

**POLITICAL FACTORS INFLUENCING WOMEN PARTICIPATION
IN RURAL DEVELOPMENT: THE CASE OF KITUI DISTRICT
RURAL WATER SUPPLY**

BY:

M. KATHINA

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M. KATHINA

**A THESIS SUBMITTED IN PARTIAL FULFILMENT FOR THE DEGREE OF MASTER OF
ARTS IN GOVERNMENT AT THE UNIVERSITY OF NAIROBI.**

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This Thesis is my Original Work and has not been presented
for a Degree in any other University.

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This Thesis has been submitted for examination with my
approval as University Supervisor.

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TO MY BELOVED FATHER

JOHN JUMA MBUUKO

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With the enormous support I got, I alone bear full responsibility for the contents, weaknesses and, or shortcomings in this study.

ABSTRACT

This study represents an effort to investigate political determinants of women participation in rural water supply using data drawn from the Kitui District of Kenya. The question asked throughout the study is: What political factors influence women participation in rural water supply? In an attempt to answer this question, this study holds that, two broad sets of factors namely, women's personal ability and political environment determine the nature and level of women participation in rural water supply. Both these sets of factors are treated as the independent variables while the phenomenon under investigation i.e. women participation is treated as the dependent variable. Social-cultural variables are treated largely as the intervening variables mediating the relationship between women participation and political variables.

The study was primarily based on field interviews of beneficiaries of water projects selected from a cross-section of the entire study area. Observed variation in women participation was then related to the above set of variables. A sample of 140 project participants were randomly chosen and interviewed by the use of a structured questionnaire. A further 22 government officers were also interviewed. For the latter, we used unstructured interviews.

The major objective of the study was to investigate and establish the political factors that influence women participation and role in the development of rural water supply.

Three sets of Hypotheses were tested in an attempt to establish relationships that are existing. It was hypothesized that women personal ability, women involvement in decision making roles, Government support and lack of external control and influence, determine the nature and level of women participation in the development of rural water supply.

Variables under examination were found to influence women participation with varying significance. Amongst the major findings of the study, desire for water was unexpectedly found to have a negative association with women participation. The ability of women to manage water technology was found to be positively correlated to women participation, while lack of adequate government support was found to inhibit full women participation in rural water supply projects.

Various policy recommendations were made. For instance, based on structures of political institutions through which women participated, it was recommended that a re-organisation be done in way of facilitating women's accessibility to influential positions of the decision-making mechanisms.

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LIST OF ABBREVIATIONS

AID	Agency for International Development
ASAL	Arid and Semi-Arid Lands
BNA	Basic Needs Approach
CBS	Central Bureau of Statistics
CIDA	Canadian International Development Agency
DANIDA	Danish International Development Agency
DDC	District Development Committee.
DFRD	District Focus for Rural Development
FAO	Food and Agricultural Organisation
GOK	Government of Kenya
H ₀	Null Hypothesis
IDS	Institute of Development Studies
IDWSSD	International Drinking Water Supply and Sanitation Decade
i.e.	That is
ILO	International Labour Organisation
KANU	Kenya African National Union
Km ²	Square kilometre
KWAHO	Kenya Water for Health Organisation
MOVD	Ministry of Water Development
NIB	National Irrigation Board
NORAD	Norwegian Agency for International Development
NWCPC	National Water Conservation and Pipeline Corporation

(x)

SIDA	Swedish International Development Agency
TARDA	Tana and Athi Rivers Development Authority
UN/UNO	United Nations Organisation
UNCRD	United Nations Centre for Research and Development
UNDP	United Nations Development Programme
UNICEF	United Nations Childrens Education Fund
USAID	United States Agency for International Development
X ²	Chi-Square

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CHAPTER ONE

INTRODUCTION

1. STATEMENT OF THE PROBLEM

Though studies on women and development are a fairly recent development in the Third World and in Africa in particular, they are nevertheless already attracting considerable interest and attention from scholars of diverse disciplines. It is now widely recognized and acknowledged that women's contribution towards any country's development is critical to society's survival and progress.

The role of women in development is most intimately related to the goal of comprehensive national development. No development strategy can therefore be effective if it neglects the role of women. It needs to be recognized that the advancement of the status of women is not a humanitarian concession to a disadvantaged group but, an enhancement of a dynamic force and a valuable asset for the overall process of development. The position of women and their role in development are particularly important not only because women constitute over half of the human resources in developing countries but also because they have to bear the brunt of the daily struggle for survival in developing countries.' Women must therefore be provided with conducive atmosphere for maximum participation together with men in all spheres and levels of life, work and decision making. They

need to participate in the priority setting, design and implementation of development projects. Such active participation constitutes the basic ingredient of the strategy for individual and collective self-reliance of developing countries.

It is apparent that the main contribution of women in the Third World countries is in the rural sector as the bulk of women population is predominantly rural. This contribution comes in form of provision of such services as health, water and education, among others. In Kenya for instance, where women constitute about 67 percent of the total rural population.² One source estimates their contribution at 80 percent in self-help harambee projects.³ In Malawi, one study estimated women input at about 70 percent of the labour in most of the piped water schemes implemented.⁴

In response to the declaration of UN Decade for Women starting 1975, various African Governments created National Machineries for integrating women in development. Egypt created a ministry and a Bureau in 1972, Ghana created a commission and Bureau in 1975, Mali created a Bureau in 1975⁵, to mention just a few states. Kenya was not left out of this International development. In 1976, she created a Women's Bureau and since then, she has come out with a more clear policy position about women. The Kenya Government's interest in women issues has been expressed in a number of ways. For instance, the merger of "Maendeleo ya Wanawake" (a women umbrella body) with the ruling party - KANU is an indication of government's interest in women

affairs. Policy statements have also been issued to this effect. For instance, the 1988 KANU manifesto states:

.... KANU Government recognizes the continued role of women as a backbone to the National Economy particularly in agricultural production. It is the intention of KANU that women groups be turned into an irresistible dynamic force for national growth.⁶

However, inspite of government interest, pronouncements and exposed recognition of women's role, there are indications that women have not participated fully in development. As observed in one of the World Bank reports, in many societies both developed and developing, women's productivity is constrained.⁷ Indeed, a critical look into the nature and level of women participation reveals a paradoxical situation. While governments try to enhance women's role by creating national machineries for them and issuing policy statements that declare commitment to the advancement of the role of women, women remain marginalized and their contribution undervalued.⁸ Furthermore, women participation in the developmental process largely takes the form of manual labour contribution. There is peripheral involvement of women in the most crucial aspect of participation which is decision-making, planning and control of the development efforts in which they are involved. Marie Antonette Domin Myin while underscoring this situation observes that in the question of women participation, especially significant is the lack of participation of women in selecting, designing and carrying out projects.⁹ Thus inspite of their participation in terms of labour input, in many projects women participation is ineffective. The required

contribution to advance development may come about if women are more involved in participation at the planning and decision-making levels of the projects as opposed to merely contributing more on labour input.

The understanding of the factors that explain this discrepancy between policies and practice is not only critical to women but also, to the design and implementation of government policies and programmes.

Several scholars have attempted to explain this problem of partial participation by the women in rural development. Most of these studies site socio-cultural factors as the determinants of the nature and level of women participation. However, these factors do not provide a satisfactory explanation for this anomaly. It is the contention of this study that political factors play a significant role in determining the nature and extent of women's participation in rural development and specifically in the provisions of basic needs such as rural water supply, which is the focus of this study. As will be shown in the review of existing literature, very few studies have so far attempted a systematic assessment of the influence of political factors in determining women participation in the development of rural water supply.

Starting from the premise that political factors are important determinants of the nature and extent of women's participation, we shall then attempt to establish these factors and their influence on

women participation in rural water supply. The major concern is to establish factors that explain the existing level and nature of women participation in the development of rural water supply. In investigating this problem of unsatisfactory participation, we are posing the following questions:

- (i) How has the individual women ability been responsible for the nature and level of their participation?
- (ii) What has been the impact of various government policies on women participation in rural development and particularly in rural water supply?
- (iii) Given that the major objective of women in development programmes is to enhance their status and consequently that of the community at large, to what extent does the government provide suitable conditions for women's participation and enhancement?

These questions were answered within an indepth investigation carried out to establish political forces at play in motivating or constraining women participation in rural water supply.

1.2 OBJECTIVES OF THE STUDY

The main objective of this study is to investigate and identify the political factors that influence women participation and role in

the development of rural water supply. Arising from this general objective are more specific objectives. These include:-

- 1.2.1 To investigate the impact of policies and programmes concerned with provision of social and infrastructural facilities on women participation in rural water supply.
- 1.2.2 To establish the organizational and administrative framework within which women participate in rural water supply.
- 1.2.3. To establish the influence of the above framework on women participation in rural water supply.
- 1.2.4. To examine women capability at developing rural water supply.
- 1.2.5. To assess the impact of government support on women participation in rural water supply.
- 1.2.6. To make policy recommendations aimed at designing development policies and institutions that are more sensitive and supportive to the role of women in development.

1.3 JUSTIFICATION OF THE STUDY

Nobody questions the critical role of women in development and yet, the problems women have faced in their attempt to contribute to development have in the past not been adequately addressed. In Africa, most of the research on women is less than a decade old. There is therefore need for more research on women and their role in development if we have to solve some of the major problems in the current national efforts of overcoming mass poverty and general underdevelopment. It is our hope that, this study will contribute to policy formulation that would be more relevant and useful in terms of facilitating more effective women participation in a manner that advances their humane and material development.

The study focuses on water since this is a resource that plays a major role and has significant effects on capital formation, economic growth, as well as on an individuals' well-being. It is thus a critical resource to development. Besides, there exists dearth of literature that focuses on the very critical water problems that are so prevalent in Semi-Arid and Arid Lands (ASAL) like the Kitui District of Kenya. It is our hope that the present study by focusing on political factors will supplement most studies that highlight socio-cultural factors as the main determinants of women participation in the development of this important resource.

1.4 LITERATURE REVIEW

As a result of the recognition of the long standing neglect of the role of the African women in rural development where a vast majority of them live, the recent years have witnessed an upsurge in the interest accorded to the role of women in the rural development.

Most of the existing literature treat this issue within the larger context of community participation in development. The question of community participation in development otherwise referred to as social development, is a phenomena of the late 1960's and early 1970's. This debate arose as a response to the realization that development should involve not just economic growth but the development of people especially, those who are deprived or disadvantaged.¹⁰ The concern of the theorists and professionals at the time was that development was not yielding the desired results. Development process was seen as contributing to further underdevelopment of the more marginal sector of the poor majority. The argument posed by the theorists was that development imposed from outside the local setting, no matter how benevolent and well-intentioned, was ultimately counter-productive. This they argue, is so because the effort to develop, is not effectively integrated into the world of those it purports to develop.¹¹

Social development is seen as superior to other development approaches due to two reasons. One, its idea of community involvement in setting up projects of their priorities and two, its ideological

content in terms of power redistribution and the right of the disadvantaged majority relative to increasing suspect elite.¹² Social development theories view development goals as including, improved accessibility to services such as water, health, education and, the enhancement of the people's capacity for action on their own. These goals according to this school of thought are inhibited by such factors as elite dominance, lack of effective commitment to social development, pressure on resources, rigid conventional bureaucratic structures and, traditional dominance of economic as opposed to social perspectives in planning.¹³

Participation which is the basis of social development theories, is seen as, the basis of releasing people from being the subject of development to being agents of modernization and change. With participation, the aspirations of the population become the goals of development and constitute the resource base for development. To turn the community's aspirations into goals, the advocates of participation stress the need for some specific forms of political structures. Their assertion is that participation is unplannable, unteachable and unobtainable without major structural changes that would allow the community to be at the centre for decision-making processes.¹⁴ In emphasizing the need for community participation in development, Robert Chambers argues that the expert and the intellectuals are 'aliens' to the aspirations and needs of the community. Consequently then, the elite cannot plan adequately for the realization of these needs and aspirations. He downgrades the role of the expert and the intellectual in favour of community action. Chambers sums up the old

debate between theory and practice in favour of the latter.¹⁵ The phenomenon of participation has been reviewed as having an intrinsic value in development. The running argument being that without community participation, people may benefit but not develop from a particular project.

Hollsteiner, M.¹⁶ has argued that, the level of community participation in rural development of the Third World countries is dissatisfying. She states that the problem is not so much lack of participation by the people in the community activities but rather, that of the level of participation. The community, she observes, largely lacks accessibility to the decision-making processes that take place outside the community but have a direct impact on it. She contends that in developing countries, the poor by definition also remain powerless to dictate whether and how resources, services and information are to affect them and be integrated into their lives. Like Robert Chambers and David Chekki, Hollsteiner sees the lack of mechanisms and institutions to allow the 'weak' to participate in decision making processes as the greatest inhibiting factor to participation of the community in development. She singles out empowerment of the community as the most significant factor of development besides such factors as, socio-cultural norms that are positively oriented to participation, availability of resources, past experience of successful participation, lack of significant exploitative attitudes and motivated leadership capable of fostering participation of poorer groups.

The lack of adequate community participation has also been cited by Wignaraja, P.¹⁷ who sees the main limitation to community participation in rural development as the existence of interdependent linkages at the local level. She argues that participatory self-reliance process cannot be a spontaneous one due to the deep-rooted dependency relationships. The poor who are also the dependents, lack the capacity to take initiatives and therefore remain as targets rather than participants in development.

Studies that have focussed more specifically on development of rural water supply have pointed to the question of technology as being an important determinant of the nature and level of community participation. Mary Elmendorf and Patricia Buckles¹⁸ have argued that the lack of relevant information about the cultural beliefs of a people mean 'imposition' of culturally unacceptable and environmentally inappropriate water technologies. This results in lack of effective community participation in initiation and maintenance of the particular projects. They further argue that, the critical consciousness required to make the choice and opt for the more appropriate technology must also be nurtured through active participation of the population in planning as well as implementation of projects.

This view is supported by a World Bank study of 1984,¹⁹ in Kenya. In this survey, it is argued that technology ought to derive from the socio-cultural perspectives of a people. Because only then, can it be accepted and enhanced. The survey found out that the

designs that are socially as well as environmentally appropriate diffuse rapidly. Culture is thus seen as an important variable in the design and implementation of appropriate technology. The foregoing argument is that social considerations must enter into the analysis of options. Both in the design of the technology and in the creation of appropriate administrative structure for managing the introduction of the technology and design for involving users in the project.

Specific to the question of women participation in rural development in general and rural water supply especially, is the issue of omission of women in the decision-making mechanisms. Marjorie Mbilinyi²⁰ decries the neglect of women in decision-making mechanisms, and sees this as the main hinderance to their participation in rural development in general. She argues that in the African countries, women form more than half of the population, yet, they are not involved in national planning either as consultants or as planners. This means that issues of special concern to them are either overlooked entirely or given inadequate attention.

The cabinet of the executive secretary of the Economic Commission for Africa held the same stand in 1985.²¹ The commission then argued that the issue at hand was not lack of integration of women in development but rather, the inadequate attention given to women. It stressed that the participation of women in development is highly marginalized because the structures of planning lack focus on women. First, due to the idea of sectoral planning, and secondly, due to the fact that at the project level, projects that would benefit women may

be rejected on technical grounds. The article concludes that, though the will to better the situation of women exists and in many cases is central to national policies, the prevalent problem is designing and redesigning structures so that policies have a focal point on women in the planning process.

Kariuki, P.²² also decries the effect of sectoral planning on women participation. Based on the Kenyan experience she argues that in most cases, plans have a broad focus on the underprivileged in general and therefore lack specificity on the question of women. Women are treated within the underprivileged category and not as a target group of its own. From the foregoing, the structures of decision-making mechanisms are seen as the major inhibiting factor to the participation of women in development.

Some studies have addressed the question of opportunity cost of the lack of water for the women. In his survey, Matango, R.R.²³ asserts that, the importance of provision of water in the rural area is to serve where possible as a catalyst for rural development besides being an economic investment and a social service. His main contention is that lack of water has multiple effect on other productive activities. For the government then, the critical cost problem is how to provide the maximum improvement in water for people given a limited budget and manpower. For the women, non-availability of water means that women spend more time in hauling and carrying water. Consequently, other important activities lack the attention they deserve. In this survey, Matango points out that the

availability of water provides more opportunities to improve socio-economic and political conditions of the women and the rural people in general.

This point was acknowledged by a C.B.S. survey in Kenya in 1975.²⁴ The survey which aimed at finding out the political, economic and cultural implications of water projects on women, revealed that women were largely responsible for drawing water in all provinces. The survey argued that relieving women the task of fetching water is not just removing a drudgery as is often dramatized, but rather, it is a prerequisite for any meaningful rural development where women are significant actors. The survey sees the development of rural water supply as an issue of freeing substantial resources in form of hours currently tied to poor water supplies for other development activities. The case advanced here is that rural transformation is largely dependent on the woman and her easy accessibility to plenty of water. The study proposes increased participation by both the women and the government. However, the study does not show how the increased participation should be achieved.

A UNDP study in Kenya²⁵ revealed that about 3 million Kenyan women spend an average of about 3 hours each, daily on drawing water, i.e. an estimated 9 million hours a day. This kind of time the survey argued, can be utilized in a more economic way for other forms of production. The same study revealed women participation as minimal in the local level. The study pointed out that the local levels are

dominated by leaders who are mainly men and whose interests on water may not coincide greatly with that of women. The study concludes by pointing out the lack of sensitivity to women water needs as the main cause of their minimal participation in the process of decision-making at the local level.

This stand is also advanced in other studies like that of Edward Wellin in Peru²⁶ and that of Msukwa Louis and Kandoole B.F in Malawi.²⁷ Wellin in a comparative analysis between men and women in 27 rural communities was seeking the socio-cultural impact of water on the far highland communities in Peru. In this study, he found out that the strongest felt need of men for water was economic whereas that of women was for domestic needs. This means that if men are analysts of the viability of a project, it may be looked at, at a purely economic level and hence neglect the social need of water for domestic and family use. Once this is the case, he foresees a situation where women participation in the development of water will be remarkably low because their needs are not catered for.

This was acknowledged by Msukwa L. and Kandoole B.F. in an evaluative study on the rural water supply program in Zomba district of Malawi. In this study a household survey was carried out in two areas of the district. In Zomba east, a sample was drawn from six areas. In each area six taps were selected at the beginning, middle and end of a line. At each tap, men and women from 10 households were interviewed. In Zomba south, a random sample drawn from six areas and 10 households using protected wells, boreholes or rivers were

interviewed. The study showed that women and girls were the main collectors of domestic water while men collected water for commercial purposes only. The study also found out that women continued to depend on the traditional water sources when water was developed without consideration to their needs. This happened even if the latter was healthier water.

Sensitivity to women needs ties in with studies that have argued for the incorporation of women in local planning and decision-making mechanisms and institutions.

Elmendorf M. and Raymond Isely²¹⁸ argue that as promoters of change, women largely determine the impact that any project has on development. If they are in decision-making institutions therefore, their roles and needs will be taken into account in planning and their participation raised. Msukwa, L. and Kandoole B.F. in the study mentioned earlier, also argue that the exclusion of women in areas like decision-making means less participation which in turn may lead to project failure. In this study, they found that insufficient involvement of women in decision-making was a significant factor in explaining lack of 'real' participation because women felt their needs were not catered for. Our study aims at finding out the situation of women in decision-making of rural water supply projects in Kenya.

Several studies have argued for the importance of social feasibility that could enable the designing of appropriate technologies for participation of women. Such studies argue that lack

of consideration of socio-cultural aspects leads to low participation of women because their perceptions are not taken into account during the designing of the technology. This means that, the technology lacks the support of women. Kelles A.V.²⁸ in a case study on traditional water sources and handpump wells in a rural community, found that women cited, used and managed traditional water sources by the use of practical experience, knowledge and religious rituals. They used different traditional sources for different purposes. When the handpump technology was introduced, no attention was paid to those socio-cultural aspects. Consequently, half the pumps were in disuse due to their 'inaccessibility'. More importantly, women were not involved in the project and did not know how to operate the technology. They therefore transferred age-old rituals and maintenance practices to the handpumps. This reduced the effectiveness and efficiency of the programme.

This point is acknowledged by Toit du, F.P.²⁹ in an investigation of water supply systems in Zimbabwe. He argues that the problem in the water systems stems from the lack of understanding of the social and cultural traditions surrounding water use rather than poor engineering. The investigation found out that the facilities that did not meet the social traditions regarding water use were in disuse. For instance, even when piped water supplies had been installed with public standpipes and with automatic taps, use of surface water continued. When a new water facility was adapted to the requirements of the women, participation in use and maintenance was enhanced. Hence, modification of the site to a traditionally

acceptable design facilitated more use by the women. Indeed, many donor aided projects have failed due to inadequate understanding of the socio-cultural values of a community even in Kenya.

Lack of social feasibility is strongly tied to the launching of inappropriate (expensive) technology. Mauluka, L.,³¹ in a survey on community participation in the construction and maintenance of rural ground water supplies in Malawi, found that large numbers of dispersed handpumps meant inaccessibility and high cost which have impeded effective maintenance of the rural water supply in Malawi. When the technology was replaced by cheaper technology, and the community encouraged to site projects, contribute input (i.e. labour and finance) and to form management committees at both the village and the well levels, participation increased remarkably. However women participation was still lower than men's because of opposition from village headmen to their participation as caretakers, a task perceived as solely male oriented.

A study by UNICEF³² in Imo State of Nigeria, on the health impact of drinking and sanitation project found that, though women are good recipients of technology especially after training, high cost technology inhibits their participation because they lack a sound economic base to replenish the wear and tear of the machines.

A combined two stage study by DANIDA and the Republic of Tanzania,³³ revealed that training is positively correlated to meaningful participation of women in the development of rural water.

This study which first focussed on socio-economic aspects and then was turned into an action research study on ongoing piped water projects revealed that after training, women became more dedicated participants in the water committees. Seslar D.S. and Wijetilleke, S.³⁴ argue for the need of training as a facilitator of participation of women in rural water supply. The positive correlation, their manual argues, is enhanced when the training involves learning how to make assessment of priority needs, project identification, resource assessment, project planning, management and utilization. Schmink, M.³⁵ acknowledges the centrality of training in project participation. In two case studies of the involvement of women in management of low cost urban waste disposal and water supply, he found that, the management of waste recycling was successful because the women operated, maintained and managed the plant by the use of a trained women's committee. The women gave feedback for design improvement and have been involved as trainers in another area. Soon, Y.Y.³⁶ in a study in Casamene, Senegal found that lack of skill to maintain the project meant low participation for the women. The study found out that though the government assisted with the construction of permanent water supplies, no women were trained to manage the facilities. This insubordinated the women since they had to depend on men (who were not readily available) for repairs and maintenance when breakages occurred.

Some scholars have argued that ignorance of women and the patronizing attitudes of government officials are negatively correlated to women participation in rural water supply. In a study in Egypt, Soha, A.K.³⁷ found that lack of knowledge on the

environmental health or the benefits accruing from participation in development of water, led to low participation of women in rural water supply projects. The remedy offered in this study is establishment of communication networks that could link the officers and women. In this way the women could be told the importance and benefits of their participation and hence motivate them to increase participation. The same study cites patronizing attitudes as a significant factor in explaining low participation of women in rural water supply projects because it created barriers between the officials and the participants. This study advocates for the creation of Communication networks between the officials and participants. Dwonkin D., Pillsburg, B. and Tharsanatheeb, T. in a study on potable water project in rural Thailand found government support to be positively correlated with the participation of women. This project was found to be efficient and its efficiency was attributed to the continued high quality support and supervision by government officers especially, in form of monthly visits of the staff.

Studies that have concentrated on the impact of development of rural water argue that when benefits are forthcoming from a project, participation increases. Glasgow, M.²² in an impact study of rural water supply in Senegal city, found that, women who initiated the project turned the gravity flowing water offered by the government into income generating projects. They petitioned for, and contributed for government water supply services with the help of their husbands' financial assistance. Subsequently, their participation increased substantially to about 14% of the total cost of the project. With

more cash and voluntary labour, more communities were being served by this project. The project had two great effects, namely, that of reducing the water collecting time and secondly, it stimulated better sanitation, vegetable gardening, village beautification and personal hygiene. All these benefits in turn enhanced the participation of women in the project.

In another study, Jamu, A and Pakistan, K.⁴⁰ found that selfhelp water projects reduce project costs, increase service coverage, encourage technical and administrative feasibility, improve operation and maintenance and stimulate broader socio-economic development. This study cited the inclusion of women and/or other needy groups as one of the factors that influence self-help water projects. Harkness, M.R.⁴¹ in an evaluative study on village, women, water and development in Bolgatanga District of Ghana, found that the construction of 2,500 handpumps within the proximity of women meant considerable time saving in the dry season. This time was used for home care, food preparation and agricultural work. Though dry gardening demanded more seeds and fertilizer, the availability of water made it possible. Consequently, women worked hard to make sure that water was well managed and maintained.

1.4.2 OVERVIEW OF LITERATURE

The theoretical literature that invokes the need for full participation of community in development puts emphasis on allowing

the community, power to be actively involved in not only labour input but in all decisions that appertain to community needs. It views the users of facilities as partners in development. This literature essentially advocates for decentralization by the central government, and autonomy for the periphery or the community. Although the literature is agreed on the importance of participation in development, it has very little on the extent of the influence of the various factors cited on participation. Though focussing on a central question of decentralization, the discussion of this issue remains at a highly philosophical level. Indeed, this literature does not address itself to the impact of institutional set-up or policies on participation of the community or women specifically. It is lacking in testing the theoretical assumptions it makes on empirical situations. This study intends to test some of the assumptions made in this literature against a practical situation in the Kenyan context.

The literature on women participation in development comes up with a 'consensus' that the major inhibiting factor to women participation in rural development is their exclusion from decision-making mechanisms. As Robert, F. Gorman observes, in many occasions, planners have been quick to blame the community and especially women for their lack of involvement in projects. The blame is usually placed on the absence of any community based women organization which the planners and donor agencies can work with. This literature is lacking in addressing the power and potential skills of women to influence the framework within which they participate. This study

intents to investigate not only the women's ability and capacity to participate but also the level of their motivation or desire to participate in decision-making. The empirical studies tend towards water related aspects like sanitation and do not focus critically on water for domestic and family use. The literature is also largely in form of reports by International agencies. It is therefore lacking in both theoretical and methodological approaches. The analysis are largely descriptive and not sufficient in quantitative terms. This literature therefore, leaves both a methodological and theoretical gap that this study intended to fill.

The literature covers the influence of socio-cultural factors on the participation of women in rural water supply extensively. However, very little has been said on the influence of political factors (although they are mentioned). Only two studies, of the literature reviewed, that of Egypt and rural Thailand talk about the role of government attitude and its effect on women participation in rural water supply. It was the intention of this study to explore the major political factors that have a bearing on the participation of women in rural water supply.

The literature on marginal areas such as ASAL is also sparse. Yet ASAL comprises a large track of the Kenyan landmass. Most of the literature focuses on other parts of Africa and the Third World. There is therefore lack of specific literature that concerns Kenya on this critical issue of women participation in rural water supply.

It is thus clear that the political factors that influence women participation in rural water supply have not been accorded the attention they deserve in terms of research aimed at demonstrating the political forces responsible for the nature and level of women participation in this aspect. The participation of women and the political framework within which they operate have been treated vaguely. One can hardly derive useful conclusions if he were to try and devise ways and means of meaningful interventionist policies for both qualitative and quantitative improvements. These gaps in the literature suggest that there is need for a study of the kind taken herein.

It should be noted that between the time of this research 1989 and now 1992, some literature is coming up which may have been very relevant to this study but which we never had a chance to review. For instance Carthy Staut, Women and Politics. Bureaucratic Machinery and Women and State in Africa. Nevertheless, these upcoming literature will stand out as a major foundation for other studies of a similar nature.

1.5 THEORETICAL FRAMEWORK

There are few approaches in existence that can be utilized in the study of women participation in rural development, and particularly, in the provision of such basic needs as rural water. This is partly because studies on women are a recent development and partly because,

there is no gender theory that has been advanced to help study women as a category of its own. Nevertheless, the existing theories may be applicable in part or whole to various studies of women in development depending on the nature of the study undertaken.

1.5.1 THEORIES REVIEW AND APPLICATION

The dependency theory,⁴² may to some extent be applicable in a study of women participation in rural development and especially when they are viewed as the major producers in periphery countries. This theory springs from structural linkages that make the local (periphery) economies dependent on the international market mechanisms. It assumes that the integration of developing countries into the industrialized economies was done under terms highly favourable to the latter. Consequently then, the industrialized countries have the 'power' to determine the development of the dependent countries.

Applied to the study of women it means that in the context of dependent economies, women like any other groups, have been marginalized and oppressed. That they are placed at a disadvantaged position under the control of some external dominant forces. The failure to fully integrate women in the economy and allow them full participation is seen not as a failure of diffusion, but in terms of

the exploitative interaction between the centre and the periphery. Their position is seen as a result of the structural arrangements which they cannot reverse. Taken this way, the dependency theory can help analyze the limitation that structural linkages in society impose on the women in their attempt to fully participate in society. In spite of this strength, the theory has various weaknesses that make it inapplicable to this study. It ignores the dynamics within the periphery. Swantz Liisa ⁴³ argues that the theory approaches problems of development negatively. Women, she rightly observes, have strains and strengths that are unique to them, and when developing a methodology for analysis of local solutions in social processes, it cannot be assumed that the improvement of living conditions of the marginalized groups in general will suffice for the correlation of unbalanced structures in relation to women. The question to ask is what opportunity the women have in their local society to become conscious of their central role in development and improve their lot accordingly. It is thus necessary to analyze inequalities inherent in societies in which the women are part and examine the effect development has on them. The dependency theory also assumes that local solutions have a limited effect on the whole. If analysis is made in terms of this theory which makes the dependent people powerless in the face of market forces, the result is that all responsibility is deterministically removed from the people and they are perceived only as victims of exploitation. The periphery is put at a hopeless situation where it cannot effect any changes.

The leninist-marxist theory⁴⁴ may also be used in a study of women and especially in economic production. This theory which is developed historically, argues that in the hunter-gatherer societies, women possessed just as high status as their men counterparts. With the development of agricultural production and settlement, this status was lost as a result of changes in the social organization of wealth and the development of classes. Domestic animals and land under settled farming conditions started to create a surplus of wealth, which became the basis of private property whose domination, was by men. Surplus provided the basis for exchange and production for exchange came to dominate production for use. Since men alone controlled production for exchange, they came to dominate social and political relations in those societies. This domination, Engels argues, survives to-date despite technological changes and liberal values that favour women participation because, the exploitation of women serves the need of capitalism which is the dominant mode of production.

While this theory can explain the origin of the subordinate status of women in today's society and their lack of an economic base generally, it assumes that the laws of capitalist production operate in their pure form. Labour and capital relations are assumed as the dominant element underpinning the development and structure of capitalist society. This analysis eliminates the superstructure. Secondly, the theory is difficult to apply in a situation of heterogeneity as in the case of women. Women do not constitute a class of their own and cannot be characterized in the marxian

dichotomy of either workers or owners of the means of production. Thirdly, the theory carries an inherent assumption that the 'exploited' share a certain consciousness of their position and role in society. This consciousness is lacking in many women so that, many do not perceive society as exploiting them as it were.

The cause of women's oppression and low participation in development from the perspective of these two theories is structural. The answer to the problem is seen as structural rearrangement by revolution. The question that arises is whether women have the power base to revolt and revolutionize society as advanced by the two theories. Since this study concerns itself with a basic infrastructural issue as a point of reference in relation to women participation in development, the main issue is to see how women have and can utilize the resources they have to contribute to this crucial aspect of their lives.

The theoretical approach that guides this study is the Basic Needs Approach (BNA) derived from the development theory. The approach was first propounded by ILO in 1976,⁴⁶ and later by Sandbrook, R.⁴⁶ The BNA is based on the premise that the thrust of development efforts is on meeting the consumption requirements of the population.⁴⁷ Basic needs approach, includes different but hardly distinct elements. It first focuses on individuals as members of families and households who require certain minimum standards for private, material consumption of food, shelter and clothing. These needs cannot be divorced from a second level of basic needs that

include the provision of essential services such as potable water supplies, sanitation, and facilities for the promotion of health and education. The latter are public goods that should ensure the maintenance of the individuals private basic needs. Conceptually then, the BNA to development focuses sharply on human well-being in so far as its ultimate objective is to achieve significant improvements in the levels of living. When used in planning, it is concerned not only with monitoring changes in the rate of economic growth, but is broad enough to include parameters that relate as well to changes in the pattern and distribution of growth. With regard to the provision of essential public services, the planning should be concerned with the important issue of access and usage as they relate to different socio-economic groups and geographical locations within the country.

The approach argues that satisfaction of public consumption needs of the mass of the population can only be accomplished at a satisfactory or tolerable level with active involvement of the people in decision-making at all levels. The emphasis here is that development eventually must become autonomous and self reliant in focus. This is because when a local population is a mere passive recipient, it will not acquire skills necessary to give any programme or project vitality as external participation declines. Secondly, a programme or a project may foster welfare syndromes.⁴⁰ BNA theorists emphasize the need for genuine local decentralized participation to ensure the longevity and vitality of the BNA. Popular participation has thus been identified as a major feature of the Basic Needs Approach to development. The argument is that popular influence over

the allocation and utilization of productive resources represents an important tool for bringing about requisite structural changes in support of Basic Needs Objectives. Participation therefore, plays an important role in the successful implementation of a Basic Needs Strategy. Within this context, the determinants, nature and level of women participation in rural water supply is examined.

