempted to cheat and keep greater portions of their money for themselves (Mosley and Chen, 1984: 312). Desai (1992) refers to this as the 'Rotten Kid Theorem[1,2].

It is argued that households are governed by an altruistic head of the household who has the power to control all family members, thereby ensuring efficient pooling and distribution of household resources, which include time and money. Desai (1991: 692) however notes that there is no provision for a rotten head of household and argues that one's commitment to the family determines resource pooling at the household level.

Commitment to ones family may be influenced by factors such as expected stability of the marriage, number of wives, whether the children are biological children or stepchildren and the duration of marriage. Folbre (1992: 134) observes that caring for the kin is dependent on altruism. Men according to Folbre (1992) have less to gain from children's labour and from fulfilling responsibilities to mothers and children and may therefore be less committed.

According to Folbre (1992: 135), rise in economic cost of schooling is likely to lead to child neglect by the fathers and this would increase the economic burden on the mothers. Folbre thus observes that the issue of perfect altruism of family members is questionable. If fathers still provide a basic level of subsistence for mothers and children as is generally

[1] Family purse: - this means the pooling together of incomes and resources by family members for a common purpose.
[2] Rotten kid theorem: - means the refusal by some household members to contribute their incomes towards meeting household needs.

expected, maternal and child mortality brought about by nutritional deficiency would decline. However, the social forces acting as constraints to a man with regard to looking after his wife and children are relatively weak (Abu, 1983: 161), resulting in the high and largely increasing levels of malnutrition among mothers and children (Okumu and Ogana 1992: 10).

2.1.3 Household resource distribution and expenditure patterns.

The problem of childhood malnutrition is attributed to low incomes and high food prices, among the major factors which cause household food insecurity among the poor rural communities (Aritho, 1995: 1). Pellet (1977) observes that marasmus among the children can only be eliminated through adequate income, housing and education of mothers.

Desai (1992: 689) argues that because children are dependent on adults, the income and social class of their parents are frequently used to index children's access to resources. The incomes and social class of the parents are important in determining children's access to resources. The poor nutritional status of the children as noted by Maina, (1988: 20) could be attributed to households' low socio-economic status as reflected by the low incomes.

Eileen and Pinstrup (1983: 10) note that low incomes are a basic cause of inadequate food consumption by a family. Maina (1988: 15) further notes that the quality and quantity of food purchased is largely influenced by income. As a result, children from higher income

households receive better health care and nutrition than those from poorer households (Desai, 1992: 689). The findings by FAO/WHO (1975: 2) indicate that nutritional deficiencies resulting from insufficient purchasing power are widespread among rural populations where small farmers, tenants and landless labourers are often unable to produce or to buy sufficient food to meet their nutritional requirements.

While family income may be a good indicator of the nutritional status of children (Maina, 1988: 8), increase in household income does not necessarily lead to increase in household food security and the consequent children's nutritional status. This is because increased incomes may be spent on purchase of non-food commodities such as payment of school fees, leisure and settling of debts and not on food (Aritho, 1995: 2).

There is also the view that increased incomes may be spent on purchase of non-food commodities such as payment of school fees or settling debts (Aritho 1995: 2) and not on food. Rowenzweig (1986: 242) in a study of household behaviour in Indonesia observed that family income is in itself an outcome of household decisions and that different sources of income have significantly different effects on allocations to the members.

This is perhaps what led Desai (1992: 710) to critique the household economic models which assume that incomes or opportunities given to one family member translates into improvement in the welfare of all household members, including the children. The models according to him fall short of predicting food and health care available to children.

The observation by Chalder (1985: 19) indicates that malnourished children often have well nourished parents. He reported of a case in the slum of Guediways in Senegal where a doctor put his fingers around the skinny legs of a two-year-old so starved that he could not walk. On reaching the child's mother, he pinched the excess fat on her arm indicating that she was not only well nourished but also over nourished.

This suggests that in some cases, children and not adults are more likely to be malnourished if households' resources are not shared equally by all the members including the children. The observation suggests the need for equitable distribution of resources among all the members to ensure that some do not get a bigger share at the expense of others. An understanding of intra-household resource allocation patterns is thus essential as it helps to identify groups that are particularly vulnerable. From the foregoing literature, we see that household's incomes and distribution patterns are important determinants of children's nutritional status.

While low incomes are basic determinants of household food insecurity, food prices and household incomes are among the crucial factors determining the members' ability to meet the food requirements. Aritho (1995), Benefo and Schultz (1996) observed that low household income and high food prices could be a major cause of household food insecurity among the poor rural communities. Increase in food expenditure will not always lead to rise in the nutritional status of the children (Eileen and Pinstrup, 1983; Desai, 1992). The 1982 (Republic of Kenya) rural household budget survey revealed that for the poorest households, food purchases accounted for 66% of total expenditure, compared to 46% as

the national average, yet it is the poor who are malnourished. Eileen and Pinstrup reported of a study carried out in Philippines where "PCM" increased in spite of increase in families' expenditures on food.

Nutritional deficiency may arise out of ignorance, poor weaning practices, food taboos, and beliefs and practices (Eileen and Pinstrup, 1983). Bolidal *et al.* (1968) *(quoted by Maina, 1988: 15)*, in a study of sixteen families among low-income groups stated that families which spent more money on food were not necessarily buying the most nutritious diet.

The main aspect of the problem of malnutrition according to Latham (1965: 7) is the general and quite false assumption that a 'full belly' is all that is necessary of food to provide health. To most people, Latham notes,

> ... it is incomprehensible that a person who is never hungry can suffer from a physical disease because of lack of something in the diet.

Njeru and Macharia (1996: 9) observed that widespread lack of understanding of the function of food may hinder proper utilisation of available foods. The concept of "a full belly" resulting from lack of knowledge and information on nutrition is a major cause of nutrition related problems. Njeru and Macharia note that: -

> ... most people have abundant food at their disposal but lack knowledge on the choice of appropriate diet. The extreme case is where protein foods like eggs, available at home are sold and the money obtained is utilised in buying starch foods such as bread.

The foods that children eat are therefore major determinants of their health. Improved nutrition leads to better physical and intellectual development. Inadequate nutrition on the other hand leads to malnutrition and hence higher morbidity (Muhindi, 1993: 11). In Kaloleni Division, protein foods are rarely served in meals and people eat meat sparingly (Youri 1990: 46) and this contributes to the problem of childhood malnutrition.

Mwangi *et al.* (1995) in a study carried out in Kaloleni Division found that the children are weaned at the mean age of 3.9 months. A significant proportion of the mothers (43%) introduced supplementary feeding at three months and below. The common weaning food was found to be maize flour porridge (82%), while 18% and 13% of the mothers used cow's milk and millet/sorghum porridge respectively (Mwangi *et al.*, 1995: 58).

2.1.4 Gender considerations

The gender aspect is important in this study. Mc Guire and Popkin (1990: 2) argue that women are the major actors in human resource development by ensuring proper nutrition, health and cognitive development of children during their pre-school years. It is also noted that in Sub-Saharan Africa, many traditions have militated against income pooling and mothers have traditionally been expected to provide for themselves and their children. Women in many parts of developing countries are the major producers and providers of food for themselves and their families (Okumu and Ogana (1992). The majority are however landless (Youri, 1990: 5) or have far less access to land than the men (Folbre 1995: 132).

Traditionally, mothers are expected to provide for themselves and their children and also purchase food and medical care for their children (Benefo and Schultz, 1996: 129) thus making them pay a disproportionate share of child maintenance costs. Folbre (1995: 135) observes that women and children provide much of their food with relatively low contribution from the fathers. Fathers according to Folbre are expected to provide a level of subsistence for the mothers and the children. However, what the mothers and children get depend entirely on the altruism of the fathers (Folbre, 1995: 135). This is worse in polygynous unions (Gale and Njogu, 1994).

Often, women have low incomes compared to the men and have few opportunities to develop their capacities, yet they devote a far larger share of their incomes and earning to family needs than the men. Folbre (1995) terms this as the 'good mother' hypothesis. Thomas (1992) notes that increase in mothers' unearned incomes raise child survival by twenty times than comparable increase in the father's unearned incomes. This is because incomes controlled by women are more likely to be spent in children's health and nutrition (Folbre, 1995). Investment in women's human capital is thus likely to yield a greater rate of return in labour productivity, child health and family welfare, than investment in men's human capital (Folbre, 1995: 127).

While female headship does not necessarily increase women's economic vulnerability, women raising small children without the help of male's incomes are economically at great risk and so are their children. Desai (1991) for example found that children of single mothers in three Latin American countries were more likely to be undernourished than

those living with both parents.

It has been observed that irrespective of one's marital status, income controlled by women is more likely to be spent on children's health and nutrition and less likely to be spent on alcohol and adult goods (Dwyer, Daisy and Bruce 1988). This is because women seem to have stronger commitment to children than the men (Folbre, 1995: 138) do. In polygynous families for instance, decrease in fathers' contributions may not have great negative impacts on children's nutritional status (Desai, 1992: 705).

2.1.5 Other contributing factors

Education:

Ravallion (1992: 171) observed that in developing countries, one factor that plays a consistent role in educational decision is gender. Females, he noted, attain lower levels of education and have lower school enrolment rates than do males. The level of maternal education has been found to be significant in determining children's nutritional status. Often, women have low levels of education (Mosley and Chen, 1984). As noted by Ware and Caldwell (1984: 194), increased maternal education reduces the average births, child mortality and morbidity as well as increasing the acceptability of family planning.

Several researchers have associated. low parental education, particularly low maternal education with poor nutritional status of the children. Njeru and Macharia (1996) in a study carried out in Embu found maternal education as significant in determining children's nutritional status. According to Ouko (1990: 12), formal education has a direct bearing on

any quantum of changes in society particularly on widespread change in attitudes and values. Ouko observes that the most important factor in improving survival and well being of the children is to educate the mothers as the major protagonists in all aspects of child survival.

Mott (1982: 8) made similar observations and associated improved child health care such as better nutrition, use of available foods, more personal and intensive attention by the mother and a greater share of family resources spent on the children to parents' education.

Education, according to Muhindi (1994: 10), gives women greater power and confidence to make decisions and flout traditional prohibitions, which have adverse effects on child health.

Okumu and Ogana (1992: 9) observed that discrimination of women in Africa, which begins as early as at birth, has a great impact on the well being of the children. The economic value or returns expected of children result to female children receiving less attention and nurturing and insufficient food and health care. Inequalities in resource allocation are experienced mostly in education. As a result, female children routinely receive less education than the male children do.

In many developing countries, enrolment of girls in schools is low compared to that of the boys. In Kilifi District for example, at all levels of formal education, the enrolment figures for girls are consistently lower than those of boys. The 1990 figures for example revealed that out of the 110,000 pupils enrolled in primary schools, only 40% were girls. The girls

are also fewer at the secondary school level compared to the boys where only a third of all secondary school students are girls (Youri, 1990: 5). This is low compared to other districts in the republic (Republic of Kenya, 1994: 65).

The reason given for the parents' preference of boys' education is that girls would get married. As such, there is no need to educate them. It is however important to note that failure to invest in girls' education leads to low maternal education and this has implications for children's health and nutritional status.

Ravallion noted that differences in school enrolment for girls and boys occur because of differences in direct value parents place on educated children. There is a tendency by the fathers to invest family's income on boys as opposed to the girls. According to Ravallion, if social customs place more responsibility on sons than on daughters to support their parents, the parents may have a stronger incentive to educate their sons even if the net returns to education are the same for boys and girls.

Marriage expectations are said to be major economic determinants of child survival. In South Asia where the dowry is the main concern, there is evidence of preference for sons (Moth, 1979; Poffenberger, 1981). In Brazil mothers may spend more on daughters and fathers more on sons (Folbre, 1995) while in Sub-Saharan Africa, boys and girls are treated fairly equally (Haddad and Reardon 1993). However, in Kenya, girls are valued for the bride price they may bring. Child survival rates are therefore slightly high for females than for males. Folbre (1995: 136) thus concludes, focusing on distribution of resources as it

affects the male and female children within the household is significant if nutritional status of children is to be raised.

Household size

Household size has been associated with the nutritional status of the children. K'Okul (1991: 112) in a study carried out in Samia on "Poverty, Diseases and Malnutrition", observed that the smaller the family size, the lower the food budget. Children may not get all they require since in large households, the members share and often compete for the limited resources at their disposal. K'Okul in the Samia study observed that in the larger or average households, older members' contributions were irregular but some members did contribute significantly. He further noted that households would benefit if in deed all the members contribute, thus justifying the Abasamian proverb that 'being many is good'. If older members like the grandparents and the siblings have no means of earning a livelihood, they depend on the working members of the household. The basic needs may, as a result, be unmet and the children are affected.