Basically, the BNA stands on four main assumptions. First, that there are core (basic) needs which may vary from region to region within a country or over time, reflecting for instance, changing levels of income, consumption habits or preferences among and within households. The ILO document of 1976⁴² states employment, housing and infrastructural facilities like water, and roads as universal basic needs. However, the idea is that if certain basic needs are satisfied, they may be replaced by a higher order of needs which may be of a different nature. The second assumption is that there are marginal groups whom the strategy aims at improving. Development is thus perceived as a function of uplifting the living standards of a specific marginal group or groups by way of satisfying their core needs. BNA assumes that the ultimate development of a society hinges on its ability to reduce the magnitude of abject poverty and since women comprise the largest part of the poor populations of the world, BNA theorists also argue that the gradual improvement in wellbeing of women is essential to widespread attainment of BNA objectives. The third assumption is that, the core needs are determined through some processes of collective decision-making at the local level. This ensures that in a specific situation, a recognized set of basic needs

target is in line with what the people themselves perceive to be their felt needs. Arising from the third assumption is the fourth that emphasizes the participation of users as paramount to the success of a Basic Needs Strategy.

Participation is viewed as important in the BNA due to its crucial role in identification of felt needs, enhancement of resource generation (like labour, finance) improvement in dissolution and access to essential goals and services, and satisfaction of the psychological desire of the people in influencing decisions which affect their conditions of life. Participation may be motivated by a desire to alter the power structure and thus 'weaken' the establishment. It may also be as result of the desire to seek better information inputs and more responsive public service.

Participation calls for an ability by the users to be actively taking part, to organize and use whatever resources available to fulfil both tangible and intangible requirements. This ability is highly dependent on the people's level of consciousness or awareness of the common need and desire for self transformation in an attempt at self fulfilment. In this way it becomes a basic human need without which man cannot reach self- fulfilment. In the context of the study, participation is expected to be enhanced by a high level of consciousness. We therefore, expected a positive correlation between participation and the capability of the participants who in this case were women.

Participation requires the presence of positive structural arrangement. This may be in form of organization or bodies through which people participate in public decision-making. These institutions should reflect the diverse local interests and felt needs. This could allow for easy mobilization of the people as a resource towards the attainment of these needs. The study expected participation to be enhanced or raised by the availability of participative institutions or what may be referred to as positive political orientation.⁵⁰ These institutions ought to be supplemented by an effective decentralized and democratic administrative structure that would translate policies into decisions and actions. The implication of this is that adequate implementation powers should rest largely on the population as opposed to the bureaucracy. The level of community involvement and particularly that of a target group, in this case women, will determine the local people's perception of the development process. The participation of beneficiaries helps to secure user-acceptance especially in a case where there may be various opposing political inclinations. Target group involvement also assists planners and project implementors on soliciting local knowledge about local conditions needed for the successful design and operation of the project. Thus the power and control of the local people over development activities increases considerably whenever participatory approach to planning and implementation is involved. The study therefore expected a negative correlation between participation and close bureaucratic control.

Lastly, participation requires a political will on the part of the key political actors. This refers to political support in way of formulation of supportive policies and programmes designed to benefit target groups. It also refers to the creation of mechanisms and institutions for effectively implementing these policies and programmes. The government therefore is a crucial actor in the BNA. One of the most important ingredient of the BNA is:

... the genuine commitment of governments to BNA objectives.⁵¹

Though the international agencies may educate people about the needs of the marginalized and take concrete steps to promote the welfare of the most desperately poor, when it comes down to the question of how BNA objectives will be met, and what degree of resources will be committed, governments will make the critical choices. Put differently, adequate provision of essential services does not depend entirely on financial and economic considerations only, but also on desirable changes in the way resources are allocated and, the perception of the concerned to this system of allocation. Hence, local people are likely to avail resources either in cash, labour or land to match external assistance whenever their wishes and expertise are integrated in development planning. The study therefore expected a positive correlation between participation and government support.

In conclusion, there are two political prerequisites for BNA. One, an effective decentralized and democratic administrative structure to translate policies into decisions and actions. And

secondly, target group participation. It is within this context that the determinants, nature and level of women participation in rural water supply is examined.

It is clear that the BNA calls for a particular type of political and economic power relations. It is from this aspect that the approach has been viewed by critics as idealistic and farfetched especially, for the third world countries whose administrative and political machineries have been described as ineffective and lacking in political commitment. In spite of this criticism, the approach is deemed more in line with this study. It can be helpful in analyzing not only the nature and level of women participation in the development of rural water supply, but also the political determinants of this participation. This can be done by looking at the degree of political support that women get, the bureaucratic control involved, the women's organizational abilities, and the effect of institutional set-up within which women participate. All these factors form part of the independent variables of the study.

1.5.2 DEFINITION OF MAIN CONCEPTS

Several concepts have been used in this study. Because they may carry more than one meaning, the following is the context within which they are used in this study.

1.5.2.1 DEVELOPMENT

This concept is used to refer to a process which enables human beings to realize their potential, build self-confidence and lead lives of dignity and fulfilment. It is a process which frees people from the fear of want and exploitation. It is a process of growth, a movement essentially springing from within the society that is developing.⁵²

1.5.2.2 RURAL DEVELOPMENT

This concept is used to refer to the improvement of the living standards of the mass of the low-income population residing in rural areas and making the process of their development self-sustaining.⁵³ For the purposes of this study, development of rural water supply is measured by the number of water projects begun and/or sustained by or with the help of the women population.

1.5.2.3 WOMEN IN DEVELOPMENT

This phrase is used to refer to the involvement of women in any activity that enhances their socio-economic and political welfare, by increasing or facilitating their productivity.

1.5.3.4 PARTICIPATION

This refers to the involvement of the public or a particular group in a government project or programme or, the importance of the consent of the governed as a prerequisite to social impact of any government policy or programme. Women participation was thus used to refer to the totality of involvement of women in the development of rural water supply. It will be measured by the inputs of women in these projects. Participation was viewed at the individual, project and also at a community level. At the latter level, it was used to refer to the capacity of the women to influence decision-makers to have water as a priority at this level. At the former level, it refers to inputs of an individual woman contributed to the project.

1.5.2.5 RURAL WATER SUPPLY

This refers to those schemes that are designed to provide water to rural communities. It includes projects that are basically for community consumption. This includes, rock catchments, waterpipes, subsurface dams, earthdams and boreholes.

1.5.2.6 POLITICAL FACTORS

Political factors refer to both the policy and administrative frameworks within which women's participation takes place.

Policy framework refers to the network of policies, programmes and decisions on the type of projects to be undertaken and how they are to be implemented.

Administrative framework refers to the institutions and the organizational relationships involved during the implementation process. It also includes the control and accountability systems at both the project level (by participants) and at the bureaucratic level. The interplay of the two and how this interplay affects women participation.

1.6 METHODOLOGY

1.6.1 Hypotheses.

The following hypotheses were tested:

1.6.1.1 The more water is perceived as a basic need, the higher the women participation in rural water supply.

1.6.1.2 The higher the level of women's education, the higher their level of participation in rural water supply.

1.6.1.3 The higher the training of women in handling water technologies, the higher their participation in rural water supply.

- 1.6.1.4 The lower the household income, the higher the women participation in rural water supply.
- 1.6.1.5 The more women hold senior project management positions in projects, the higher the women participation in rural water supply.
- 1.6.1.6 The more women participate in decision-making positions of rural development programmes in general, the higher their participation in the development of rural water supply.
- 1.6.1.7 The more financial support a water project gets from the government, the higher the women's participation in such a project.
- 1.6.1.8 The more technical support a project receives from the government, the higher the women participation in such a project.
- 1.6.1.9 The less a project experiences influence from outside, the higher the women's participation in such a project.

1.6.2 VARIABLE SPECIFICATION AND OPERATIONALIZATION

1.6.2.1 WOMEN PARTICIPATION

This is the dependent variable of the study. It was viewed in terms of the various inputs by the women into the projects. These inputs included:-

- (i) Labour: At the individual level, labour was measured by the number of hours that an individual woman participant put into a specific project per week. At the project level, labour was measured by the average hours put into a specific project per week.
- (ii) Finance: At the individual level, it was measured by the money contribution that an individual woman participant put into a project. At the project level, finance was measured by the average (mean) cash put into a specific project. Finance was measured in terms of Kenya shillings.
- (iii) Decision-making: At the individual level, decision-making input was measured in a dichotomous way i.e. whether a woman participated in decision-making or not. At the project level, it was measured by the number of women in decision-making positions of development committees and the nature of the positions those women held. At both levels, indicators of decision-making included, voting, holding of leadership positions, visitations to government offices on behalf of the project

activities, struggle for leadership and the desire to hold leadership positions.

- (iv) Material: Was measured in a dichotomous way at individual level, i.e. whether one provided any materials to the project or not. At the project level, material input was classified as part of the financial input.

The following independent variables were specified and operationalized as indicated below:-

1.6.2.2 POLITICAL SUPPORT

This referred to the government contribution in terms of policies, material, financial and technical inputs. At the project level, material input was converted to monetary terms and was taken as part of the financial input, measured in terms of Kenya Shillings that the government has allocated to specific projects. Technical input was measured by the number of officers seconded to train, advise and direct women in their effort at developing rural water supply. Policy included both government statements and programmes that are supportive to women participation.

1.6.2.3 WOMEN PERSONAL ABILITY

This referred to women endowment i.e. their power and means (capability) that can enable and warrant their full participation in the water projects. An attempt is made to try and identify this capability at all stages of the project cycle such as project identification, implementation and evaluation. Ability was measured by:-

- (i) Education: the number of years in formal schooling.
- (ii) Training: duration that a woman participant has been trained (if at all she has been trained), the nature and type of the training undertaken.
- (iii) Exposure: the duration in years an individual has lived in urban areas and in interaction with other cultures.
- (iv) Experience: Leadership position(s) that an individual holds or has held in the community.

1.6.2.4 POSITIVE INSTITUTIONAL FRAMEWORK

This was taken to refer to the existence of democratized institutions that allow for women participation in the development of rural water supply. It was measured by the size and nature

(composition) of the committees that decide on the community priorities. This was viewed from the project through the locational, divisional and district level.

1.6.2.5 EXTERNAL CONTROL

This was used to refer to close supervision of women (participants) by either, an elite or any government representative taking decision on behalf of the project and the type of influence government officers or/and elite have on the functioning of the projects.

1.6.2.6 INCOME

Income is defined as any revenue (monetary or non-monetary) that an individual respondent gets within a period of a month from any economic activity they undertake.

1.6.3 SCOPE OF THE STUDY

The target group of the research was the women in the rural setting of Kitui District. The selected group was women involved in rural water supply as either, consumers or active participants, regardless of their socio-economic differences.

The study mainly focused on the influence of political factors on women's participation in the development of rural water supply, in

Arid and Semi-Arid lands, and specifically, in the Kitui district of Kenya. ASAL comprises over four-fifths of the total Kenyan landmass, with water being the major development constraint.⁵⁶ The choice of Kitui district was based on the observation that the district is one of the largest ASAL districts, experiences minimum unreliable rainfall of between 500mm - 700mm per annum, high runoffs and an evaporation rate of about 3 metres per annum.⁵⁷ Besides, the district having both arid and semi-arid zones, Kitui is also experiencing population pressure, increasing resource degradation and dependency upon relief measures. The latter being closely tied to the lack of adequate and reliable rainfall. Therefore it is considered to be adequately representative of ASAL in terms of water shortage and, the Kenya rural women population where water is a major development constraint.

1.6.4 DATA SOURCE, SAMPLING METHODOLOGY AND DATA COLLECTION

Primary cross-sectional data has been used. This is because it has several advantages over time series data. One, record keeping in most of the projects was poor and therefore there were many gaps in the information that could have been vital for the study in case of time series. Cross-sectional data ensures the availability and reliability of needed data. Secondly, cross-sectional data was easily available and consistent for all the required variables in the selected projects. Lastly, cross-sectional data can allow for an increase in sample size in case of any problem with the degrees of freedom.

In sampling, first the number of water projects established entirely by or with the help of the government and with a component of women participation were identified. At the time of this research, their number was ascertained at 53. Sampling was done by the use of purposive and simple random sampling techniques. Nineteen projects were chosen and used as the frame from which the respondents were drawn. The chosen projects comprised 36 percent of the project population. The determination of these projects was done by the use of purposive sampling. In this type of sampling, the researcher has the discretion to choose items that best suit his/her study using, his/her research skills.⁵⁷ The criteria for our purposive sampling were:-

- (i) The location of a water project be at least 20 kms from Kitui town because, our study focused on projects based in the rural areas. Any water project near Kitui town was therefore disadvantaged in way of being chosen. The further a project was from the town, the more one expected it to be a representative of an 'ideal' rural area.
- (ii) Every division of the district was used as a defined stratum from which a specific number of projects were to be chosen. This was to eliminate the possibility of an unrepresentative sample^{58, 59} which could have been possible if the district was treated as a homogenous whole.

(iii) The projects chosen had to be within an accessible locality. Thus lack of communication in some areas meant that some projects were chosen. The reachability of a project was depending on whether it met the other criteria, the more chances it stood for being chosen. A walking distance of 25 Kms radius was considered as reachable.

Ideally, every division had a chance of having 20 percent of its projects chosen. However some projects in central division did not meet the first criteria. In the southern division, most projects failed to meet the third criteria. Here again only two projects were chosen. The other three divisions provided a 26.3 percent (each), of the nineteen projects examined. This was an equivalent of five projects per division.

After the selection of the projects, simple random sampling aided by a random number table was used to select the sample of interviewees from the selected projects. The intended beneficiaries of the nineteen projects stood at 6042, an average of 318 beneficiaries per project. However the actual active participants of these projects were 2500. It was the latter list that was used as the sampling frame. A 5.6 percent of 2500 was picked as the sample. This amounted to 140 respondents.

i.e.

5.6

$$\frac{\quad}{100} \times 2500 = 140$$

100

One woman per household was to be interviewed. However in households where women were not around at the time of the interview a man was interviewed. This explains the presence of the thirty men interviewed in the sample. The data was collected by the use of both structured and unstructured questionnaire.

To supplement the data from the project participants, the relevant government officers such as the District Commissioner, the District Water Officer, water technicians, social development officer, community facilitators, District Officers, sub-chiefs and headmen were interviewed with the aid of unstructured questionnaires. These interviews helped to establish some foundation for the research. First, it aimed at showing the government input in rural water supply sector and, to specific projects in particular. Secondly, the attitude of the government bureaucracy towards women participation, the position of water as a priority in the development committees of the district and lastly, the position of women in the various development committees. Altogether 22 officers were interviewed. This brought the total sample to 162 persons.

To supplement primary data, secondary data was also used. This included documents such as books, development plans, policy papers and other publications that focus on the issue of water and women. These documents gave the general overview of water development in Kitui and the general project area profile.

In addition, observation was also used. The use of both primary and secondary data sources was viewed as vital since either of the two used singly may have not revealed some important information.

1.6.5 DATA ANALYSIS METHOD

In processing the data, frequency distribution tables and contingency tables (cross-tabulation) analysis were used. The frequency distribution tables were used to show the distribution of women participants in respect to the variable under test.

After the frequency distributions were done, a measure of association was employed. A measure of association indicates how strongly two variables are related to each other. It indicates to what extent characteristics of one sort and characteristics of another sort occur together. This was done by the use of cross-tabulation. Cross tabulation is a joint frequency distribution of cases according to two or more classificatory variables.⁵⁵ In our case, the joint frequency distributions were summarized by the gamma measure of association.

Once the direction of association between variables was established by use of gamma, chi-square test was computed to determine whether or not the variables under examination were statistically significant influencers of women participation. With a chi-square (X^2) test, we can know the probability that the observed relationship could have happened by chance, i.e., the probability that in the representative sample of a given size, the variables could exhibit a relationship as strong as the observed relationship. In summary, the chi-square statistic helps us to determine whether a systematic relationship exists between two variables.⁶⁰

The chi-square is calculated by computing the cell frequencies which would be expected if no relationship is present between the variables, given the existing row and column totals (marginals). The expected cell frequencies are then compared to the actual values found in the table according to the following formula:

$$X^2 = \frac{\sum (fo^1 - fe^1)^2}{fe^1}$$

where fo^1 equals the observed frequency in each cell, and fe^1 equals the expected frequency calculated as:

$$(C_i r_j)$$

$$fe' = \frac{\quad}{N}$$

where C_i is the frequency in a respective column marginal, r_j is the frequency in a respective row marginal, and N stands for total number of valid cases.

The greater the discrepancies between the expected and actual frequencies, the larger the chi-square becomes. A large chi-square implies that a systematic relationship of some sort exists between the variables under test.⁶¹

The test of significance for this study was carried out at 95 percent level of confidence. It should be noted that 99 percent level of confidence could have been used. However, it was not used in this study because it could have increased the chances of making Type I error, accepting a null hypothesis, H_0 , when it should have been rejected.

A significant relationship implies that the independent variable under test, plays a major role in the changes of the dependent variable. An insignificant relationship on the other hand, implies that, the independent variable under examination plays a minor role if any, in the changes of the dependent variable. i.e. other variable(s) explain to a larger extent the changes of the dependent variable.

FOOTNOTES

1. International Centre for Public Enterprises in Developing Countries, The Role of Women in Developing Countries. A Study. Titova, ICPEDC, 1986 page 11.
2. FAO, Women's Leadership in Rural Development Programmes for Better Family Living. (Report No. 4) Nairobi, FAO, 1974 page 9.
See also,
Republic of Kenya, National Development Plan 1984-88. page 9.
3. Mary Riegleman, Women in Community Development. Colorado, Westview Press, 1975 page 95.
See also,
Republic of Kenya, National Development Plan 1984-88. Nairobi, Government Press, 1985, page 9.
4. USAID, Malawi Self-Help Rural Water Supply Program: A Mid-term Evaluation (Field Report No. 125) Washington D.C., USAID, 1983 page 14.
5. UN, "National Machinery for integrating women in Development in African Countries" in G.S. Were (ed) Women and Development in Africa. Nairobi, G.S. Were Press, 1985 page 190.
6. Republic of Kenya, KANU Manifesto. Nairobi, KANU 1988 page 8 (5:15).

7. World Bank, Women and Kenya's Economic Prospects: A Country Study of Women in Development. Unpublished (1988) page (1).
8. UNCRD, Regional Development Dialogue Vol. 7 No. 1, Nagoya, UNCRD, 1986 page (111).
9. Kurt Fristerbusch Warren A and Van Wieiclin, "The Contribution of Beneficiary Participation in Development Project Effectiveness" in Public Administration and Development. Vol. 7 No. 1, London, Royal Institute of Public Administration, 1987 pages 1-22.
10. Wisardjoro, "Peoples participation at the local level in Jakarta" in S. Chee Meow et al. People's participation at the local level. Bangkok, shifting, 1978 page 66.
See also Franklin Lisk - Benevolent Development in Popular Participation in Planning for Basic Needs. Dorset, Blackmore Press 1985.
11. Robert Chambers, Rural Development: Putting the last first. London, Longman, 1983 pages 207-208
12. Robert Chambers, op cit page
13. Mary R. Hollsteiner, "Mobilizing people for Social Development: Approaches and techniques for popular participation" in Regional Development Dialogue Vol. 7 No. 1, Nagoya, UNCRD 1986 page 57.

14. David Chekki, Participatory Democracy in Action: International Profiles of Community Development. New Delhi, Vikas, 1980
pages 62-63

15. Robert Chambers, ibid pages 214-215

16. Mary R. Hollsteiner, "Mobilizing people for Social Development: Approaches and techniques for popular participation" in Regional Development Dialogue Vol. 7 No. 1, Nagoya, UNCRD 1986
pages 56-72

17. Ponna Wignaraja, "A Critique of the old (Anti-Rural) Framework of Development and its Reformist Option" in Development: Seeds of change village through Global order. No. 2, New York, UNDP, 1984.

18. Mary Elmendorf and Patricia Buckles, Appropriate technology for water supply and sanitation: Socio-cultural aspects of water supply and excreta disposal. Washington D.C. World Bank, 1980.

19. World Bank, Survey for International Drinking Water Supply and Sanitation Decade: How Women have been and could be involved in water supply and sanitation at community level, 1984.

20. Marjorie Mbilinyi, The participation of women in African Economies. Dar-es-Salaam, Economic Research Bureau Paper 71-12, 1972 pages 1-26.

21. Cabinet of the Executive Secretary of ECA, "Women and Development Planning: An African Perspective" in G.S. Were, Women and Development in Africa. Nairobi, G.S. Were Press, 1985 page 36-43.

22. Priscilla Kariuki, Women in Community Participation. Report for the Kenya Government Secretariat UN Decade for Women Conference, Nairobi, 1988 page 97.

23. R.R. Matango, "Maji na Maendelo Vijijini. The experience with rural self-help water scheme in Lushoto District, Tanzania" in T. Schanner G(ed) Proceedings of the Conference and Rural Water Supply in East Africa. University of Dar-es-Salaam, Research Paper No. 20 5-8 April 1979 page 236.

24. C.B.S, Women as Drawers of Water. Nairobi, Ministry of Finance and Planning (Kenya), 1975.

25. UNDP, Promotion and support for women's participation in the International Decade. Nairobi, UNDP 1985.

26. Edward Wellin, Socio-cultural impact of water on far highland communities in Peru. Washington D.C. USAID, 1982.

27. Louis Msukwa and B.F. Kandoole, Water by the people: An evaluation of the rural water supply and sanitation programme in Zomba District. University of Malawi, Centre for Social Research, 1981.

28. Mary Elmendorf and Raymond Isely, The role of women as participants and beneficiaries in water supply and sanitation programmes. (Technical Report No. 11) Arlington, WASH, 1981.

29. Aniita V. Kelles, Water and wells: symbols of prestige, power and prosperity in a Sinhalese village. Helsinki, Ministry of Foreign Affairs, I.D.S. 1983.

30. F.P. du Toit, "A design for rural water points in Zimbabwe water supply and drainage services in Developing countries" Proceedings of a seminar on water supply and drainage services in Developing Countries. National Building Research Institute, CSIR, 1980.

31. Linda Mauluka, "Community participation in the construction and maintenance of rural ground water supplies in Malawi" in M. Falkenmark and Ian Lundquist (ed) Water for All. Cooperation, education, participation. Report for International Seminar, University of Linköping. Department of Water, Environment and Society, 1983 page 162-80.

32. UNICEF, The UNICEF assisted Iwo State Rural Drinking Water and Sanitation Project: Description and Analysis of the project and its health impact evaluation. New York, UNICEF, 1984.
33. Republic of Tanzania, DANIDA AND Institute of Resource Assessment and Centre for Development Studies. Water Master Plans for Iringa, Ruvuma and Mbeya Regions. Socio-economic Studies: Village participation in Water and Health. Vol. 13, Dar-es-Salaam, Ministry of Water and Energy, 1983.
34. S. Wijetilleke and D.S. Seslar, Navamaga training activities for group building, health and income-generation. Colombo Women's Bureau, Washington D.C., Overseas Education Fund, 1983.
35. Marianne Schmink, Community management of waste recycling. The SIRDO (seeds) Population Council, unpublished.
36. Yoon Young Soon, Women's Garden Groups: A self-help Project in Casamene, Senegal. New York, UNICEF Water and Environmental Sanitation Unit, 1983.
37. Abdel Kader Soha, Women, water and sanitation: Primary health care. Cairo, American University Social Research Centre, 1983.
38. Daniel Dwonkin, Barbara Pillburg and Thira Thatsandathet, Potable Water Project on Rural Thailand. (Project Evaluation No. 3), Washington D.C., USAID, 1980.

39. Muriel Glasgow, Rural water supply of Surigat city, Phillipines. New York, UNICEF, 1983.
40. Azad Jamu and Rasmir Pakistan, Rural water supply project of Surigat city, Phillipines. New York UNICEF, 1980.
41. Mae Rose Harkness, Village Women. Water and Development: An Evaluation study of the Upper Region water supply project in Bolgatanga District, Ghana (M.A. Thesis) Ottawa, Carleton University, 1983.
42. Andre Gunder Frank J. Cockroff and D.L. Johnson, Dependence and Underdevelopment in Latin America's Political Economy. New York, Anchor Books, 1972, pages 3-14.
43. Marja Liisa Swantz, Women in Development: A Creative Role Denied? The case of Tanzania. London, C. Hurst and Company Limited 1984, page 3.
44. Cited from Jane S. Jaquette, "Women and Modernization Theory. A Decade of Feminist Criticism" in World Politics Vol. XXXV October 1982.
45. ILO, Identification of Basic Needs. Employment. Growth and Basic Needs - A one word problem. Geneva, ILO, 1976.

46. Richard Sandbrook, The Politics of Basic Needs. Urban aspects of assaulting poverty in Africa. London, Heinemann, 1982 page 1-5.
47. Robert F. Gorman, P.V.O's and Development through Human Needs Pg.43.
48. Robert F. Gorman, op cit. Pg. 44.
49. ILO, Ibid, page 5-6.
50. Lisk F. Popular Participation in Planning for Basic Needs. Dorset, Blakemore Press, 1985.
51. Robert F. Gorman, ibid Pg. 68.
52. The Report of the South Commission, The Challenge to the South. Oxford, Oxford University Press, 1990, page 20.
53. Lele Uma, The design of Rural Development: Lessons from Africa. London Baltimore, The John Hopkins University Press, 1975, page 20.
54. Edda Gachukia "Women self-help efforts for water supply in Kenya. The importance of N.G.O. Support" in Assignment Children, Geneva, UNICEF, 1979.

55. A.M. Marimi, "Dryland Farming in Kenya: Problem and Prospects" in David Campbell and S.E. Migot Adholla (ed). The Development of Kenya's Semi Arid Lands. O P No. 36 IDS, Nairobi, 1981, page 54.
56. Mutinda, Extracted from an Interview of Kwale officer in Mutomo Southern Division, Kitui, 1989.
57. Bailey K.D., Methods of Social Research. New York, Free Press 1978 page 38.
58. Kenneth Prewitt, An Introductory Research Methodology, East African Applications, O P Nairobi University 1974 page 114.
59. Kenneth Prewitt, Op cit. page 113.
60. Dennis J. Palumbo, Statistics in Political and Behavioral Science. Revised Edition, New York, Columbia University Press, 1977, page 331.
61. David Nachmias and Chava Nachmias, Research Methods in Social Sciences. New York, St. Martins Press, 1981 page 440-467.

CHAPTER TWO

DEVELOPMENT OF WATER AS A BASIC NEED: AND OVERVIEW

2.1 INTRODUCTION

This chapter is divided into three sections. The first section surveys the issue of water as a basic need from a global standpoint. The second section reviews the effort of the Kenya government in establishing and developing water as a basic need. The last section deals with the involvement of women in the development of rural water supply.

2.2 WATER AS A BASIC HUMAN NEED: A GLOBAL STANDPOINT

For quite sometime, basic human needs were classified as food, shelter, clothing and perpetuation of human kind. During this period which lasted upto the late 60's, water was largely considered as part of food and as readily available.

With population increase particularly in urban areas, the need for water and sanitation facilities became prevalent. As the focus on the development of water supplies in the urban areas continued to preoccupy many governments, it was realized that the rural population also, needed water as a prerequisite for any meaningful development.

By the beginning of the 1970's water was internationally classified as a basic human need.

Water resource planning including water supply and sanitation, has a multi-sectoral interdependence with other development sectors such as health, agriculture, education and community organisation among others. All these aim at raising the standard of living of a people. This perhaps is what makes water such a basic need. There is agreement amongst planners and medical health experts that, the provision of water supply and proper sanitation generally, reduces the demand on scarce health services, causes an improved output of labour, releases women from the drudgery of carrying water over long distances, permits them to engage in other productive tasks and, considerably reduces many water-borne diseases. It is in cognizance of these facts that the United Nations Organization (UNO) recommended that the period 1981-1990 be designated the International Drinking Water Supply and Sanitation Decade (IDWSSD).¹

The IDWSSD was initially noted at the United Nations Conference on Human-Settlements that was held in Vancouver Canada in 1976. Recommendation C-12 of HABITAT called upon governments to adopt programmes that would enable them to provide water to the largest proportion of their citizens by the year 2000.² This recommendation was followed soon after by the UN water conference of 1977 with Resolution II of what has become known as the Mar del Plata Action Plan.³ The purpose of the plan was to request two things of the respective governments, i.e . the establishment of suitable water

standards and, the preparation of specific projects (by governments), which would act as a basis for obtaining assistance from developed countries.

Nevertheless, at the Mar del Plata conference, water and water resources were examined in their broad context as global resources. Little consideration was given to water for domestic use. It was only the Food and Agricultural Organisation (FAO) that brought forward the need to consider water supplies to meet human domestic water needs. FAO felt that water required for domestic consumption, was a small amount that could be easily satisfied as a by-product of irrigation. However, in reviewing literature on irrigation we find that costly irrigation projects which produce abundant supplies of water for agricultural uses, seldom make provision for a source of domestic water supply. Only rarely do irrigation projects pay attention to this important aspect which, if properly addressed to, could do much to improve family health and general productivity.

Following the raising world consciousness on the crucial role of safe and sufficient water, the question of how to develop water has been addressed to. As a basic need, water has been intimately connected with the development and advancement of women. Various world organizations have not only demonstrated interest in water as a world basic development objective but also in how women can effectively participate in developing this resource. For instance, in 1982, the United Nations Development Programme (UNDP) appointed an advocate to mobilize third world women to lobby for their active participation in

improving, operating and maintaining water supply and sanitation systems. The major responsibility of this advocate was to pursue discussions on successful technologies, develop project proposals and organize seminars on the importance of water supply and sanitation.⁴ By 1985, it was clear that water had been isolated as a core basic need globally, and as a facilitator of the advancement of women. This was exemplified by the Nairobi conference to end the women's decade where the issue of water was high on the agenda of the issues discussed. Both at this women conference and others, governments are increasingly being called upon to address water need as a central "women in development" issue.

2.3 DEVELOPMENT OF WATER RESOURCE BY KENYA GOVERNMENT: THE CASE OF RURAL WATER SUPPLY

Kenya like many states in the third world has not been left behind in the attempt to develop her water supply. Ever since independence in 1963, one of the major concerns of the government, has been the provision of water of good quality, in sufficient quantity and in close proximity to all her citizens. Many policy documents like the development plans attest to this long term objective. This aim is further stressed by the national water development policy whose basic goal is to make sure the government provides water of sufficient quantity and quality to meet the needs of human beings, agriculture, livestock and industry.⁵

In reaction to the global trend in the 1970's, the government of Kenya (GOK) expanded water development considerably. In October 1974, the Ministry of Water Development (MOVD) was formed by a presidential decree. The MOVD took over from the Ministry of Agriculture all responsibility for the development of the country's water resources with the exception of the major irrigation which remained under the National Irrigation Board (N.I.B.) Since then, the MOVD has been the main agency responsible for the operation and maintenance of water supplies in Kenya. In 1978, the NIB was transferred under the umbrella of MOVD and now forms one of the semi-autonomous units within the ministry together with Tana River Development Authority (TARDA) and Kenya Water for Health Organization (KWAHO) among others.

As a result of recommendation made by the World Health Organisation (WHO), a sectorial study and National Programme for community and rural water supply, sewerage and pollution control provision, was made for the preparation of a National Master Plan which could guide future water policy. It is under this plan that the present water development policy is based. More recently, in 1988, the government launched a new parastatal, the National Water Conservation and Pipeline Corporation (NWPCPC) to help avail clean water to the people. This parastatal is still at its formative stage and hence, it is too early to judge its performance.

Apart from the MOVD and NWPCPC, a number of other agencies are involved in the development of water supply. These include government ministries such as, the ministry of local government, the ministry of

health, the ministry of lands and settlement, the ministry of social services, the ministry of livestock and ministry of agriculture. In many cases, these ministries work closely with certain International aid agencies. These include such agencies as the Danish International Development Agency (DAWIDA), Norwegian Agency for International Development (NORAD), United Nations Childrens Educational Fund (UNICEF), Swedish International Development Agency (SIDA), the Canadian International Agency (CIDA) and church organisations such as Action Aid, and World Vision among others. Usually, the efforts of these International agencies are supplemented by self-help group efforts which comes largely in form of unskilled labour or/and financial contributions. The self-help contribution to projects aided by ministries in conjunction with international aid agencies has been estimated at about 30 percent of the total project costs.

The Kenya government has increasingly shown interest in the aspect of development of water over years. In response to IDWSSD, the government formulated the ten year water supply plan in 1981. In the same year, the government plan targeted the majority of its population to have access to potable water by 1990.

The government objective has manifested itself in a four times increase in the population served with water between 1972-1988. By the year 1972 only about 2 million people were served with water in the entire republic as compared to 7.99 million people in 1985, as shown in Table 2:1.

Table 2:1

THE DISTRIBUTION OF POPULATION SERVED WITH WATER IN 1972

PROVINCE	U.C	R.C	H.P	M.P	L.P	TOTAL
Central	600,000	105,400	41,000	193,000	18,000	957,900
Nyanza	-	45,700	7,500	15,000	87,500	155,700
Eastern	-	19,000	24,000	38,500	19,500	101,000
N. Eastern	-	-	10,000	-	-	10,000
R. Valley	-	122,400	32,000	137,000	46,500	337,900
Coast	286,000	-	30,000	27,500	28,000	371,500
Western	-	12,500	2,000	73,500	2,500	90,500
TOTAL	886,000	305,000	146,500	485,000	202,000	2,024,500

Key

U.C Urban Centres

R.C Rural Centres

H.P High Potential Land

M.P Medium Potential Land

L.P Low Potential Land

SOURCE: Khroda, G.O. "Water Supply in Kenya today and up to 2000 A.D." in S.H. Ominde (ed) Kenya's Population Growth and Development to the Year 2000 A.D. Nairobi, Heinemann, 198 page 91.

Evidence from Table 2:1 show that rural water provided by the government at this time tended to concentrate in provinces that are better covered in terms of accessibility to natural waters. It is likely that the government then, was influenced and dictated (in provision of water supplies) strictly by cost benefit analysis. Since high potential areas have high population densities than low potential areas, an investment in water supply in such areas could serve more people. In terms of service charges, the government can get more income in high potential areas because there is a great likelihood that there would be a large population coverage than in low potential areas.

The urban centres were also (and still are) more advantaged in terms of the supply of water, in comparison to rural areas. This is because local authorities have methods of raising financial resources. This makes them eligible to borrow even from international banks at low interest rates. With finances, the urban centres are able to develop their water supplies. These two factors, made the situation in ASAL more critical in the early 1970s. This was because the ASAL had low population and depended on little or no assistance to provide itself with this critical resource.

In 1989, of Kenya's 18.7 million rural population, only twenty six percent enjoyed access to reliable clean water. This is about 4.91 million people, while seventy five percent of the urban population have similar facilities. All together only about thirty five percent of the present population of about 23 million is assured

of clean water supplies at reasonable distances. This is a total of about 7.99 million people. It is estimated that by 1993, the rural population will have risen by 2.9 million people to reach 21.6 million people. Of these, the government target 11.10 million to have accessibility to water supply. This would be about fifty one percent of the rural population. Overall, the government aims at providing about 60.75 percent of its population with water supply by 1993, as indicated in Table 2:2.

TABLE 2.2 POPULATION TARGET TO BE SERVED BY ORGANIZED WATER POINTS

1988 - 93						
(million)						
Year	1988	1989	1990	1991	1992	1993
Area						
Urban population	3.08	3.50	3.90	4.35	4.82	5.45
Rural population	4.91	5.85	7.07	8.32	9.68	11.10
Total	7.99	9.35	10.97	12.67	14.50	16.52
% of total population	32.20	39.80	45.00	50.10	55.30	60.75

Source: Republic of Kenya: National Development Plan 1988-93, Nairobi, Government Printer, 1988, p.88.

To reach the above targets, the government aims at expanding existing water programmes and starting new ones. These include establishment of piped water, sinking boreholes, construction of catchment dams and provision of the necessary conveyance infrastructure in the form of pipes and furrows. Since this programme is likely to impose major strains on the government, the government also intends to continue to encourage beneficiary participation from the community.

From the foregoing, it is clear that accessibility to water by the closing of the IDWSSD in 1990 will still be far from being achieved in some parts of Kenya. And especially in the low potential areas. This is because of the growth rate of the water consumption needs due to the increasing population. For instance, the first national master plan study completed in 1979, indicated that the water demand for both domestic and industrial use would increase from 234 million cubic metres per annum in 1979 to 1.5 cubic metres per annum by the year 2008. To meet such an increase would require huge budget allocation to the Ministry of Water Development.

The government has over years increased the budget allocation to MOVD as indicated in Table 2:3.

TABLE 2.3 DEVELOPMENT EXPENDITURE OF THE MINISTRY OF WATER 1974-89

	Water Department		Training of Staff	
	Net Approved	Gross	Net Approved	Gross
	Expenditure	Expenditure	Exp.	Exp.
1975/76	6,158,270	15,511,280	-	-
1976/77	10,549,866	16,637,145	-	-
1977/78	13,209,290	25,471,477	75,010	47,010
1978/79	17,831,227	25,662,980	86,010	106,010
1979/80	20,452,675	22,518,001	61,010	10,030
1980/81	15,218,931	17,325,480	10,030	306,500
1981/82	22,115,630	1,180,040	152,810	85,030
1982/83	970,050	1,450,040	360,030	765,020
1983/84	1,360,040	845,030	765,020	30
1984/85	645,020	1,165,000	100,030	370,040
1985/86	575,000	505,010	-	65,040
1986/87	309,000	5,085,300	-	619,000
1987/88	5,110,300	2,050,000	300,000	310,000
1988/89	1,543,000	102,500	25,000	888,000

SOURCE: Extracted from Department Estimates
From 1975 - 1989.

Rural Water Supply				Total
Rural Water		Self Help		Net
-	-	-	-	14,864,313
-	-	-	-	16,718,535
-	-	-	-	25,773,575
-	-	-	-	35,373,425
-	-	-	-	33,566,502
-	-	-	-	16,658,440
-	8,042,830	-	2,357,830	19,749,200
9,511,189	12,057,280	5,198,748	5,015,190	32,084,710
11,182,280	11,271,870	5,015,190	4,540,920	23,685,600
10,016,270	15,600,230	5,140,920	3,822,060	20,410,630
5,950,436	10,818,650	4,299,380	6,357,640	21,996,030
9,351,189	14,096,100	6,092,920	5,045,300	24,419,400
11,559,863	20,688,272	3,441,263	1,085,000	17,051,580
8,645,726	32,142,665	1,362,500	820,000	14,453,000

However, it is evident from the consumption demands that the allocations are not sufficient to develop enough water supply for the Kenyan citizenry. In spite of the inadequacy of water services, the general increase in government expenditure is an indication of the government's commitment to the cause of water provision. The decline in the growth rate of the expenditure in 1987/88 and 1988/89, can be explained by the ministry's decision to complete existing water projects instead of incurring expenditure in initiating new ones.

The development of rural water supply in Kenya sprang from the establishment of rural community centres. These centres were as a result of a government strategy of developing rural areas based on the theory of growth poles. The government then provided social and economic amenities at these community centres. Two of the amenities that were to be provided to any community centre were, a public health centre and a community water point. However since there are other complementary factors necessary for a successful water project viz land and credit facilities, as pointed out earlier, it is the rich and high potential points that have been having sprouting water points.

The development of water in the more endowed rural areas means that a large percentage of rural population still depends on unprotected sources of water such as rivers, lakes, dams, springs, boreholes and rain harvesting for their water needs. The rivers and streams constitute the main sources of water in most parts of rural Kenya as indicated in Table 2:4.

Table 2:4 PERCENTAGE DISTRIBUTION OF HOUSEHOLDS SERVED BY SOURCE
OF WATER BY PROVINCE

SOURCE	PROVINCE					
	Coast	Eastern	Central	R.Valley	Nyanza	Western
Still pool	6.4	0.8	1.1	0.9	1.1	0.3
Dam/Catchment	8.5	7.4	3.4	3.6	1.2	2.1
Stream, River	29.5	54.8	54.9	52.8	53.2	37.8
Spring	3.9	9.7	3.4	13.2	18.4	31.7
Well/Borehole	15.3	6.4	7.1	11.7	3.3	17.2
Jabia's/ Rain	0.2	0.4	1.6	0.1	0.1	0.2
Pipe	27.4	15.2	24.9	12.3	4.8	5.1
Lake	1.4	0.0	0.0	0.3	9.2	2.1
Other	7.4	5.3	3.6	5.1	8.8	3.5

SOURCE: Government of Kenya: Selected Data on Conditions in Kenya.
C.B.S. 1985.

Note North-Eastern Province is not included in Table 2:4 because during the dry season, water becomes extremely scarce that many people tend to move to other parts of the region.

From the table above, it is evident that a large rural population depends on water that is largely polluted and in many instances untreated. It is therefore undisputable that water as a basic need has not been adequately developed.

Government effort in the provision of water to ASAL has been increasing over the years since the 70's where, the approach was general and inclusive of all other parts of the country, to the 80's where the approach has been more specific. Water development targets for ASAL as outlined in the 4th Development plan for the most part concerned the rural water supply programme, the self-help schemes, the water conservation programme, water development for livestock and minor irrigation. Other activities which have a bearing on ASAL in this plan are the research, resource assessment and monitoring programmes of the resource branch which provide the basic data on which all the rural water supply schemes are based.

In an effort to develop ASAL, the government initiated a marginal Arid and Semi-Arid land pre-investment study in 1976. This study was as a result of a 1972 ILO report that argued strongly for a concerted government effort to develop ASAL areas.

The 1979-83 development plan carried a theme of alleviation of poverty and provision of basic human needs. This development plan described the development of ASAL as a high priority of the government.⁹ However, except for the stated aim of completing the National Water Master plan by the Ministry of Water Development, (the plan was started in 1974) this priority did not focus directly on water development but rather on the general theme of poverty alleviation and land rehabilitation.

In the 1984-88 development plan, one of the stated government objectives is the supply of water of good quality, in sufficient quantity and in close proximity to the population. It is in this plan that government states its inability to attain this objective by its own. Thus the issue of beneficiary participation is pointed to.

The 1989-93 development plan acknowledges the fact that water plays a key role in opening up otherwise remote regions for industrial and agricultural activity.⁹ The new ASAL strategy is spelled out in this document as aiming at focusing attention on self sustaining innovation and production activities in the small scale dryland farming, irrigated agriculture and pastoral sub-sectors. The plan also states that, the effort was meant to be concentrated on construction of new water schemes, rehabilitation of dysfunctional schemes, construction of small dams, intensification of ground water exploration and water harvesting. In this crucial priority, the plan acknowledges that:

... Indeed water is life¹⁰. and that: water is basic to all life.¹¹

The No 1 Turesh water project (1987-91) that runs from Kilimanjaro through Machakos to Kajiado is a clear indication of the government effort at the provision of this basic need in ASAL. This project which cost over 350 million shillings is aimed at serving over 1 million people within the ASAL region.

Evidence from the discussion above indicate that over the years, the task of providing clean water for all citizens has been a major financial and manpower constraint for the government. However, how best human effort could be utilized remained unclear amongst policy makers for quite sometime. Only recently has it become clear that human effort is not necessarily how much individuals pay for a project, but the total involvement and commitment to the success of that project. Indeed, community involvement in water projects in Kenya generally have had mixed results. In some cases the government/or the concerned donor agencies usually go into a community with fixed ideas and limited mandate about the project to be implemented. Many scholars have argued that such an approach alienates the community. The result of such alienation is that the community begins to view the project as the "Governments" as opposed to "their" project. It is assumed by these scholars that, such alienation facilitates apathy on the part of the community. Consequently, the community's participation rate in the project is reduced. This study stands to confirm or disconfirm such an assumption.

2.4 WOMEN INVOLVEMENT IN RURAL WATER SUPPLY

The task of fetching and managing water like that of fetching firewood (fuel) and looking after the health and welfare of a family are exclusive responsibilities of women in many rural parts of Kenya.

Of all domestic tasks, fetching water takes a big proportion of the women's time. Yet, inspite of this central role of women as managers of water, for a long time, it had not been clear amongst planners what role women ought to perform in water supply projects. Until the workshop on Women water supply and sanitation - a national planning seminar,¹² women's role in water resource planning and development was taken to be synonymous with community participation. The aim of the workshop was to foster awareness on the relationship between women and water, and to assist in ensuring that women's participation occurred at all levels and stages of planning, implementation and maintenance of water supply and sanitation projects. This objective was based on the fact that women (generally) are carriers and users of water especially in the domestic sphere.

As indicated earlier, fetching water takes a proportionate part of the day for many rural women. Regardless of how much water is required for the family, the distance travelled, the time required per trip and the carrying capacity, there is in addition the question of health and depletion of a woman's energy. It is therefore imperative that the needs of women and their active participation in water supply and sanitation be considered by engineers, planners and policy makers.

Given that women constitute a large percentage of the beneficiaries in most water projects, they have attempted to participate in water projects. Indeed, women form the majority of the participants in these schemes and projects. It is evident that women place development of rural water supply as their highest priority.

This is illustrated by the fact that women contribute more, in terms of harambee contributions to water projects than any other projects as shown in Table 2:5.

Table 2:5 WOMEN PARTICIPATION ON HARAMBEE PROJECTS BY SECTOR.

Type of Project	% of Harambee Activity by women
Water	69
School	58
Church	15
Health facility	8
Road	5
Cattle Dip	5

SOURCE: Republic of Kenya, Sanitation Analysis of Children and Women in Kenya - Section 3 The Roles and Situation of Women CBS/UNICEF, page 89.

The tendency for women to participate more in water projects may be rationalized from the fact that water supply development would mean reducing many interlined hardships on women. Since women are the carriers and managers of water, planners need to re-evaluate the meaning and implications of community and specifically women participation in water supply projects. The community and in particular the target group has to be involved in a project since its

inception. Only this way are their perception and needs integrated into a project. The term "user-choice" has been applied to mean that users need to be involved in the project from the onset, in design, implementation, operation and maintenance.¹³

Due to the apprehension of planners on the role of the community, the objectives and participation of women and the community as a whole in project formulation are often vague and abstract. In many cases, the needs of the community are taken for granted because of the top-down planning strategy. Difficulties usually arise when one considers community involvement and women participation in particular, in any development project. The literature on water supply and sanitation is replete with high sounding objectives of the projects and ragged engineering plans. However, it is easy to talk about women participation in theory and another to have such ideas implemented. Quite often, the meaning of women participation is equated to donation of funds and/or labour for the construction of the projects.

Though there have been a lot of discussions as to why women have not participated fully in water supply and sanitation projects, there has been little sensitivity to the special needs of women. In the literature on the role of development in transforming society, women are treated as anybody else. The result of this approach is its lack of serious attempt to focus on the key beneficiaries of the water projects. Besides, traditions appear to have down-played the participation of women in water supply as in any other projects. It is generally known among Kenyans and Africans in general, that women

are objects rather than agents of change. They are considered to be ready to cope with rather than to initiate change, as bystanders rather than participants. It is thus important to re-examine the role of women in development especially in areas which they are likely to be the major beneficiaries as in water development. The role of women must be moved from that of passive subjects of decision making process to that of equal partners or initiators of projects in the development of the country and in this case, the rural water supply. Thus women contribution to the development of rural water supply needs to be acknowledged, harnessed, encouraged and more importantly rewarded.

2.5 CONCLUSION

Since Kenya attained independence, there has been an increasing number of population that has had accessibility to good quality water. For instance whereas in 1963 only 7 percent of the population had access to clean piped water, by 1978 the proportion had increased to 15 percent and by 1988, it had enlarged to 35 percent of the total population.

The increasing costs in the development of rural water however has forced the government to adopt a 'cost-sharing' strategy. Many rural water projects are being constructed in the self-help spirit with the government giving technical expertise and some financial inputs. Recipients of clean and treated water are required to pay for its utilization; while the money paid is used for maintenance and

expansion of existing water projects. This strategy together with the government aim of completing unfinished projects, explains the decline in the government's expenditure in the Ministry of Water in the past years of 1987-1988. The government expects the community to contribute a certain percentage to development. It is at this stage of cost sharing that the women cannot be left out since they are the majority of the rural population and also because they are targeted as the major beneficiaries of the development of water and specifically rural water.

FOOTNOTES

1. UNO, Report of Habitat. Vancouver 31 May - 11 June, 1976 (E.76.IV. 8).
2. UNO, op cit. (E. 76.IV.8).
3. UNO, Report of the United Nations Water Conference Mar del plata. 14-25 March 1977 (E.77. 11.A. 12).
4. UNDP, Rural Women's Participation in Development: An evaluation study No. 3. New York, UNDP, 1984.
5. See: Republic of Kenya, The Kenya National Master Water Plan. Unpublished, 1978.
Republic of Kenya, Development plans. 1970-74, 1975-78, 1979-83, 1989-93.
6. George O. Kroda, "Water Supply in Kenya Today and to 2000 A.D." in S.H. Ominde (ed) Kenya's Population Growth and Development to the Year 2000. Nairobi, Heinemann 1989, page 81.
7. Republic of Kenya, National Development Plan 1988-93. Nairobi Government Press, 1988 page 88.
8. Republic of Kenya, Development plan 1979-83. Nairobi Government Press, page 254.

9. Republic of Kenya, Development Plan 1989-93. Nairobi Government Press, page 87.
10. Republic of Kenya, op cit. page 175.
11. Republic of Kenya, op cit. page 244.
12. International Research Training Institute for Advancement of Women, Women, water supply and sanitation. A National training seminar 9-13 November, 1987. Nairobi.
13. Ilse Zandstra (ed) Manuscript report on the seminar and the participation of women in water supply and sanitation programmes. Nagoya, IDRC, 1987 page 4.

CHAPTER THREE

A PROFILE OF KITUI DISTRICT

3.1 INTRODUCTION

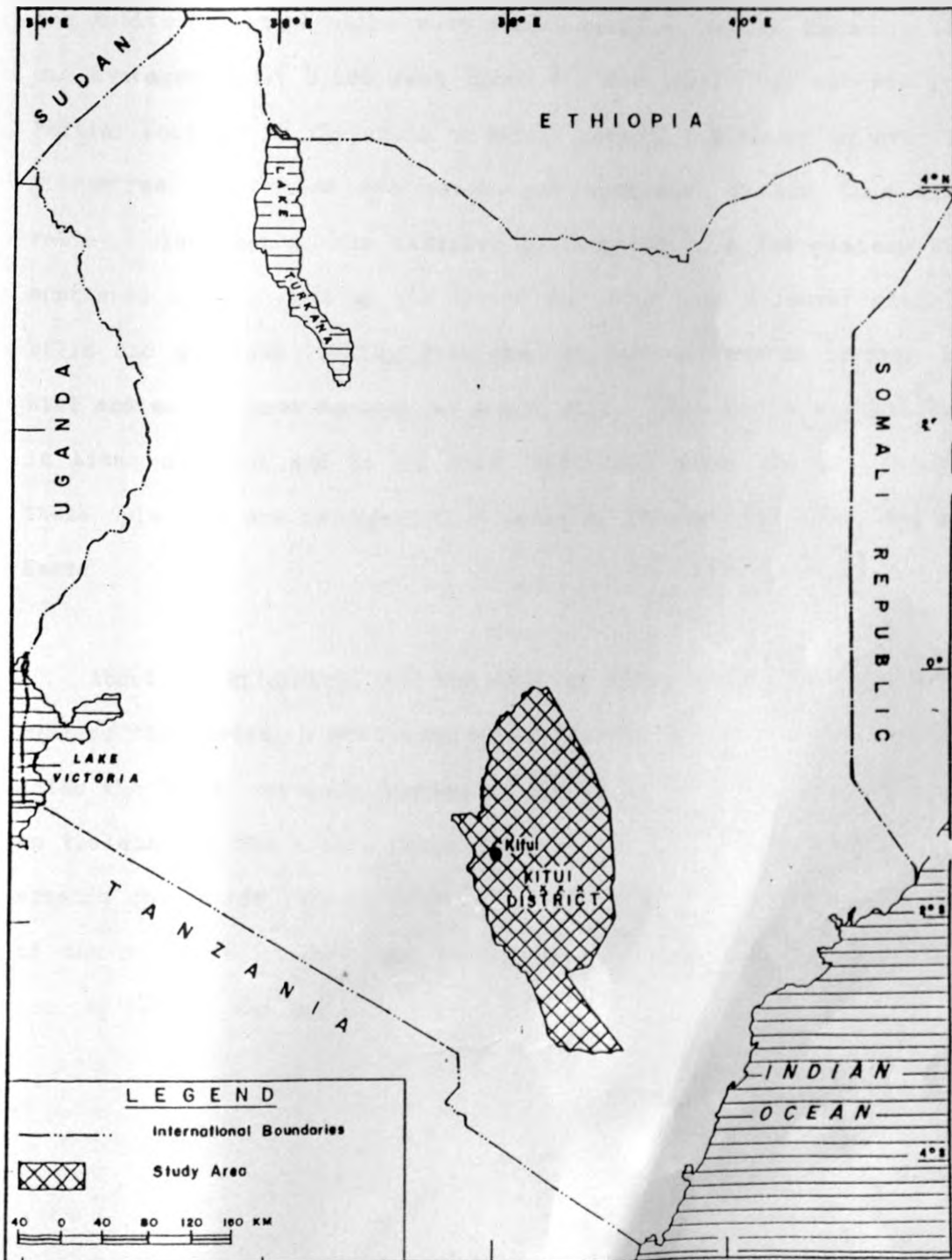
Chapter One and Two gave the introduction and the historical background of the problem of women participation in rural water supply. This chapter gives an outline of the characteristics of Kitui district. The chapter is divided into six subsections. Section one deals with the description of the site of Kitui district. Section two deals with the physical description of the district. Section three deals with demographic characteristics, Section four deals with the administration, Section five deals with the agro-ecological zones and water situation in Kitui district, while Section six deals with a description of the project area studied.

3.2 SITE DESCRIPTION: LOCATION, POSITION AND SIZE

Kitui district is one of the 10 districts of Kenya classified as Arid and Semi-Arid. This district is situated in the Eastern province of Kenya. It extends from about 3° S of the Equator to about 0.3° S of the Equator. The 38° E meridian passes near Kitui town. This meridian leaves about one-fifth of the land area to the west. To the East, Kitui district is enclosed by the 39° E meridian. Tana river forms a natural border between the district and the Meru and Embu

districts to the North-west and West respectively. The Athi river forms another natural border between the Kitui and Masaku county. The district extends for an area of slightly over 30,000 square kilometres.' For the position and location of Kitui district see Map 1.

Map 1.

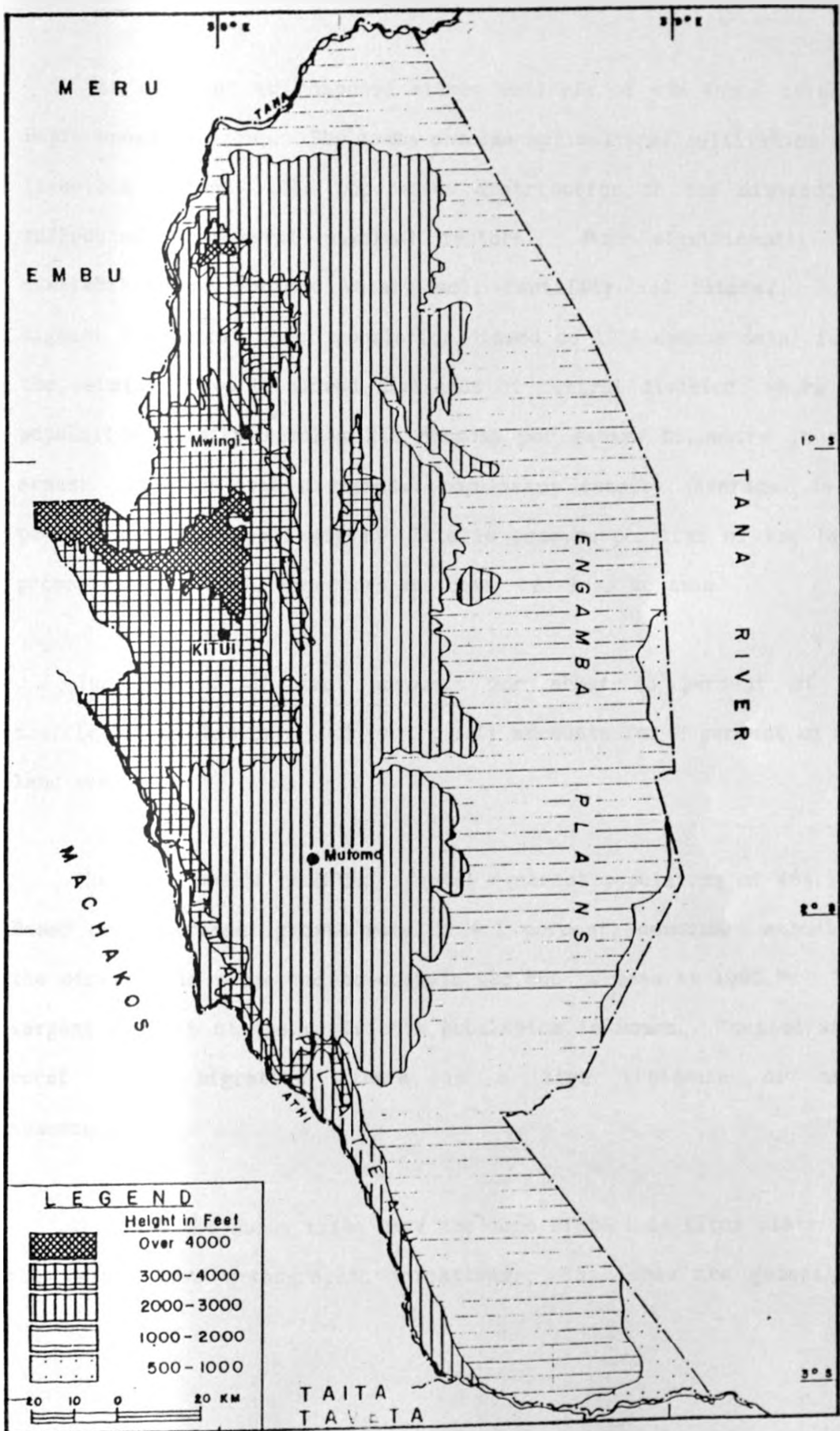


3.3.1 PHYSICAL DESCRIPTION: RELIEF

Kitui is generally a low lying district averaging between 2000-4000 feet above the sea level.² The higher part of the district stretches through the central locations of the district running from; Mutha location in the south, to Mutonguni hills which average about 4000 feet above the sea-level. East of this range is the Mutito-Mui range which runs almost parallel to the former. This one averages about 3,500 feet above the sea-level. It extends from Mbitini location in the south to Mwingi market, a distance of over 100 kilometres. These two ranges are separated by the Thua river valley. The rest of the district is composed of a low plateau with scattered hills. East of the Mutito-Mui range lies a lesser chain of hills and plateaux running from past Makongo northwards through Nuu hill and so on, past Ngomeni to Mumoni hill. This is the highest hill in Kitui district and it is about 9000 feet above the sea level.³ These plateaux are interrupted by seasonal streams like Ikoo, Mui and Enziu.

About 45 kilometres to the west of Kitui town lies the Yatta plateau that averages 4000 feet above the sea level. Northwards, it joins the Yatta (proper) plateau of Masaku county. Egamba plains lie to the east of the Mutito range and near the Galla-Kitui border. It extends southwards through Endau, Voo and Ikutha locations. The rest of the district is lowlying, averaging between 2000-3000 feet above the sea level, see Map 2.⁴

Map 2.



3.4 DEMOGRAPHIC CHARACTERISTICS

The district is composed almost entirely of the Kamba tribe, a Bantu speaking group. The Kamba combine agricultural cultivation with livestock rearing. The population distribution in the district is influenced by several physical factors. Most significantly, the availability of surface water, soil fertility and rainfall. The highest concentration of population (based on 1979 census data) is in the relatively well-endowed highlands of central division, where the population density reaches 242 persons per square kilometre in some areas. However, the divisional population density (average) is 42 persons per square kilometre. This is because portions of the Yatta proper and Yatta B₂ locations are under ranching schemes.

The central division accounts for about 33 percent of the district's population, and yet it only accounts for 8 percent of the land area.⁴

The 1979 census recorded a total district population of 464,283. Based on a national growth rate of 4.1 percent, compounded annually, the district is projected to contain 928,566 persons by 1990.⁵ The largest segment of the district's population is women. Coupled with rural urban migration, there is a high incidence of male absenteeism.⁶

Although the Kamba tribe have the same dialect in Kitui district, they still have orthographic variations. The Kamba are generally

agriculturalists growing maize, sorghum and millet, among other crops. Coffee, Cotton and Tobacco are their main cash crops. However, coffee farming is being phased out due to the problem of unreliable rainfall. Cattle is kept for beef, dairy purposes and other social purposes like a sign of wealth and for payment of dowry.⁷

3.5 ADMINISTRATION

Kitui district is divided into five administrative divisions, namely central, Kyuso, Mwingi, Eastern and Southern (Mutomo) divisions. These divisions are further subdivided into 34 administrative locations and 160 sublocations. Three new locations were recently created. These have been carved from Kyuso division (Tseikuru, and part of Mivukoni and Ngomeni locations), Eastern division (parts of Endau and Nuu locations) and Southern division (parts of Mutha location). A new location was created in Central division but has not yet been subdivided into sublocations.

Kitui district is represented in the National Assembly by five members of Parliament, one each from Kitui North, Central, Eastern, Southern and Western constituencies.

There are 34 county council wards in the District, equivalent to the number of locations. Each location is therefore represented by a councillor in the county council, see Table 3:1.

TABLE 3:1 ADMINISTRATIVE BREAKDOWN OF DIVISIONS, LOCATIONS AND SUBLOCATIONS.

<u>Division</u>	<u>Locations</u>	<u>Sublocations</u>
Kyuso	7	23
Mwingi	4	29
Central	9	48
Eastern (Mutito)	6	28
Southern (Mutomo)	8	32
TOTAL	34	160

SOURCE: District Commissioner, May 1989.

3.6 AGRO-ECOLOGICAL ZONES AND WATER SITUATION IN KITUI

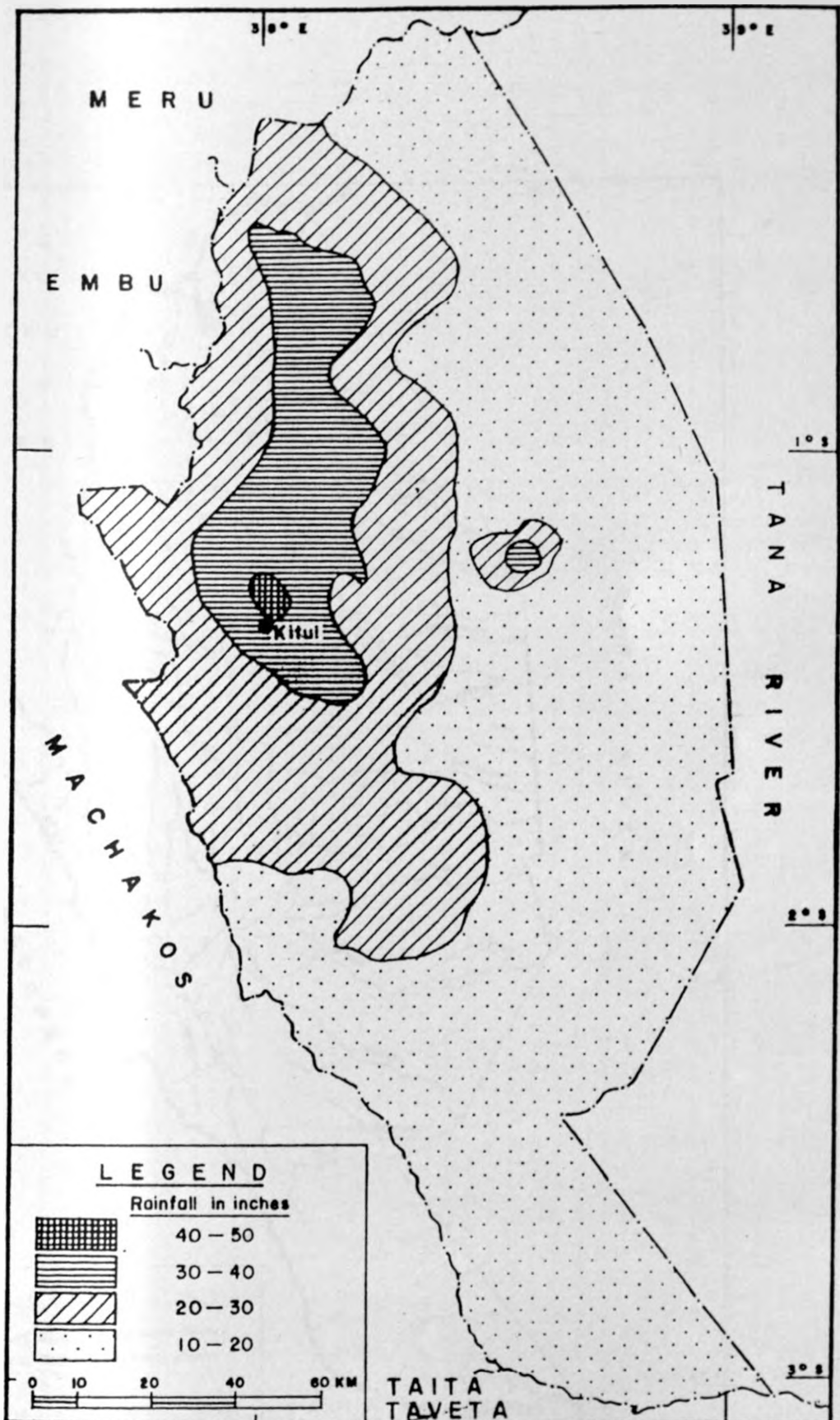
Kitui district receives on the whole, an average of 20 inches of rainfall in a year. However, this is by no means constant and reliable. The rainfall is heaviest on the high areas, mostly the ranges. The "wettest parts" of Kitui are the whole of the central Kitui and Mutonguni location. The rest of the district has a completely unreliable rainfall and it is in these areas that serious droughts are recurrent and famines are a constant danger. The district has no sea-influence and any rains are torrential in nature, causing heavy soil erosion in the district.