Number of dependants

The number of dependants to be provided for in a household has been linked to the problem of childhood malnutrition. Muhindi (1993: 48) in a study conducted in Kibera associated the number of dependants with the nutritional status of the children. Muhindi noted that the fewer the number of children, the more the resources allocated to a child in terms of food and clothing and medical care. This study attempts to establish how household resources are mobilised and utilised to meet the needs of the members.

2.2 THEORETICAL FRAMEWORK

This section covers a review and presentation of theories relevant to the family and household, which attempt to explain the effect of household's socio-economic and cultural factors on the health and nutritional status of the children.

2.2.1 The Household Production of Health (HHPH) Behavioural Approach.

The HHPH theoretical framework focuses on the household production of health and the process by which household inputs such as incomes and medical care become outcomes in terms of health improvements (Berman *et al.*, 1994: 206). The HHPH is a conceptual framework for analysis of health status and health change, which helps to frame research questions and intervention strategies. It is defined as

> 'A dynamic behavioural process through which households combine their (internal) knowledge, resources and behavioural norms and patterns with available (external) technologies, services, information and skills to restore, maintain and promote the health of their members (Berman *et al.*, 1994: 206).

The HHPH theory makes use of a variety of approaches to illuminate different aspects of problem rather than restrict itself to one model in dealing with a variety of socio-economic conditions and cultural environments that surround households or communities.

The HHPH approach implies that health programs such as those involved in child survival should focus on the presence and maintenance of health, rather than on the

prevalence of a specific disease. Focus should not be on a single disease because health status has multiple determinants. The problem of childhood malnutrition for instance has multiple determinants such as poverty, poor breast-feeding and weaning practices, inadequate child spacing, low maternal education, and cultural beliefs and practices (Republic of Kenya, 1995: 43).

The HHPH approach sees the household as the centre of health improvement process and the locus of the production of health. According to this approach, different households find different mechanisms for adapting to the same circumstances such as childhood malnutrition and some are more successful in dealing with the problem than others (Berman *et al.*, 1994: 206).

This however is not to say that households control all resources required to respond to health problems, or that households are the only important unit of analysis particularly under conditions of dire poverty or inadequate health and community services. Rather, the approach recognises that households are part of a social and economic environment. It is however noted that household processes are becoming more critical as determinants of health status and that intervention programs are increasingly relying on behaviour change to produce benefits. Utilising the household as an institutional focus is thus a potentially fruitful approach in terms of improving health. This is because the household is the primary locale within which daily life takes place and the institution responsible for social and biological reproduction (Berman *et al.*, 1994: 207). It is often the physical locale and social environment for childbearing and a setting for child health interventions.

Although the household is the minimal institution (i.e. aggregated beyond the individual) in which production, consumption and social reproduction are organised, other extra household dimensions of social order such as rules governing marriage and family, kin and non-kin obligations and other political and economic aspects may manifest themselves to a significant degree within the context of intra household relations.

One should therefore consider the social dynamics affecting specific aspects related to health goals of the households such as rules about child fosterage, intra household allocation of food, money and other resources; dynamics of family formation such as polygyny, divorce and responsibility towards the old (Berman *et al.*, 1994: 207).

While the household is viewed as the primary determinant of health, other resources external to the household such as clinics, hospitals and disease control programs should be taken into consideration. However, while such resources can be employed to maintain and promote health, stress is put more on preventive rather than curative treatment, the former of which is better achieved through the households.

The interventions for prevention and treatment of health problems like childhood malnutrition being undertaken by agencies dealing with child survival are also important. Such behavioural interventions include promotion of breast-feeding, improvement of weaning practices, improvement of water supply and sanitation, and promotion of personal and domestic hygiene.

Recognising the resources available within and outside the household is important in providing insight into the nature and magnitude of health problems experienced at both the household and community level. Berman *et al.*, (1994) note that parents may fail to recognise the symptoms of diseases such as childhood malnutrition or diarrhoea (onset) and may only do so once the case is presented at a health clinic. It is further noted that recognition of such a problem is a psychological and behavioural process mediated by cultural and social factors. Various elements of household behaviour such as daily routines, normal eating habits, illness symptoms, competition for resources are all important in understanding and recognising the diseases (Berman *et al.*, 1994: 211)

Recognition and the accompanying definition (diagnosis) and action (management) may undergo two phases. Initially, home remedies such as modification of diet or other simple interventions may be adopted and no other sources may be contacted. The mother may for instance hope that change of diet will gradually lead to improvement of the child's nutritional status. The illness is in this case treated within the framework of the household. If the episode continues, a transition is made from an occurrence, which exists within the domestic environment controlled by parents and caretakers, to an episode, which becomes 'public' such as clinics and health centres.

One reason as to why parents may postpone visits to the clinics for treatment of conditions like childhood malnutrition is that the visits would be an admission of public concern for domestic matters. The domestic environment as noted, constitutes a researchable domain of socially constructed behaviours based on a desirable set of goals

and values, specific sanctions and other characteristics.

The HHPH theory is relevant in this study and also applicable in Kilifi District. The theory looks at child survival from the household and community point of view and offers useful insights on how childhood problems like malnutrition should be dealt with and prevented. Those dealing with child survival should target the household, as this is where initial treatment of any illness begins. Community resources such as the clinics are visited only when the household is unable to deal with the problem.

While it is necessary to prevent diseases at the household level, the symptoms of illnesses like malnutrition may be unknown or may be misunderstood. Treatment would therefore be hampered when wrong treatment is administered or no treatment at all is given. The parents and caretakers of the children should therefore be educated about the symptoms of malnutrition if child survival programs are to be a success.

2.2.2 Household Economic Models

The Household Economic Model theories were adopted in this study to give a better understanding of household allocation of resources. As Young (1980) pointed out, the major question is not who produces what. Rather, it should be who controls the products of labour and how these products are used in forming social relations. According to Young, women's subordination does not result from a relationship of goods but rather of social power relations between persons.

The 'unitary model' of the household, also known as 'the common preferences' model' or 'the altruism model' assumes that all household resources (capital, labour and land) are pooled. Altruism connotes in Webster's terms, "unselfish concern for the welfare of others". There may be the possibility that one might derive more pleasure from another's pleasure than from one's own (Folbre 1986: 251).

The unitary model assumes that at least one member of the household is able to monitor the other members and sanction those who fall foul of its rules. The benefactors, often children, do not attempt to raise their consumption at the expense of others. If they did, an altruistic benefactor would reduce the size of the transfers made to the children.

A key assumption of the unitary model is that unequal distribution of resources of leisure within the household represents a willing act on the part of the household members (that is common preferences). The assumption is that increases in the husband's total incomes would trickle down to the mothers and children.

This view however, is refuted by the proponents of collective models of the household also known as the "bargaining models" approach, which alleges that individual household members have different preferences. These individual preferences lead to collective action and need to be considered in assessing the total well being of the household. Angelique (1984: 16), a proponent of the collective bargaining models observes that:

> ... household members not only pool resources, they also contest them, refuse to pool them and define the contexts in which they are negotiable.

This argument centres on the fact that women spend more of their income on food and childcare. Thomas (1990) also notes that:

> ... the results for child survival are particularly dramatic; increase in the mother's unearned income raises child survival by twenty times that resulting from a comparable increase in the father's unearned income.

According to Folbre (1986: 26), pooling of household resources can be achieved through consensus. She argues that:

> ... the suggestions that women and female children `voluntarily' relinquish leisure, education and food would be somewhat more persuasive if they were in a position to demand their fair share.

While the unitary model explains the implications of differential resource pooling at the household level, the 'collective model' shows the importance of targeting transfers of income to women. The collective model approach implies that children obtain equal or greater investment from incomes through resources controlled by women than from incomes controlled by the men.

The household economic model theory is relevant as it helps us to understanding the various household set-ups. In some cases the members may pool resources agreeably while in other cases they may refuse to do so. Irrespective of the situation, however, the collective model demonstrates that incomes controlled by the women are likely to trickle down to the children. This is unlike the incomes controlled by the men as the unitary model demonstrates.

CHAPTER THREE

3.0 SITE DESCRIPTION AND METHODOLOGY

3.1 SITE DESCRIPTION

3.1.1 Site Selection and Selection Criteria

The study was carried out in Jibana location of Kaloleni Division, Kilifi District of the Coast Province of Kenya in January 1997. The Coast Province was chosen because it has one of the highest rates of malnutrition in the country. Kilifi District was selected because it was leading in stunting levels in the Coast Province.

According to the Third National Child Nutritional Survey, malnutrition among children appeared to be more serious in Kilifi District with 42% stunting levels, than in Kenya as a whole (Republic of Kenya, 1994: 62). Kaloleni Division was chosen because it was among the most affected divisions in Kilifi District, with a persistence problem of malnutrition.

3.1.2 Location

Kilifi District lies between 2 20' South and 4 degrees South and longitude 39 east and 4 14` East. The district is one of the six districts constituting the Coast Province of Kenya. The District covers a surface area of about 12,464 square kilometres and borders the Indian Ocean to the east, Mombasa and Kwale Districts to the south, Taita Taveta to the

west and Tana river to the north and north-west (Haingura, 1995: 36) (See the maps below).

Administratively, the district has five divisions, namely: Kaloleni, Bahari, Malindi, Magarini and Ganze; 34 locations and 114 sub-locations. Kaloleni Division has 10 locations, namely: Kambe-Ribe, Rabai, Kaya-Fungo, Mwanamwinga, Mariakani, Ruruma, Kaloleni, Jibana, Chonyi and Mwarakaya (Republic of Kenya, 1994: 5).

Jibana location (the study site) has three sub-locations, namely: Kwale/Nyalani, Chilulu and Tsagwa. Nyalani sub-location has three villages: Nyalani, Maluani/Tsakarolovu and Mwandaza (Republic of Kenya, 1994).

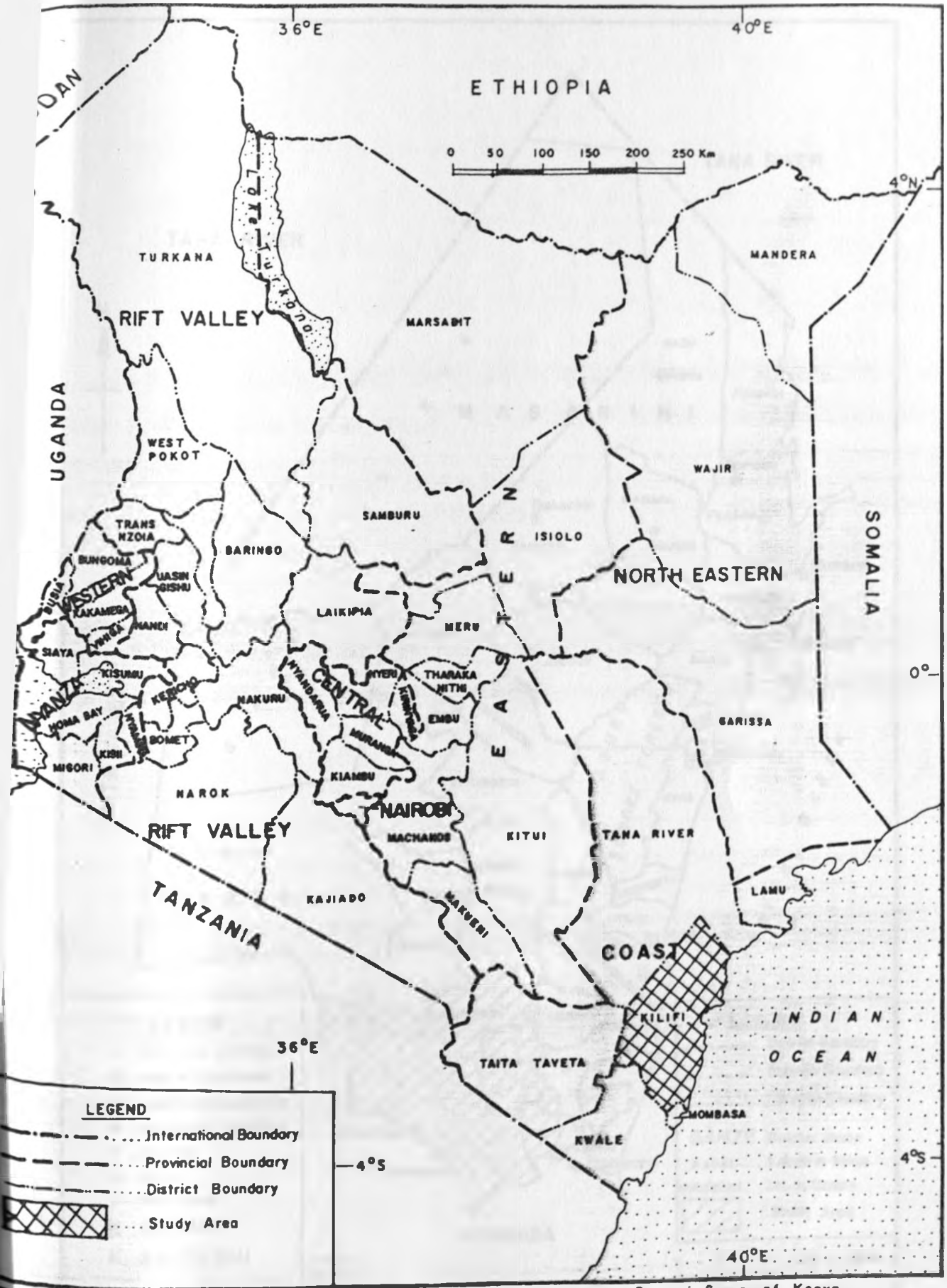


FIG. 1 KENYA : LOCATION OF KILIFI DISTRICT.