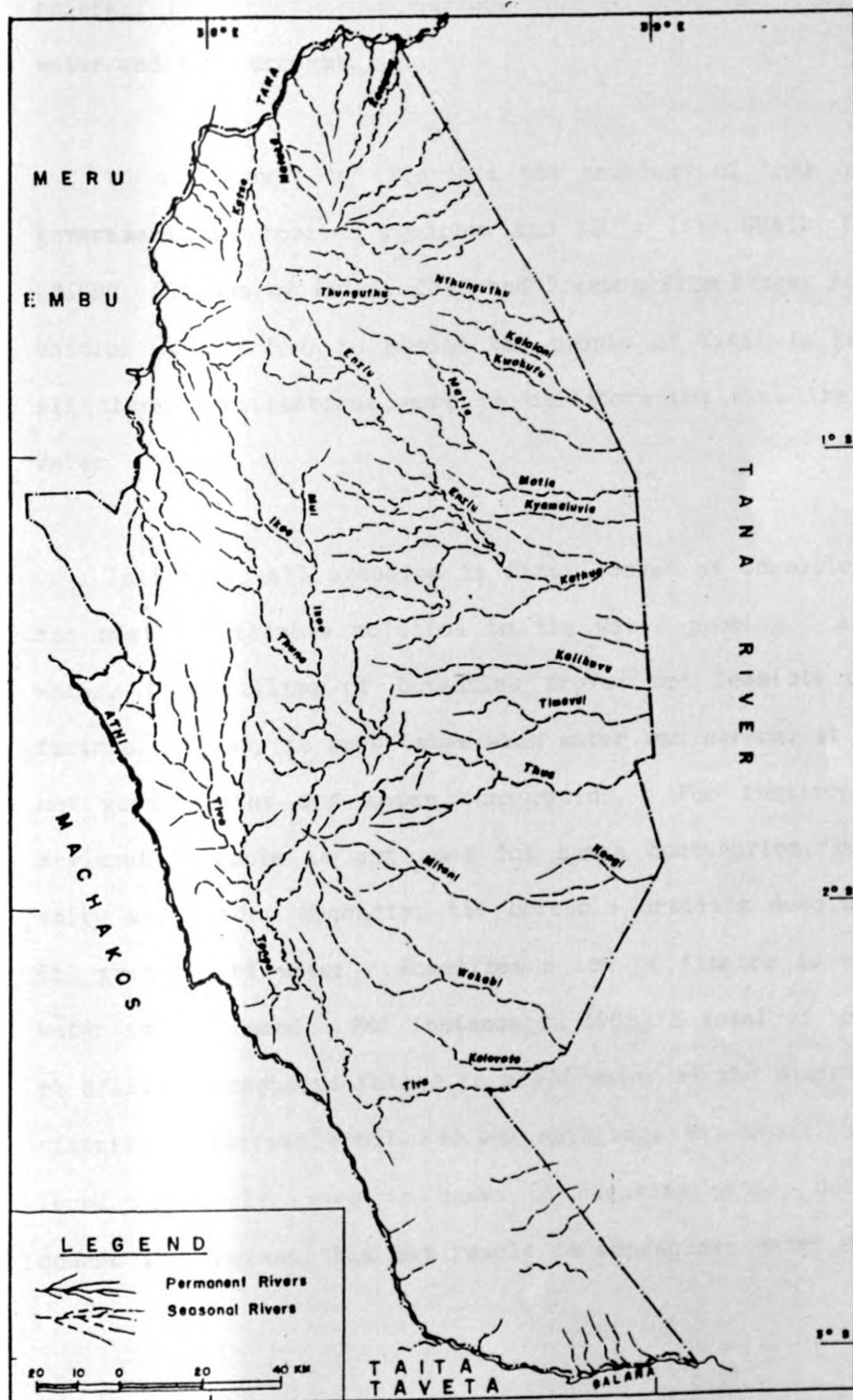
The rainfall has a bimodal pattern, i.e. over the whole district, the rains may fall in the periods between March - May and/or November-

December. The fact that there are two rainy seasons does not mean that the district receives heavy rainfall. It is to the contrary. Rains may fall quite heavily in one season and not in another or both and then this could be followed by a prolonged drought. The degree of suffering during drought is manifested by the level of human malnutrition and by the depletion of livestock herds. The cows either die or are sold resulting into reduced herd size.⁶

The whole district experiences unreliable rainfall. This means that surface water is a rarity. Indeed, most of the rivers in Kitui are seasonal, having water during the rainy season only. For rainfall patterns in Kitui, see Map 3.

Map 3.





Map 4 : KITUI DISTRICT : DISTRIBUTION OF RIVERS

This system of rainfall has led to adoption of farming of drought resistant crops.

The fact that Kitui district as a whole does not have reliable rainfall has created two serious related problems. One shortage of water and two, drought.

In an attempt to alleviate the problems of lack of water, the government has invited agencies and NGO's like USAID, DANIDA, SIDA, UNICEF, Diocese of Kitui, CARE and Freedom from Hunger Foundation, to mention just a few, to assist the people of Kitui in getting water. All these organizations work in collaboration with the Ministry of Water.

Initially, all agencies in Kitui looked at borehole drilling as the most practicable solution to the water problem. After a short while, the drilling of boreholes proved not feasible due to three factors. First, in most cases when water was struck, it was hard and not good/healthy for human consumption. For instance water from Mivukoni Borehole is not used for human consumption, because it is salty and hard. Secondly, the borehole drilling does not guarantee the presence of water. Sometimes a lot of finance is spent and yet water is not found. For instance in 1988, a total of three attempts at drilling boreholes failed to yield water at the district hospital vicinity. Whereas about 200,000 shillings was spent, no water was found. Thirdly, even in cases of striking water, desilting is a common feature and this may result in inadequate water supply in the

area where the borehole is situated. For instance in Ikanga, southern Kitui and Mukusyo in eastern Kitui, desilting is sometimes so acute that people (women) seek for alternative sources of water.

In recent times, the agencies involved in water development together with the government have embarked on other alternative water supply projects. The most popular is the rock catchment system. Here water is obtained from the rains and stored in the rocks. Rock catchment water supply systems are limited to areas with huge rocks that have cleavages which can be modified to act as the storage dams. They are therefore prevalent in the southern division and the northern divisions of Kitui district due to the existence of huge rocks in these areas. The major problem that the rock catchment has, has to do with the high evaporation rate. In the southern division one water officer estimated it at 3 metres per annum.²⁰ This means that even the water collected in the reservoirs sometimes dries up leaving the people without water.

A second alternative water supply system is the construction of the subsurface dams. A dyke is built across river valleys and this allows for water to settle on one section of the river creating a dam where people can fetch it from. The major problem of the subsurface dam is that almost all the rivers in Kitui district are seasonal. There is thus an acute shortage of surface water. Moreover, most of the rivers are in their mature stages and due to the topology of the area, they sometimes wander away from the dykes and render their construction useless. Despite this shortcoming, subsurface dams are a

popular water supply system due to its connection to soil conservation, and cheap costs. It is thus attempted across the entire district.

A third water supply system is the construction of earth dams through mechanisation services. Here bulldozers are used to scoop out sand in a chosen site as in Utoo earth dam. Action Aid is an important proponent of this system particularly in areas where rock catchments cannot be developed.

A fourth alternative introduced by UNICEF in the district, was the creation of underground water tanks. This kind of water system is concentrated in institutions such as schools and training centres like Kyuso Community Resource Centre. This is because it needs a large roof surface for collecting the rain water into the water tanks. Therefore due to this requirement the system is largely confined to schools and other institutions.

The fifth alternative is that of encouraging people to adopt roof catchment techniques to harvest rain water. This type of water supply encourages construction of igloo type of water tanks at the people's homes. Usually these homes ought to have iron roofed house(s) and, due to this requirement, the poorer people who form the majority of the Kitui population are left out of this kind of water supply system.

In the construction of the rock catchments, subsurface dams, earthdams and boreholes, the beneficiaries are expected to provide 25 percent of the total cost in terms of unskilled and semi-skilled labour force. This labour force which is largely offered by women is geared towards the collection of the concrete, sand and fetching of construction water from various sources to the project areas and, construction of the projects.

The government has not been left out of this effort of developing water projects in Kitui district. Presently, the government is working on a proposal to have water from Tana river (Kiambere Dam) taken to the District headquarters. TARDA (Tana and Athi River Development Authority) has pledged 620 million shillings to pump water to a point where those persons unsettled during the creation of the Kiambere dam can get it. There is also a proposal to have the water pumped from Kiambere to Kamuvuongo, then by gravity to Tseikiuru. In this flow, there are proposals to have several communal water points. This would mean that the entire northern division would be well served with portable water. To implement this proposal, the Italian government has been approached and accepted to aid in this endeavour by either loan or grant.¹⁰

Although there are marked efforts to alleviate the water problems in Kitui district, it is clear that the undertaken projects (at present) fall short of the water demands in the entire district.

As indicated earlier, the district as a whole experiences unreliable rainfall. This results in acute shortage of water in most parts of the district. Indeed, the inhabitants of Kitui district perceive access to a dependable water supply as their most urgent need. This need for water was ascertained in this study as shown in Table 3:2.

TABLE 3:2 BASIC NEED BY PRIORITY (WATER)

POSITION OF WATER VIZ A VIZ OTHER NEEDS	BEFORE PROJECTS		AFTER PROJECTS	
	NO. OF RESPONDENTS	%	NO. OF RESPONDENTS	%
1	136	97.14	113	80.71
2	4	2.86	27	19.29
<u>TOTAL</u>	<u>140</u>	<u>100.00</u>	<u>140</u>	<u>100.00</u>

SOURCE: Own Survey.

From Table 3:2 it is clear that even after the implementation of the existing projects, sufficient water sources have not been adequately developed. Water still remains, by and large a desired need in the district.

The problem of water scarcity is made even more acute by three major factors.

- (i) Distances from the sources:- Over most of the district, many people live at least seven kilometres from the nearest water source. To get water therefore, one has to cover about fourteen

kilometres a trip. The distances from water sources was confirmed by this study as indicated in Table 3:3

TABLE 3:3 DISTANCES FROM WATER SOURCES

<u>Distances in Kms</u>	<u>No. of Respondents</u>
0-0.5	1
0.6-2.5	10
2.6-4.5	17
4.6-7.5	33
7.6-10.5	36
10.6-13.5	22
13.6-16.5	8
16.6-19.5	3
<u>19.6-22.5</u>	<u>10</u>
<u>TOTAL</u>	<u>140</u>

SOURCE: Own Survey.

Over 56 percent of the respondents interviewed covered over 7.5 kilometres one way to the water source. Since the water was collected from long distances, the amount collected was little ranging between 20 litres and 40 litres for those with Donkeys. Usually, the hauling of water is done once a day, except in some places where people trek for over 15 kilometres one way. Here, the hauling is done in alternate days to allow the haulers, who

are mainly women, to engage in other equally demanding tasks such as farming, collecting firewood, petty trading etc. This means that water is used sparingly at home, mainly for cooking and drinking.

Although many respondents interviewed knew of the importance of hygiene, it was evident that cleanliness did not mean much to most of the rural people of the district. In most cases, use of 'a lot' of water was regarded as misuse. For the people who cover long distances and who have livestock, the problem is even more acute for animals. This is because, the animals have to be driven to the water sources and back. The trek and lack of vegetation especially during the dry season is a major cause of deaths of the animals.

- (ii) The problem of scarcity of water in Kitui district is intimately tied to the nature of the rainfall in the district. The rain is generally torrential and rushes into streams that are seasonal. Indeed Kitui district has no permanent river. River Tiaa that serves the Mwingi township has sometimes to provide water from hand dug wells on the river beds. Only River Tana and Athi are permanent, but these two rivers flow to the north and southern borders of the district and therefore, have little or no effect on the interior. This essentially means that there is very little water to drink even during the 'wet' seasons.

(iii) The effects of running water are heavily felt in Kitui district. During the drought years, the soil is heated so much that the top layer becomes loose. The soil is further loosened by the large herd of cattle trodding on it. The result of this is that when rains fall, the top soil is washed away into streams. Wind erosion is also experienced during the dry seasons.

The effect of erosion (both wind and water) are such that the top infertile soil underlying the surface is the only one left for cultivation. Even where the water collects in rocks, as in rock catchments, the high temperatures and low altitudes permit the high evaporation rates. For instance, in the southern division of Kitui district, the rate of evaporation is estimated at 3 metres per annum.

Subsequently, one can say that Kitui experiences critical water problems given the natural forces at work in the district.

3.6.2 DESCRIPTION OF THE PROJECT AREA STUDIED

Kitui district had 53 water projects registered with the Ministry of Water Development by 1988. All these projects were administered directly by the Ministry of Water or indirectly through other agencies like DANIDA, SIDA, NORAD, e.t.c. These 53 projects were dispersed in the district as indicated in Table 3:4.

TABLE 3:4 DISTRIBUTION OF WATER PROJECTS IN KITUI DISTRICT (1989)

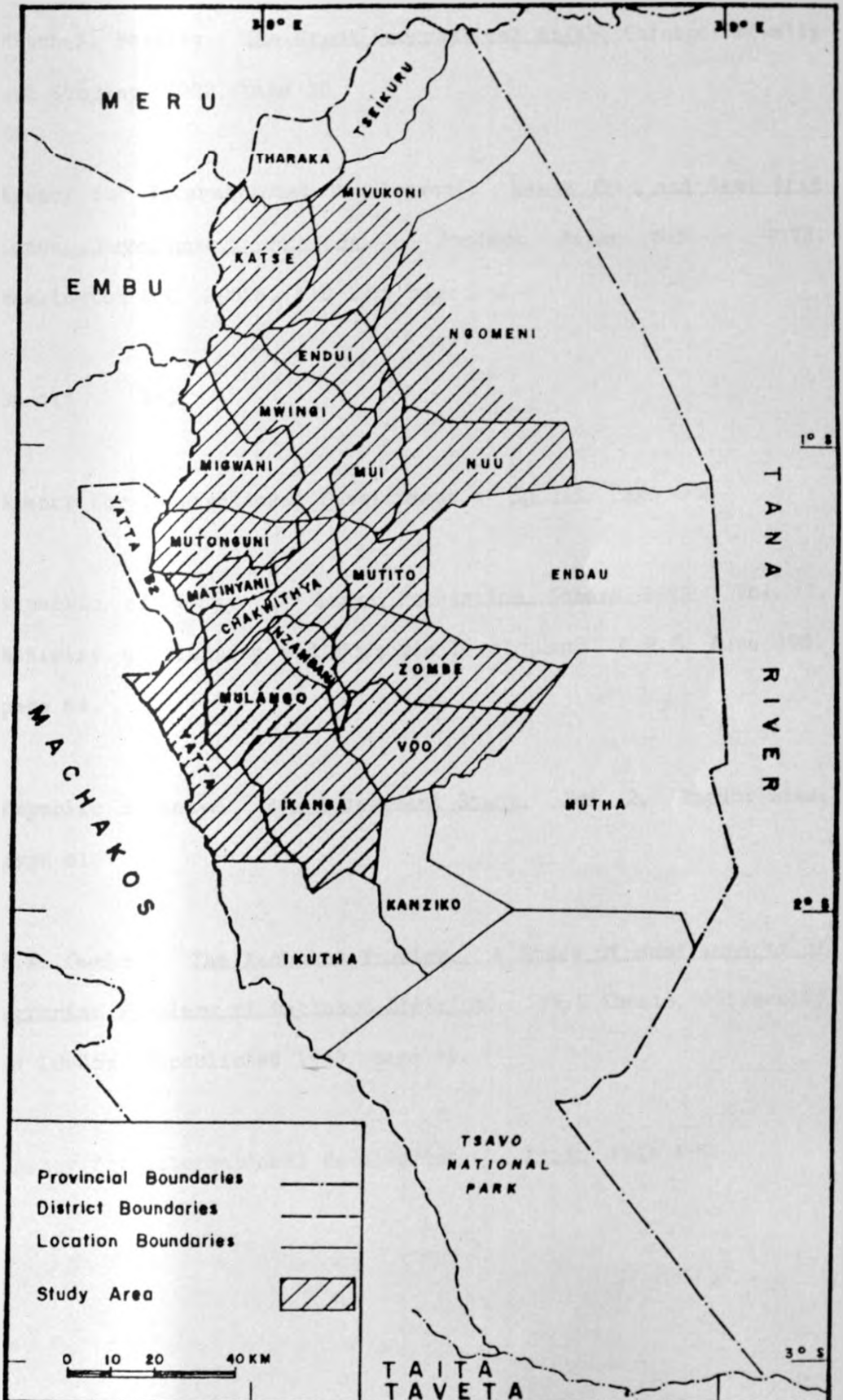
Division	Number Operative	Number Not Operative	Number Not Complete	Number In Disuse	Total Number
Kyuso	5	2	4	3	14
Mwingi	5	1	1	1	8
Central	2	2	4	3	11
Eastern	5	1	2	3	10
Southern	2	3	2	2	9
TOTAL	19	9	13	12	53

SOURCE: Own Survey.

It was from the above table that the respondents were sampled as stipulated in chapter one.

Since our study covered a large area of the district the projects were chosen from every division. In total, 19 projects were selected from which the respondents were drawn. Of these nineteen, two projects were situated in central division, two were in southern division, five were in eastern division, five were in Kyuso division and five were in Mwingi division. As indicated in chapter one, the choice of these projects was determined by use of purposive sampling. The area which the study covered is indicated in Map. 5.

MAP 5.



Map 5: MAP OF KITUI DISTRICT SHOWING THE STUDY AREA

FOOTNOTES

1. Mitchell Beazley, The Great Geographical Atlas. Chicago, Mcwally and Company, 1982, page 35.
2. Agency for International Development, Kenya Arid and Semi Arid Lands Development Project. Project Paper 615 - 0172, Washington D.C. 20523, AID 1979 page D-3.
3. Op cit D-3.
4. Agency for International Development, Op cit. Page C-2.
5. Republic of Kenya, Kenya Population Census 1979 Vol. 1, Ministry of Planning and Economic Development, C.B.S. June 1981 page 64.
6. Republic of Kenya. Pre-Investment Study. Vol. 2, Unpublished, page 81.
7. F.N. Owako, The Machakos Problem. A Study of some aspects of Agrarian Problems of Machakos District. Ph.D Thesis, University of London, Unpublished 1969, page 70.
8. Agency for International Development, Ibid. Page 4-5.

9. Mr. Mutinda, (Abstracted from an Interview with Mr. Mutinda, Ministry of Water, Mutomo Division of Kitui. 1989.
10. David Amdani, (Abstracted from an Interview with D. Amdani, D.O Kyuso Division of Kitui. 1989.
11. Republic of Kenya, Pre-Investment Study Vol. 1 Unpublished, page 127.

CHAPTER FOUR

WOMEN PERSONAL ABILITY AND ITS INFLUENCE ON WOMEN PARTICIPATION IN RURAL WATER SUPPLY

4.1 INTRODUCTION

In this chapter, we embark on analysis and interpretation of data obtained from the field research. The chapter examines the relationship between the women capability and their participation in rural water supply. The question addressed throughout the chapter is; How does the women's personal ability influence their participation in rural water supply? In answering this question, we examine the influence of social and economic status of the women on the general women participation in rural water supply.

It is upon the basis of the findings of this chapter that we examine the effect of the wider political factors on women participation in chapter five.

As indicated in chapter one, the dependent variable is operationalized at four levels; financial input (participation) level, labour input (participation) level, material input (participation) level and decision-making input (participation) level.

The chapter is divided into three sections. The first section deals with the influence of social factors on women participation in rural water supply. Section two deals with the influence of economic factors on women participation and, section three deals with the influence of the women decision-making role on the general women participation in rural water supply.

4.2 THE INFLUENCE OF THE SOCIAL FACTORS ON WOMEN PARTICIPATION IN RURAL WATER SUPPLY

The first set of factors examined to establish their influence on women participation are closely associated with an individual's capability. These factors included; desire for water, age, marital status, education and sex. Each of the above independent variables was placed against each of the indicators of the dependent variables.

As indicated in chapter one, the dependent variable, women participation was operationalized at four levels. At the financial input level, four categories of participation were adopted, at the labour input level three categories of participation were adopted, while at the material input level and decision-making input levels, two categories were adopted as indicated in Table 4:1.

Table 4:1 CATEGORIZATION OF THE DEPENDENT VARIABLE INDICATORS

WOMEN PARTICIPATION					
Financial Input		Labour Input		Material	D/Making
Category	Shs. per individual	Category	Hrs per individual/ week	Input Category	Input Category
Low	1- 99	Low	1- 5	Yes	Yes
Medium	100-199	High	6-10		
High	200-299	V.High	11-15	No	No
V.High	300 +				

SOURCE: Own Survey.

4.2.1 DESIRE FOR WATER AND WOMEN PARTICIPATION

Desire for water was taken as the wish to have water that was permanent and accessible to the respondents. The study indicated a strong desire for water. Water was ranked as the most basic need both before and after the inception of the water projects (See Table 3:2). Of the 140 respondents interviewed, 113 felt a strong desire for water. The remaining twenty-seven respondents placed water as a second basic need, to health. Nevertheless, they all acknowledged the importance of water in relation to health. For instance, those who ranked it as second, were in agreement that a functional health centre depended on the availability of water. This strong desire for water may have been precipitated by the long distances covered in hauling water. For instance, seventy nine respondents covered over 7.6 kilometres to get water, thirty three covered between 4.6 - 7.5

kilometres one way to get water. According to the government policy statement concerning the provision of water in rural areas, 5 kilometres is the appropriate distance for low potential areas, like Kitui District.¹

Travelling such long distances meant that the haulers of water, who in this case were women, spent a better half of their day fetching water as shown in Table 4:2.

TABLE 4:2 HOURS SPENT IN HAULING WATER

<u>Category (hrs/day)</u>	<u>Number of Respondents</u>
0 - 2.30	13
2.31 - 5.30	30
5.31 - 7.30	40
7.31 - 9.30	28
9.31 - 11.30	19
11.31 - 13.30	5
13.31 - 15.30	3
15.31 - 17.30	2
17.31 - 19.30	0

NOTE: Some women, especially those in the last four categories chose to fetch water in alternate days.

SOURCE: Own Survey.

It is evident from Table 4:2 that over 97 of respondents interviewed spent over five and a half hours daily in obtaining water. This finding affirms a UNDP countrywide (in Kenya) survey conducted in 1985. This survey that addressed itself to the issue of promoting and supporting women participation in the International

Drinking Water Supply and Sanitation Decade in Kenya. found that, every rural woman in Kenya spends an average of three hours (or more) daily in fetching water. Thus in the whole area surveyed, water was embraced as a desired need. It was the expectation of this study that this strong desire precipitated participation at all the levels of the dependent variable.

4.2.1.1 DESIRE FOR WATER AND FINANCIAL INPUT

Of the one hundred and thirteen respondents that felt a strong desire for water by indicating it as the first basic need, fifty-nine or 52.2 percent made low financial input ranging from 1-99 shillings to their projects. Eight or 7.1 percent made medium financial input ranging between 100-199 shillings to their projects. Two or 1.8 percent made very high financial input ranging from 300 shillings and above. The respondents tend to decrease with an increase in financial input. This means that there is a negative correlation between desire for water and participation. This relationship was affirmed by negative gamma value of -0.54.

This finding was contrary to the expectations of this study and may be explained by various observations made. One, majority of the respondents interviewed had low incomes. Over 50 percent of the respondents had an income of less than 500 shillings per month. Due to the low incomes, most of the participants took part in community project activities as a security to get certain services in this case, water since they could not afford private water facilities. Secondly,

most of the respondents were women who have weak economic bases particularly in low potential rural areas like Kitui district. Thus, financial input into the projects was largely viewed by most respondents as a constraint rather than an obligation. To test whether the association was significant a χ^2 was computed. A value of 6.797 with 4 degrees of freedom was obtained. The χ^2 critical was 9.488. The calculated χ^2 was smaller than the χ^2 critical. Hence, the association, though there, was not significant at 95 percent level of confidence. The H_0 that there is no significant relationship between the desire for water and participation, the latter taken as financial input, was therefore adopted in this case.

4.2.1.2 DESIRE FOR WATER AND LABOUR INPUT

Of the one hundred and thirteen respondents that had a strong desire for water, thirty-two or 28.32 percent made low labour input of between 1-5 hours a week to the projects. Nineteen or 16.81 percent made very high labour input of between 11-15 hours a week to the projects.

Whereas respondents increase from low to high labour input, they reduce considerably in very high labour input. When the correlation between these two variables was computed, a negative and weak gamma value of -0.3 was obtained. This negative correlation may be explained by the fact that most respondents being women, are performers of other tasks. Therefore they cannot put more than 10 hours a week in project activities. Hence the presence of a small

number of participants in the very high labour input category and the general negative correlation.

When the chi-square (χ^2) was calculated to find out whether the correlation was significant at 95 percent level of confidence, a χ^2 value of 0.42 with 3 degrees of freedom was obtained. This means that the association was not significant at the level of 95 percent degree of confidence. Therefore, the H_{0} that, there is no significant relationship between the desire for water and participation, measured in terms of labour input was adopted.

4.2.1.3 DESIRE FOR WATER AND MATERIAL INPUT

Although one hundred and thirteen respondents felt a strong desire for water, only eight or 7.08 percent contributed any type of material to the projects. This meant that one hundred and five or 92.92 percent of the respondents that felt a strong desire for water did not contribute any material(s) to the projects. Hence the more people felt a strong desire for water, the lesser they contributed to the projects in terms of material inputs. This negative association was affirmed by a negative gamma value of -0.58. This negative correlation may be explained by the economic realities of most of the respondents interviewed. Most of the respondents had low incomes. Besides some lacked accessibility to the materials used in the projects where women participated. Thus materials like cement, pumps, tanks, shovels etc. were in most cases viewed as "foreign" to the project participants. The negative correlation can thus be seen as a

manifestation of low incomes and or lack of exposure for the respondents. When the X^2 was calculated to ascertain whether the association was significant at 95 percent level of confidence, a X^2 value of 5.52 with 1 degree of freedom was obtained. Since the X^2 critical was 3.841, the calculated X^2 was greater than it. Hence the correlation was found to be significant at the tested level. Nevertheless, the participation was negative and not positive as expected.

4.2.1.4 DESIRE FOR WATER AND DECISION-MAKING INPUT

Of the one hundred and thirteen respondents who felt a strong desire for water, thirty or 26.55 percent participated in decision-making within the project management. The remaining eighty three or 73.5 percent of those who desired water, did not participate in any form of decision-making in the projects. This meant that there was a negative correlation between desire for water and participation. This correlation was affirmed by a negative gamma value of -0.31. Thus as the desire for water increased, participation in terms of decision-making in the projects' management decreased.

It was evident that the larger number of those who desired water were women. However, in most rural areas, Kitui being a case in point, decision-making power both within and outside the household tends to cluster around the men. Thus though women desired water very strongly very few ventured into decision-making roles of the projects.

To test the statistical significance of this correlation, χ^2 was computed. A value of 2.11954 with 1 degree of freedom was obtained. The χ^2 critical was 3.841. Hence, the calculated χ^2 was smaller than the χ^2 critical. This meant that though the correlation existed, it was not statistically significant at 95 percent level of confidence. The H_0 was thus accepted. That statistically there is no significant correlation between the desire for water and participation measured as decision-making input.

Summarily, only when participation is taken as material input is there a significant albeit negative correlation between the desire for water and women participation.

Thus, contrary to the existing contention held by BWA that a strong desire for a basic need manifests itself in motivation towards its attainment, we found that the desire for water in Kitui though strong did not influence women participation positively. Even where the relation was found to be significant as in material input, the correlation was negative. This means that these are other intervening variables other than desire for water that come into play in explaining women participation. After probing, it became evident that the lack of strong income bases played down both women financial and material participation. Over 50% of the women in the survey had a monthly income of less than 200 shillings. Besides, we observed that over 60% of the respondents felt that the government had an obligation to participate in the projects, especially in form of financial and

material inputs. This attitude was reflected in the reluctance of the respondents at these two levels of participation.

Secondly, women were entangled with many other duties and obligations. For instance, 52% of the women had school going children, this required that they participate in school building activities most of which were done on Saturdays. This meant that women had to divide their Saturdays amongst two or more community development projects. (Others included church activities, barazas etc.). This meant that time that would have been spent in the water projects had to be divided amongst other equally crucial activities. This did play down women participation to some extent.

4.2.2 EDUCATION AND WOMEN PARTICIPATION

Education was taken as the length of time in complete years that a respondent took in formal schooling. It was assumed that increased number of years in school facilitated more awareness of the need for water, given water's relationship with the general social economic development. It was hypothesized that education was positively correlated to women participation in rural water supply.

The maximum number of years in school recorded from the respondents was 12 years. Although the average number of years per respondent was 2.5 years, majority of the respondents had no education as shown in Table 4:3.

TABLE 4:3 DISTRIBUTION OF RESPONDENTS BY EDUCATION ATTAINED

<u>Category of Education</u> <u>Attained (years)</u>	<u>No. of Respondents</u>	<u>Percentage of</u> <u>Total Sample %</u>
0	93	66.43
1- 5	10	7.14
6-10	27	19.29
11 +	10	7.14
TOTAL	140	100.00

SOURCE: Own Survey.

According to the categorization adopted, 1-5 years' education was rated as low education, 6-10 years' education was rated as medium education and 11+ years' education as high education.

4.2.2.1 EDUCATION AND FINANCIAL INPUT

Of the forty-seven respondents that had education in the sample, eighteen or 38.30 percent made no financial contributions into the projects. Twenty two made low financial input of between 1-99 shillings into the projects. This represented 46.81 percent of those with education. Four or 8.51 percent made medium financial input of between 100-199 shillings, into the projects. One or 2.13 percent made high input of between 200-299 shillings while two or 4.26 percent made very high contribution of over 300 shillings to the projects.

A look into the relationship above, shows lack of a definite relationship; which suggests that participation is inspite of education. This is affirmed by a near no correlation gamma value of

0.086. Thus other factors intervene in the association of these two variables.

Need for water traversed the issue of education. Thus, whether one had or did not have education had no direct bearing on their desire for water. Thus, the desire for water was strong inspite of education. Indeed those who had developed private water facilities took some interest, in some cases stronger interest in the development of public water supply because, they tended to have greater needs for water than the average rural person. For instance, it was mostly the elite that had more animals and therefore needed more water. It was also the educated that attempted small scale irrigation schemes.

In testing whether the correlation was statistically significant, the chi-square was computed. A value of 14.063 with 12 degrees of freedom was obtained. The X^2 critical was 21.026. Thus the calculated X^2 was smaller than the X^2 critical meaning, that the correlation was not significant at 95 percent level of confidence. The H_0 was therefore accepted that there is no significant correlation between education and women participation when the latter is taken as financial input.

4.2.2.2 EDUCATION AND LABOUR INPUT

Of the one hundred and forty respondents, one hundred and sixteen gave in labour to the projects, in form of hours. Of the twenty-four

that made very high labour contribution of between 11-15 hours a week, one had high education, six had medium education, one had low education while sixteen had no education at all. Of the fifty one that made high contribution of between 6-10 hours a week, five had high education, eight had medium education, six had low education and thirty two had no education, Of the forty-one that made low labour contribution, one had high education, seven had medium education, one had low education and thirty-two had no education.

The illiterate respondents dominated in the various categories of labour contribution into the projects, there was thus a negative correlation between education and labour input. This correlation was indicated by the obtained gamma value of -0.33. This correlation may be explained by several factors. One, the phenomenon of rural urban migration. In most cases, the educated are the majority of the immigrants into urban areas in search of wage employment. This means that it is mostly the illiterates who are in the rural areas. Hence, they form the majority of participants in development activities. The attitude of the rural elite may also explain the predominance of the illiterate population in water projects. For one, most rural elites did not participate in the water projects. They cited their occupation as a hinderance to their contribution to projects especially in terms of hours (labour).

The association was tested to find out whether it was statistically significant at 95 percent level of confidence. A χ^2 value of 8.21 with 9 degrees of freedom was computed. The χ^2

critical was 16.919. Since the X^2 critical was greater than the X^2 calculated, the correlation was not significant at the tested level. The H_0 was therefore accepted i.e. there was no significant correlation between education and participation measured as labour input

4.2.2.3 EDUCATION AND MATERIAL INPUT

Of the one hundred and forty respondents interviewed, only fourteen made some material contribution to the projects. Of these, one had high education of over 11 years, three had medium education of between 6 - 10 years and one had low education of between 1-5 years. Nine of the material contributors had no education. Thus as in labour and financial levels, participation in material input was dominated by illiterate respondents.

When the two variables were correlated, a negative near zero correlation of - 0.006 was obtained. This negative correlation may be explained as in the previous case by the existence of few literate people in the rural areas who may not be enthusiastic for some reason(s) to participate in community based projects.

To test the significance of the above association a chi-square test was carried out. A value of 0.087 with 3 degrees of freedom was obtained. The chi-square critical was 7.815. This meant that the correlation was not significant at 95 percent level of confidence since the calculated X^2 was smaller than X^2 critical. Therefore,

the H_0 was accepted, that statistically there was no significant correlation between education and material input.

4.2.2.4 EDUCATION AND DECISION-MAKING INPUT

Of the 41 respondents that took part in decision-making roles at the project level, two had high education, fifteen had medium education, six had low education while eighteen had no education at all.

There is a positive relationship between, participation (decision-makers) and education. This positive correlation supports the hypothesis that awareness does correlate positively with decision making. This was affirmed by a gamma value of 0.59. In spite of this expected results, participation at this level was by a mere 29% of the total interviewees. The reason for this small number may be explained by the observation in the field, that most of the educated respondents were young. Yet, age was viewed as an important determinant of holding a decision-making role. This meant that in spite of their education, the young people were 'disqualified' from decision-making. This left only the old to take part in decision-making. Majority of the latter category were 'illiterate'.