Source : Survey of Kenya

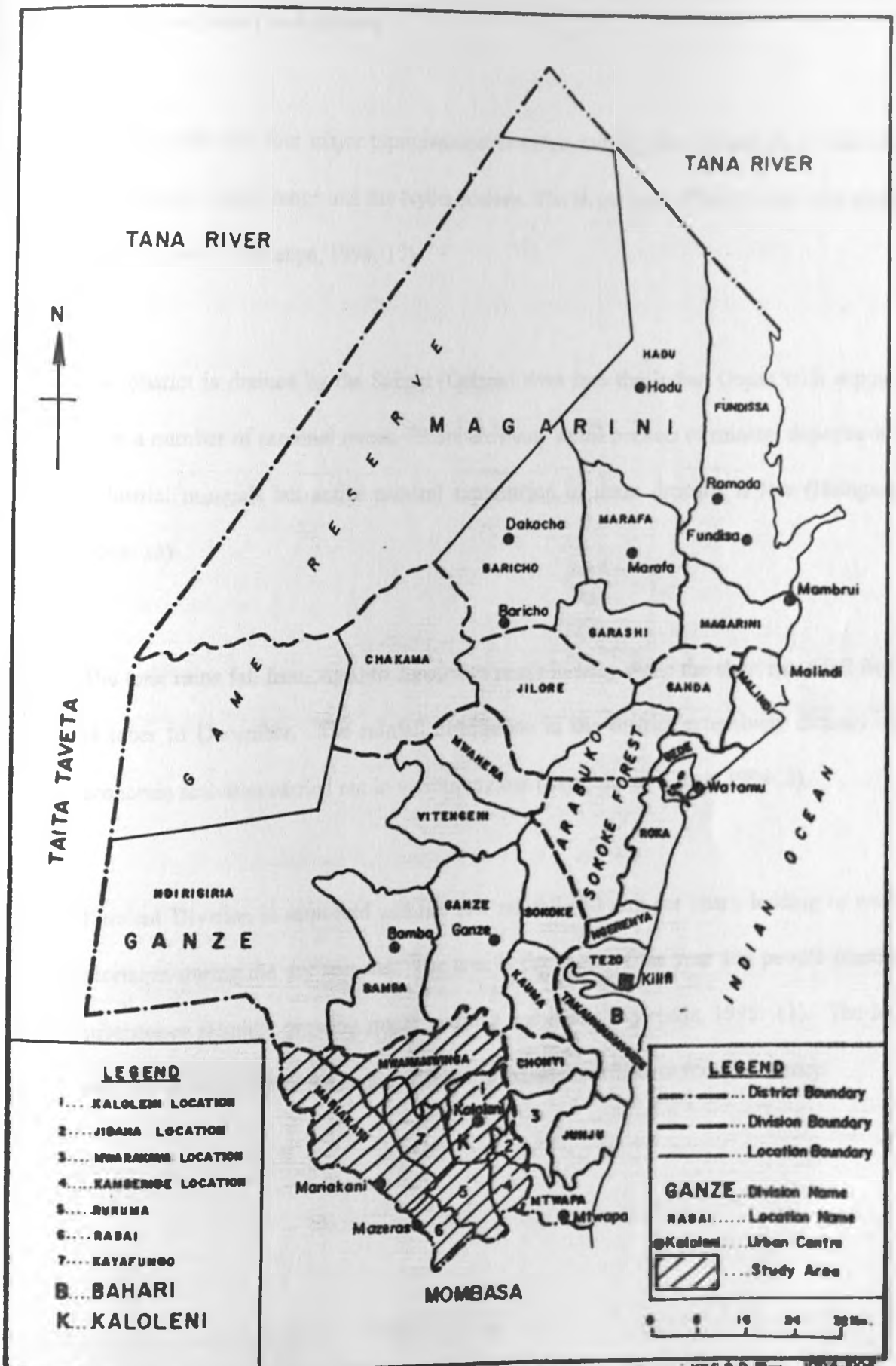


FIG. 2 : KILIFI : LOCATION OF KALOLENI DIVISION

Source : Kilifi D.D. Plan, 1994-1996

3.1.3 Topography and climate

Kilifi District has four major topographical features namely, the Coastal plains, the hot plateau, the coastal range and the Nyika plateau. The larger part of the division has sandy soils (Republic of Kenya, 1994: 17).

The district is drained by the Sabaki (Galana) river into the Indian Ocean with support from a number of seasonal rivers. There are many small pockets of mineral deposits and industrial minerals but active mineral exploitation of these deposits is low (Haingura, 1995: 36)

The long rains fall from April to June, with peaks in May while the short rains fall from October to December. The rainfall distribution in the district extensively dictates the economic activities carried out in various regions (Republic of Kenya, 1994: 3).

Kaloleni Division is semi-arid and has low rainfall (80 mm per year), leading to water shortages during the dry seasons. The area is dry most of the year and people practice subsistence farming, growing maize, cassava and beans (Nyirenda, 1995: 11). The low rainfalls experienced in the area may to some extent contribute to food insecurity.

3.1.4 Population

The 1989 population census estimated the population of Kilifi District at 591,903 and was projected to be 773,419 in 1997. Kaloleni Division has the largest population of about 238,325 people (Republic of Kenya, 1994: 5). (See table 3.1.4a below). Jibana location has an estimated population of 13,883 people, with Kwale/Nyalani, Chilulu and Tsanga sub-locations having 8,131, 3,558 and 2,194 people, respectively (See table 3.1.4b below).

Kaloleni Division has a young population comprising mainly women and children. There is a joke that men are few because they die of alcohol and falling from coconut trees. Fifty percent of the population are children under fifteen years and 25% children under five years. Women in the reproductive age (12 - 45 years) constitute about twenty percent of the population. (Government of Kenya / AMREF, 1993: 6).

Kilifi District has got one of the highest neo-natal, infant and young child mortality rates in the country (IMR is 125/1000 live births). The IMR for Kaloleni Division is (120/1000 live births and the under five's mortality is 72/1000 (Government of Kenya/AMREF, 1993: 6). These high infant and early childhood mortality rates have been attributed, among other factors, to childhood malnutrition (Republic of Kenya, 1994: 61).

LOCATIONAL POPULATION PROJECTION OF KALOLENI DIVISION.

Table 3.1.4a

LOCATION	1989 Pop. Census	1996	1997	1998	1999	2000
Kambe-Ribe	12,209	25,429	15,953	16,495	17,056	17,636
Rabai	25,254	31,913	32,999	34,120	35,281	36,480
Kayafungo	5,849	7,391	7,643	7,905	8,171	8,449
Mwanamwinga	14,109	17,830	18,436	19,063	19,711	20,381
Mariakani	26,943	34,048	35,205	36,402	37,640	38,920
Ruruma	24,685	31,194	32,255	33,352	34,486	35,658
Chonyi	20,465	25,862	26,741	27,650	28,590	29,562
Mwarakaya	17,735	22,412	23,174	23,962	24,776	25,619
Kaloleni	24,518	30,983	32,037	33,126	34,252	35,417
Jibana	10,625	13,427	13,883	14,355	14,843	15,348
TOTAL	**182,419**	**230,489**	**238,325**	**246,426**	**254,807**	**263,470**

Source: Republic of Kenya, 1989 Census Report

THE POPULATION PROJECTIONS FOR JIBANA LOCATION.

Table 3.1.4b

SUB-LOCATION	1989	1996	1997	1998	1999	2000
Kwale/Nyalani	6,223	7,864	8,131	8,408	8,694	8,989
Chilulu	2,723	3,441	3,558	3,679	3,804	3,933
Tsagwa	1,679	2,122	2,194	2,268	2,346	2,425
TOTAL	**10,625**	**13,427**	**13,883**	**14,355**	**14,843**	**15,348**

Source: Republic of Kenya, 1989.

3.1.5 Economic profile

The major source of income for 90% of the population in Kilifi District is subsistence farming (Republic of Kenya, 1994: 59). Food crops such as maize, cassava, peas, beans, tomatoes, vegetables and rice are mainly grown for home consumption and very little is sold. The main cash crops in the area are coconut, cashew nuts and such fruits as mangoes (Republic of Kenya, 1994: 60; Youri, 1990: 2).

Less than 5% of the households in Kaloleni Division, are landless while the majority of those with land have less than five acres of land, making agricultural production minimal. Proceeds from the farm are marginal, as most of the households do not sell their foodstuffs. Seventy percent of those who sell earn less than Kshs. 500 per year from such sales. The area however, has potential for growing a wider variety of food crops than it currently does (Youri 1990: 47). It is a hypothesis of this study that low household income levels (See chapter four) are among the major factors contributing to childhood malnutrition in the study area.

Livestock production is an important source of income in the district, particularly in the semi-arid areas of the district i.e. Ganze and Magarini. Livestock reared include cattle, goats, poultry and bees, the most popular being poultry (chicken and ducks) and to a lesser extent goats (Haingura, 1995: 39).

Other sources of income in the district include wage earning through employment in the public and private sectors in the main towns and in the tourist industry and remittance from family members and friends working outside the district (Republic of Kenya, 1994: 60).

In Kaloleni, 40% of the population are unemployed, 90% of who are married women who are mainly peasant farmers (Youri, 1990: 11). Lack of economic endowments among the women affects their decision making power at the household level and this has implications for the nutritional status of the children.

The informal sector also provides an important source of income for those engaged in trade, handicraft, transport, hawking, fish mongering, quarrying, and jua kali activities. Fishing is also an important source of income especially along the coast (Republic of Kenya, 1989)

3.1.6 Social Profile.

The Miji Kenda among whom the Giriama constitute 90% of the population predominantly inhabits Kilifi District. In Kaloleni Division, the Giriama constitute 43% of the population, Wa Rabai 20% and the Chonyi 18%. Other smaller groups include Wa Jibana 8%, Wa Ribe 3% and others 7%. In Jibana location, the Wa Jibana are the majority while the Giriama and the Chonyi are the minority.

In terms of religious affiliation, 43% of the people are Christians, 20% Muslims, and 37% traditional (Government of Kenya/AMREF, 1989). The commonly spoken language is Kiswahili.

In terms of authority structures, the local communities are patriarchal. Men are thus the household heads and only they inherit land from their fathers (Youri, 1990: 1). They are also the chief decision makers and control household resources. This authority structure has implications for the nutritional status of the children. The fact that inheritance of property is passed on from the fathers to the sons is an indication that women have little control of the resources.

Women are the major producers of food for their families while the young men do manual jobs in the tourist belt of the district and in Mombasa municipality. The rest (older men) engage in production, sale and drinking of potent illicit brews (Youri, 1999: 2). Gender imbalance has some impact on the nutritional status of the children.

3.1.7 Health situation.

Kilifi District was the entry point of modern health care to Kenya when Christian Missionaries established modern health care facilities in Kaloleni Division in the early 1920s (Youri, 1920: 2). The district has a total of 47 health facilities, 5 of which are hospitals, 6 health centres and the rest dispensaries and two nursing homes (Republic of Kenya, 1994: 49).

Kaloleni Division has the largest number (12) of health facilities in Kilifi District. There are two hospitals in the district, namely Kilifi District hospital and the St. Lukes Mission Hospital in Kaloleni run by the Presbyterian Church. There are also three health centres and seven dispensaries in Kaloleni Division (Republic of Kenya, 1994: 49). The Catholic Church runs two dispensaries and the Muslims one. The Government of Kenya is the major provider of health care services in the division and operates three health centres and seventeen dispensaries (Nyirenda, 1990: 11). Jibana location is served by two dispensaries, namely Migamboni and Jibana health centres (Government of Kenya/AMREF, 1993).

The health facilities are however inadequate to serve the population of Kaloleni Division, estimated at 238,325 people. The infrastructure in the district is also not well developed leading to poor transport and communication network. Due to these problems, most of the people face difficulties getting to the health centres. As a result, there has been a strong history of traditional health practices observed in the area. Many people seek the services of traditional healers and the traditional birth attendants.