When the correlation was tested for significance a X^2 value of 19.7666 with 3 degrees of freedom was obtained. The X^2 critical was 7.815 hence smaller than the calculated X^2 . This means that the correlation was significant at 95 percent level of confidence. Hence

the H¹ was reaffirmed. Thus statistically, there was a positive and significant correlation between education and participation, the latter measured as decision-making input.

Unexpectedly, education was found to be negatively correlated with participation at three levels of measurement. However, even in the fourth level of decision-making, it was evident that 59% of the decision makers had low education between 1-5 years or no education at all.

This can be attributed to two reasons. One, the presence of a small literate population in the area of the study and the phenomenon of rural-urban migration which was very deep rooted. Moreover, most of the more highly educated citizens in the area believed that they could not be efficacious. As Jesse F. Marguette argued, for any system of choice, the decision maker must perceive some purpose for his choice behaviour. If the decision-maker does not perceive any purpose for this activity, he will cease to manifest that activity, only the obstinate or the ignorant indulge in an activity which does not reward them.⁴ This situation was observed in discussions held in the field with most of the educated elite who had developed private water facilities. They felt that they could not benefit from the community projects consequently, they never participated fully. On the other hand, age was regarded as a major chief determinant of participation especially, decision-making. Therefore, the young however educated, were critically discriminated against particularly in decision-making. This resulted in their laxity to participate in

any other forms of input. It is clear that attitudes did play down the participation of the educated in the water projects.

Perhaps an attitudinal research could throw some light on the effect of attitudes on women participation.

4.2.3 AGE AND WOMEN PARTICIPATION

Age was defined as the period of time in complete years, a respondent has lived from birth to the time of the interview. The youngest interviewee was 23 years old while the oldest was about 80 years of age. The range between the two was 57 years. The average age was 44.6 years while the most recurrent age was 50 years. Seventy two of the respondents were above the average age as shown in Table 4:4.

TABLE 4:4 DISTRIBUTION OF RESPONDENTS BY AGE

<u>Age Categories (yrs)</u>	<u>No. of Respondents</u>	<u>Percentage %</u>
0 - 20	0	0
21 - 30	26	18.57
31 - 40	32	22.87
41 - 50	46	32.85
51 - 60	25	17.85
61 - 70	10	7.14
71 +	1	0.71
<u>TOTAL</u>	<u>140</u>	<u>100.00</u>

SOURCE: Own Survey.

17.85
7.14

When age was correlated with the indicators of participation, in only one case was it statistically significant at the tested level of 95 percent level of confidence. Only this correlation is discussed here. (See Appendix II for other correlations).

Of the forty one respondents that took part in decision-making, thirty three were aged between 40-55 years old. Only eight were above 55 years old. When age was correlated with participation, a gamma value of 0.58 was obtained. This means that participation in decision-making increases as age advances. This can be explained by the belief prevalent in the rural areas that, the older one grows the wiser and the better a leader one becomes. It may also be explained in terms of security. Most of the middle age people become more enthusiastic to participate in water projects in a bid to create better security in the future for themselves and the younger generation. These two reasons reinforce the elimination of youth and early adulthood in decision-making of the water projects studied.

When the X^2 was computed to find out whether the correlation was significant, a X^2 value of 6.97 with 2 degrees of freedom was obtained. The X^2 critical was 5.99.

Since the calculated X^2 was greater than the X^2 critical, the correlation was found to be significant. Hence the H_0 was rejected and H_1 reaffirmed that there exists a positive and statistically significant correlation between age and women participation in rural water projects.

4.3.4 MARITAL STATUS AND WOMEN PARTICIPATION

Marital status was defined as a condition pertaining to marriage i.e. whether one was married, single, widowed or divorced. The respondents were grouped into three categories namely, married, single and widowed. Of the one hundred and forty respondents interviewed, one hundred and twenty two were married, two were single and sixteen were widowed as indicated in Table 4:5.

TABLE 4:5 DISTRIBUTION OF RESPONDENTS BY MARITAL STATUS

<u>Category</u>	<u>Number of Respondents</u>	<u>Percentage %</u>
Single	2	1.43
Married	122	87.14
Widowed	16	11.43
<u>TOTAL</u>	<u>140</u>	<u>100.00</u>

SOURCE: Own Survey.

When marital status was correlated with women participation it was found that it was not a significant determinant of women participation in rural water supply. All the calculated X^2 fell below the X^2 criticals hence the correlation were insignificant at 95 percent level of confidence. (See Appendix II for statistical computation). This meant that marital status as a variable on its own can not alter participation to a statistically significant level.

4.3.5 SEX AND WOMEN PARTICIPATION

Sex was categorized as either male or female. Of the one hundred and forty respondents interviewed, one hundred and ten were women. This represented 78.57 of the total sample. Thirty or 21.43 percent were men. This categorization is shown in Table 4:6.

TABLE 4:6 DISTRIBUTION OF RESPONDENTS BY SEX

<u>SEX</u>	<u>Number of Respondents</u>	<u>Percentage %</u>
Male	30	21.43
Female	110	78.57
<u>TOTAL</u>	<u>140</u>	<u>100.00</u>

SOURCE: Own Survey

When sex was correlated with all the indicators of participation, it was evident that in all indicators except labour input, the men made higher contribution i.e. financial input, material input and decision making input. For instance in financial contribution,

twenty-four respondents made financial contributions of 100 shillings and above. Of these twenty-four, 17 were men while only seven were women. This constituted 70.83 and 29.17 percent respectively. Of the fourteen respondents that made material contribution to the water projects, twelve or 85.71 were men while only a mere 2 or 14.29 percent were women.

Of the forty-one respondents that participated in decision-making, thirteen were male while 28 were female. Though women seem to be the majority in this case, when the ratio of the decision-makers is computed, it is clear that men are dominant. Indeed, the two groups of decision-makers represent 43.33 and 25.45 percent of their respective categories in the sample. In labour input, sixteen men contributed more than six hours in the project whereas fifty-nine women contributed a similar amount of time. This represented 53 and 54 percent respectively. Thus women provided more labour than their men counterparts.

The trend above may be explained by the fact that men, unlike women, have a stronger economic base in the rural areas. Such a base allows them to participate more in terms of financial input or material input. In decision-making input, the women participation was lower than the men's. This may be explained by the fact that men tend to dominate the power structures in the rural areas. Most of the labour requirements in the projects involved carrying things like water, sand and stones and since carrying is regarded as a female's

job in Kitui district, women were expected to contribute more hours to carry the items required for the project construction.

When we tested for the strength of these associations at 95 percent level of confidence, all the calculated χ^2 fell below the χ^2 criticals.

It was obvious that sex did determine the nature of participation i.e. whereas women's participation tended towards labour input, men's participation tended towards the financial and decision-making levels. However, sex was not found to be a significant determinant of women participation at the tested level of 95 percent level of confidence. Probably, the level and type of participation could be an area of interest to another study.

4.3 ECONOMIC FACTORS INFLUENCING WOMEN PARTICIPATION IN RURAL WATER SUPPLY

The major economic variable addressed to in this section is income. However other related variables also analyzed include, the number of children and household size. The study assumed that the women who had financial strain would participate more in water projects given that they were not able to pay for private individual water services. It was also assumed that the more the children one had or the larger the household size, the more water needs a woman respondent had to satisfy and therefore, the higher the motivation was

to participate in water projects in an attempt to alleviate this problem of water.

4.3.1 INCOME AND WOMEN PARTICIPATION

Income is defined as any revenue monetary or non-monetary that an individual respondent gets within a period of thirty days. Of the sample of one hundred and forty respondents, the maximum income was 10,000 shillings. The more frequent income (mode) was 200 shillings. The average income per individual respondent was 1,147 shillings. However 96 of the respondents' income fell below this average as indicated in Table 4:7.

TABLE 4:7 DISTRIBUTION OF RESPONDENTS BY INCOME

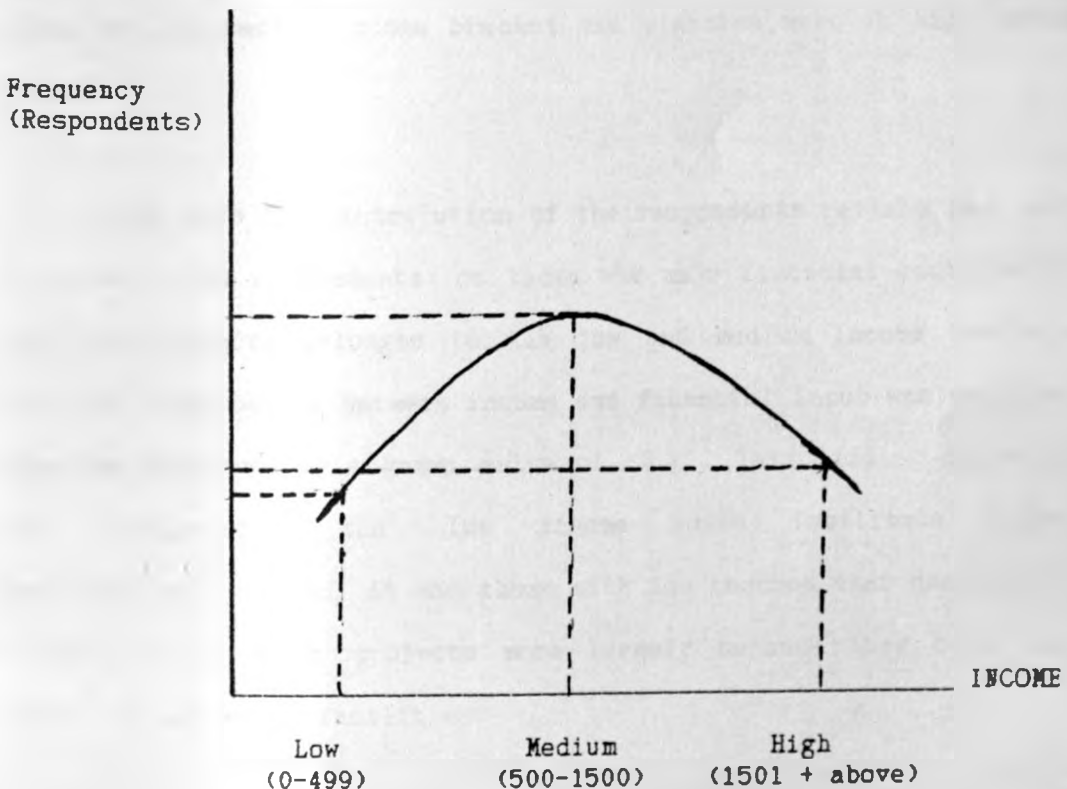
<u>Income Categories</u> <u>(Shs per month)</u>	<u>Number of</u> <u>Respondents</u>	<u>Percentage</u> <u>%</u>
0	5	3.57
1	92	65.71
1001 - 2000	23	16.43
2001 - 3000	8	5.71
3001 - 4000	5	3.57
4001 - 5000	4	2.86
5001 - 6000	1	0.71
6001 - 7000	1	0.71
7001 - 8000	0	0
8001 - 9000	0	0
9001 -10000	1	0.71
<u>TOTAL</u>	<u>140</u>	<u>100.00</u>

SOURCE: Own Survey.

From Table 4:7, it is evident that the incomes of most of the respondents were much lower than the calculated average income. The five respondents that stated no income were aged between 70-82 years old and were entirely dependent on their offsprings whose income they could not even estimate.

According to the categorization adopted, 0-499 shillings was low income, 500-1500 was medium income while 1501 shillings and above was high income. Consequently, thirty-six respondents had low income, sixty-seven had medium income and thirty-seven had a high income. A look into the nature of distribution indicates a fairly normal distribution as indicated in Figure 1.

Figure 1 INCOME DISTRIBUTION



4.3.1.1 INCOME AND FINANCIAL INPUT

Of the 86 respondents that made financial contributions to the projects, two made very high financial contributions of over 300 shillings, one made high financial contribution of between 200 - 299 shillings. Eight made medium financial contribution, while seventy five made low financial contribution. Of the two that made very high financial contributions one was in the low income bracket while the other was in the medium income bracket. The one respondent that made high contribution belonged to the high income bracket. Of the eight that made medium contribution, four belonged to the low income bracket, three belonged to the medium income bracket and one belonged to the high income bracket. Of the seventy-five that made low financial contributions, twenty were in low income bracket, thirty-seven were in medium income bracket and eighteen were in high income bracket.

A look into the distribution of the respondents reveals that over 70 percent (61 respondents) of those who made financial contribution into the projects belonged to the low and medium income brackets. Thus the relationship between income and financial input was negative. This was confirmed by a gamma value of -0.2. This finding supported the expectation that low income would facilitate higher participation. Indeed, it was those with low incomes that desired the success of the water projects more largely because they could not afford private water facilities.

However, when the above association was tested for significance, by use of chi-square, it was found to be insignificant. Hence the H_0 was adopted that there is no significant correlation between participation and income, the former measured as financial input.

4.3.1.2 INCOME AND LABOUR INPUT

Of the one hundred and sixteen respondents that contributed labour into the projects, twenty-four made very high labour input ranging between 11-15 hours a week, fifty-one made high labour input ranging between 6-10 hours a week, while forty-one made low labour input ranging between 1-5 hours a week.

Of the twenty-four that made very high labour input, eight belonged to the low income bracket, ten were in the medium income bracket and six were in the high income bracket. Of the fifty-one that made high labour input, ten were in the low income bracket, twenty-four were in the medium income bracket and seventeen were in high income bracket. Of the forty-one that made low labour input, ten were in low income bracket.

Though there appears a normal distribution amongst all the categories, when gamma was computed, it showed a negative value of -0.2. This means that as income increases labour participation decreases.

This confirms not only the expectation of the study but the general attitude prevailing amongst the respondents that, labour input was the beneficiaries' most important obligation to the projects. Such a trend may be explained by the existence of a provision of participation by proxy as evidenced in all projects. This provision allowed those with money to pay it instead of contributing labour to the projects. Naturally then, those with high incomes preferred to offer cash in place of labour. This finding therefore did support the hypothesis that the lower the income the higher the participation in terms of labour.

However, when the association was tested for significance, a χ^2 value of 4.04 with 6 degrees of freedom was obtained. The χ^2 critical was 12.592. This meant that the calculated χ^2 was smaller than the χ^2 critical hence, the association was statistically insignificant at 95 percent level of confidence. Therefore statistically the null hypothesis was adopted, that there is no significant association between income and participation when the latter is measured as labour input.

4.3.1.3 INCOME AND MATERIAL INPUT

Of the fourteen respondents that participated in material contribution to the projects, seven had high incomes, four had medium incomes and three had low incomes. A look into the participation here reveals a successive increase in material input as income increases. This correlation was evidenced by a gamma value of 0.44. Thus

negating the hypothesis under investigation. The positive association may be explained by the fact that material contribution is intimately related to levels of income, in the sense that, most material required in the projects required to be bought. This included items such as cement, wires (steel) etc. Hence those with low incomes could not afford such items and only those with 'substantive' capital could afford this type of participation. This was reflected in the small number of participants at this level of measurement.

When the association was tested for significance a χ^2 value of 3.26 with 2 degrees of freedom was obtained. Since the χ^2 critical was 5.99, the calculated χ^2 was smaller than it. This means that though there is a positive association between the two variables, this association is not significant at the testing level of 95 percent level of confidence. In this case then, the null hypothesis was accepted i.e. there is no significant association between income and participation, the latter measured as material input.

4.3.1.4 INCOME AND DECISION-MAKING INPUT

Of the forty-one respondents that participated in decision-making, twenty two had low incomes, six had medium incomes and thirteen had high incomes. 61.1 percent of the decision makers comprised of those with low incomes as opposed to 9.0 percent and 35.1 percent in the medium and high income brackets respectively. This means that there is a negative relationship between income and decision making input, as evidenced by the computed gamma value

of 0.46. This finding supports the hypothesis under examination i.e. the lower the income the higher the participation. This trend may be explained in various ways. One, for the women with low income, it is expensive to afford private water services, hence there is a tendency to rally behind public utilities from where one can benefit at cheaper cost. Their participation in decision making can therefore be interpreted as an effort to obtain security in the water services. The participation of those with low income in decision making can also be seen as a manifestation of the belief and trust that those with low income as opposed to those with high income, may be more committed to water development. Hence, they are favoured during elections of the project management committee.

When the correlation was tested for significance a χ^2 value of 31.59 with 2 degrees of freedom was obtained. The χ^2 critical was 5.99. Hence the calculated χ^2 was greater than the χ^2 critical. This meant that the association was statistically significant at 95 percent level of confidence. We are therefore secure to reaffirm the hypothesis that, there is a statistically significant negative relationship between income and participation, the latter taken as decision making input.

The hypothesis that the lower the income, the higher the participation is supported at three levels of measurement. However it is only at the decision-making level where the finding is statistically significant at the testing level of 95 percent level of confidence.

The nature of the income levels at the area of the study largely explains the weak correlations at the material and financial input levels. Thus, the respondents who had an income of less than 200 shillings per month would not afford to increase participation beyond the rate at the time of the research.

At the labour input level, respondents expressed concern over the many tasks they had to divide the time for. This meant that although they strongly desired to participate even more than they did, they only had one day in a week to work on the project.

4.3.2 NUMBER OF CHILDREN AND WOMEN PARTICIPATION

Number of children was defined as the surviving offsprings of an individual respondent at the time of the interview. The largest number of children that a respondent had was 20. While the most recurrent (mode) number of children was 5. The average number of children per respondent was 5. However, seventy nine respondents had 5 or more children as indicated in Table 4:8.

TABLE 4:8 DISTRIBUTION OF CHILDREN BY RESPONDENTS

Categories of No. of Children	Number of Respondents	Percentage %
0	3	2.14
1 - 2	17	12.14
3 - 4	41	29.29
5 - 6	43	30.71
7 - 8	30	21.43
9 -10	3	2.14
11 -12	1	0.71
13 -14	1	0.71
15 -16	0	0
17 -18	0	0
19 -20	1	0.71
<u>TOTAL</u>	<u>140</u>	<u>100.00</u>

SOURCE: Own Survey.

The number of children was categorized into few and many children. Those with children between 1-5 were regarded as having few children while those with more than 6 children were regarded as having many children. Consequently then, eighty-five respondents had few children while fifty-five had many children.

In this case, it was assumed that the more children one had, the more she experienced financial strain and therefore could not afford to pay for private water services. Hence, the more she was motivated to rally behind community based water projects from where she could benefit. Many children were therefore expected to correlate positively with participation.

4.3.2.1 NUMBER OF CHILDREN AND FINANCIAL INPUT

Of the eighty-six respondents that made financial input seventy five made low financial input, eight made medium financial input, one made high financial input and two made very high financial input. Of the seventy-five that made low financial input, forty-four had few children while thirty-one had many children. Of the eight that made medium financial input, four had few children while four had many children. The one that made high financial input had few children while the two that made very high financial input had many children.

A look into the association reveals a positive albeit weak correlation of 0.3. This confirms the assumption that the more children one has the higher the participation.

When this association was tested for significance, a X^2 value of 5.06 with 4 degrees of freedom was obtained. The X^2 critical was 9.49 hence the calculated X^2 was smaller. Thus the coefficient of correlation was found to be statistically insignificant at 95 percent level of confidence. The null hypothesis was thus accepted i.e. there is no significant association between the number of children and participation, the latter measured as financial input.

4.3.2.2 NUMBER OF CHILDREN AND LABOUR INPUT

Of the forty-one respondents that made low labour input, twenty-three had few children while eighteen had many children. Of the

fifty-one respondents that made high labour input, thirty-two had few children while nineteen had many children. Of the twenty-four respondents that made very high labour inputs, fifteen had few children while nine had many children.

A look into the distribution of children amongst the level of labour input into the projects shows a near normal distribution of participation amongst the two categories of respondents. This is evidenced by a near zero gamma value of -0.096 . This lack of definite association meant that labour input (contribution) to projects was inspite of the number of children. This relationship may be explained by the fact that water is a basic need to every homestead whether the number of children is more or few. Moreover, the requirement of participation was placed largely on the parents and especailly the women, while most children went to school. Only one parent or sometimes both were registered as participants in a specific project.

4.3.2.3 NUMBER OF CHILDREN AND MATERIAL INPUT

Of the fourteen respondents that made material contribution to the projects, four had few children while ten had many children. This means that participation increased as the number of children increased. The positive correlation was affirmed by strong gamma value 0.6 . The above trend may be explained by the desire for security. It is probable that the respondents with more children felt obliged to

participate more in order to ensure a promising future for their offsprings.

When this relationship was tested for significance, a χ^2 value of 5.39 with 1 degree of freedom was obtained. The calculated χ^2 was found to be larger than the χ^2 critical whose value was 3.841. Hence the association was found to be statistically significant at 95 percent level of confidence. The null hypothesis was therefore rejected and the alternative hypothesis reaffirmed. That, there is significant correlation between the number of children and participation, measured as material input.

4.3.2.4 NUMBER OF CHILDREN AND DECISION-MAKING INPUT

Of the forty-one respondents that participated in decision-making, twenty-one had few children while twenty had many children. This represented 24.7 and 36.4 percent of the two categories respectively. The implication of this is that, there was a positive relationship between children and participation. This positive correlation was evidenced by a gamma value of 0.27. This trend may be explained as in the other cases. It is most likely that those with many children feel more for the need to increase water supply since their water demands are higher than for those with few children. Moreover, they are also likely to experience more financial constraints than those with few children. These two factors may be major causes of their motivation to participate more in terms of

decision making in order to enhance the development of rural water supply.

When the above association was tested for significance, a χ^2 value of 2.19 with 1 degree of freedom was obtained. Since the χ^2 critical was 3.99, the calculated χ^2 was less than it. Hence the association was found not to be statistically insignificant at 95 percent level of confidence. Thus the null hypothesis was accepted, that there is no statistically significant correlation between the number of children and participation when the latter is taken as decision making input.

Although there was a positive correlation between the number of children and all levels of participation, thus supporting the hypothesis that the more the children, the higher the participation, it was at only the level of material input, that the association was statistically significant at the testing level of 95 percent level of confidence. The lack of a definite association between participation measured in terms of labour input and the number of children means that labour input is inspite of the number of children. Hence, the number of children alone cannot explain participation in terms of labour input amongst the projects.

4.3.3 HOUSEHOLD SIZE AND WOMEN PARTICIPATION

Household size was defined as the number of people that a respondent catered for within her or his core family including

themselves. Of the one hundred and forty respondents interviewed, the smallest household was one, while the largest was having 21 people. The range between the smallest and the largest household was 20. The most recurring household size (mode) was 7 while, the average household size was 7. However, eighty-seven households had more than the average household size as shown in Table 4:9.

TABLE 4:9 HOUSEHOLD SIZE DISTRIBUTIONS

Categories of size	Number of Respondents	Percentage of Total Sample %
0 - 2	10	7.14
3 - 6	43	30.72
7 - 10	71	50.71
11 - 14	13	9.29
15 - 18	2	1.43
19 - 22	1	0.71
<u>TOTAL</u>	<u>140</u>	<u>100.00</u>

SOURCE: Own Survey.

The households were categorized into small, medium and large sizes. Consequently twenty-nine of the respondents were regarded as having small households of between 0-5 people, seventy-six of the respondents were regarded as having medium sized households of between 6-10 people and thirty-five respondents were regarded as having large households of above 11 people each.

The study assumed that the larger the household size, the more the individual responsible for it experienced financial strain and

therefore the more she was motivated to participate given that she/he could not afford private water services.

4.3.3.1 HOUSEHOLD SIZE AND FINANCIAL INPUT

Of the seventy-five respondents that made low financial input into the projects, fourteen had small household sizes, forty-seven had medium household sizes and fourteen had large household sizes. Of the eight respondents that made medium financial input into the projects, one had a small household size, five had medium household size and two had large household sizes. The one respondent who made high financial input had a medium household size; of the two respondents that made very high financial input into the projects, one had a medium household size while the other had a large household size.

A look into the distribution of participation by household sizes shows that the medium size households participate slightly more than the large and small households. Nevertheless, participation tends to be a little bit higher in large households in comparison to small households. This means that there is a positive relationship. This association is ascertained by a gamma value of 0.3 thus supporting the hypothesis that the larger the household the higher the participation.

When this association was tested for significance, a χ^2 value of 8.481 with 8 degrees of freedom was computed. The χ^2 critical was 15.61 hence; the calculated χ^2 was less than the χ^2 critical. This meant that the coefficient of correlation was not significant at

95 percent level of confidence. Though the gamma computed supported the hypothesis, the association between household size and financial input was not statistically significant at 95 percent level of confidence.

4.3.3.2 HOUSEHOLD SIZE AND LABOUR INPUT

Of the forty-one respondents that made low labour input, eleven had small household sizes, twenty had medium household sizes and ten had large household sizes. Of the fifty-one respondents that made high labour contribution to the projects, ten had small households, twenty-nine had medium households and twelve had large households. Of the twenty-four respondents that made very high labour input, six had small household sizes, fourteen had medium household sizes and four had large household sizes.

Like in financial input, those with medium household sizes were the majority participants in labour input to the projects. Those with small and large household size categories have a fairly equal level of participation. This relatively normal distribution of participation means there could be no relationship between household size and participation. This contention was affirmed by a weak near zero gamma value of 0.02. This weak relationship may be explained by the fact that in all households, the requirement of labour input called for one person, or at most two, who were mainly the parents. Thus irrespective of size of household, participation in project labour input activities required one or two persons at most.

4.3.3.3 HOUSEHOLD SIZE AND MATERIAL INPUT

Of the fourteen respondents that participated in terms of material input to the projects, four had small household sizes, eight had medium household sizes and two had large household sizes. This represented 13.33, 10.53 and 5.71 percent of the respective categories of household sizes. This means that those with small household sizes participated more than their counterparts in material inputs into the water projects. Thus, participation tended to increase as household size decreased. This means there was a negative correlation between household size and participation. This was affirmed by a negative gamma value of -0.2. This may be explained by the fact that small households do seem to allow for savings in terms of monies that can be used to buy materials for the projects. This negates the assumption of this study that the greater the strain the higher the motivation to perform towards the goal.

When the association was tested for significance, a χ^2 value of 0.707 with 2 degrees of freedom was computed. Since the χ^2 critical was 5.99 the computed χ^2 fell below it. Hence the coefficient of correlation was found to be insignificant at 95 percent level of confidence. It was therefore concluded that there was no significant relationship between household size and participation, the latter measured as material input.

4.3.3.4 HOUSEHOLD SIZE AND DECISION MAKING INPUT

Of the forty-one respondents that participated in decision making, twelve had small household sizes, twenty had medium household sizes and nine had large household sizes. Like in material input, the respondents with the small household sizes seem to participate more in decision making of the project management committees than their counterparts. This means that participation in decision-making process increases as household sizes decrease. This negative correlation was affirmed by negative albeit weak gamma value of -0.11.

As in material input, this correlation may be explained by the nature of constraint that the respondents experience from their households. Those with smaller households are likely to have less demands from the families and therefore more time to participate in project activities such as decision making. Like in the material input level, this finding negates one of the basic assumptions of this study.

When the association was tested for significance, a X^2 value of 2.59 with 2 degrees of freedom was computed. The X^2 critical was 5.99 hence the calculated X^2 fell below it. This meant that coefficient of correlation between the two variables was statistically insignificant at 95 percent level of confidence. The null hypothesis was therefore accepted that, there is no significant relationship between household size and participation, the latter measured as decision-making input.

It was clear that the number of children or the size of the household did not influence participation at certain levels. For instance at the labour input level, participation was inspite of the sizes of the household or the number of children. This was evidenced by near zero correlation.

The assumption that more need creates higher desire and motivation and consequently a greater drive towards attainment of a basic need was negated in the analysis of the effect of the household size on participation. At both the material and decision-making levels, participation increased with a smaller household size. Perhaps the explanations for material input level is that small households may have a higher propensity to save money given that their expenditure could be lower than big households. This way, the saved monies could be easily convertible to material inputs. At the decision-making input level, those with smaller households are likely to have less demands from the families in terms of responsibilities and time and, therefore have more time to participate in project activities particularly, those related to crucial roles of managing the projects.

4.4 DECISION-MAKING ROLE AS A FACTOR INFLUENCING WOMEN PARTICIPATION IN RURAL WATER SUPPLY

Decision making role was taken as the power of making choices and ability to influence authoritative decisions that concern activities both within the project management and the community.

4.4.1 WOMEN INVOLVEMENT IN PROJECT MANAGEMENT AND ITS EFFECT ON THE GENERAL PARTICIPATION IN RURAL WATER SUPPLY

Project management was defined as deciding upon and carrying out (with others) such project activities as implementation, planning, controlling and organizing. It was therefore taken as the entire framework within which all decisions pertaining to the projects activities was taken.

Of the one hundred and forty respondents interviewed, forty-one participated in project management. Of these forty-one, fourteen or 34.15 percent were female. The male participation in management was therefore proportionally higher than that of women, if we consider the fact that men comprise only thirty or 21.43 percent of the total sample. This difference is shown in Table 4:10.

TABLE 4:10 DISTRIBUTION OF DECISION-MAKING BY SEX

<u>SEX</u>	<u>Number in</u> <u>Total Sample</u>	<u>Number in</u> <u>Decision Making</u>	<u>Number not</u> <u>in D/Making</u>
MALE	30	27	3
FEMALE	110	14	96
TOTAL	140	41	99

SOURCE: Own Survey

From Table 4:10, it is evident that a majority of women did not participate in decision-making roles of the water projects. The

fourteen women that participated in decision-making featured in only seven projects, and even in these seven projects, men were still predominant in decision making as indicated in Table 4:11.

TABLE 4:11 DISTRIBUTION OF WOMEN DECISION-MAKERS AMONGST
THE STUDIED PROJECTS

<u>Project</u> <u>No.</u>	<u>Total number of</u> <u>D/Makers in Project</u>	<u>Female Component</u> <u>(number)</u>
03	4	1
16	5	2
14*	8	4
15	4	1
09	4	1
04	4	4
07	5	1
TOTAL	34	14

SOURCE: Own Survey.

* Kwa Kalole Project had two committees of 4 members each. Both committees are counted above.

* (For names of projects see Appendix III).

When we looked into the nature of managerial positions held by women, it was clear that women were holding less influential positions than their male counterparts. In eighteen out of nineteen projects, men held the most influential managerial positions. For instance, except in only two cases, all the other project chairpersons were men. Even in these two projects where women were chairladies, it was not without a major effort by the women themselves. In one of the two projects, a woman became the chairperson after an overhaul of the

office following gross misappropriation of funds by male office bearers. Consequently after meetings, women decided to oust the men from the offices. This was done by voting women into the project committee. The second woman chairperson was elected following pressure from the Maendeleo Ya Wanawake Organisation in 1979. The organization demanded the formation of a women's committee through which it could channel some funds for the project. A women committee was formed and a total of 51,000 shillings channelled to the project through it. However, inspite of its formation, the male committee that operated prior to 1979 still existed. Indeed, after the acquisition of the money, it was the male committee that banked it and, up to the time of this research, was running the bank account. The chairlady of the women committee in this project was overshadowed by her male counterpart and held no specific duties. The women Treasurer deals with petty cash. Her major responsibility being the handling of the "small" treasury. This is an income accruing from absentee participants as a fine for failure to attend to project activities. The fine is 2 shillings per participant per working day. By the time of this research, the small treasury had about 80 shillings.

The rest of the women in decision-making roles were either secretaries or committee members of the various projects management committees. Conclusively then, there were two women chairpersons, two women treasurers, two women committee members and eight women secretaries as indicated in Table 4:12.

TABLE 4:12 DISTRIBUTION OF WOMEN DECISION MAKERS BY
POSITIONS HELD

Position Held	Number of Women	Total No. of D/M Positions in the Projects
Chairperson	2	20
Secretary	8	19
Treasurer	2	20
<u>C/Member</u>	<u>2</u>	<u>28</u>
<u>Total</u>	<u>14</u>	<u>87</u>

SOURCE: Own Survey.

The structure of decision-making organs was such that women were too few and held non-influential positions in these structures. This distribution may have affected the operations of the projects because as a target group the women in the decision-making roles could not make a great impact on project management. Indeed, they could even be out voted in a situation of disagreement and this did affect their participation rates.

Inspite of male dominance in decision making positions, there appeared to be a positive correlation between women holding decision-making roles in project management and women participation in the water projects. Women participation was higher in projects with women

in decision-making positions of the project management than those without.

The mean labour input in the seven projects with women in project management (decision-making) was 8.16 hours a week. The other twelve projects without women in project management accumulated a total of 64.23 hours a week which was an average of about 5 hours a week per project. This means that the projects with women in project management positions contributed almost 3 hours more per project, per week in comparison to those projects that did not have women in management positions. This trend is the same when viewing financial input. The projects with women in management positions had a mean financial input of 20.65 shillings while those without women in project management positions had a mean of 13.4 shillings each. This finding supports the hypothesis that women participation in rural water supply is positively correlated with women holding decision-making positions in project management.

From the histories of the projects, it was evident that women were just beginning to move into project management positions. Otherwise, they were largely acting under the umbrella of men, a trend that appeared to have developed right from the beginning of project implementation.

For instance in project siting, women were insignificantly involved. Of the forty interviewees that had been involved in project siting, only eleven or 27.5 percent were women. This insignificance

was portrayed by a gamma value of -0.99. This could be attributed to the fact that siting being a pre-feasibility stage requires some technical knowhow that most women lack not only in Kitui district but in the entire nation, given the emphasis on technical education for boys other than girls for a long time in the history of education in Kenya

Women participation was also lesser than the men's in project design choice. Of the twenty three respondents that participated in choosing the project designs, sixteen were men while seven were women representing 69.57 and 30.43 percent respectively. The insignificance of the women participants was confirmed by a negative gamma value of -0.89. Design choice like project siting is technical oriented. This technological choice was done with the help of government technical officers usually water specialists. The other persons that were closely linked to project design choices were government officers such as chiefs and sub-chiefs. In all the cases, the officers involved were largely male. Perhaps the lack of women participation in design choice can explain women's dissatisfaction with adopted project designs. Of the one hundred and ten women interviewed, eighty five described the project designs as inappropriate designs. A good example was the Ukasi borehole where women were unable to operate the heavy pump without assistance. The result of this was that, many women trekked for over 10 kilometres to fetch water from other sources inspite of the existence of the borehole.

In spite of ineffective involvement in project siting and design choice, women seemed to be significantly involved in project initiating. Women comprised of about 75.7 percent of the project participants in project setting. This participation was evidenced by a strong gamma value of 0.7. However a look into the kind/type of participation reveals that women participation was largely in form of labour input as opposed to material, financial and decision making inputs. This may be explained by the weak economic base that women have together with the attitude that decision making is a domain of men only. The high labour input may be seen as a manifestation of the strong desire women felt for water.

Although women did participate in project planning, their participation was lower than that of their male counterparts. Of the ninety respondents that were involved in project planning, thirty were men while sixty were women. Though planning was an open activity, about 55 percent of the women quoted obligation to other 'women' activities as restraint from their participation in planning.

Women did participate in project maintenance. However, they quoted various factors as impeding their participation. This included; lack of training hence dependence on men for repairs and the adoption of inappropriate and expensive project designs that were sometimes in-operational among others. This assertion supports the survey by Linda Mauluka on community participation in construction and maintenance of rural water supply in Malawi. Women in Kitui as those in Malawi, were found to be unable to replace the broken and

worn out parts of the projects because of the expenses involved. Another impeding factor was social beliefs that discriminate against women. For instance in Mukusyo borehole women were not allowed to unblock the water source that was occasionally blocked by sand.

Although on the whole women did attempt to participate in the entire project cycle, their participation was inadequate especially in the most crucial project cycle stages e.g. project siting, design choice and planning. This ineffective women participation perpetuated itself in the project management at the time of this research.

4.4.2 FACTORS DETERMINING WOMEN PARTICIPATION IN PROJECT MANAGEMENT

The most significant factors determining the level of women participation in project management included, training, time limitation, social attitudes and male dominance in power positions.

4.4.2.1 ABILITY: TRAINING

Most women lacked both education and training related to water project designs. This meant that most women felt inadequately prepared to take leading roles in matters they were not well conversant with. Although 70 percent, 21 of the men felt that women's high illiteracy rates could not permit them to grasp technicalities involved in water training, most women, (about 65 percent) felt that the lack of formal education was not a significant factor impeding

their training. They argued that the water training required to manage the technology was of an elementary nature and did not require high levels of education.

Training sometimes required boarding in institutions away from home. For many women, this kind of training was impossible to undertake given that they are the home 'managers' with most of their husbands being away from home, on waged and/or salaried employment. Training on the job was also impossible for the women who had many domestic chores to attend to, sometimes without helpers. Over 50 percent of women quoted lack of adequate time for them to train. This view was also held by about 33 percent of the men in the sample. Although it was agreed that project visitation was a good measure of training, many of the projects were far apart, incomes were low thus, visitations were seen as expensive endeavours.

The problem of lack of training was intimately related to the problem of time limitation and biases that favoured men as opposed to women in training. Lack of training for women meant increased inability on their part to effectively manage the water project designs adopted. This resulted in heavy dependence on men especially for technical maintenance of the projects. The lack of training also meant women lacked a weapon with which they could venture into power positions in terms of managing the projects. This finding supports the findings of Young Soon in Casamene, Senegal, who found that lack of training was negatively correlated to any meaningful participation, especially in decision-making of rural water supply projects.

Social attitudes also played against the training of women. Most respondents women included, felt that water training was an activity purely for men. The result for this attitude was that in choosing trainees, most project committees appointed men rather than women for the training.

4.4.2.2 ABILITY: ORGANISATIONAL

Most of the women lacked the necessary organizational ability i.e. the capability to coordinate and prepare the other women to effectively take part in project activities. When asked which of the management posts in project committees one would prefer, over 68 percent of the women quoted committee member positions while only a mere 29 percent quoted chairperson and treasurers as indicated in Table 4:13.

TABLE 4:13 PROJECT MANAGEMENT POSITION AS DESIRED BY WOMEN

<u>POSITION</u>	<u>NUMBER</u>	<u>PERCENTAGE %</u>
CHAIRPERSON	10	9.09
TREASURER	22	20.00
COMMITTEE MEMBER	68	61.82
OTHER	10	9.09
<u>TOTAL</u>	<u>110</u>	<u>100.00</u>

SOURCE: Own Survey

Although women quoted lack of time as a major limitation to taking organisational roles in the project, it was observed that most of the interviewees, over 84 percent (93) had neither held leadership positions or moved out of the the district and were therefore limited in their perception of governance. Indeed, most of them lacked the courage to venture into power positions of the project management.

4.4.2.3 MALE DOMINANCE IN POWER POSITIONS

Women's full participation in decision making was significantly reduced by male dominance of powerful positions in the projects. In all except one project, men occupied influential positions like chairpersons, vice chairpersons and treasurers. This meant that women participation especially in decision making was in junior and less influential positions. When asked why men were predominant in decision making, one hundred and one respondents replied that decision making was a male domain. A second reason advanced was that women had time limitations given their duties and responsibilities. Hence, women were not as free as their male counterparts. A third reason given for male dominance was the unwillingness on the part of women to venture into power positions. This view was held by twenty two respondents, twelve of whom were women. Thus even in projects where elections were held, men tended to be voted in as opposed to women.

4.4.2.4 SOCIAL ATTITUDES

Other than male dominance, social attitudes also determined women participation in project management. In some cases, religious requirements denied women a chance to take crucial decisions on the project activities. For instance, in the Mukusyo borehole, women were not allowed to be part of the project committees. This meant that there was no women participation in project management. Any woman who was venturing in power politics was treated as a deviant in a social structure that is male dominated. Even in the issue of visits to government offices, women were largely in the background and only two had been included in an entourage of visiting the ministries' headquarters in Kitui town once.

The factors discussed above contributed largely to low and sometimes ineffective women participation especially in the project management. This in turn affected the general women participation in the specific projects as earlier illustrated.

4.4.3 WOMEN IN DEVELOPMENT PROGRAMME COMMITTEES AND ITS INFLUENCE ON WOMEN PARTICIPATION IN RURAL WATER SUPPLY

Women involvement in decision making roles of community development committees was a reflection of their level of participation in the decision making roles of the project management. Of the one hundred and forty respondents, thirty one took part in community development programme committees. Of these thirty one,

eighteen were women while thirteen were men. In comparison to decision making at project level, women increased in community decision making by four while the number of men dropped from twenty seven in project management to thirteen in community development programme committees. Although there is an increase of four women decision makers at the community level, this increase was small and largely insignificant i.e. from 12.73 percent to 16.36 percent of the total number of women in the sample, an increase of 3.63 percent.

An examination of the nature of the committee and position that women held, reveals that women held junior and less powerful positions, just like in the project management committees. Moreover, women concentrated mainly in committees that were directly or indirectly concerned with women group activities as opposed to committees that were concerned with the entire community. This is indicated in Table 4:14.

TABLE 4:14 COMPARISON OF DECISION-MAKING POSITION HELD AT
COMMUNITY LEVEL: BY SEX

NATURE OF POSITION HELD	NUMBER HOLDING THE POSITION	
	(FEMALE)	(MALE)
Executive leader in sub-location and Locational Dev. Committee	-	9
Executive Leader Women Group	3	-
School Committee Member	4	2
Advisor to Locational Women Groups	-	1
Executive Leader KANU	-	1
KANU Youth Wingers	5	-
KANU Sub-locational Treasurer	1	-
Women Rep. in Locational D.C.	2	-
Chairlady KANU MYW	3	-
<u>TOTAL</u>	<u>18</u>	<u>13</u>

SOURCE: Own Survey.

From Table 4:14 eight women held positions that were directly related to women activities, six held positions that related to the party activities, while four were in the school committee boards. On the other hand, out of the thirteen men that were in the community development programme committees, ten were executive leaders in sub-locational and locational development committees or in the party sub-branches. Two were in school committee boards, while one was a locational advisor to all women groups besides being a member of all the district development committees from the sub-location to the district levels. From this description it is clear that men held more

powerful positions in relation to the community as opposed to their women counterparts.

In spite of holding less powerful positions, there appeared to be a positive correlation between women holding decision-making positions at the community level and women participation in water projects particularly, when participation is measured in terms of labour input. The projects that had a woman component in community decision making roles had a mean labour input of 7.82 hours per project per week. Those projects without a woman component in community decision making, contributed a mean of 5.90 hours per project per week. The range between the two labour contributions was 1.9 hours in favour of the projects with women in decision making roles at community level.

However, when women participation was measured in terms of financial input, the results were different. The projects with women in decision making roles at community level had a mean of 15.9 shillings per project while those without, had a mean of 16.2 shillings per project. Perhaps this again is a reflection of the low incomes of women in the rural areas and also an unwillingness to contribute as some of the women viewed financial contribution as a man's role.

4.5 CONCLUSION

This chapter analyzed the ability of the women as a crucial determinant of the nature and level of their participation in the provision of a basic need - water.

We established that resource and resource bases were important pre-requisite for women performance. Where this lacked participation decreased. For instance, women's desire for water was high as evidenced by Table 3:2 however, their resource bases were low particularly their income levels and organisational abilities. This meant not only basic but minimal women participation as in financial and material input levels. On the other hand, presence of capability meant, increased and improved levels of participation. For instance where there was training for women and where women participated more actively in the project management as in Kangilu project, participation was comparatively higher at all levels of measurement. Hence, the conclusion that increased participation presupposes ability to perform.

The women in Kitui lacked adequate capacity to effectively operate, influence decisions, join in their implementations and control of the activities that affect them. This was reflected in the high male influence in the projects' activities even when the male population constituted a mere 21.43 percent of the sample.

Whereas women did not participate highly at financial material and decision-making input levels, they provided a lot in terms of labour input. However, even this labour was in 'crude' form - in hour form i.e. carrying of items and materials which means, it was participation at a very basic level. Thus the capability of the women in terms of resource and resource base must be improved considerably if the participation of women is to be more meaningful.

It is against this background of chapter four that the political environment both within and outside the project area is examined and its influence on the nature and level of women participation ascertained.

FOOTNOTES

1. Agency for International Development. Kenya Arid and Semi Arid Lands Development Project. Project paper 615-0172, Washington D.C 20523, AID 1979 Page D-7.
2. UNDP, Promotion and Support for Women's Participation in the International Decade, Nairobi, UNDP 1985.
3. Nzomo, M. Preliminary findings of Research on The Impact of Foreign Aid on Women Projects in Kitui District. Unpublished, 1987
4. Jesse F. Marguette, "Social Mobilization and the Phillipine Political System" in Comparative Political Studies 4th October, 1971 page 346.

CHAPTER FIVE

THE WIDER POLITICAL ENVIRONMENT AND WOMEN PARTICIPATION IN RURAL WATER SUPPLY

5.1 INTRODUCTION

In this chapter, we seek to answer a central question to our study. What influence does the political environment have on women participation in rural water supply? To what extent does the presence of government in a project attract or inhibit women participation in such a project? More specifically, we wish to see how women behaviour witnessed in chapter four is likely to be a function of the general political environment of the respective water projects.

Government support, political control and influence are viewed as crucial determinants of women's participation. As indicated earlier on in chapter one, the unit of analysis changes in this chapter from the individual woman attributes to the collective behaviour of women in any given project. At this level, women participation is operationalized in terms of mean labour input per project, per week, mean financial input per project, and decision-making.

According to the categorization adopted, a mean labour input of between 1 to 5 hours per project per week was regarded as low labour participation, 6 to 10 hours was regarded as medium labour

participation, while 11 hours and more was regarded as high labour participation. When participation was measured as mean financial input into the various water projects, four categories were adopted. A mean financial input of between 1 to 15 shillings was regarded as low financial participation. An input of between 16-30 shillings was regarded as medium financial participation, 31-45 shillings was regarded as high financial participation, whilst any financial input of beyond 45 shillings was regarded as very high financial participation. These categories were based on the observation made of the situation in the field. For instance, over 50 percent of the respondents interviewed felt that a contribution of over 10 shillings into the projects was too much given their level of income. The average income in the studied area was about 2400 shillings per annum. In decision-making, we were seeking to find out whether the presence or absence of government in a project, did facilitate women's willingness to contribute in decision-making, voting, taking up or desiring leadership roles or visitation to government offices.

5.2.1 GOVERNMENT SUPPORT

Government support was taken to include all inputs from the political system to the specific water projects. These inputs are viewed at two levels. At the policy and programme formulation level and, at the material and financial input level. At the first level, the strategy of District Focus for Rural Development (DFRD) and the Arid and Semi-Arid Lands (ASAL) programme together with the Women's Bureau as a women's policy implementing institution, are analyzed and

their effect on women participation evaluated. At the latter level, the effect of tangible government input on women participation is discussed.

It is important to note that the above programmes and institution are national and deal with various development activities of which water and women projects are only a part. Their discussion here, is deliberately narrowed to focus on these two aspects (women and water) with specific reference to the Kitui District of Kenya.

5.2.2 DISTRICT FOCUS FOR RURAL DEVELOPMENT PROGRAMME AND ITS EFFECTS ON WOMEN PARTICIPATION

The DFRD is based on the idea of decentralization.¹ This theory largely entails devolution, i.e the delegation of certain powers to local district level authorities by the central government. In decentralization, the responsibility of planning and implementation of rural development is shifted from the ministry headquarters to the various district headquarters in the country. It aims at broadening the base of rural development and encouraging local initiatives in order to complement the ministries' role in resource mobilization and project implementation at the local level.² Decentralization therefore, is a conscious choice that has to be justified either on the basis of faith or on the rational grounds of it being the best alternative, given administrative goals.³ In the case of Kenya, decentralization has been justified in the name of "grass-root" democracy. The argument is that institutional and political

decentralization would facilitate local participation in planning and in turn enhance accessibility to national resources and the general feeling of democratic participation.⁴

The basic assumption of decentralization programme is that the local people have an ability to determine their priorities through some process of collective decision-making at local level, from the grass root to the District level. The approval of a project by the District Development Committee is therefore taken to represent mandate of local support, it is presumed that these projects will become self-sustaining.

Though DFRD is not gender specific, it is assumed that women like any other group within the population, will take part in the process of choosing priorities from the local level to the district level. For the purposes of this study, the DFRD programme is examined in the context of water projects alone.

To establish whether the water projects were identified as priorities at the local level in line with the decentralization policy, this study sought to find out how and by whom the projects were identified and initiated. Of the 19 projects examined, 6 (31.6 percent) were identified and initiated prior to the implementation of the District Development Water programme. These were projects initiated by the government via the Ministry of Water Development (MOWD) depending on the location that the Ministry deemed most favourable. 7 projects (36.8 percent) studied were identified and

initiated through the DDC procedure. According to this procedure, the projects were identified by the community who then passed the project to the sub-locational development committee. At this committee, the projects were discussed and passed through voting to the next committee hierarchy, namely the Locational Development Committee. Following similar procedures the projects were passed at the Divisional Development Committee. At the District level, the projects deemed viable are certified and passed by vote for implementation. At this stage, a decision is taken as to whether a project will be implemented by the community alone or by the community in conjunction with the government, NGO or both. The type of project design to be adopted is discussed with the help of technicians from NOWD. A further of 6 projects (31.6 percent) examined were identified either by the local authorities, the government prior to the implementation of the DFRD strategy or by the community with the help of the NGO operating in the project area. At the time of the research, all the above projects were under the umbrella of the DDC.

When participation was assessed in these three categories of projects, those projects identified through the DDC procedure turned out to have the highest participation rates as indicated in Table 5:1.

TABLE 5:1 PARTICIPATION RATE IN DIFFERENT PROJECT CATEGORIES

Project	PRIOR		TO		DDC BY		DDC PROCEDURE		OTHER WAYS	
No.	Mean Labour	Mean finance	Mean labour	Mean finance	Mean labour	Mean finance	Mean labour	Mean finance	Mean labour	Mean finance
	Hrs/week	(shs)	Hrs/week	(shs)	Hrs/week	(shs)	Hrs/week	(shs)	Hrs/week	(shs)
01	8.00	0.00								
02	6.00	0.00								
06	5.96	22.60								
08	0.83	0.00								
13	2.50	36.67								
17	8.50	0.00								
<u>TOTAL</u>	<u>31.79</u>	<u>59.27</u>								
03			7.50	0.00						
04			9.63	48.75						
07			10.70	32.00						
14			7.47	14.93						
15			6.10	1.73						
16			5.00	35.00						
18			7.50	22.00						
<u>TOTAL</u>			<u>53.90</u>	<u>154.41</u>						
09							12.33	0.83		
12							9.54	18.62		
19							7.14	10.00		
10							5.25	0.83		
05							5.43	21.43		
11							4.00	40.00		
<u>TOTAL</u>							<u>43.69</u>	<u>91.71</u>		

SOURCE: Own Survey.

The projects initiated through the DDC recorded a mean labour input of 7.7 hours per week as opposed to 5.5 and 5.3 hours recorded by projects initiated prior to the DDC or through other means respectively. The same trend is evident when participation is measured in terms of financial input. Projects initiated through the DDC procedure had a mean financial input of 25.74 shillings as opposed to 9.86 and 18.07 shillings for projects initiated prior to the DDC or through other means respectively. This finding does constitute a

practical justification for the DFRD strategy. Higher participation in projects initiated through the DDC procedure can be linked to the argument that these projects have greater local support from the beneficiaries, whom in this case are mainly women.

Although participation measured in terms of labour and financial input was high in the DDC identified and initiated projects, the opposite was true for participation defined as decision-making in the project management committees. There was no consistency between participation in the labour and financial inputs on one hand and, participation as decision making on the other hand. Of significance to this study is the absence of women in the composition of Development Committees at all levels. For instance, in the entire district, all the chairpersons of the development committees were administrative officers who happened to be men. The chairmen constituted such persons as the sub-chiefs, chiefs, Division Officers and District Commissioner. This essentially means that at no level does a woman chair a development committee. Other positions in the Development Committees are held by chairmen of the local authorities, party cadre, Departmental heads and representatives of development related parastatals. These persons also happen to be largely men. In the Kitui Development Committee, there was only one woman representative at the time of the research who was expected to "represent" all women's needs in the district, water needs included.

The effect of this under-representation manifests itself in difficulty for any proposals made by women especially on project

design to pass through a committee system which requires a majority vote and a great deal of Lobbying. Thus, even though it is agreed that water is the first priority of Kitui District, the nature of the project design adopted, are determined by a vote that is largely male and that may not be aware of the problems these designs may pose on women, who are supposed to be a major beneficiary/user of the water projects.

Given the finding in chapter four that the presence of women in community decision-making positions enhances women participation, an increase in women representation at all levels of Development Committees is likely to increase their participation in project implementation and maintenance. This could in turn allow women participants to take part in choosing manageable technologies for the water projects. The presence of disused and broken down projects over the district is a clear indication of perhaps cheap, but inappropriate project designs. As indicated in chapter four, very few women participated in project design choice. When asked whether the project designs were appropriate, 100 women (90.9 percent) preferred alternative project designs (mainly tap water) to the operating project designs. However, due to the composition of the Development Committees, it is increasingly difficult for them to lobby to have their preferences passed through the development committees.

From the foregoing, it is clear that the composition of the development committees seriously constrains full participation of

women, particularly in deciding the appropriateness of the project designs over the District.

5.2.3 THE ASAL PROGRAMME AND WOMEN PARTICIPATION IN RURAL WATER SUPPLY

Another programme that has a direct effect on the level of women participation in rural water supply is the ASAL programme. Like DRFD, the ASAL programme is a nationwide programme. Through this programme, the government pursues the development of Arid and Semi-Arid Lands of Kenya. Being within the ASAL area, Kitui District is one of the beneficiaries of this programme. Though the programme is not gender specific, its activities do nonetheless affect women. This is partly because, women comprise a large portion of the programmes' participants in rural areas and secondly because, some of the activities that this programme deals with (soil and water conservation) relate directly to women.

The ASAL programme is implemented through the District Development Committee in conjunction with community efforts in project areas. The projects are identified and selected through the DDC procedure in collaboration with the agencies involved. In all cases, the ASAL water projects have been funded either in part or fully by international aid agencies. In the case of Kitui District, these agencies include, Swedish International Agency (SIDA), Danish Agency for International Development (DANIDA), NORAD and the United States Agency for International Development (USAID). The latter wound up its

activities in 1988. At the time of the research, only DANIDA and SIDA were actively involved in the District's water supply projects.

The basic aim of the ASAL programme is to create self sustaining innovation in the communities which in turn facilitate land rehabilitation. To this end, the aid agencies have worked with the communities on the water projects. In order to enhance the community's capabilities, the agencies have trained some of the people. In the studied project area 13 out of 140 respondents had received training on management of the water projects. This training improved the chances of the communities' abilities to sustain the projects. However, the number of people trained was obviously inadequate given that ASAL aims at self sustaining development. About 60 percent (84 respondents) felt that the training needed to be expanded to more beneficiaries. Of particular interest to this study is the fact that, only one woman respondent was trained on the job under the ASAL programme. Although there were trained personnel in the project area, many projects lay broken especially when these personnel were unavailable. In order to understand this point, it must be further pointed out that most of the men trained were not always within the community because they were not being paid for project maintenance.

A major concern of this study was to establish whether the presence of the ASAL programme had any influence on women participation in water projects. To ascertain this, we first had to establish the presence of ASAL programme intervention in the projects

under study. Of the nineteen projects examined, seven had the ASAL programme integrated in them. When we measured women participation as mean labour input, of the seven projects within the ASAL programme, six had medium mean labour input while one had high mean labour input. Of the twelve where ASAL programme was not integrated, three had low mean labour input, eight had medium mean labour input and one had high mean labour input. When a gamma value was computed, a strong and positive value of 0.65 was obtained. Meaning that, the presence of ASAL did positively influence labour input into the projects. See Table 5:2.

TABLE 5:2 TABULATION BETWEEN PRESENCE OF ASAL AND
PARTICIPATION (MEAN LABOUR INPUT)

	Non ASAL Projects	ASAL Projects	
Low	3	0	3
Medium	8	6	14
High	1	1	2
Total	12	7	19

SOURCE: Own Survey.

Although it is plausible that this value was influenced by the presence of no case in one of the cells in the first column of Table 5:2, comparisons of the actual mean labour inputs show that women's participation was higher in projects integrated into ASAL programme than otherwise as indicated in Table 5:3.

TABLE 5:3 **COMPARISON OF MEAN LABOUR IN PROJECTS WITHIN**
AND THOSE OUTSIDE ASAL PROGRAMME

PROJECTS WITHIN ASAL		PROJECTS OUTSIDE ASAL	
Project No.	Mean Labour Input per week/project	Project No.	Mean Labour Input per week/project
03	7.50	01	8.0
07	10.70	02	6.0
10	5.25	04	9.6
12	9.54	05	5.43
14	7.47	06	5.9
15	8.50	08	0.83
17	8.50	09	12.33
		11	4.0
		13	2.50
		16	5.00
		18	7.50
		19	7.14
TOTAL	57.46/7	TOTAL	74.23/12
Average participation	= 8.20	Average participation	= 6.18

SOURCE: Own Survey

When participation was taken in terms of mean financial input, of the seven projects with ASAL component, five had low mean financial input, one had medium mean financial input and one had high mean financial input. Of the twelve projects without an ASAL component in them, five had low mean financial input, three had medium mean financial input and one had very high mean financial input.

When the above was computed to establish the nature of the relationship, a negative strong gamma value of -0.65 was obtained as shown in Table 5:4.

TABLE 5:4 TABULATION BETWEEN PRESENCE OF ASAL AND
PARTICIPATION (MEAN FINANCIAL INPUT)

	Non ASAL Projects	ASAL Projects	Total
Low	5	5	10
Medium	3	1	4
High	3	1	4
V. High	1	0	1
Total	12	7	19

SOURCE: Own Survey.

As in the case of labour participation, one may argue that the figure obtained was a result of an empty cell in the cross tabulation. However, comparison of the actual figures support this correlation by indicating a lower rate of participation in projects where ASAL was present than in projects where the ASAL programme was absent. This difference is illustrated by Table 5:5.

TABLE 5:5 COMPARISON OF PARTICIPATION IN DIFFERENT PROJECT
CATEGORIES. (ASAL/NON ASAL PROJECTS)

<u>PROJECTS WITHIN ASAL</u>		<u>PROJECTS OUTSIDE ASAL</u>	
<u>Project No.</u>	<u>Mean financial Input per week/project</u>	<u>Project No.</u>	<u>Mean financial Input per week/project</u>
03	0.00	01	0.00
07	32.00	02	0.00
10	0.83	04	48.00
12	18.62	05	0.00
14	14.93	06	22.00
15	1.73	08	0.83
17	0.00	09	35.00
		11	22.00
		13	10.00
		16	21.43
		18	40.00
		19	36.67
<u>TOTAL</u>	<u>68.11/7</u>	<u>TOTAL</u>	<u>235.93/12</u>
<u>Average parti-</u>		<u>Average parti-</u>	
<u>cipation</u>	<u>= 9.73</u>	<u>cipation</u>	<u>= 19.66</u>

SOURCE: Own Survey.

The difference between women's participation (labour and financial input) in the presence of ASAL programme was explained by the very nature of the programme. Principally, the aid agencies make financial and material provisions to the projects. This means that they (funding agencies) tend to mobilize the population in this case women, who comprise the largest portion of the beneficiaries, largely for labour as opposed to other inputs. The result of this is that most of the people provide much more labour than finance to the projects. About 80 percent of the respondents (112) felt that the presence of funding/donor agencies had a positive impact on women

participation. These respondents quoted the efficiency with which both finance and material inputs were channelled to the projects and mobilization skills by the ASAL officers as major determinants of the high labour participation in projects integrated in the ASAL programme. There was an established network of community facilitators from the district to the sub-locational levels.

When participation was taken as decision making, we noted that participation increased in ASAL aided projects. Of significance was the fact that for each of the seven projects under ASAL programme, one election had been held since the project began. Indeed in some projects elections were held annually while in Ikanga project (12) there had been three elections in five years. Although it could be argued that one election is an inadequate measure of participation, in evaluating the leadership performance of the seven projects, there was a general feeling of satisfaction with the leadership, in the project where elections had taken place.

The desire to hold leadership positions by women was also higher in these projects. Over 56 percent (18) of the women who expressed desire to hold executive positions in the project management committees, were women within the ASAL projects. Most of these women had contested but had been beaten in various elections.

Although the other projects outside ASAL did have project committees, these had been selected by the sub-chief, or chiefs or headed by a person who lived closest to the project, naturally because

he benefitted more from the project. However, in one project Nuu (09) the committee had come about by elections. Nevertheless these elections had been organized and lead by the area councillor who is also the head of the executive committee of the project.

Thus as in labour input, the participation of women measured as decision making did increase with the presence of ASAL programme in a project.

5.2.4 WOMEN'S BUREAU AND WOMEN PARTICIPATION IN RURAL WATER SUPPLY

The women's Bureau is a Women in Development policy implementing institution of the government designed primarily to coordinate women group activities. In coordinating women activities, the Bureau liaises between women groups and other government ministries. In this way, it facilitates cooperation so that projects implemented by the groups are in keeping with the planning strategies of the relevant ministries and the needs of the communities.

The coordination of activities and assistance for groups take place at several levels. At the community level, field extension officers (workers) liaise with extension officers of other ministries to secure appropriate technical assistance or material input for specific projects. If a group seeks financial assistance, the community development officer reviews the group's request and makes the recommendation to the Women's Bureau on the appropriateness of the project for the area and the group's ability to implement it

successfully. Depending on the nature of the project, ministries may be subsequently involved in providing necessary technical assistance.

We expected participation to increase with the presence of the Women's Bureau officers. However, we found that participation took place inspite of the presence of the Women's Bureau. In no one project was the effect of the Women's Bureau regarded as significant by the respondents as indicated in Table 5:6.

TABLE 5:6 EFFECT OF THE WOMEN'S BUREAU ON THE
PARTICIPATION IN PROJECTS. (BY RESPONDENTS)

	Female	Male	Total
Significant Effect	0	0	0
Not Significant Effect	22	16	38
Do not Know of Bureau	88	14	102
Total	110	30	140

SOURCE: Own Survey.

Since water is considered as a basic need for everyone other than a need peculiar to women, the presence of the Women's Bureau was completely intangible in the studied area. Indeed most of the mobilisation work was done by the administration officers, the sub-chief and the chief as opposed to the Women's Bureau Officers. This was in line with the fact that water projects were seen within the context of community projects. Due to this perception, the projects did not receive adequate attention from the Women's Bureau.

When the District Social Development Officer was interviewed to find out the role of the Women's Bureau in water development, he was quick to point out that the Women Bureau was engaged in income generating projects such as vegetable production, basket weaving and rental projects among others. He also stressed the fact that Women's Bureau was concerned with women projects as opposed to community projects and that water projects fell largely within the second category.

Following the reaction of both the respondents and the officer representing the Women Bureau in the district, we concluded that this institution important as it may appear, lacked a significant effect on women's participation in the water supply projects.

5.3.1 GOVERNMENT FINANCIAL INPUT

Government's financial input was taken in monetary terms to include all inputs whether in form of materials or cash channelled to the projects. Of the nineteen projects examined, the government had given financial contribution to ten. Of these ten, three received financial input from various NGO's. Seven other projects received financial contribution from the central government, while two projects did not receive any financial input from outside as shown in Table 5:7.

**TABLE 5:7 DISTRIBUTION OF PROJECTS BY FINANCIAL
AID AGENCIES**

<u>Aid Agency</u>	<u>Number of Projects</u>
Government	7
NGO's	7
Government and NGO's	3
<u>Community/Beneficiaries</u>	<u>2</u>
<u>Total</u>	<u>19</u>

SOURCE: Own Survey.

The actual cost and amounts of cash inflow into the projects studied from the three categories of financiers was as indicated in Table 5:8.

TABLE 5.8 THE COST AND TOTAL CASH INFLOW TO THE PROJECTS**(In million shillings)**

Project No	Cost of Project	Government Financial Input	NGO/IA Financial Input	Beneficiaries Input
01	0.1	0.1	0	0
02	2.0	2.0	0	0
03	2.0	0	2.0	0
04	0.00001	0	0.00001	0.00001
05	0.1	0.1	0	0
06	0.35	0	0.35	0
07	4.0	0.2	3.8	0
08	0.00002	0.00002	0	0
09	4.0	2.5	1.5	0
10	1.0	0	1.0	0
11	2.0	1.5	0	0.5
12	4.5	1.0	3.5	0
13	2.0	1.0	0	1.0
14	0.1	0	0.1	0
15	0.1	0	0.1	0
16	0.00004	0	0.00004	0
17	2.0	0.1	1.9	0
18	0.00001	0	0	0.00001
19	0.00005	0	0.00005	0

SOURCE: Own Survey.

It is evident that the government was a principle financier to over 36 percent of the projects examined. The maximum financial aid the government put into one project was 2.5 million shillings. The average input from the government was 0.31 million shillings. We thought this average amount small, given that the average cost per project was about 1.05 million shillings. However, in line with decentralization, these amounts were meant only to motivate participation from beneficiaries other than cover the total project costs. It was thus expected that government support in terms of financial aid to projects did facilitate higher women participation in the said projects.

The question addressed to in this respect is whether the presence of government support did affect women participation. To answer this question, government financial input was correlated against women participation. For the sake of ease, government financial input was categorized into four levels as indicated in Table 5:9.

**TABLE 5:9 CATEGORIZATION OF GOVERNMENT FINANCIAL
INPUT IN MILLION SHILLINGS**

<u>K.Shs. (millions)</u>	<u>Rate of Input</u>
.001-0.1	Low Input
.11-1.	Medium Input
1.1-2.	High Input
2.1 +	Very High Input

SOURCE: Own Survey.

Consequently then, of the 10 projects that got financial input from the government, four got low government input, two got medium government input, three got high government input and one got very high government input. We expected that women participation increased with government input.

When participation was taken as financial input, of the four projects that had low government input, three had low participation while one had medium participation. Of the two that got medium input, one had medium participation while the other had high participation. Of the three projects that had high government input, one had low participation and two had high participation. The one project that got very high government input had low financial participation.

When the two variables were cross-tabulated to find out the nature of their association, a positive albeit weak gamma value of 0.36 was obtained as shown in Table 5:10.

TABLE 5:10 THE EFFECT OF GOVERNMENT FINANCIAL INPUT ON
WOMEN PARTICIPATION (FINANCIAL)

	<u>Low</u>	<u>Medium</u>	<u>High</u>	<u>Very High</u>	<u>Total</u>
<u>Low</u>	3	0	1	1	5
<u>Medium</u>	1	1	0	0	2
<u>High</u>	0	1	2	0	3
<u>Total</u>	4	2	3	1	10

SOURCE: Own Survey.