3.2 METHODOLOGY

3.2.1 The study population

The study covered households with pre-school going children. The units of analysis were the parents with pre-school age children. A total of 19 fathers and 91 mothers were interviewed. The unequal distribution of the fathers and mothers was due to the fact that men work outside the area and thus were few compared to women who are left at home with the children. It was, however, felt that any of the parents would be in a position to give the information required. If the researcher found both parents at home, the father was interviewed to give a greater representation of the male respondents.

3.2.2 Sources of data

Primary data was obtained from the actual fieldwork. Secondary data was obtained through review of literature and old records.

3.2.3 Sampling Procedure

Since not every household with pre-school going children could be covered due to time and money constraints, a representative sample of 110 households was randomly selected, using the multi-stage cluster sampling method. The process entailed sampling in three stages, using both probability and non-probability sampling techniques.

In the first stage, non-probability-sampling principles were used to select the location to be covered for the study. Jibana location was purposively selected because it was easily accessible to the researcher. The location was also selected because the researcher could walk to the homes and therefore did not have to rely on public transport, which was unreliable.

The second stage involved use of non-probability sampling principles to select the sub-location to be covered for the study as it would not have been possible for the researcher to cover the entire location. Kwale/Nyalani, sub-location was purposively selected because unlike the other two (Chilulu and Tsanga), it was nearer and took the researcher at most two hours to get to the field.

In the last stage of sampling, probability principles were employed, to prepare the sampling frame. Help was sought from the chief's office where the area Public Health Technician (PHT) who was familiar with the area assisted in listing down the households.

There was, however, no complete list of households with children aged 1 - 60 months. All the households in the location were thus listed with the assumption that almost all the households had children in the target population. A final sample of 110 households was selected from the list of the households using the simple random sampling method.

A sample size of 110 households was considered adequate because it was big enough to enable the researcher draw conclusions. Once sampling was completed, the households

were then visited and the parents interviewed. If a household did not have a pre-school going child, it was skipped and the next one visited until the 110 households were covered.

3.3 Methods of data collection

Secondary data was collected through reading available materials. Primary data was collected as follows:

a) Interview schedule

A preliminary survey was conducted in order for the researcher to pre-test the research tools and familiarise herself with the study area. After the pre-test, the questions that were not clear and/or irrelevant, were reviewed and modified so as to capture the issues in question.

The revised questionnaire containing both closed and open-ended questions (see appendix I) was used as the major tool for data collection. The questions captured various aspects such as the age, sex, education level, occupation, marital status and religious affiliation of the respondents and details about household members.

Information on household size, number of dependant's household resources such as land, livestock and property was also collected using the questionnaire. Also collected using the questionnaire was data on household sources of income, expenditure patterns and respondents' knowledge of the cause of malnutrition.

The questionnaire was administered to the respondents in Kiswahili language, which was understood by most respondents. Use of Kiswahili was also necessary because the researcher could not speak the local 'Giriama' language. There were some respondents though, particularly the old, who could not speak Kiswahili mainly due to illiteracy yet, interviewing such respondents was very important. The inability to communicate in Kiswahili implies difficulties or shortcomings regarding the understanding of the causes and treatment of malnutrition, which is seen to improve with increasing literacy levels.

The researcher thus made used the area Public Health Technician (PHT) as an interpreter. The interpreter was briefed prior to the exercise on the nature and importance of the study as well as the dangers of giving false or misleading interpretations as this would have compromised the quality of data obtained.

The use of self-administered questionnaires enabled the researcher to solicit information from respondents of all kinds e.g. the old and young, the literate and non-literate. This method was useful particularly because it created an opportunity for the researcher to probe further and clarify questions or responses that were not clear either to the respondent or the researcher herself.

Similar questions were asked to all the respondents. This ensured uniformity of data collected as respondents addressed similar issues. The use of the questionnaire in data collection was however time-consuming and left the researcher with very little time for data collection using alternative methods.

b) Key Informant interviewing

Individuals holding key positions were selected on the basis of their knowledge and experience in the community. Those interviewed were the area Division Officer and the medical and paramedical personnel involved in child survival, health and development programs in the study area. The latter included two community health workers based at St. Lukes hospital, the Jibana location P.H.T and a project co-ordinator attached to AMREF.

The key informants gave relevant and useful information about the health problems most prevalent in the area and their causes. They were particularly useful in clarifying some of the issues raised during the face to face interviews with the respondents. Due to time constraints, the researcher managed to interview only five key informants.

c) Direct Observation

This method was used to gather additional information to supplement the data obtained through other sources. It involved watching and noting down the housing conditions and its environs as well as the activities undertaken by the household members. The researcher had the opportunity to capture non-verbal behaviour such as the respondent's expressions, and take notes on the housing structures with regard to the type of house, roof and ventilation. The researcher also observed the physical attributes of the children.

d) Anthropometric Measurements

Nutritional assessment was done using the weight-for-age (W-A) specifications. The W-A measurements express the weight of the child, as a percentage of the expected weight of a healthy child of the same age. This is considered to be one of the best indicators of nutritional status in young children and of great value in the assessment of growth failure and under-nutrition (Owiti, 1992: 44). The weight for age measurement (W-A) was adopted in this study because it is reliable, easy to use and required minimal specialised training.

After interviewing the respondents, all the children aged 1 - 60 months were weighed using a salter scale. The children were asked to stand on the scale and their weights were taken and recorded to the nearest 100. For the very young, the mothers were asked to stand on the scale carrying the children and their (mother and child) weight was recorded. The mother was then asked to stand on the scale alone and her weight was taken and then subtracted from that of both the mother and child to get the child's weight. The weights of the children were then matched against their ages to determine nutritional status using the 'road to heath' chart indices (See appendix II).

3.4 Limitations of the study

Several problems were encountered while carrying out this study. First, the researcher's financial allocation was far below the proposed budget. This led the researcher to spending less time in the field so as to reduce the expenses. The researcher was also forced to reduce the sample size from the proposed 150 households to 110. The short time spent in the field was limiting to the researcher, in that not much data was collected as initially intended, especially using other methods other than the questionnaire.

Another limitation was that most of the respondents could not tell the actual household incomes either because they did not keep records of their earnings or they did not know the incomes of other household members. Some respondents may have exaggerated while others may have under-estimated the incomes. The authenticity of data on income is suspect, and should therefore be interpreted cautiously.

3.5 Data Analysis

The study used both inferential and descriptive statistical methods to analyse the raw data obtained from the field. After the fieldwork, the data was coded manually and then entered into the computer for analysis using the Statistical Package for the Social Science (SPSS) program. Descriptive statistics were used to organise, summarise and present the data in form of means, range, percentages, tables and frequencies. The variables most central to the goals of the study were further analysed qualitatively to establish whether there was a relation between the dependent and independent variables.

CHAPTER FOUR

SOCIO-ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS

This chapter contains data presentation, analysis, interpretation and discussion. The respondent's social economic and demographic characteristics are presented in section one of this chapter. Section two contains the major findings of the study on the factors contributing to the nutritional status of the children.

4.1 SOCIO-DEMOGRAPHIC DATA

This section contains description of the respondent's social, economic and demographic characteristics as well as other household basic data. The data for the study was collected from 110 respondents, 91 mothers and 19 fathers. The following are the respondents' socio-demographic characteristics.

4.1.1 Age of the respondents

The mean age of the respondents was 29.9. The youngest and the oldest were aged 16 and 55 years with a range of 39. Some nineteen (17%) respondents, eighteen of them mothers, could not tell their age due to illiteracy. Many of the parents were young as evidenced by the fact that 63% were aged between 16 and 35. There was evidence of early parenthood as 29% of the respondents were aged between 16 and 25 years.

Table 4.1.1 Percent distribution of respondents by age.

AGE	RESPONDENTS		TOTAL	CUM %
	Mothers	Fathers		
16 - 25	32 (35)	None	32 (29)	29
26 - 35	29 (32)	8 (42)	37 (34)	63
36 - 45	11 (12)	6 (32)	17 (15)	78
46 - 55	1 (1)	4 (22)	5 (5)	83
Don't know	18 (20)	1 (5)	19 (17)	100
Column Total	**91 (100)**	**19 (100)**	**110 (100)**	

Source: Survey data, 1997. The figures in parentheses are percentages (%).

Early parenthood was attributed to the early marriage practice common in the study area. As noted by Youri (1990: 2), the Miji Kenda communities have an early marriage tradition. The median age at first marriage for the women is 17 years and pregnancy follows immediately after marriage.

The findings of this study concur with those of Mwangi *et al.*, (1995) following a survey conducted in Kaloleni Division indicating that by the age of twenty years, 80% of the women are already married. It is however doubtful that the would-be parents are well prepared to get into parenthood, not to mention that many of them drop out of school to get married and therefore lack the skills needed to get into formal and better paying informal employment. Young girls, for instance, who get married at an early

age often become housewives and depend on their husbands to meet their needs and those of the children. In such cases, the children's needs may not be fulfilled and the children are likely to suffer from malnutrition.

4.1.2 Respondents' Marital Status

The marital status of the mothers is crucial in as far as children's nutrition is concerned. As noted by Desai (1991), children of single mothers are more likely to be undernourished than those living with both parents because the latter would be provided for by both parents. Table 4.1.2 below shows the findings on respondents' marital status.

Table 4.1.2 Percent distribution of respondents by marital status.

MARITAL STATUS	RESPONDENTS		TOTAL
	Fathers	Mothers	
Never married	None	2	2 (2)
Married	18	82	100 (91)
Separated / Divorced	None	6	6 (5)
Widowed	1	1	2 (2)
COLUMN TOTAL	**19**	**91**	**110 (100)**

Source: Survey data, 1997. The figures in parentheses are percentages (%).

The study findings show that the majority of the respondents (90%) were married and that divorce and separation have not greatly affected the marriage institution in the study communities. Only 2% of the mothers were never married while 5% were separated or divorced.

Many of the respondents may have been married due to the expectations attached to marriage by the parents. It may be common practice for the girls to get married once they 'come of age' and this may explain why most of the parents, particularly the mothers, were young. Poffenberger (1981) notes that marriage expectations are major determinants of child survival. It has also been noted particularly in Kaloleni Division that parents do not send their daughters to school because they would eventually get married (Republic of Kenya, 1994).

One can argue that this has implications for the nutritional status of the children because the parents' knowledge and understanding of health related issues is influenced greatly by the literacy levels as shown in the data interpretation section below.

4.1.3 Respondents' Educational Levels

The level of education of the parent is important in determining the health and nutritional status of the children. As noted by Owiti (1992: 51), formal education holds out the promise of equal opportunity and social equality. Table 4.1.3 below shows the findings on respondent's education.

Table 4.1.3 Percent distribution of respondents by educational levels

LEVEL OF EDUCATION	RESPONDENTS		TOTAL
	Mother	Father	
None	41 (45)	4 (21)	45 (41)
Std. 1 – 4	8 (9)	1 (5)	9 (8)
Std. 5 – 8	39 (43)	12 (63)	51 (46)
Form 1 – 4	2 (2)	2 (11)	4 (4)
Post Secondary	1 (1)	None	1 (1)
TOTAL	91 (100)	19 (100)	19 (100)

Source: Survey data, 1997. The figures in parentheses are percentages (%).

The educational levels of the respondents were generally found to be low as only 5% had attained secondary education and none (both mothers and fathers) reported having gone beyond form four. The majority of the respondents (95%) had little or no formal education. The respondents who reported having no formal education accounted for 41% while those with primary education accounted for 54%. Low literacy levels were observed particularly among the female respondents. There were more men (68%) than women (52%) who had attained primary education. Many of the respondents who reported having no formal education were women, accounting for 45% of the female respondents, while their male counterparts accounted for only 21% of the male respondents.

This is an indication that women among the communities studied have lower levels of education than the men thus supporting the observation that in Kilifi District, where adult literacy is about 30%, women constitute a larger segment of the non-literate than men (Republic of Kenya, 1994).

Poor enrolment and high school drop out rates particularly of girls caused by early marriages were attributed to the low levels of education. In Kilifi District, at all levels of formal education, the enrolment figures for girls are consistently lower than those of the boys (Republic of Kenya, 1994). A high proportion of the girls who attend primary schools do not proceed to secondary school as most of them get into early parenthood. As a result, girls form only a third of the secondary school students.

The preference by parents to educate the boys as opposed to the girls contributed to the girls' low literacy levels. In Kilifi District, there is widespread poverty and parents forced to choose between boys and girls, are unwilling to spend money on their daughters' education. The reason put forward is that girls would get married and so there is no need to educate them (Republic of Kenya, 1994: 65). According to the Divisional Education Officer (DEO) Kaloleni, the girls are discriminated against when it comes to education opportunities. The officer observed that: -

> ... girls do not have equal opportunities with the boys in education. The girls if lucky, are educated up to standard eight while the boys are educated at least up to form four.