The correlation obtained was positive as expected. However, when participation was viewed in actual amounts, community/beneficiary projects manifested a higher participation in comparison to both government, Agencies for International Development and NGO financed projects. Whereas the projects that got government financial input showed a mean financial participation of 14.96 shillings, those with financial inputs from AID and NGO's showed a 13.65 shillings mean participation. The community/beneficiary projects indicated a mean financial participation of 35 shillings. The latter is more than twice the participation from the earlier categories of projects. Taken in another form, the presence of external financial input did reduce women financial participation. Although the high participation within the community financed projects reaffirms the official attitude towards community projects to the effect that the government should only contribute 'seed' or 'motivation' resources, we observed that these projects did not have any substantial external support even in terms of motivation especially, from the government.

From discussions and probing during the interviews, two main reasons emerged as the plausible explanations for the relative low financial participation in projects that received financial input from either the Government, International Aid Agencies or NGO's. One, most of the beneficiaries had low incomes. In the event that there was money from outside, there was reluctance to participate in terms of financial contribution. Secondly, most beneficiaries felt that the government had an obligation to them in terms of financing the projects. Over 50 percent of the interviewees felt that the

government had a duty to channel aid especially, financial aid to the projects.

How about participation measured in terms of mean labour input into projects? Of the four projects that got the financial input from the government, one had low labour participation while three had medium labour participation. Of the two projects that got medium government financial input, one had low participation while the other had medium participation. Of the three projects that got high government financial input, one had low participation, one had medium participation and one had high participation. The one project that got very high government financial input had high labour participation.

Like in financial input, when the correlation was done between government financial input and labour participation, a positive relationship was obtained. A gamma value of 0.42 was derived from the cross-tabulation presented in Table 5:11.

**TABLE 5:11 THE EFFECT OF GOVERNMENT FINANCIAL INPUT ON
WOMEN PARTICIPATION (LABOUR)**

	Low	Medium	High	Very High	Total
Low	1	1	1	0	3
Medium	3	1	1	0	5
High	0	0	1	1	2
Total	4	2	3	1	10

SOURCE: Own Survey.

Inspite of this positive correlation a comparison of the actual amounts of mean labour input per project indicate that NGO, International Donor Funded Projects and beneficiary financed projects had a higher labour participation as indicated in Table 5:12.

TABLE 5:12 PARTICIPATION IN DIFFERENT PROJECT TYPES

Aid Agency	Mean Labour Participation Hrs/Project/Week	Mean Financial Participation Shs/Project
Government	6.0	14.96
NGO's/IA	7.5	13.65
Community/ Beneficiary	9.0	35.00

SOURCE: Own Survey.

The high participation in community/beneficiary financed projects may be explained by the existence of a desire within the community to attract either the government, AID, NGO's or all as sources of assistance. It may also be seen as a manifestation of the community's greater identity with a project they have been involved in choosing and designing.

From Table 5:12, it is evident that the government financed projects had a higher financial participation than the NGO and AID financed projects. The reason for this is that the administrative officers namely, the chiefs and sub-chiefs are involved in collecting the project contributions locally referred to as "Yeelo". In the

event that a beneficiary does not meet the required contribution towards the project, their property is seized by the askaris in a process popularly known as "nguuti" meaning, clearing (of debts). On the other hand, NGO operating in a project may lack such power that can be utilized for forced subscriptions. The lower financial participation in NGO financed projects may also be attributed to the NGO's practice of taking up the entire project funding and only mobilizing the beneficiaries to contribute the unskilled and sometimes semi-skilled labour.

Although women provided large amounts of labour in all types of projects, in comparative terms, the government-sponsored projects had lower labour contribution than the NGO beneficiary or AID financed projects. This may perhaps be a result of ill feelings on the part of the people after what is largely perceived as forced financial subscriptions. Moreover, forced labour is difficult to impose on people because such an activity can create negative feelings towards the political system. Although it may seem obvious that the community beneficiary financed projects had a high participation by their very nature of stemming from the people themselves, probing in these projects revealed that the increased participation in community/beneficiary financed projects was a bait for aid from outside the project. There was a widely held view that external financial aid came to a project that showed high incentive on the part of the participants.

In spite of the above variations, government financial aid did positively correlate with women participation, both financial and labour. However, when these associations were tested for significance at 95 percent level of confidence, the correlations were found to be insignificant. This means that even though government financial input does relate positively with women participation, it cannot fully explain the nature and level of women participation on its own.

When participation was taken as decision making, there was a strong negative association between participation and government financial input. In all government aided projects, leadership position (decision-making roles) were dominated by government officers like the chief, sub-chief and community development officers. Compared to the NGO, AID and beneficiary financed aided projects, we cannot talk of any participation in the government aided projects. In the beneficiary aided projects, all members attended planning meetings that were organized weekly. Of the 32 women that stated the wish to hold executive position 20 (62.5 percent) belonged to projects that were not aided by the government.

The disparity between participation in financial and labour input on one hand and decision-making role can be explained by several factors. One, in the beneficiary aided projects, the women were the initiators and maintainers of these projects. In the NGO and International Donor Agency aided projects, there were encouragement for the beneficiaries particularly to be part of the decision-making mechanisms of the project management. The opposite was true in

government aided projects where, there was dominance by 'powerful' persons in the management committees. Indeed it was administrative officers that did the large part of the mobilization work in these projects.

5.3.2 GOVERNMENT TECHNICAL INPUT AND WOMEN PARTICIPATION

Government technical input was measured by the number of officers attached to a certain project area to advise and guide beneficiaries, in this case women, on improving participation in the development of rural water projects.

The maximum number of officers attached to a project area was three. However, most projects did not have any officer attached to them as shown in Table 5:13.

TABLE 5:13 DISTRIBUTION OF GOVERNMENT OFFICERS BY PROJECTS

<u>No. of Officers Attached to Project Area</u>	<u>No. of Projects</u>	<u>Percentage</u>
0	14	73.68
1 - 2	4	21.06
3 - 4	1	5.26
<u>TOTAL</u>	<u>19</u>	<u>100.00</u>

SOURCE: Own Survey.

We sort to find out whether the presence of government officers had any effect on women participation. When participation was measured as financial input, of the fourteen projects without officers attached to them, two had low mean financial participation, eight had medium mean financial participation, three had high mean financial participation while one had very high mean financial participation. Of the five projects with officers attached to them two had low mean financial participation, two had medium mean financial participation while one had high mean financial participation. Consequently then, there appeared a negative correlation between government technical input and participation. Participation tended to decline with the presence of government technical input. This was ascertained by a negative gamma value of -0.4.

This negative association may be due to the common practice for beneficiaries to entertain the government officers attached to projects. The result of this activity was that most contributions made to the projects by beneficiaries, were used to meet the expenses of the officers who in most cases visited the projects instead of participating in the day-to-day activities of the projects. Indeed, the officers' visits were usually crowned with presents to the officers, bought with the participants' financial contributions.

When participation was taken as labour input, of the fourteen projects with no government officers attached, one had low mean labour input, eleven had medium mean labour input, and two had high mean labour input. Of the five projects in which government officers were

attached, one had low mean labour input, two had medium mean labour input and two had high mean labour input. This meant that participation in terms of labour input was higher in projects without government officers. This negative correlation was affirmed by a negative gamma value of -0.54.

Investigations into the plausible explanation for this unexpected result, point to the government officers' attitude as a major obstacle to women participation. Although most of the respondents were agreed on the importance of the presence of a government officer(s), 63 respondents, 45 percent of the interviewees stated that, most government officers were exploiting their meagre contributions other than helping them enhance their participation in the projects. 46 respondents, 33 percent of the interviewees felt that government patronizing attitude was yet another explanation for the low participation in projects where officers were attached. A similar finding has been documented in a case study of Egypt, where, patronizing government officers' attitudes reduced women participation in water supply projects considerably. Participation in decision-making was inspite of the technical input into the projects. As indicated, the government officers remained more of observers than participants in the projects.

5.4 THE EFFECT OF EXTERNAL CONTROL ON WOMEN PARTICIPATION IN WATER PROJECTS

As indicated in chapter one, external control comprised of control by either the administrative officer or the political elite in the project area. Control was operationalized in terms of the influence the concerned persons had on the beneficiaries' participation rate. This influence was classified into three categories depending on the opinions of the respondents and our observations. These categories were, not important, important and very important. The hypothesis under test in this section was that, the lesser the external control, the higher the women participation in water projects.

5.4.2 GOVERNMENT OFFICER CONTROL (INFLUENCE) AND WOMEN PARTICIPATION

The government officers under examination were the chiefs and sub-chiefs. In six of the nineteen projects examined, the administrative officers' influence on participation was rated as not important. In six other projects, it was rated as important and in seven projects it was rated as very important as shown in Table 5:14.

TABLE 5.14 DISTRIBUTION OF PROJECTS BY INFLUENCE OF
GOVERNMENT OFFICERS

<u>Rating Contribution</u>	<u>No. of Project</u>	<u>Percentage</u>
Not Important	6	31.58
Important	6	31.58
Very Important	7	36.84
<u>Total</u>	<u>19</u>	<u>100.00</u>

SOURCE: Own Survey.

Of the seven projects that rated government contributions as very important, three had low mean financial input, two had medium financial input and two had high financial input. Of the six projects that rated government contribution as important, one had low mean financial contribution, four had medium financial contribution and one had high mean financial contribution. This meant that the rate of participation declined in projects as the influence of government officers increased. This relationship was affirmed by a gamma value of -0.64 computed from the cross-tabulation in Table 5:15.

TABLE 5:15 THE EFFECT OF GOVERNMENT OFFICER INFLUENCE ON
PARTICIPATION (FINANCIAL)

<u>Rate Govt. Off.</u>	<u>Not Important</u>	<u>Important</u>	<u>V.Important</u>	<u>Total</u>
<u>Mean finance</u>				
<u>Contribution</u>				
Low	0	1	3	4
Medium	4	4	2	10
High	1	1	2	4
Very High	1	0	0	1
<u>TOTAL</u>	<u>6</u>	<u>6</u>	<u>7</u>	<u>19</u>

When participation was taken as labour input, a negative correlation was also computed. Of the six projects that rated government officer influence as not important, one had medium labour contribution while five had high labour contribution. Of the six projects that rated government officer influence as important, one had low labour input, one had medium labour input and four had high labour input. Of the seven projects that rated government officer influence as very important, two had low labour input, one had medium labour input and four had high labour input. Like in financial participation, participation tended to decline with increased influence. This negative relationship was affirmed by a gamma value of -0.44 derived from the computation in Table 5:16.

TABLE 5:16 THE EFFECT OF GOVERNMENT OFFICER INFLUENCE ON PARTICIPATION (LABOUR)

Rate Govt. of Mean labour Contribution	Not Important	Important	Very Important	Total
Low	0	1	2	3
Medium	1	1	1	3
High	5	4	4	13

SOURCE: Own Survey.

The findings above clearly show the effect of control as being negative on women participation. This perhaps is because control entails close supervision of activities. Thus close control seems to

have impeded any meaningful women initiative hence the low participation when the influence of officers was deemed important.

There was high influence particularly by local administrators in government initiated projects. We observed that this influence was aimed at luring participation from a population that did not largely take part in the initiation of the projects.

5.4.3. POLITICIANS CONTROL (INFLUENCE) AND WOMEN PARTICIPATION

A politician was defined as any person male or female who is, has been or intends to be in active politics in way of holding an elective post. Politicians included members of parliament, aspiring members of parliament, former members of parliament, councillors and the party cadre. Like in administrative control, politicians influence was rated as not important, important and very important depending on their role in determining the nature and level of women participation in the said projects.

Of the nineteen projects examined, in only two was the politicians influence rated as very important. In the other seventeen projects, the politicians influence was regarded as not important. When participation was taken as financial input, of the two projects where politicians influence was rated as very important, one had medium mean financial participation while the other had high mean financial participation. Of the seventeen projects that rated the politicians influence as not important, four had low mean financial

participation, nine had medium mean financial participation, three had high mean financial participation and one had very high mean financial participation.

This meant that there was a negative correlation between politicians influence and participation measured in terms of financial input. This negative relationship was affirmed by a gamma value of -0.58 which meant that an increase in political influence meant a decline in women's financial participation. This finding supports the hypothesis that external control is negatively correlated to women participation. Indeed this association was found statistically significant when tested at 95 percent level of confidence.

When participation was measured in terms of labour input, there was no association between political influence and women's participation. This was affirmed by a value of 0.0 indicating that no relationship existed between the two variables. This means that factors other than political influence can explain women's labour participation.

Politicians tended to support persons for their own use and benefit. They encouraged and supported persons who could remain resource persons in their political careers. It was clear from the investigation carried out that political influence had a negative rather than positive impact on participation. Whereas 45 percent of the women respondents felt that political influence was a stepping

stone for political ambitions by the politicians, 35 percent felt that political influence was hindering unity amongst participants due to different political inclinations amongst them. This in turn inhibited their full participation. Thus 80 percent of the respondents felt strongly that political control would reduce rather than increase women participation. This finding confirms the hypothesis set forth for verification that, external control is negatively correlated to women's participation.

5.5 CONCLUSION

The findings in this chapter reveal several issues. It is clear that the composition and structure of DFRD does hinder full women participation. Secondly, whereas the ASAL programme goes beyond the DFRD by trying to integrate training in the projects for beneficiaries, the training is biased towards men and therefore, women who are supposedly the major beneficiaries in this case, are not trained. Besides, the training has not been extensive. For instance, the only woman trained in the project area, had received the training on the job. Consequently, she could not sufficiently handle some of the technical aspects of the projects. Thus though the ASAL programme did facilitate participation, the findings here indicate that participation would be enhanced by an increase in women trainees and improvement in the quality of their training. Thirdly, the Women's Bureau was found to have no effect on women participation. This was because its presence in the project area was not felt. Its operations

were mainly geared towards purely income generating projects and water was not regarded as such. Women participation was therefore, inspite of the existence of the Women's Bureau. Fourthly, Government financial input was found to positively influence women participation. However, when comparison of participation was made between projects receiving government financial input and those not receiving government financial input, the latter showed a higher women participation in both financial and labour hours put into project activities. Indeed, the positive relationship between government financial input and women participation, was found insignificant when tested at 95 percent level of confidence. On the other hand, Government Technical input was found to be negatively correlated with women participation. This relationship is explained by among other factors, the attitude of government officers and women themselves. Fifthly, elite control, both administrative officers' and politicians' control was found to affect women participation negatively.

Although the findings in this chapter indicate the importance of government support in enhancing women participation in rural water supply, in most cases, governments' control over project design and implementation tends to reduce rather than facilitate women's participation in this case water projects. It is also evident that external control inhibits rather than encourages women's participation in water projects.

All the findings herein have been explained in this chapter and their policy implications are stated and analyzed in the next chapter.

FOOTNOTES

1. B.C. Smith, Field Administration: An Aspect of Decentralization. London, Routledge & Kegan Paul, 1967 page 1.
2. Njuguna Ngethe, "Development Administration: Decentralization and the Special Rural Development Programme in Kenya. Some Administrative - Political Considerations", A Paper for discussion at a seminar on Decentralization and integrated Rural Development in Africa. Present Experiences and Future Direction Moshi, August 4-16, 1975 page 8.
3. Njuguna Ngethe, "Development Administration in East Africa" in Journal of Administration Overseas. Vol. V. 1966 page 9.
4. Njuguna Ngethe, op cit, page 9.
5. Republic of Kenya, Development Plan 1979-83. Nairobi, Government Printer, 1979 page 253.

CHAPTER SIX

SUMMARY, ASSESSMENT OF FINDINGS AND CONCLUSION

6.1 SUMMARY

The major objective of this study was to examine some of the major political factors which influence women participation in the development of rural water, with specific reference to Kitui District of Kenya.

Interest in this study emanated from two factors. One, an existing gap in the literature on women and water. The existing literature repeatedly points at the socio-cultural factors as the major determinants of women participation in rural water supply. Whereas no one can negate the importance of such factors, this study treats socio-cultural factors as crucial intervening variables whereas, political factors are given prominence as the major determinants of the nature and level of women participation. Secondly, and more important, there has been an increase in government pronouncements on the issue of women participation in development. This study therefore, was an effort to assess how the political system influences the nature and level of women participation, in rural development.

It was hypothesized that a woman's personal ability, involvement in decision making role, government support and control both administrative and political are the major determinants of women participation in rural water supply. Women's personal ability included: education, income, number of children, marital status, age, training and desire for water. Whereas some of the enumerated variables may be reviewed within a social context, it is unquestionable that a person's characteristics gives them the ability or power to partake various activities in this case, water development. Involvement in decision making was viewed at both the project and community levels. Government support was taken as the policy and material input into the water projects from the political system while control, was taken as close supervision and influence from either government administrative officers, politicians or both.

A total sample of 162 respondents were interviewed. Of these, 110 were women participating in the water projects. 30 were men participants in the water projects and 22 were government administrative officers and party officials.

6.2 ASSESSMENT OF FINDINGS AND THEIR IMPLICATIONS

In chapter four of this Thesis, we set out to establish the influence of the ability of women on the nature and level of their participation in rural water supply. We set out with the assumption that water was a basic need in Kitui District and that, the more it was desired, the more women would indulge in activities to develop and

sustain it. This study has revealed that water is the most desired need for both domestic consumption and as a development catalyst in Kitui District. The implication of this finding is that the provision of adequate water supply would play a vital role to not only the individual woman participant but also to the entire society. Hence, if rural development is to be realized, there is a necessity to develop rural water supply as a facilitator to this development. The determination of a desire such as rural water can be achieved when the needs of the local communities are closely monitored and a continuous assessment of the nature of projects most longed for carried out.

Contrary to the theoretical assumption of this study that, increased desire of a Basic Need facilitates motivation on the part of the target group to actively participate, the strong desire for water was found to correlate negatively with women's participation. Various factors were quoted as deterring participation inspite of the strong desire for water. One, most women quoted lack of adequate time to attend fully to project activities, others quoted lack of adequate representation in decision making structures of the project committees. Low incomes was also quoted as another hinderance to full active participation of women. Only women with high incomes found it relatively easier to participation since both financial and material contributions required substantial capital. In its absence therefore, women lacked significant participation particularly at the financial and material input levels. We observed that most women lacked awareness that would have facilitated their participation. For instance, most did not know how to go about getting the necessary

material inputs needed for the projects. We also observed that some attitudes inhibited women's full participation. For instance some women thought it odd for women to take part in decision making involving project management. This had the effect of exhibiting a negative correlation between the desire for water and participation in terms of decision making. Consequently then, the participation of the majority of the women consisted of labour input only, inspite of their strong desire for water.

The study further revealed that age did affect women participation particularly in decision making input. More women tended to participate with advancing age. The reason behind this was largely attitudinal. According to the BWA, participation is enhanced not only by the existence of a basic need or ability of the participants, but also positive consciousness i.e. a positive belief structure. This seemed to be inadequate in the case of Kitui district. For instance, the young persons, even when educated were not allowed to take part in decision making of the project activities. It was widely believed that as one's age advanced, one became more responsible, more security conscious, more wise and therefore a more able leader. Thus the educated but young population was discriminated against in election and/or selection as project decision makers. This discrimination was even more biased towards girls and unmarried women whom, it was believed were not permanent residents of their birth places as they were expected to get married. It was the elderly men and women who largely participated in decision-making. Thus, inspite of the strong desire for water, the socio-cultural attitudes in the

study area greatly hindered full utilization of the existing human potential.

The implication of this finding is that there is need for an education programme that would enlighten the beneficiaries on, the advantage of the presence of the educated in such development projects as the water projects. A commitment to people centred development requires purposeful efforts to weaken the hold on perception on age or on women as inferior to men and, bringing about more enlightened social attitudes to both the youth and women.

This study has also found out that training related to water projects enhanced women participation. However we observed that there was a limited number of trained personnel (of the 110 women respondents, only one woman had received training related to water management) which greatly curtailed women's full participation. This was because maintenance and project repairs were either delayed or not adhered to at all. The importance of training is in enhancing meaningful women's participation in the development of rural water supply. Training enables women to give feedback for design improvements, identify projects needed, implement and maintain projects without heavy reliance on their male counterparts who may not be readily available. Moreover, women with training can also act as trainers for their unskilled counterparts.

The implication of this finding is that there is need to create and intensify training for women. The training may be carried out on

project sites or in institutions that are less technical than the present water training institutes. In order for the women to take up these training programmes effectively, there is need to cultivate the feeling that trained women can be as good as men in handling water technologies in the community. Changes should be accompanied and supported by deliberate endeavours to foster a gender-sensitive culture. In this way, the opposition to women training in the society would be reduced and gradually erased.

The study has also revealed that women participation was negatively correlated to income. It was the expectation of this study that the lower the income, the more difficult it was for an individual to afford private water facilities and hence the higher that individual's participation in project activities. The hypothesis that low income correlated positively to women participation was supported. This affirms one of the contentions of the BWA that depending on the manifest need of an area, the target group tends to participate more. In spite of this affirmation, it was only at the level of decision making that the correlation between income and participation was found to be significant at the testing level of 95 percent.

This study has also found out that women participation in project management enhanced women participation in water supply. This finding confirmed the hypothesis set forth that, the more women are in project management, the higher their participation in water projects. This reinforces arguments in previous studies that have been reviewed.

Such studies have found that women's participation increases remarkably when they are allowed to be part of the management committees at the project level. Thus, these studies argue, exclusion of women in decision making areas means less participation and increased project failures. The arguments of these studies are reinforced by the finding of this study that, women participation cannot be significant if women are insignificantly involved in decision making of the water projects.

The implication of this finding is that there is need to eliminate any factors inhibiting women participation in decision-making. This way their general participation is enhanced. Perhaps this can be done slowly by beginning to appoint female officers at both the technical and administrative levels in the rural areas. This way, the rural folk can begin to see and appreciate that women can successfully participate in leadership positions and hence, be encouraged either to take part, to elect or select women to project management committees.

This study has shown that women participation in community programmes enhances women participation at project level. As argued in the literature review, if we agree that women are promoters of change then they can determine the impact that any project has. Thus if women are in community decision making institutions their needs and roles move from the project machinery to the community machinery. Their needs are taken into account during the broad planning process.

Besides, their presence would positively motivate and encourage the other women to participate more.

The implication of this finding is that there is need to encourage women to take up community leadership roles. Their involvement in community programme committees is necessary so that their needs in relation to the general development and specifically in water projects can be enhanced. The finding above supported the hypothesis that the more women participate in decision-making roles of community development programmes, the higher the women participation in rural water supply.

In chapter five of this Thesis, we sought to find out the effect of the political environment on women participation in rural water supply.

We set out from one of the premises of the BNA which states that a supportive political will on the part of the political system, enhances participation towards attainment of a basic need. Although policy statements have been issued in relation to supporting the women effort in Kenya, the study has shown that the implementation structures and institutions of the government do not facilitate full women participation. For instance, women were under-represented in the various development committees. Even the small number of women in these committees held positions of very little influence.

This finding implies that the women water needs were not well articulated through the mechanisms set forth in the institutional structure. This finding concurs with the BNA assumption that full mobilization of human resources and especially that of the target group requires the latter's full participation at all the levels of decision-making. This means that for participation to be enhanced, the issuing of policy statements that show a positive will from the government must be followed by designing of institutional structures that allow the target-group in this case, the women to participate fully.

The Women's Bureau presents an example of the kind of structure that can enhance women's participation. However, this study found that the Women's Bureau did not facilitate women participation in the development of rural water supply. Being a government created institution, it performed its tasks clearly under the DDC procedure and through the established government chain of command. Moreover, its emphasis on income generating activities meant that its concentration was away from the development of rural water supply which is more of an infrastructural facility. More than 72 percent of the total respondents had not heard of the Women's Bureau. This meant that the Women's Bureau had no significant effect on the women's participation.

Although the government has initiated the ASAL programme under which several water projects in Kitui District have been established, this study found that the influence of this programme on women's

participation was not strong. The programme which is meant to conserve both soil and water in the Arid and Semi-Arid lands of the country, is implemented through the DDC procedure. This means that the programme suffers the structural limitations discussed earlier. About 50 percent of the respondents felt that the ASAL programme did have a positive influence on the development of rural water supply. However, this positive influence of the programme can be enhanced with a restructure in its mode of operation.

In a nutshell we can say that although the DDC procedure, the ASAL programme and the Women's Bureau are manifestations of a positive political will, their influence on women's participation in rural water supply is minimal due to the structural arrangements that lack a definite women component.

The implication of this finding is that there is need for formation of structures which are independent from government departments and/or which are women specific in character. Such programmes or institutions should cover all the activities and be such that women's opinions and desires on various development issues can be channelled and tackled. The most immediate solution would be to allow for an increase in the women representation in the development committees from the local to the district level. In this way women water needs can be initiated, passed and implemented with a clear and not imagined support of women.

Whereas we found that government financial input correlated positively with women participation, the opposite was true for government technical input. Women participation increased with government financial input. However, when comparison of participation was done between those projects receiving government financial input and those projects that did not get such assistance from the government, the latter showed a higher participation particularly at the financial input level. This discrepancy was explained mainly by the reluctance on the part of women "to add money unto money". Given their low incomes, women felt financially relieved when the government channelled funds to the water projects.

We observed that ideas and motivation are not lacking amongst the women but frequently technical knowhow was deficient. Nevertheless, although women were well aware of the importance government technical input, they criticized the government officers' attitudes as exploitative and patronizing. We further observed that government officers' visits were irregular and expensive for the project participants. Indeed, the presence of government officers was largely held in contempt by most of the participants. When we did further probing, we found out that the government officers' attitude created communication barrier between them and project participants.

The implication of this finding is that government officers' attitude needs changing. The officers need to cultivate good public relations. They also need to be trained on how to advise and direct women on participation without expecting women to dig deeper into

their small incomes. Such a training should emphasize on how officers can relate well with women participants. This finding also implies the need to educate women on the importance of their participation, inspite of the existence of government inputs. With such a programme both government and women inputs would be viewed as supplementing eachother.

The hypothesis that external control was negatively correlated with women participation taken as administrative control, was supported. There was a negative correlation between control and women participation. This finding concurs with one of the theoretical assumptions of the BNA adopted in this study that, bureaucratic or any other form of control inhibits the full participation of the target group which in this case is women.

To maintain or increase the level of women participation, there is therefore need to reduce and subsequently eliminate all forms of control whether they be administrative, political or otherwise.

6.3 RECOMMENDATIONS TO POLICY MAKERS

Before we make any policy recommendations, we feel obliged to make a few observations on women's efforts in their attempt to participate in the development of rural water supply.

For women participation to be effective, there is need to increase the women capability and support rendered to them in their process of participation.

One, from the study, women were found to have low incomes, low education levels and without training that would enhance their ability to effectively participate in water projects, although they desired them greatly. Yet inspite of these limitations, women bore the largest burden of developing rural water supply. Therefore there is need to enhance the women's personal capability if participation is to be effective.

Secondly, there is evidence from the study which suggests that men dominated decision making at both the project and community levels. On the other hand, there is overwhelming evidence which suggests that women participation in rural water supply increased with the presence of women in management positions at both the project and community levels. This points out the need to increase the number of women in decision making roles in order to facilitate increased women participation.

Thirdly, the government has been formulating policies and establishing institutions that would favour and increase women participation. However, the policies and programmes are broad-based and do not focus specifically on women. Even an institution such as the Women's Bureau which focuses on women activities faces such limitations as lack of funds, shortage of personnel and a large,

rather vague mandate in its areas of activities. This reduces its influence and effectiveness. For the Bureau to be effective, such inhibitions should either be reduced or eliminated.

Forthly, whereas government material support is required by the water projects, administrative control and influence should be at a minimum level in the operational activities of the projects.

From the foregoing, the following recommendations are made in way of increasing women participation in development of rural water supply:-

1. The ability of women to manage the project designs should be increased. Specific to this issue is the need to increase and expand water technology management training. This would decrease the dependency of women on men for project operation and maintenance. Training could also be enhanced by organized group visits to other projects in other areas of the country.
2. The government should do everything possible to raise the incomes of the rural women in Kenya. This would strengthen the financial base of the women and it would in turn, increase their ability to participate in terms of financial and material inputs.
3. To increase the number of women in decision making roles, there is need to encourage awareness amongst the women in

the rural areas. The government should increase women adult literacy classes. This way, women would be more equipped and courageous to venture into more decision making roles after being exposed.

4. Government policies and structures should be formulated in such a way that they encourage rather than down play women participation in decision-making. For instance, the structures of the Development Committees should facilitate women's access to influential positions. Their composition should be altered to allow for an increase in the number of women in these committees.
5. Government programmes should cease to be gender blind and adopt a gender-sensitive approach by stating precisely the position of women in them. This would allow a clear framework within which women's contribution can be enhanced and sustained.
6. Women as project participants and beneficiaries should be educated on their role as supplementary contributors to the process of developing rural water so that, they do not evade their role or be reluctant to participate in the event of government channelling assistance to their projects. Such knowledge would go along way in increasing participation where the government offers support.

7. Government officers seconded to water projects need training on how to interact and motivate the women. Once well trained they would cease to appear as visitors or exploiters and instead, be seen as part of the technical assistance to the rural water supply projects.
8. Politicians and administrative officers need to be increasingly discouraged from exerting close supervision or control over project activities. This way, the participants would be given a chance to freely advance and exercise their opinions and desires as concerns the projects. It is clear that ideas and motivation are not lacking amongst the women. Thus many times, too much interference inhibits rather than facilitates women's effective participation.
9. Finally, it is recommended that African academics should devote more attention to the study of Women Participation in provision of basic needs. This is an important area that requires much more scholarly attention.

6.4 AREAS FOR FURTHER RESEARCH

This study attempted to investigate the nature and level of women participation in the provision of a basic need in the Kitui District of Kenya. Questions concerning their ability and framework of operation have been raised amongst others. While we offer no

comprehensive or definitive answers to these questions, the importance of the problem of evaluation demands that they be raised.

This study was limited in scope to only one district. It is recommended that a similar study be conducted at inter-district, provincial or National level. This would ensure a large sample and a broader scope. Such a study would also shed further light on the problems experienced by women in an attempt to fully participate in development.

6.5 CONCLUSION

The position of women participation in ~~the~~ Kenya and more importantly in the rural sector will continue to be a subject of interest to many contemporary researchers. The Nation's economic welfare depends very much on how women participation can be fully mobilized in the rural sector as a whole, as well as in other lines of activity. Knowledge about the political determinants of women participation is therefore crucial because one objective of the government to-date is to involve the people in deciding their priorities, helping them implement their own chosen projects and, allowing them to sustain their projects. In this connection, this study has in part, attempted to provide information on the nature of

possible policies which can facilitate women participation, especially in terms of decision making, in water supply projects.

Obviously, women's full participation is far from being achieved. Formidable obstacles which are at one, physical, financial, attitudinal and political remain. Constructive ideas and policies are receiving attention and may show the way to an ultimate solution. Already, there is growing realization that if the issue of national poverty has to be resolved, the target groups such as women, can neither be clumped together nor left out of government policies and aims. This study has underscored the same fact in the context of women's participation in rural water supply.

APPENDIX IQUESTIONNAIRE.

Good day. My name is Kathina, a postgraduate student from the university of Nairobi. I am conducting a study on factors influencing women participation in rural water supply in Kitui District and I believe you can assist me a lot by giving me the following information. All the information given by you will be treated in strict confidence.

SECTION IRESPONDENTS PERSONAL AND FAMILY DATA.

Date of interview _____

Questionnaire number _____

Name of project _____

1. Age _____

2. Sex _____

3. Marital Status _____

4. Number of children _____

5. Total number of people in the household _____

6. Educational attainment (years)

Formal _____

Other (specify) _____

7. Occupation _____

8. Occupation of spouse or parents _____

9. Total monthly income _____

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SECTION II

TO ESTABLISH WHETHER WATER IS A BASIC NEED. ITS SOURCE AND ACCESSIBILITY TO THE INDIVIDUAL WOMAN/HOUSEHOLDS.

10. Suppose you were to list your needs in order of priority, how would you rate the following before and after the project?

	Before project	After project
Health		
Water		
Food		
Clothing		
Others (specify)		

11.

	Before project	After project
a) What distance did (do) you cover to get water?		
b) What type of source did (do) you have?		
c) What mode of transport did (do) you use in a round trip?		
d) How much time did (do) you use in a round trip?		
e) How much water did (do) you carry in a trip?		
f) How many times did (do) you fetch water in a day?		

12.

What did you use the water for?	Then	Now
a) Irrigation		
b) Livestock		
c) Construction of bricks and blocks		
d) Others (specify)		

TO ASCERTAIN THE LEVEL OF WOMEN PARTICIPATION AND THE FACTORS THAT INFLUENCE THIS LEVEL AT ALL THE STAGES OF THE PROJECT CYCLE.

i) IDENTIFICATION AND DESIGN STAGE.

13. For how long have you participated in this project (years)

14. Did anyone talk to you about this project before it was established?

If yes, whom and how (probe) _____

15. Were you involved in choosing this project site? _____

16. If yes, how were you involved? _____

If not, why not? _____

16. On what criteria was this site selected _____

17. Were you involved in designing the type of project most suitable for this area? _____

If yes, how? _____

If no, why not? _____

18. How would you describe the present project design?

a) Very appropriate

b) Appropriate

c) Not appropriate

d) Other (specify)

19. Does this design facilitate adequate water supply? _____

If no, why? _____

ii) **PROJECT IMPLEMENTATION AND MAINTAINANCE.**

20. Were you involved in setting up this project? _____

If no, why? _____

21. If yes, in what capacity were you involved and how?

a) Executive leader

b) Committee member

c) Member

d) Other (specify)

22. Did you make any contribution at the time of initiation of the project? _____

If yes, what type and amount of contribution did you make?