Discrimination against girls in education contributes greatly to the low maternal education and has subsequent implications on the nutritional status of the children.

4.1.4 Respondents' Occupation

The parents' occupation is a good indicator of their ability to provide for the needs of the household members. This is because occupation determines how much a person earns and may, to some extent, influence ones exposure to health related issues. A nurse would for instance be more inclined to give her child better food than say a clerk. Table 4.1.4 shows the distribution of respondents by occupation.

Table 4.1.4 Percent distribution of respondents by occupation.

OCCUPATION	RESPONDENTS		TOTAL	%
	Mothers	Fathers		
Housewife	57	N/A	57	52
Peasant farmer	19	7	26	24
Business / trader	14	6	20	18
Employed	1	2	3	3
Other	None	4	4	4
TOTAL	**91**	**19**	**110**	**100**

Source: Survey data, 1997.

The majority of the respondents as would be expected of a rural setting were housewives and peasant farmers accounting for 52% and 24% respectively. The traders accounted for 18% and the salaried 3% of the respondents.

Even though the majority of the housewives reported as having no source of income, a considerable number and the peasant farmers engaged in petty trade such as sale of palm wine (mnazi), coconuts, coconut thatches, coconut brooms and dried coconuts (copra) to earn some income. The income accruing from these sources were however reported to be low and inadequate for meeting the households needs. These low incomes, as observed below, have negative implications for children's nutritional status.

4.2 HOUSEHOLDS' CHARACTERISTICS

4.2.1 Household heads

4.2.1.1 Introduction

Aritho (1995: 15) observed that household welfare is largely a function of the economic status of household members, particularly of the head of the household. The heads are not only the breadwinners in most households but also the major decision-makers on issues pertaining to resource distribution. The social and economic endowments of the household heads are therefore important in as far as meeting the households needs is concerned. The education levels and occupations of household heads are among the

factors necessary for enhancing the household heads ability to meet household needs. Table 4.2.1.1 below shows the percentage distribution of household heads.

Table 4.2.1.1 Percentage distribution of household heads by sex

HOUSEHOLD HEAD	FREQUENCY	PERCENT
Men	107	97
Women	3	3
TOTAL	**110**	**100**

Source: Survey data, 1997.

The majority of the respondents (97%) reported that men were the household heads. This was not unusual and was expected of a patriarchal community like Kaloleni. Women were said to be heads of households only in cases where the husbands were deceased. Household heads play key roles in determining the health status of the children and other household members.

4.2.1.2 Educational levels

Education plays an important role in determining the household heads' access to jobs and other means of earning a livelihood. Household heads with little or no formal education may be faced with limited employment opportunities. Table 4.2.1.2 below shows the household heads educational levels.

Table 4.2.1.2 Percent distribution of household heads by educational levels.

EDUCATIONAL LEVELS	HOUSEHOLD HEADS	PERCENT
None	46	42
Primary	59	54
Secondary	4	4
TOTAL	**110**	**100**

Source: Survey data, 1997.

The educational levels of the household heads were generally low. Slightly over half (54%) of the household heads had attained primary education. A considerable number (42%) had no formal education while only 4% had secondary education. While low educational levels are expected of rural communities, these are normally associated with children's nutritional status.

4.2.1.3 Occupations

Occupation and income of the household head is important in determining the household's social and economic status. The findings on household heads occupation are presented in table 4.2.1.3 below.

Table 4.2.1.3 Percent distribution of household heads by occupation

EDUCATIONAL LEVELS	FREQUENCY	PERCENT
Housewife	2	2
Peasant farmer	25	23
Businessman / woman	29	26
Employed	37	34
Casual labourer	15	13
Other	2	2
TOTAL	**110**	**100**

Source: Survey data, 1997.

Formal employment and business were reported as important occupations for 34% and 26% of the household heads respectively. Mosley and Chen (1994) note that infant health and mortality depend largely on the general economic circumstances of the household. Aritho (1995: 15) also notes that in rural areas where opportunities are scarce, few males have skills for occupation and their dependants are likely to be living below the poverty line.

4.2.2. Land holding and crops grown.

4.2.2.1 Farm sizes

In Kaloleni, members of different households from the same homestead own land communally and the eldest male in the homestead is the trustee. Each household is

however apportioned part of the land to cultivate.

The majority of the respondents (89%) reported that they owned land and 11% hired land for cultivation. The farm sizes for most households were however small as 48% had one to two acres. The majority (85%) of the households had less than five acres. Youri (1990: 46) in a survey conducted in Kaloleni Division established that only 5% of the households were landless. The land available to each household was however only capable of supporting peasant farming. Table 4.2.2.1 below shows the frequencies of farm sizes in acres.

Table 4.2.2.1 Frequencies of farm sizes in acres.

FARM SIZE (IN ACRES)	FREQUENCY	PERCENTAGE
1 - 2	53	48
3 - 4	41	37
5 - 6	7	7
7 - 8	6	6
10+	3	3
TOTAL	**110**	**100**

Source: Survey data, 1997.

4.2.2.2 Crops grown

Coconut is the major cash crop grown in the area while maize is the major food crop as well as the staple food. Other important food crops are cassava, rice, bananas, beans and grains such as pigeon peas, greengrams and cowpeas. Table 4.2.2.2 below shows the frequencies of crops grown.

Table 4.2.2.2 Frequencies of crops grown.

CROPS	FREQUENCY (n = 110)	%
Major crops		
Coconut	85	77
Cassava	106	96
Maize	93	85
Rice	31	28
Bananas	30	27
Other Crops		
Beans	28	26
Grains	63	57
Sweet potatoes	7	6
Vegetables (e.g. mchicha)	3	3

Source: Survey data, 1997.

Most of the households were found to be using poor farming techniques. The traditional 'jembe' was used as the main farming tool while farm inputs such as

manure, fertilisers and high quality seeds were rarely used. Only 28% of the respondents reported as having used high quality seeds and 4% manure or fertilisers.

The poor farming methods and low rainfalls as those characterising the area (Republic of Kenya, 1994: 3) may have led to low food production and the consequent food insecurity experienced in the area.

As earlier observed, peasant farming was an important source of income for most households. Coconut products were mainly sold to generate incomes. Foodstuffs were rarely sold and if sold, the returns were often low, amounting to approximately Kshs. 500 per year (Youri, 1990: 5).

4.2.2 Sources of households' incomes.

Farm produce was reported as the main source of income by 30% of the respondents. Family businesses (such as kiosks, groceries, sale of coconuts and coconut products like palm wine, dried coconuts *(copra)*, blooms and thatches) and spouses' salaries were important sources of income for 23% and 15% of the households, respectively. Table 4.2.3 below shows the sources of household incomes.

Table 4.2.3 Frequencies of sources of household incomes.

SOURCE OF INCOME	FREQUENCY	PERCENT
Farm produce	58	30
Family business	48	25
Salaries (parents)	38	20
Livestock produce	33	17
Rented property	3	2
Co-operatives (groups)	7	4
Others	7	4
TOTAL	**194**	**100**

Source: Survey data, 1997. Note that some households had more than one source of income, thus n is 194.

4.2.4 Gender roles

A general observation of activities carried out by men and women among the communities studied revealed that women were more pre-occupied with household chores, while men were pre-occupied with income generating activities. As early as 7.00 a.m., women would be seen queuing at water points, while men would be seen climbing coconut trees to tap wine or harvest coconuts. The findings on gender roles are shown in table 4.2.4 below.

Table 4.2.4 Gendered division of roles

ROLES	FREQUENCY n = 110	%
Roles for Males		
Tapping palm wine (kugema) & harvesting coconuts	66	60
Building, felling trees	44	40
Provide food	13	12
Slaughtering and grazing animals	10	9
Employment	7	7
Farming	9	8
Roles for Females		
Housework	96	87
Child rearing	12	11
Farming	9	8

Source: Survey data, 1997.

Women according to 87% of the respondents perform such household work as cooking, washing clothes, and fetching water and firewood, and food processing activities such as grinding of maize and pounding of rice. The main activities performed by the men (as reported by 60% of the respondents) were tapping of palm wine and harvesting of coconuts. Cultivation and planting of crops were said to be men and women's jobs.

Women's work unlike the men's is often unpaid for and does not yield much income. The mothers with little or no income have to depend on their husbands to provide food and other needs for themselves and their children. Lack of income by the mothers has implications on children's nutritional status. Mc. Guire and Popkin (1990) observed that one way of increasing women's economic influence within the poor household is through increasing their participation in income producing activities.

4.3 NUTRITION

4.3.1 Knowledge of malnutrition.

The majority of the respondents (96.4%) had heard of Kwashiorkor and only 11.8% reported having heard of Marasmus. Table 4.3.1 below shows the findings on sources of information on malnutrition.

Table 4.3.1 Knowledge of malnutrition and sources of information

SOURCE OF INFORMATION	FREQUENCY	PERCENT
Hospital / clinic	73	60
Neighbours / friends	16	13
School	14	12
Seen a case at home/ neighbourhood	10	8
Radio & Newspapers	8	7
TOTAL	**121**	**100**

Source: Survey data, 1997. Note that some respondents gave more than one source of information thus n = 121.

Most of the parents (60%) heard of Kwashiorkor and/or Marasmus from M.C.H clinics and hospitals and 8% had witnessed malnutrition cases in their homes or in the neighbourhood.

Some parents may have lied that none of their children had suffered from malnutrition because of the stigma attached to the illness. However, the fact that most of the parents learnt about the illness in hospitals or clinics indicates lack of recognition of the symptoms of malnutrition prior to visiting the health institutions. While most of the parents had heard of kwashiorkor and/or Marasmus, only a few could recognise the symptoms. This lack of knowledge and recognition of the symptoms could have contributed to the slow process of prevention and treatment of the illness.

4.3.2 Knowledge of the causes of childhood malnutrition.

A large number of the respondents (84%) were aware of several causes of malnutrition, while 16% did not know of any causes. Most of the parents (68%) associated malnutrition with inadequate food resulting from poverty. The findings on respondents' understanding of the causes of childhood malnutrition are presented in table 4.3.2 below.

DATA INTERPRETATION

This section gives a detailed qualitative analysis of the study findings. The study hypotheses are tested and the relationship between the dependent and independent variables investigated, discussed and presented.

4.4 NUTRITIONAL STATUS OF THE CHILDREN

4.4.1 Distribution of children by age

The study targeted the pre-school going children and the table below shows the distribution of children by age.

Table 4.4.1 Percent distribution of children by nutritional status.

AGE IN MONTHS	NUTRITIONAL STATUS		TOTAL
	WELL NOURISHED	MALNOURISHED	
1 - 12	26	11	37 (26)
13 - 24	23	10	33 (26)
25 - 36	15	9	24 (17)
37 - 48	13	14	27 (19)
49 - 60	15	6	21 (15)
TOTAL	**92 (65)**	**50 (35)**	**142 (100)**

Source: Survey data, 1997. The figures in parentheses are percentages (%).

All the under five's under study were weighed to determine their nutritional status. The mean age of the children was 29.5 months. The children who were found to be malnourished were 50, accounting for 35%, with a mean of 28.9 months (approximately 2 - 3 years).

The feeding patterns observed in the study area may have contributed to the problem of childhood malnutrition particularly for the children who were off the breast. Even though most mothers breast-feed for two years (Youri, 1990), the poor feeding habits observed in the study area may have contributed to the problem, particularly among the children who were off the breast. As Maina (1988) observed, nutritional stunting occurs mainly during the third year of life (after breast-feeding has stopped) due to long term effects of poor nutrition.

The commonest diets for children was reported as thick porridge (ugali). While all the respondents reported that all the household members, including the children, ate available foods such as eggs, milk and fish, it was established that such foods were rarely served in meals. Most of the respondents who reared poultry reported that the eggs were rarely eaten and instead were left to hatch chicks, thus the common phrase *"mayai ni ya kuku - eggs are for chicken"*. For most households, milk from cattle or goats was not available and meat was eaten only on occasions when there were visitors. With this kind of feeding patterns, children are likely to suffer from malnutrition especially once they have stopped breast-feeding.

Table 4.5.1 Percent distribution of household sizes by nutritional status

HOUSEHOLD SIZE	NUTRITIONAL STATUS		TOTAL
	Well nourished	Malnourished	
1 - 3	6 (9)	1 (2)	7 (6)
4 - 6	26 (39)	17 (39)	43 (39)
7 - 9	23 (35)	21 (48)	44 (40)
10+	11 (17)	5 (11)	16 (15)
TOTAL	**66 (100)**	**44 (100)**	**110 (100)**

Source: Survey data, 1997. The figures in parentheses are percentages (%).

The large household sizes could be explained by the fact that in the study area, the extended family is highly regarded. When asked to give the names of the household members, most of the respondents included the grandparents and siblings, indicating that the extended family was considered as part of the household.

Several authors have associated childhood malnutrition with household size. The findings of this study, however, do not provide conclusive evidence to support the argument that the more the members there are in a household, the greater the competing demands on family resources. Mosley and Chen (1984) for instance observed that household composition is likely to correlate with children's nutritional status.

The findings of the study supported the observation to some extent because the households with fewer members (1 - 3) had fewer children (2%) who were malnourished, while those with more members (7 - 9) had more children (48%) who were malnourished. However, looking at the households with more than ten members, we see a contradiction because there were more children who were well nourished than the malnourished.

A possible explanation could be that households with more members might have adequate resources to meet the needs of all the members while those with few members may lack adequate resources to meet the needs of the few members. As a result, children from the larger households may have their food needs met unlike those from the smaller households.

While there is some relationship between household size and children's nutritional status, further analysis show that the relationship is not strong since some children from larger households had fewer cases of malnutrition than those from smaller households. On the basis of these findings, we conclude that there is no significant relationship between household size and children's nutritional status.

4.5.2 Number of dependants Vs. Children's nutritional status

The number of children to be supported is associated with the nutritional status of the children. Hypothesis two of the study stated that: -

Hypothesis II

There is a positive relationship between the number of dependants and children's nutritional status.

Households with many dependants require more resources to meet their needs than those with few dependants. The average number of children per household was found to be 4.3 with a range of nine. The households with 1 - 3 children were more accounting for 43%, while those with 7 - 10 children were the least and accounted for 18% of the households. Most of the households (82%) had between one and six children. Table 4.5.2 below shows the findings on number of dependants and children's nutritional status.

Table 4.5.2 Percent distribution of number of dependants by nutritional status

DEPENDANTS	NUTRITIONAL STATUS		TOTAL
	Well nourished	Malnourished	
1 - 3	32 (48)	15 (34)	47 (43)
4 - 6	25 (38)	18 (41)	43 (39)
7 - 10+	9 (14)	11 (25)	20 (18)
TOTAL	**66 (100)**	**44 (100)**	**110 (100)**

Source: Survey data, 1997. The figures in parentheses are percentages (%).

The findings indicate a positive relationship between the number of dependants and children's nutritional status. The households with few dependants (1 - 3) had more (48%)

children who were well nourished and fewer that were malnourished (34%). The households with more dependants (4 - 6 and 7 - 10) had fewer children (25% and 14%) who were well nourished and more that were malnourished (41% and 25%).

The findings support the argument that the number of dependants in a household determines the health status of the children. The households with more dependants require more resource to adequately meet individual needs of the children. If these are lacking or inadequate, there is a possibility that the children will be malnourished since the few resources available will be shared by all the dependants.

We therefore conclude that there is a relationship between number of dependants and children's nutritional status and thus accept the hypothesis that there is a positive relationship between number of dependants and children's nutritional status.

4.5.3 Parents' educational levels Vs. Children's nutritional status

In this study, educational level was used to denote the highest level of education attained in formal schooling. Hypothesis three of the study stated that: -

Hypothesis III

Parents' educational levels have an impact on the nutritional status of the children.

The majority of the parents had little or no education as only 6% had attained secondary education. Table 4.5.3 below shows the findings on parents' educational levels and children nutritional status.

Table 4.5.3 Parents' educational levels Vs. Children nutritional status

EDUCATIONAL LEVEL	NUTRITIONAL STATUS		TOTAL
	Well nourished	Malnourished	
None	24 (36)	21 (48)	45 (41)
Std. 1 - 4	4 (6)	5 (11)	9 (8)
Std. 5 - 8	35 (53)	16 (36)	51 (46)
Form 1 - 4	3 (5)	2 (5)	5 (6)
TOTAL	**66 (100)**	**44 (100)**	**110 (100)**

Source: Survey data, 1997. The figures in parentheses are percentages (%).

The findings show that there is a relationship between parent's' education and children's' nutritional status. Malnutrition rates decreased with increase in number of years spent in school by the parents. Even though only 6% of the parents had attained secondary education, the parents who reported having no formal education had more children who were malnourished (48%) than the well nourished (36%). Those who had attained at least primary education had more children (64%) who were well nourished and fewer who were malnourished (52%).

It should be noted that the majority of the parents with little or no formal education were women. This implies that if maternal educational levels are low, the children are likely to suffer from malnutrition. This findings support the observation that parents educational levels, particularly maternal education, is significant in determining children's nutritional status. The hypothesis that parents' educational levels have an impact on the nutritional status of the children is therefore accepted.

4.6 HOUSEHOLD INCOMES AND CHILDREN'S NUTRITIONAL STATUS

As indicated by the HHPH approach in the theoretical framework, the household is the centre of health provision. This is where treatment of all conditions begins. As such, the members' ability to cater for medical, food and other needs is important and has an impact on the nutritional status of the children. The incomes available to the households are crucial in determining the nutritional status of the children. As noted by Maina (1988: 8), household income is a good indicator of the nutritional status of the children. Hypothesis four of the study stated that: -

Hypothesis IV

> The well being and nutritional status of the children is a consequence of household incomes.

Regular monthly incomes accruing from various sources were used in this study to assess the households' financial and economic status. The actual incomes could not be obtained

because in most households, the records of daily earnings were not kept and even more important, details about member's incomes were unknown and therefore not available.

Slightly over half (58%) of the respondents reported low-income levels of less than Kshs. 2000. The average monthly income for all the households was 2732. However, there were variations between the households with and without malnourished children, with the former having average incomes of Kshs. 1847 and the latter Kshs. 3323. Table 4.6 below shows the findings on household incomes and children's nutritional status.

Table 4.6 Household Incomes vs. Children's nutritional status.

INCOME LEVELS	**NUTRITIONAL STATUS**		**TOTAL**
	Well nourished	**Malnourished**	
0001 - 1999	37 (56)	26 (59)	63 (58)
2000 - 3999	11 (16)	11 (25)	22 (20)
4000 - 5999	7 (11)	4 (9)	11 (10)
6000 - 7999	4 (6)	3 (7)	7 (6)
8000+	7 (11)	None	7 (6)
TOTAL	**66 (100)**	**44 (100)**	**110 (100)**

Source: Survey data, 1997. The figures in parentheses are percentages (%).

The findings indicate a relationship between household incomes and children's nutritional status. The incomes from households recording higher rates of malnutrition were low compared to those of households recording lower malnutrition rates. From the findings, it appears that households recording income levels of less than Kshs. 2000 had more children who were malnourished (59%) while the households recording higher income levels had more children who were well nourished (56%).

The children from poorer households may have suffered more because such basic needs as food, clothing, education and health care may have been largely unmet. Children from richer households could have had most of their needs (particularly food needs) met and may therefore not have suffered from malnutrition. The findings support the hypothesis that children's wellbeing and nutritional status is a consequence of household incomes.

From the findings on social and economic factors, we see that household sizes do not have a significant relationship with children's nutritional status. However, the number of dependants, parents educational levels and household incomes show a strong relationship with children's nutritional status. We therefore conclude that the number of dependants, parents educational levels and household incomes are major social and economic factors which influence the nutritional status of the children in Kaloleni Division of Kilifi District.

4.7 PATRIARCHAL AUTHORITY STRUCTURES AND CHILDREN'S NUTRITIONAL STATUS.

The gender factor is important in this study especially because decision making at the household level is mostly based on gender lines. Mc. Guire and Popkin (1990) observed that at any given level of poverty, the nutritional efficiency within the household depend on income control, time allocation and intra-household food distribution. It is argued that decision making process and resource distribution at the household level is influenced by parental authority structures. Hypothesis five of the study thus stated: -

Hypothesis V

The patriarchal authority structures influence the nutritional status of the children.

A number of variables were summed up to assess the extent to which gender relations influenced the nutritional status of the children. Concepts that were considered with reference to gender were food provision and control of resources.

4.7.1 Food provision

The data on food provision presented interesting gender focused findings and the results are presented in table 4.7.1 below.

Table 4.7.1 Food provision Vs. Children's nutritional status.

FOOD PROVISION	NUTRITIONAL STATUS		TOTAL
	Well nourished	Malnourished	
Father	51 (77.3)	30 (68.2)	81 (73.6)
Mother	8 (12.1)	6 (13.6)	14 (12.7)
Both	5 (7.6)	4 (9.1)	9 (8.2)
Other	2 (3.0)	4 (9.1)	6 (.9)
TOTALS	**66 (60)**	**44 (40)**	**110 (100)**

Source: Survey data, 1997. The figures in parentheses are percentages (%).

Women were seen to be the major producers of food although their interpretations give credit to the men for food provision. This came out when, for example, 74% of the respondents said that the husbands provided food, contrary to the belief that women are the major producers and providers of food. This, it was noted, was in accordance with the Miji Kenda traditions, which require men to provide food for their families.

While the general impression was that men provide food for their families, it was also established that what men provide is money for food and women purchase the food. It was also established that when men buy food, it is often the maize flour and the women are left with the responsibility of providing vegetables. To quote one of the male respondents: -

> '...twatafuta unga, mboga si shinda yetu' '...we look for maize meal, vegetables is not our responsibility'.

Going by the market prices, a packet of maize meal that could feed ten people costs much less than a well-balanced stew capable of feeding the same number of people. Women therefore bear a bigger responsibility of feeding the household members compared to the men, yet they have lower incomes than the men do.

There was no evidence, however, to show that children were more likely to suffer from malnutrition if men provided food and less likely to suffer if women provided food. Malnutrition rates were not necessarily lower when women provided food and higher when men provided food. What we see, on one hand, is that the percentage of well-nourished children was higher than that of the malnourished children when the men provided food. On the other hand, the percentage of well-nourished children was lower than that of the malnourished children when the women provided food.

We therefore conclude that if men participate and are committed to child welfare and upbringing, malnutrition rates in the study area would decline. Commitment could be in form of food or money allocated to meet children's needs.

4.7.2 Gender relations in decision making and household resources control

According to Dwyer, Daisy and Bruce (1988), income controlled by women is more likely to be spent on children's health and is less likely to be spent in purchase of adult goods like alcohol and clothes. Children are, as a result, less likely to suffer from malnutrition when women and not men control income (Folbre, 1995).

The men were reported to be the decision-makers by the majority (76%) of the respondents while only 19% reported that women were decision-makers. Men according to 54% of the respondents were the main decision-makers because they were heads of households and that they met the needs of the household members according to 14%. Table 4.7.3 below shows the findings on decision making.

Table 4.7.3 Decision making by sex

DECISION MAKER	FREQUENCY	PERCENT
Husband	84	76
Wife	8	7
Both	13	12
Other	5	5
TOTAL	**110**	**110 (100)**

Source: Survey data, 1997.

When women are involved in decision making, they are also likely to determine how household resources are to be used. The assumption that women are more likely to spend their incomes on purchasing food and meeting children's needs is used to conclude that incomes controlled by women are more likely to trickle down to the children. This is because, women are more pre-occupied with child rearing and upbringing roles than the men. The findings on control of household resources are shown in table 4.7.2 below.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.

In this chapter, the main findings of the study are summarised and salient conclusions drawn, as well as the attendant recommendations.

Summary and conclusions

Nutritional status of the children.

Anthropometric measurements indicated that malnutrition was still prevalent in the area. Of the 142 children weighed, 35% were underweight. The children aged between two and three years were mostly affected and this was attributed to poor feeding habits, especially after breast-feeding was stopped.

Socio-demographic and economic factors.

The respondents comprised the parents with children under five years of age. The majority of the parents (53%) were aged between 16 - 35 years indicating that this was a young population. The parents, as noted, could have been young due to the early marriage tradition practised by the study communities. It is however noted that this early marriage tradition leads to high school dropout rates particularly among the girls, hence the low education levels among women.

Among the factors that were responsible for the poor nutritional status of children in Kaloleni Division, household size did not play a significant role. There was no

conclusive evidence to show that there was a significant relationship between the household size and children's nutritional status. However, the number of dependants, parents' educational levels and household incomes were major social and economic factors, which influence the nutritional status of the children. These showed a strong relationship with children's nutritional status.

The households with few dependants (1 - 3) had more (48%) children who were well nourished while those with more dependants (4 - 6 and 7 - 10) had fewer children (25% and 14%) who were well nourished. The findings supported Muhindi (1993) view that the number of children is associated with the nutritional status of children.

While the educational levels of both mothers and fathers were found to be generally low, the educational levels of women were much lower than those of the men. The women without formal education accounted for 45% of the female respondents while the men without formal education accounted for only 21% of the male respondents. The educational levels of the parents were found to have significant relationship with children's nutritional status. The parents with low educational levels had more children who were malnourished than those with higher levels of education.

The major sources of household incomes were peasant farming and household heads' salaries. The majority of the respondents were peasant farmers and/or housewives, accounting for 26% and 57% respectively. Family businesses, although petty, were also found to be important sources of income. Most of the family businesses such as selling

imbalances, over which men come out as the major decision-makers and controllers of household incomes.

Knowledge of malnutrition.

The commonest cause of malnutrition cited was food shortage. Many of the respondents (60%) reported that they had not seen a malnourished child either in their households or in the neighbourhood. This was surprising given that malnutrition was prevalent in the area for a long time. It was however possible that most of the parents in the study area did not recognise the symptoms of malnutrition.

Recommendations.

On the basis of the study findings, the following recommendations were made.

1. The findings on the number of dependants in relation to children nutritional status suggest the need to focus on the household as a whole. This is because a household with many dependants might have adequate resources to meet the needs of all the members while one with only one dependant might have a case of malnutrition.

2. There is need to improve the educational levels of the parents, particularly maternal education in the study communities. With improved education, parents would be empowered economically and socially and would confidently abandon traditional prohibitions that hinder successful eradication of malnutrition. Parents should also be encouraged to educate their children, both boys and girls.

3. Women should be socially and economically empowered to uplift their economic status. The small businesses should be encouraged and promoted, as they are important sources of income for the women in the study community.

4. There is need to involve men in child rearing because their commitment would possibly lead to equitable distribution of household resources to all members including the children. Women should also be involved in decision making because it is only then that they can determine how household resources are to be allocated towards meeting children's needs.

5. Programs focusing on nutritional education should be initiated to educate the parents on proper feeding habits and the importance of using cheap and locally available foods. Feeding patterns should be improved particularly for the children who are off the breast as they are more vulnerable to malnutrition. The clinics, hospitals and school may be used as forums for disseminating the information. The programs should target all the parents (fathers and mothers) as they play different roles that are equally crucial in determining the health status of the children.

6. Health programs emphasising preventive rather than curative measures should be initiated in the study area. The parents should be educated about the causes and symptoms of malnutrition. This would enhance effectiveness in treatment and prevention of childhood malnutrition.

BIBLIOGRAPHY

Alavi, hamza, and Teodor S. (Eds) (*1982*); Introduction to the Sociology of "Developing Societies". Macmillan Education Ltd.

Alderman, H. Chiappori P., Haddad L., Hoddinott J., and Kanbur R. (*1995*); 'Unitary Versus Collective Models of The Household; Is It Time to Shift the Burden of Proof?' *The World Bank Research Observer* 10 (1): pp. 1 - 19.

Anker, R. (*1981*); Research on women's role and demographic change: Survey questionnaires for households, women men and communities with background explanations. ILO.

Aritho M. L. (*1995*); The effects of household income and seasonal food price changes on household expenditure patterns. A case study of Vihiga district. Ministry of Planning and National Development, Nairobi and African Studies Centre Leiden.

Benefo, K. and Schultz, P. (*1996*); 'Fertility and Child Mortality in Cote d'Ivoire and Ghana'. *The World Bank Economic Review* 10(1): pp. 123 - 158.

Beneria, Lourdes, and Martha Roldan. *1987.* The Crossroads of Class and Gender. Chicago: University of Chicago Press.

Bennet F. and Maneno J. (*1986*); National guidelines for the implementation of primary heath care in Kenya. M.O.H, G.O.K, NGO's, WHO, UNICEF; Nairobi, Kenya.

Boserup Ester, (*1970*). Women's Role in Economic Development. London: Allen and Unwin.

Carol Bellamy, (*1998*); The state of the world's children, UNICEF: Oxford University Press, New York.

Chandler, C. W. (*1985*); 'Investigating in Children'. *World Watch Paper* 64.

Chiuri, W. and Nzioki A. (*1992*); 'Women: Invisible Managers of natural resources'; In Khasiani S. (Ed), "Groundwork" African Women as environmental Managers. Nairobi: African Centre for Technology Studies Press, Nairobi, Kenya.

Chuke, P. (*1996*); WHO Report 6th August, 1.00 p.m. Kenya Broadcasting Corporation News Bulletin.

Darling, M. (*1975*); The role of women in the economy. Organisation for economic co-operation and Development.

Deaton, A. (*1989*); 'Looking for boy-girl discrimination in household expenditure data'. *The World Bank Economic Review*, 3(1):

Desai, S. (*1992*); Children at risk. The role of family structure in Latin America. *Population and Development Review* 18(4): pp. 689 - 710

Dwyer, Daisy, and Judith Bruce, eds. (*1988*). A Home Divided. Women and Income in the Third World. Stanford, Calif.: Stanford University Press.

Eileen, T., Kennedy and Pinstrup (*1983*); Nutrition-related policies and programs. Past performance and research needs. International Food Policy Research Institute.

Engberg, E., (*1990*); Rural households and resources allocation for development. An Ecological Perspective, FAO, Rome.

Enrlich, P., Enrlich A., Daily G., (*1993*); 'Food Security, population and environment'. *Population and development Review* 19 (1): pp. 1 - 34.

FAO (*1975*); Food and nutritional strategies in national development: An interdisciplinary report. Proceeding of the 9th session of the Joint FAO/WHO committee of experts on Nutrition.

Folbre N. (*1986*); "Hearts and Spades": Paradigm of households economics. World Development 14 (2): 245 - 255.

Folbre, N. (*1995*); 'Engendering Economics: New Perspectives on women, work and demographic change'; in Bruno, M. and Pheskovic (Eds); Annual World Bank Conference on Development Economic. *The World Bank:* pp. 127 - 151; Washington D.C.

Foreman, A. (*1977*); 'Femininity as alienation': Woman and the family in Marxism and psychoanalysis. London: Pluto Press Limited.

G.O.K. (*1988*); Economic Survey, Central Bureau of Statistics.

G.O.K/Amref (*1991*); Kaloleni MCH/PHC Collaborative Program Progress Report.

Gage Anastasia, and Wamucii Njogu; (*1994*). Ghana/Kenya: Gender Inequalities and Demographic Behaviour. New York. The Population Council.

Gertler, P. and Glecovic, P.; 'The willingness to pay for education for daughters in contrast to sons: Evidence from rural Peru'. *The World Bank Economic Review. 6(1): 171 - 188.*

Haaga et al (*1985*); 'An estimate of the prevalence of child malnutrition in developing countries'. *World Heath Statistics Quarterly 38: (332 - 247).*

Haddad, Lawrence, and Thomas Reardon, *1993.* "Gender Bias in the Allocation of Resources within Households in Burkina Faso: A Desegregated Outlay Equivalent Analysis." *Journal of Development Studies 29(2): 260 - 76.*

Haingura, P. (*1995*); Factors contributing to the occurrence of diarrhoea diseases among the under five years children in Kaloleni Division, Mariakani sub-location. Dissertation.

Hoorweg, J., Niemeijer R. and Steenberger, V. (*1983*); Nutrition Survey in Murang'a district, Kenya. Relations between ecology, economic and social conditions and nutritional state of pre-school children part 1. African Studies Centre Leiden; The Netherlands Research Report No. 19.

Janet Hatcher R., Jeniffer Kitts, and Lori Jones Arsenault (Eds); 'Gender health and sustainable development. Perspectives from Asia and the Caribbean'. Proceedings of a workshop held in Singapore, 23 - 26 January *1995*.

Jeliffee, D. (*1966*); The assessment of the nutritional status of the community. *World Health Organisation Monograph Series No. 53 Geneva.*

K'okul N., Richard (*1991*); Maternal and child heath in Kenya. A study of poverty, disease and malnutrition in Samia. Finnish society for Development Studies.

Keith, A. and Arthur Mc Cormack (*1976*); 'Population growth and food supplies in different time perspectives'. *Population and Development Review 2 (3 & 4): 479-498.*

Kongstad, P. and Monsted, M (*1980*); Family labour and trade in Western Kenya. Scandinavian Institute of African Studies, Uppsala.

Latham, M. (*1965*); Human nutrition in tropical Africa; Food and Agriculture. Rome: United Nations.

Leegwater P., Ngolo J. and Hoorweg J. (*1991*); Dairy development and nutrition in Kilifi district, Kenya. Food and nutrition planning unit, Ministry of Planning and National Development, Nairobi, and African Studies Centre, Leiden - Netherlands

Lucey T. (*1992*); Quantitative Techniques. DP Publications, Guernsey Press Co. Ltd., Vale, Guernsey C.I, Great Britain.

Lusenaka F. (*1996*); Group ranch division and household socio-economic performance in Kajiado district. Ministry of Planning and National Development, Nairobi and African studies Leiden.

Maina, G. (*1988*); Ecology and pre-school malnutrition in peri-urban Nairobi. Nairobi University, Msc thesis.

Mc. Guire Judith, and Barry M. Popkin; 'Helping women improve nutrition in the developing world. Beating the zero sum game'. *World Bank Technical Paper, No. 114, 1990.*

Mosley, H. and Chen C. (Eds) (*1984*); 'Child Survival Strategies for research'. *Population and Development Review. A supplement to volume 10.*

Muhindi Waruinge; The socio-economic and physical impediments to child health in Kibera informal settlements, Nairobi. MA Thesis, *1994.*

Mwabu M. (*1984*); A model of household choice among medical treatment alternatives in rural Kenya. Ph.D. Thesis.

Mwangi A., Kiruba H., Kamau A, Naisho J., and Chieng B. (*1995*); End of Project internal evaluation. Government of Kenya/Amref, Kilifi - Kaloleni MCH/PHC Project.

Njeru, E. and Macharia W. (*1996*); 'Social-Cultural analysis of childhood malnutrition in Embu district'. In Kimani V.: *Social Behaviour and Health Monograph No. 2.*

Nyirenda J. (*1995*); Assessment of knowledge, attitude and practice on modern methods of family planning amongst men in rural Kenya. A case study of Kaloleni location, Kilifi district.

Nzioka, C. (*1984*); The impact of some household socio-economic factors on the nutritional status of pre-school aged children in Machakos district. University of Nairobi - Nairobi: BA dissertation, unpublished.

Ochola, P. (*1990*); Nutrition education. Paper presented at the UNESCO/Kenyatta University Seminar on "curriculum reorientation in rural development. Implications for home economics, Nairobi Kenya.

Okumu, M. and Ogana, W. (*1992*); "Will women ever get there?" Women and Development Unit, Amref.

Otiato, P. (*1990*); Prevalence and determinants of low birth weight among the children born in 1987 in Mombasa and Kwale districts of Kenya. MPH thesis.

Owiti L. A; Cultural beliefs and practices as they relate to child malnutrition. A case study of Kibera slum village. MA Thesis, *1992.*

Owour, J. and Okello W. (*1995*); Food and nutrition surveillance and planning in Kilifi district Kenya: A model for district based multi-sectoral policy formulation and planning. Ministry of Planning and National Development, Nairobi and African Studies Centre, Leiden Report No. 56

Pelletier, D., Frongillo, E., Schroeder D. and Habicht, J. (*1995*); 'The effects of malnutrition on child mortality in developing countries'. *The Scientific Journal of World Health Organisation: 73(4),* Bulletin of the World Health Organisation.

Peter Berman, Carl Kendall and Karabi Bhattacharyya (*1994*); 'The household production of Health: Integrating Social Science Perspectives on Micro-level Health Determinants'. *Social Science Medicine, Volume 38, No. 2, pp. 205 - 215. Great Britain.*

Popoola, S. (*1975*); Environmental and cultural determinants of the problems of human nutrition and disease in East and West Africa. Ph.D. Thesis: University of Texas.

Puffer and Sorono (*1973*); Patterns of mortality in childhood America Health Organisation Scientific Publication No. 263, Washington D.C.

Ravallion Martin; 'Does undernutrition respond to incomes and prices? Dominant tests for Indonesia'. *The World Bank Economic Review, Vol. 6, NO. 1, pp. 109 - 124.*

Republic of Kenya, (*1981*); National Food Policy; Sessional Paper No. 4 on National Food Policy: Nairobi: Government Printers.

Republic of Kenya, (*1995*); Economic Survey office of the vice-president and Ministry of National Development, Central Bureau of Statistics, Nairobi.

Republic of Kenya, (*1994 - 1996*); Kilifi District Development Plan. Office of the Vice president and Ministry of Planning and National Development.

Rosenzweig Mark; 'Program Interventions, Intra household Distribution and Welfare of individuals: Modelling household's behaviour'. *World Bank Development, Vol. 14, No. 2, pp 223 - 243, 1986.*

Sen Amartya (*1984*); Resources, values and development: Cornwall, Great Britain: T. J. Press (Padstow) Ltd.

United Nations World Food Conference; Assessment of the World food situation, present and future E/conference 65/3: 59-60. Rome

Wandati, J. (*1984*); The socio-economic conditions as contributing factors to the problem of malnutrition in East Bukusu location, Bungoma District.

World Bank (*1990*); Kenya food and nutrition policy. A World Bank Sector Report.

Wright Heather (*1988*); A study of the principal determinants of severe malnutrition in pre-school children in a semi-arid area of Kenya. Msc. thesis: University of Nairobi.

Youri Pat (*1990*); Kaloleni Division Baseline Survey; Government of Kenya/Amref, MCH/PHC collaboration program in Kaloleni Division, Kilifi district, Kenya. Family health unit.

APPENDIX I

HOUSEHOLD RESOURCE MOBILISATION CAPACITY AND PRE-SCHOOL CHILDHOOD MALNUTRITION IN KALOLENI DIVISION, KILIFI DISTRICT.

How are you? My name is _____. I am from the University of Nairobi and I am conducting a research on pre-school childhood malnutrition. I will thus, discuss with you a number of issues concerning your children's health and household resources. Please feel free to ask questions. The information obtained will be treated as confidential.

1. (a) Respondent: Mother_____ Father _____ Other (specify)_____
   (b) Respondents name
   (c) Ethnic group

Household information.

2. Could you please tell me about everyone who is living here with you and eating with you. Let us start with you.

Name	Sex (M/F)	Age	Educ.	Occup.	Rel.	Marital status	Relation to HH/H

3. Of all the people you have told me about, are any of them visitors who are here only temporarily? 1. Yes____ 2. No_____ [go to 5]

4. If yes, how many _____

5. Is there anyone who normally lives and eats with you who is currently away?
   1. Yes_____ 2. No _____ [go to 7]

6. If yes, how many _____

Housing

7. Is this house yours _____ [go to 9] or rented _____? (tick one)

8. If rented, how much do you pay per month/year? Kshs._____

(Interviewer, fill in Qs 9 - 13 preferably through observation).

9. Type of house (tick one). a) Permanent__ b) Semi-permanent___ c) Other (Specify)__

10. Number of rooms including the kitchen _____

11. Type of roof. (tick one). a) Thatched ____ b) Sheet metal ____ C) Other (specify)___

12. Ventilation (tick one). (a) Good____ (b) Fair ____ (c) No windows at all _____

13. What type of toilet system do you have available to this household.
(a) pit latrine ____ (b) none _____ (c) Other (specify) ____

Household Resources

A: Farm ownership and produce

14. Do you own land? 1. Yes ____ 2. No _____ [go to 21]

15. If yes, how many acres/hectares _____

16. What crops do you grow? (a) None_____ (b) Food crops ____ (c) Cash crops ___

17. Do you sell food or cash crops? 1. Yes ____ 2. No ____ [go to 20]

18. If yes, how much did you sell in the last season? _____

19. Who decides how money obtained from farm produce should be spent?
(a) Husband _____ (b) Wife _____ (c) Other (specify) _____

20. You have expenses too. During the last season, how much did you spend in total on food and/or cash crop production? i.e. on farm equipment's, inputs such as seeds, fertilisers, hiring of workers and so on.

Expense	Amount spent in the last season or per day, week, month.

B: Livestock ownership and produce

21. Do you own livestock? 1. Yes ____ 2. No ____ [go to 28]

22. If yes, what type(s)?

Type	How many?	Type	How many?
a) Cattle	_____	c) Poultry (specify)	_____
b) Sheep/Goats	_____	d) Others (specify)	_____

23. What products do you get from these livestock?

Type	Product
a) Cattle	_____
b) Sheep/Goats	_____
c) Poultry (specify)	_____
d) Others (specify)	_____
e) None	_____ [go to 28]

24. What do you do with the products?

Product	Use
a) _____	_____
b) _____	_____
c) _____	_____

25. Do you sell any of these products? 1. Yes _____ 2. No _____ [go to 28]

26. If yes, how much do you earn per day, week, month? Kshs. _____

27. Who decides how the money obtained from sale of livestock produce should be spent? a) Father_____ b) Mother_____ c) Both_____ d) Other (specify _____

28. When meat, eggs, milk, fish is available, who eats?

	Meat	Eggs	Milk	Fish	Other
Men					
Women					
Boys					
Girls					
Babies					
All					
Other					

C: Other sources of income

29. Do you have a family business? 1. Yes _____ 2. No _____ [go to 34]

30. If yes, what is the nature of the business?_____

31. Who runs the business? _____

32. Please estimate the income earned from the family business per day, week, month, year in Ksh. _____

33. Who decides how the money obtained from family business should be spent?
(a) Father _____ (b) Mother _____ (c) Both _____ (d) Other (specify) _____

34. Please estimate the income obtained from the following sources.

Source of income	Amount per year/month/week (Kshs)
(a) Your salary.....	_____
(b) Spouses salary.....	_____
(c) Rented property.....	_____
(d) Remittances.....	_____
(e) Co-operative group.....	_____

35. Do you have any other source of income we have not talked about?
1. Yes _____ 2. No _____ [go to 37]

36. If yes, please explain _____

D: Household expenses

37. Please tell me the expenses you incur in a day, week, month, year and rank the following on scale of 1 - 5 (highest to the lowest) in order of importance.

Expenses	Rank
(a) Buying food and clothing for the family	_____
(b) Buying water	_____
(c) Paying school fees and other school expenses	_____
(d) Buying firewood	_____
(e) Assisting friends and relatives	_____
(f) Recreation	_____
(g) Paying loans and debts incurred	_____
(h) Investing in property	_____
(I) Other (specify).....	_____

38. What are the children's expenses? _____

39. Do children benefit equally from available household resources in terms of access to education, health, food, clothing etc.? 1. Yes_____ 2. No_____ [go to 43]

40. Explain your answer in 39 above. _____

41. If your answer to Q. 39 is no, are the inequalities desirable in your opinion
1. Yes _____ 2. No _____

42. Explain your answer in "41" above_____

E: Feeding Habits

43. How many meals are taken in your house per day?
1. One_____ 2. Two _____ 3. Three ____ 4. More than three _____

44. If less than three, why? _____

45. In what order is food received by members of your house? (Indicate 1,2,3,4,5,...).
Father ____ Mother ____ Babies _____
Sons _____ Daughters _____ Others _____

59. How often are children fed a day?
1. One _____ 2. Two _____ 3. Three _____
4. More than three _____ 5. When they are hungry _____

F: Gender roles

60. Are there any culturally defined roles fort males and females in this community?
1.Yes_____ 2. No_____ [go to 65]

61. If yes, which ones?

Males	Females
a)	.....
b)	.....
c)	.....

62. Who in your opinion should take care of the children?
1. Mother _____ 2. Father _____ 3. Other (specify) _____

63. Why this person? _____

64. Who provides food in your household?
1. Mother ____ 2. Father _____ 3. Other (specify) _____

65. Where do you get the food?
(a) Farm ____ (b) Buy _____ (c) Both (a & b) ____
(d) Other (specify) _____

66. If your answer in 65 is 'b' where does the money come from?
1. Mother _____ 2. Father _____ 3. Other (specify) _____

67. Who controls household income?
1. Mother _____ 2. Father _____ 3. Other (specify) _____

68. Why this person?_____

G: Prevalence of malnutrition

69. Sometimes a child gets swollen arms, legs and cheeks and the hair turns reddish brown. Is this some form of sickness?
1. Yes___ 2. No___ [go to 71] 3. Do not know____ [go to 71]

70. If yes, what do you call it? _____

71. Have you ever heard of Kwashiorkor? 1.Yes___ 2.No___[go to 74]

72. Has any member of your household suffered from this sickness in the past five years?

1. Yes ____ 2. No

73. If yes, who was it/were they? _____

74. Sometimes a child becomes very thin and with a face like an old man. Is this some form of sickness? 1. Yes___ 2. No___ [go to 76] 3. Do not know____ [go to 76]

75. If yes, what do you call it? _____

76. Have you ever heard of Marasmus? 1.Yes___ 2.No___[go to 79]

77. Has any member of your household suffered from this sickness in the past five years?

1. Yes _____ 2. No _____ [go to 79]

78. If yes, who was it/were they? _____

79. How did you learn about Kwashiorkor and/or Marasmus?

(1) Radio___ (2) School _____ (3)T.V _____

(4) Health worker(s) _____ (5) other (specify)_____

(6). Never heard or N/A [go to 87]

80. What causes these sickness? _____

81. Who do you think is likely to get Kwashiorkor and/or Marasmus?

1. Babies 0 - 12 months _____ 3. Children 4 - 5 years_____

2. Children 1 - 5 years _____ 4. Adults_____

5. Other (specify)_____

83. Can Kwashiorkor and/or Marasmus be prevented? 1. Yes__ 2. No__[go to 85]

84. If yes, how? _____

85. Are there any cultural practices, which if not performed or if broken, can lead to Kwashiorkor and/or Marasmus? 1.Yes__ 2.No__[go to 87]

86. If yes which ones? _____

87. Anthropometric measurements of children aged 0-5 yrs:

Age _____ **Weight** _____

APPENDIX II

NAME OF CHILD: _____

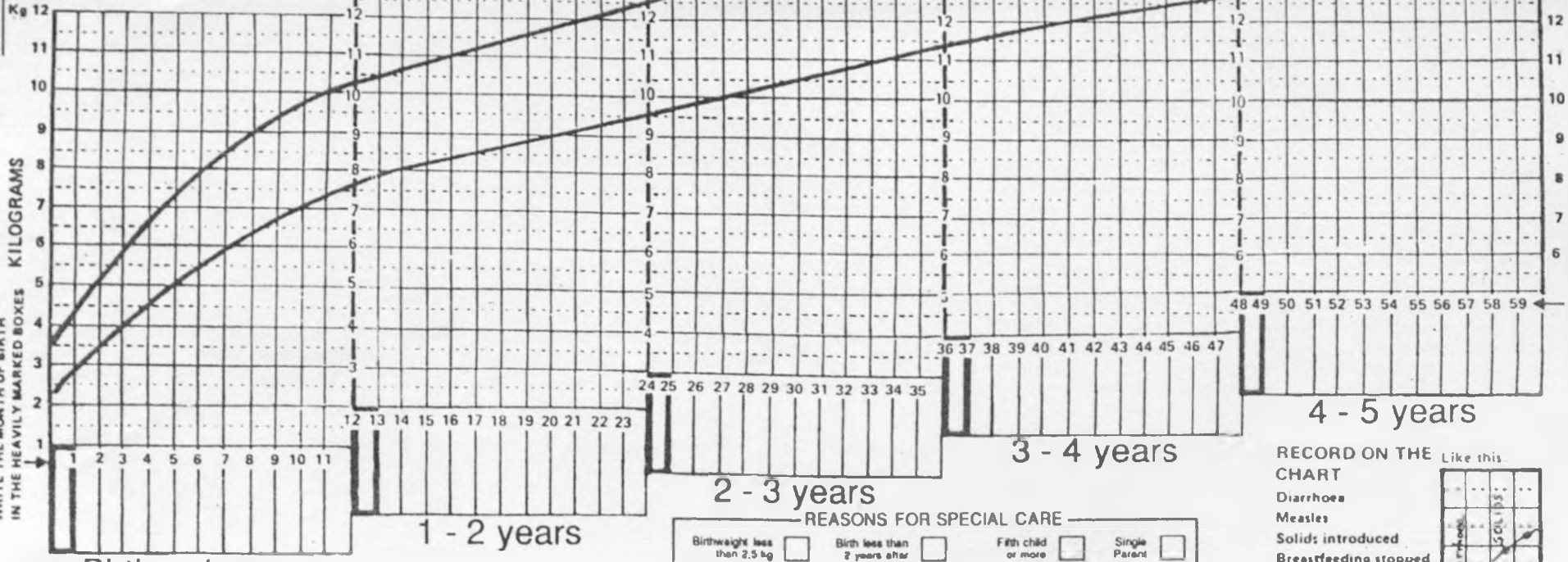
BIRTH WEIGHT: _____

Watch the direction of the line showing the child's health

GOOD
Means the child is growing well

DANGER
Find out why? and advise

VERY DANGEROUS
May be ill, needs extra care



REASONS FOR SPECIAL CARE

- Birthweight less than 2.5 kg
- Birth less than 2 years after last birth
- Fifth child or more
- Single Parent
- Brothers or sisters undernourished
- Twins
- One or more children in family died

RECORD ON THE CHART

Like this

- Diarrhoea
- Measles
- Solids introduced
- Breastfeeding stopped
- Birth of next child