Type	Amounts
Money (Kshs) Labour - hrs/week or month Materials Time (discussions) Others (specifiy)	

23. Are you involved in project maintenance? If yes, how much of the following do you put into the project?

	Quantity per month
Money Labour Material Time Others (specify)	

24. Are you and other beneficiaries involved in planning together about what to do to improve this project? _____

If not, why? _____

25. Are you satisfied with the way you and other participants in this project work and plan together? _____

If no, why not? _____

26. Have you gone for any training that is related to this project? _____

If yes, what type of training was it? _____

what duration did it take? _____

27. If you were one of those choosing/selecting trainees from a project would you select male or female? _____

Why? _____

28. Do you face any repair and maintenance problem? _____

If yes, name the 3 most recurrent ones.

a) _____

b) _____

c) _____

How do you overcome them? _____

iii) PROJECT IMPACT AND EVALUATION.

29. What impact has this project had on you in terms of increase and accessibility of water?

What impact has it had on the following activities?

Activities	Type of effect
Animal husbandry	
Agriculture Production	
Block Construction	
Domestic use	

30. Have you attained additional or new skills since you started participating in this project? _____

If yes, what type of skills have you learnt through this project?

31. What major factors have helped you and other participants carry on with the activities of this project?

- a) Leadership
- b) Government support
- c) Cooperation of women
- d) Availability of resources
- e) Others (specify)

32. What would you consider to be the major benefit of this project?

- a) to you as an individual.
- b) to your family.
- c) to your community.

iv) THE ORGANIZATIONAL STRUCTURE OF THE PROJECT

33. Who holds the following positions in the project management and what are their status

Position	Male	Female	Status in Society
Chairperson			
Secretary			
Treasurer			

34. What position do you hold in the project management?

- a) Chairperson
- b) Vice chairperson
- c) Secretary
- d) Treasurer
- e) Committee member
- f) none

35. Who are the majority in the project management committee? _____

Why is this so? _____

36. Do you hold any management position(s) in other development committees outside the project? _____

State the committees and position(s) held.

Type of Committee	Position Held
Locational Department Committee	
Divisional Department Committee	
District Department Committee	
Others (specify)	

37. If you were elected to hold one of the executive positions of this project, which position would you prefer? _____

Why? _____

v) **FINANCE.**

38. Do you know the total cost of this project? _____

If yes, who is your main source of finance? _____

39. What are your other sources of funding?

- a) Contribution
- b) Sale of items
- c) Government
- d) Donor agencies
- e) Do not know.

40. How frequent is this funding?

- a) Monthly
- b) Semi-annually
- c) Annually
- d) Others (specify)

41. Was (is) the funding you got (get) adequate for completing and maintaining the project? _____

If not why? (probe) _____

42. Who controls your finances?

- a) Treasurer
- b) DDC
- c) Do not know
- d) Others

SECTION IV

TO FIND OUT THE RESPONDENTS' IMPRESSION OF THE GOVERNMENT SUPPORT TO THE PROJECTS, GOVERNMENT'S LEVEL OF CONTROL AND POLITICAL CLIENTELISM.

43. Do government officers' visit your project? _____

If yes, how often?

- a) Often
- b) Occassionally
- c) Rarely
- d) Never

If no, why? _____

44. How many government officers are attached to this project?

45. Have government (water) officers assisted since you begun participating in this project? _____

If yes,

How many? _____

How often? _____

If no, why? _____

46. How could you rate their input?

- a) Very important
- b) Important (moderately)
- c) Not important
- d) Not applicable.

47. Has the government contributed any money to this project?

Yes/No/Do not know.

If yes, how much? _____

48. How was this money channelled into the project?

- a) Once
- b) In stages
- c) Others (specify)

49. In your opinion, who should be the main financier of this project?

- a) Government
- b) Beneficiaries
- c) NGO
- d) Others (specify).

Why? _____

50. What roles do the following persons play in this project?

Agent	Role(s)
Chief Local councillor Party Official Member of parliament Ministry official	

51. How would you rate their contribution

Agent	Rating of Contribution
Chief Local Councillor Party Official Member of parliament Ministry official	

SECTION V

TO ASSESS THE RESPONDENTS KNOWLEDGE OF THE POLITICAL ENVIRONMENT IN WHICH THEY PARTICIPATE.

52. Have you heard of the DFRD programme? _____

If yes, what is it? _____

53. Do you know of the ASAL programme? _____

If yes, in which way does it relate to this project?

54. Have you heard of the Women's Bureau? _____

If yes, what is its effects and/or impact on the activities of this project? _____

SECTION VI

TO FIND OBSTACLES HINDERING FULL PARTICIPATION.

55. What have been the main difficulties you have encountered in this project?

a) _____

b) _____

c) _____

d) _____

56. Have you overcome them? _____

If yes, how? _____

57. If no, why? _____

THANK YOU

A) DEPENDENT AND INDEPENDENT VARIABLE TABULATION

DEPENDENT VARIABLE INDICATORS

INDEPENDENT VARIABLE Indicators		Finance		Labour		Material		D/Making	
Desforwate	Gamma	-0.54		-0.311		-0.58		-0.31	
	χ^2	24.3	12d.f	0.41	3d.f.	5.58	1d.f.	2.12	1d.f.
	Sig.	0.02		0.93		0.02		0.15	
Education	Gamma	0.08		-0.3		-0.6		0.5	
	χ^2	5.06	4d.f	0.052	3d.f.	5.39	1d.f.	2.19	1d.f.
	Sig.	0.28		0.91		0.02		0.034	
Age	Gamma	-0.05		0.14		-0.12		0.58	
	χ^2	4.08	8d.f.	3.72	6d.f.	0.25	2d.f.	6.97	2d.f.
	Sig.	0.85		0.71		0.88		0.03	
Income	Gamma	0.2		-0.2		0.45		-0.31	
	χ^2	7.72	8d.f.	4.0	6d.f.	3.26	2d.f.	31.59	2d.f.
	Sig.	0.46		0.67		0.19		1.38	

DEPENDENT VARIABLE INDICATORS

INDEPENDENT VARIABLE INDICATORS		Finance		Labour		Material		D/Making	
Children	Gamma	0.3		-0.09		0.63		0.3	
	χ^2	5.6	4d.f.	0.52	3d.f.	5.39	1d.f.	2.19	1d.f.
	Sig.	0.28		0.91		0.02		0.14	
Hsehold-siz	Gamma	0.3		-0.02		-0.27		-0.11	
	χ^2	8.48	8d.f.	5.33	6d.f.	0.707	2d.f.	2.59	2d.f.
	Sig.	0.39		0.50		0.702		0.27	
Maritalst	Gamma	-0.01		0.01		0.35		-0.22	
	χ^2	7.9	8d.f.	4.3	6d.f.	1.71	2d.f.	1.34	2d.f.
	Sig.	0.43		0.63		0.424		0.51	
Sex	Gamma	0.02		0.09		0.15	-0.26	0.67	
	χ^2	4.8	4d.f.	0.55	3d.f.	0.13	1d.f.	14.5	1d.f.
	Sig.	0.30		0.90		0.72		1.39	

DEPENDENT VARIABLE INDICATORS

INDEPENDENT VARIABLE INDICATORS	Finance	Labour	Material	D/Making
Satisplan Gamma	0.3	-0.33	-0.36	0.24
X ²	4.7 4d.f.	8.6 3d.f.	1.71 1d.f.	1.54 1d.f.
Sig.	0.32	0.03	0.19	0.21
Involplan Gamma	0.14	-0.15	-0.7	0.24
X ²	4.6 4d.f.	11.2 3d.f.	12.6 1d.f.	1.54 1d.f.
Sig.	0.09	0.12	0.35	-0.5
Desfacsupp Gamma	-0.2	0.1	-0.64	0.03
X ²	2.5 4d.f.	8.92 3d.f.	4.41 1d.f.	0.02 1d.f.
Sig.	0.63	0.03	0.04	0.87
Trairelpo Gamma	0.4	0.4	-0.16	0.39
X ²	8.6 4d.f.	14.8 3d.f.	0.08 1d.f.	0.02 1d.f.
Sig.	0.07	2.00 ³	0.77	0.90

DEPENDENT VARIABLE INDICATORS

INDEPENDENT VARIABLE INDICATORS		Finance		Labour		Material		D/Making	
Add skill	Gamma	0.14		0.03		0.79		0.41	
	X ²	2.64	4d.f.	15.67	3d.f.	9.82	1d.f.	5.28	1d.f.
	Sig.	0.62		1.3 ⁻³		1.73 ⁻³		0.90	
Position	Gamma	0.3		-0.05		0.26		-0.39	
	X ²	17.7	8d.f.	9.9	6d.f.	5.01	7d.f.	65.59	7d.f.
	Sig.	0.02		0.12		0.65		1.15 ⁻¹¹	
Otherposit	Gamma	-0.07		0.12		0.24		1.00	
	X ²	4.8	4d.f.	1.15	3d.f.	0.61	1d.f.	96.14	1d.f.
	Sig.	0.30		0.76		0.43		0.00	
Contrimant	Gamma	-0.19		0.26		-0.16		0.35	
	X ²	3.9	4d.f.	8.9	3d.f.	0.30	1d.f.	3.84	1d.f.
	Sig.	0.40		0.03		0.58		0.05	
Resoubenef	Gamma	-0.21		0.1		-0.64		0.03	
	X ²	2.5	4d.f.	8.93	3d.f.	4.41	1d.f.	0.02	1d.f.
	Sig.	0.63		0.03		0.03		0.87	

DEPENDENT VARIABLE INDICATORS

INDEPENDENT VARIABLE INDICATORS	Finance	Labour	Material	D/Making
Partdurati Gamma	0.19	-0.11	-0.881	-3.23
χ^2	30.6 8d.f.	17.3 6d.f.	23.75 1d.f.	2.58 1d.f.
Sig.	1.7 ³	8.03 ³	1.092- ⁶	0.11
Presence of Asal	-0.65	0.65		
Government Financial Input	0.42	0.36		
Control	-0.64	-0.44		
Pol. Influence	-0.58	0.0		

INDEPENDENT VARIABLE TABULATION

	Si ting	Setting	Design	Implementing
Sex Gamma	-2.1	0.6	-0.89	0.7
χ^2	4.9 4d.f.	4.14 1d.f.	14.14 1d.f.	9.82 1d.f.
Sig.	0.29	0.11	0.37	

KEY

Desforwate	- Desire for water.
Hseholdsiz	- Household size.
Maritalst	- Marital status.
Invprosite	- Involvement in project siting.
Invproset	- Involvement in project setting.
Satisplan	- Satisfaction with planning of project.
Involplan	- Involvement in planning.
Capinvpost	- Capacity involved during project setting.
Invdeschoi	- Involvement in design choice.
Deprodesi	- Describe project design.
Desfacsupp	- Design facilitate supply.
Freplaninu	- Frequency of planning.
Trairelpro	- Training related to project activities.
Addskill	- Additional skill attained.
Otherposit	- Other positions held.
Contrimant	- Contribution to project maintainance.
Resoubenef	- Resource benefit from project.
Partdurati	- Duration of participation in project activities.
Hrs before	- Hours spent in hauling water before the project was initiated.
Kms before	- Kilometres covered in hauling water before the project was initiated.

APPENDIX III

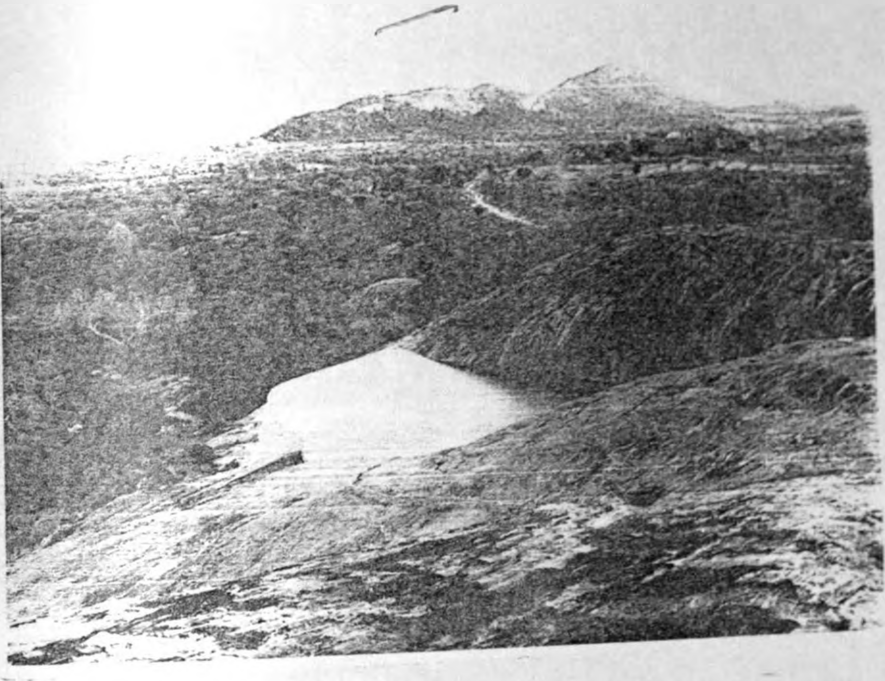
LIST OF PROJECTS STUDIED.

<u>Number</u>	<u>Name</u>	<u>Type of Project</u>
01.	Kyuso one	Rock catchment
02.	Kyuso Two	Rock catchment
03.	Kyuso Three	Rock catchment
04.	Kangilu	Borehole
05.	Ukasi	Borehole
06.	Itiko	Subsurface Dam
07.	Mathuki	Pipe
08.	Mukusyo	Borehole
09.	Nuu	Spring/pipe
10.	Kai Kathanze	Pipe
11.	Mutomo	Rock catchment
12.	Ikanga	Borehole/pipe
13.	Kathivo	Pipe
14.	Kwa kalole	Subsurface dam
15.	Mithini	Subsurface dam
16.	Misuuni	Subsurface dam
17.	Kiini	Rock catchment
18.	Utoo	Earth dam
19.	Kwa mukeka	Subsurface

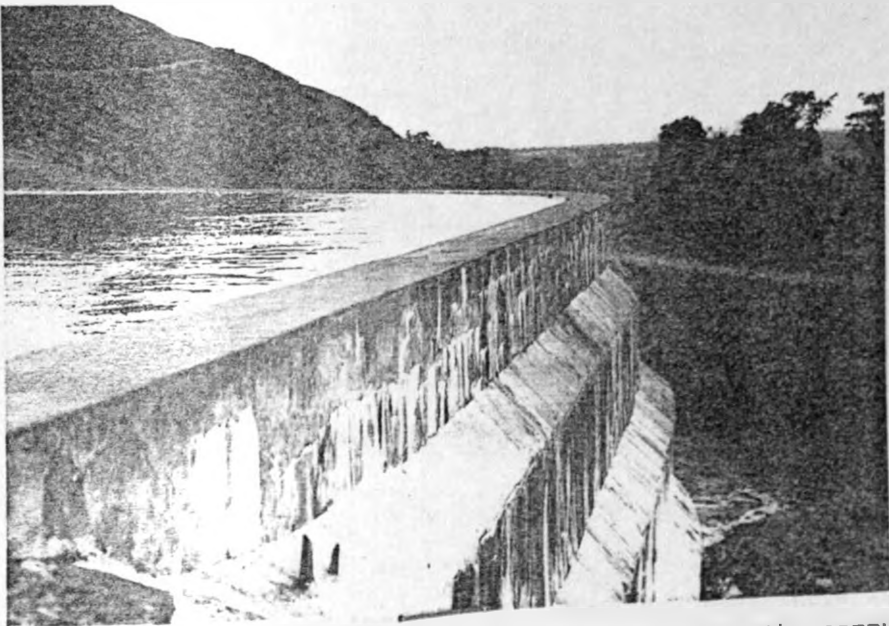
APPENDIX IV

PHOTOGRAPH ILLUSTRATIONS OF PROJECTS.

1. ROCK CATCHMENT (KIINI PROJECT)



The collecting walls surround the surface of the huge rock.



The walls of storing water have been constructed by the community majority of whom are women.

4. EARTH DAM

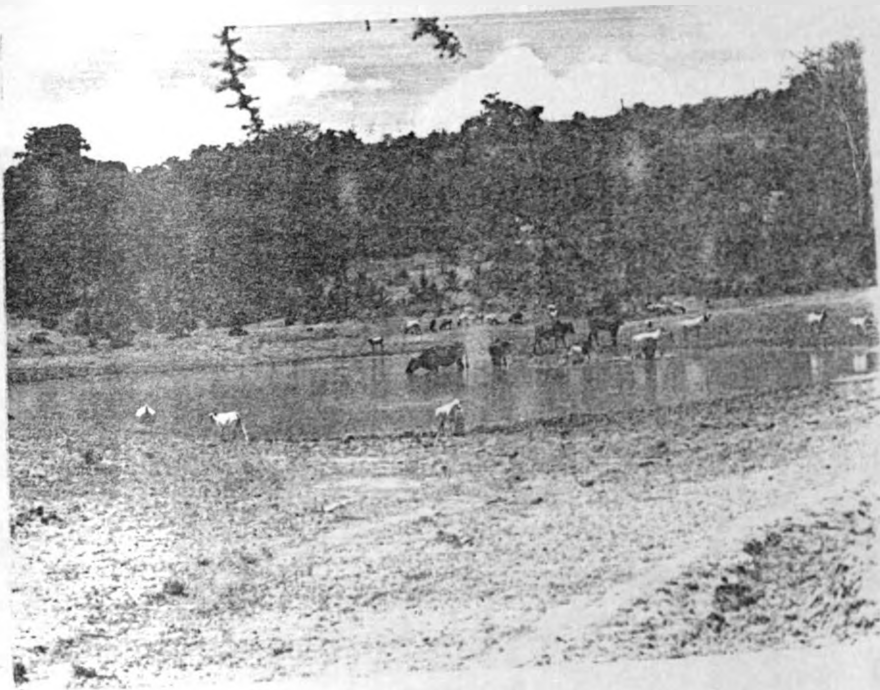
(UTOO PROJECT)

(a)



This project is created by the use of simple implements like jembes. However, sometimes tractors are hired to scoop the soil.

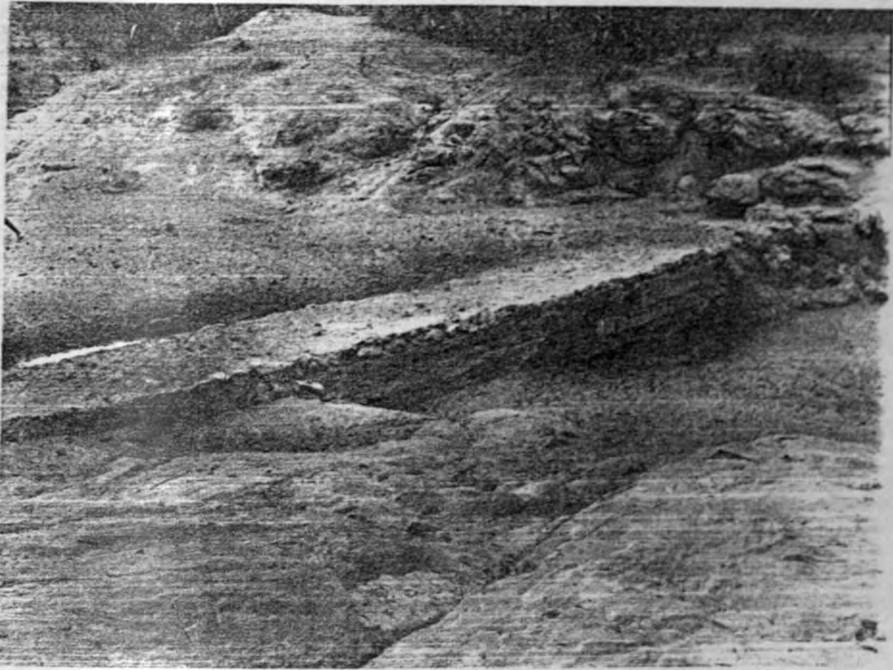
(b)



The dam is mainly used for animals. However, when there is shortage of clean water people use it. In (a) an attempt is made to pipe the water where it can be stored and therefore distilled.

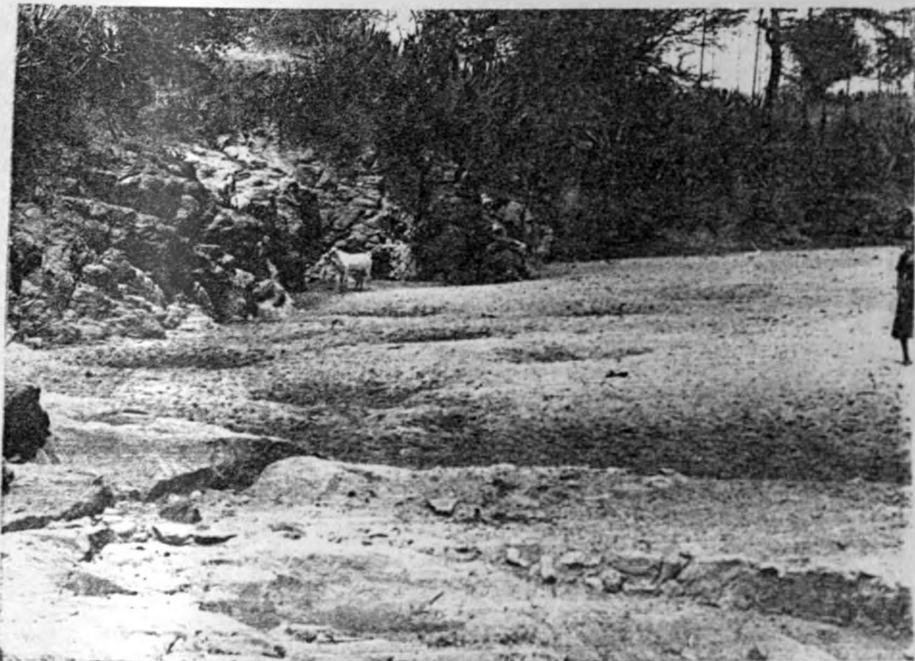
3. SUBSURFACE DAM. (ITIKO PROJECT)

(a)



A subsurface dam is built across a stream by use of concrete. This allows water to sink at the area around the barrier.

(b)

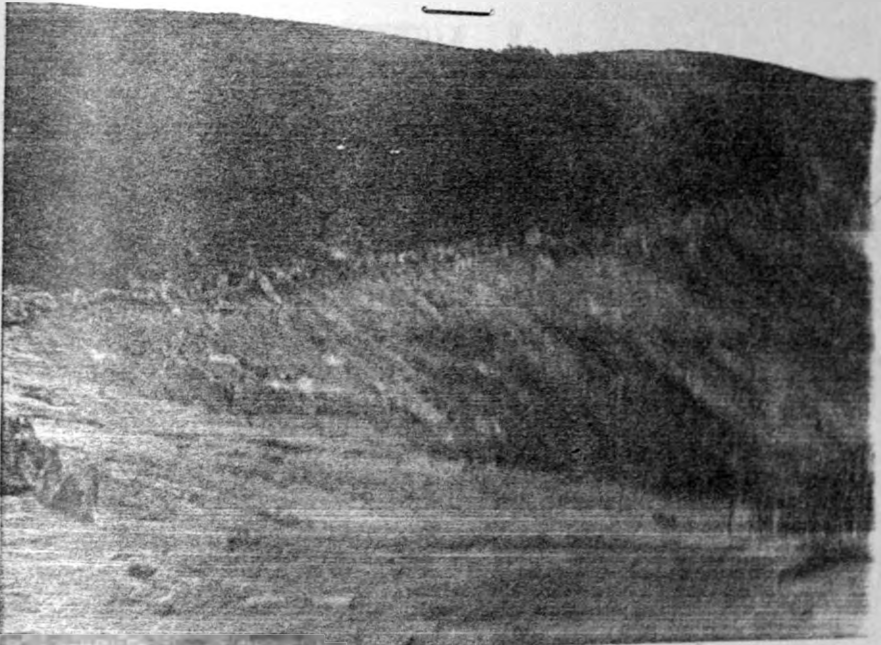


The lower end of the stream is used by women for water. They dig out shallow wells and get the water. Animals like cows and goats get their water here and this pollutes the water. Sometimes the subsurface dams leak causing a maintenance problem. See (a) above.

2. PIPED WATER

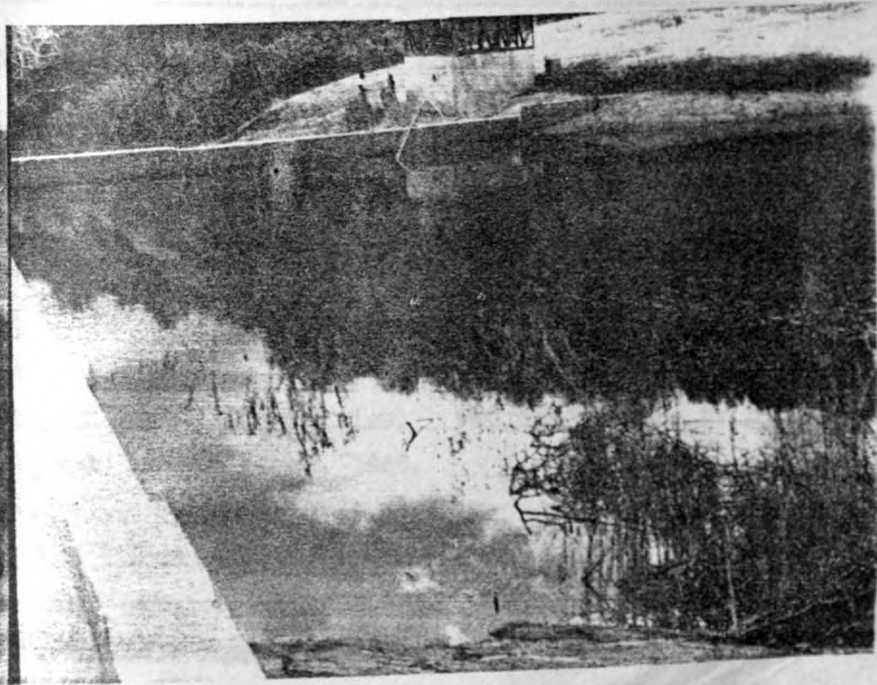
KYUSO ROCK CATCHMENT/PIPED WATER PROJECT.

(a)



(a) Illustrates the catchment area. While (b) shows the waterpump used to pump water from the reservoir to a radius of about 3 Kilometres.

(b)



At the time of the research however, the pump had brokendown, so women were getting the water from the reservoir. (See background of photograph).

APPENDIX V

BIBLIOGRAPHY

Agency for International Development,

Kenya Arid and Semi-Arid Lands Development Project, Project

Paper 615 - 0172 Washington D.C. 20523 AID, 1979.

Bailey K.D.

Methods of Social Research, New York, Free Press 1978.

Barkan J and David Gachuki (ed)

Is Small Beautiful? The organisational conditions for effective
small scale self development projects in rural Kenya. 1980

Beazley M.

The Great Geographical Atlas, Chicago, McNally and Company, 1982.

Biscoe J and, Ferranti de D

Water for Rural Communities: Helping people help themselves,
World Bank, Unpublished, 1988.

Cabinet of the Executive, Secretary of ECA

Women and Development Planning: An African Perspective" in
G.S. Were (ed) Women and Development in Africa Journal of
Eastern Africa Research, Nairobi, G.S. Were Press, 1985.

C.B.S.

Situation Analysis of Children and Women in Kenya. Section 1,
Ministry of Finance and Planning. UNICEF, 1985.

C.B.S.

Situation Analysis of Children and Women in Kenya. Section 3.
Ministry of Finance and Planning, UNICEF, 1985.

Women as Drawers of Water. Ministry of Finance and Planning,
1975

Chamber R.

Rural Development: Putting the last first. London, Longman 1983.

Chekki D. (ed)

Participatory Democracy in Action: International Profiles of
Community Development. New Delhi, Vikas 1980.

Cohen J.H. and Uphoff N.T.

Rural Development Participation: concepts and measures for
project.

Chamber R and Belsha D.

Managing Rural Development. Lessons and Methods from Eastern
Africa. I.D.S. D.P. No. 15, University of Sussex, 19

Design, implementation and Evaluation. New York, Cornell, Rural
Development Committee, 1977.

Conyers D.

'Social Analysis for local social Development Planning' in
Regional Development Dialogue Vol. 7 No. 1, Nagoya UNCRD, 1986.

Curtis V.

Women and the Transport of Water, London, Print Power 1986.

Dixo, B. Ruth

Assessing the Impact of Developing Projects on Women: USAID.
Program Evaluation. Discussion Paper No. 8 Washington D.C.,
USAID, 1980.

Dworkin D,

Kenya Rural Water Supply: Programs, Progress, Prospects.
Washington D.C. USAID, 1980.

_____,
The Potable water project in Rural Thailand,
Washington D.C. USAID, 1980.

_____,
Rural water projects in Tanzania. Technical Social and
Administrative issues. Washington D.C. USAID, 1980.

_____,
Community Water Supply in Developing Countries. Lessons from
experience. Washington D.C. USAID, 1982.

Dworkin D and Pillsburg B and Thatsanatheeb T.

Portable water project in Rural Thailand (Project evaluation
No. 3) Washington D.C. USAID, 1980.

Elmendorf M and Buckles, P.

Appropriate technology for water supply and Sanitation: Socio-
Cultural aspects of water supply and excreta disposal.
Washington D.C., World Bank, 1980.

Elmendorf M and Isely R.

The role of women as participants and beneficiaries in water
supply and sanitation programmes (Technical Report No. 11)
Arlington, WASH, 1981.

Finsterbusch K., Warren A. and Wiciclin V.

"The contribution of beneficiary participation to development
project effectiveness." in Public Administration and Development
Vol.7 No. 1, London, Royal Institute of Public Administration
1987.

FAO

Women's Leadership in Rural Development Programmes for Better Family Living. (Report No. 4) Nairobi, FAO 1974.

Frank .A.G., Cockroft J. and Johnson D.L.

Dependence and Underdevelopment in Latin America's Political Economy. New York, Anchor Books, 1972.

Gachukia E.

"Women's Self-Help efforts for water supply in Kenya. The importance of NGO support." in Assignment Children, Geneva, UNICEF, 1979.

Glasgow M.

Rural Water supply of Surigao City - the Phillipines. a project initiated by women. New York, UNICEF, 1983.

Gorman R.F.

P.V.O's and Development through Human Needs.

Green H.R.

"Basic Human needs: concept and slogan synthesis or smoke screen" in IDS Bulletin Down to Basics: Some reflection on Basic Needs Debate Vol. 19 No. 4. University of Sussex 1978.

Harkness M.R.

Village women, water and development. An evaluative study of the Upper region water supply project in Bolgatanga District, Ghana. (M.A. Thesis) Ottawa, Carleton University, 1983.

Heyer J., Robert P. and William G.

Rural Development in Tropical Africa. London Macmillan, 1981.

Hollsteiner M.R.

"Mobilizing people for social development: Approaches and techniques for popular participation," in Regional Development Dialogue Vol. 7 No. 1 Nagoya, UNCRD, 1986.

Holmsquist W.F.

"Towards a Political Theory of Rural self help Development in Africa," in Rural Africana Nos. 17-25, 1972-74.

IDRC,

Manuscript Report: Rainwater Catchment Status and Research Priorities in South Eastern Asian Region. Khon Kaen, Ottawa, IDRC 29th November - 3rd December, 1986.

Hunter G.

"Development administration in East Africa," in Journal of Administration Overseas, Vol. IV, 1966.

ILO

Identification of Basic Needs. Employment Growth and Basic Needs. A One World Problem. Geneva ILO, 1976.

Ilse, Z (ed)

Seminar on the participation of women in water supply and sanitation program, Ottawa University.

International Research and Training Institute for the Advancement of Women

Women water supply and sanitation. A national training seminar 9-13 November. Nairobi, 1987.

Jakobsen B., Ascroft J. and Padfield H.

"The Case for Rural Water in Kenya," in M.E. Kempe, L.D. Smith (ed) Strategies for improving Social Welfare Proceedings of Workshop held at IDS University of Nairobi May, 31- June 3, 1971. O.P No. pg 412-450.

Jamu A. and Pakistan K.

Rural water supply project of Surigao City, Phillipines, New York
UNICEF, 1984.

Jaquette J.S.

"Women and modernization theory. A Decade of feminist criticism"
in World Politics Vol. XXXV October, 1982.

Johnson B. and Clark W.

Redesigning Rural Development: A Strategic perspective.
Baltimore, The Hopkins University Press, 1982.

Karuiki P.

Women in Community Participation. A report for the Kenya
Government Secretariat UN Decade for Women Conference, Nairobi,
1988.

Kelles A.V.

Water and wells: Symbols of prestige power and prosperity in a
Sinhalese village. Helsinki, Ministry of Foreign Affairs, IDS
1983.

Kreyster J.

"Uhuru na maji: health water supply and self reliance in Mayo
village," in Journal of Tropical Paediatrics Vol 16, 1970
Pg. 106-123.

K.A. Edwards

'Soil and Water Conservation in Semi Arid Areas' in David
Campbell and S.E. Migot Adholla (Ed) The Development of Kenya's
Semi-Arid Lands I.D.S. O.P No. 36 Nairobi, 1971.

Lisk, F. (Ed)

Popular Participation in Planning for Basic Needs. Dorset,
Blackmore Press, 1985.

Lipset S.M.

"Some requisites of Democracy: Economic Development and Political Legitimacy" in American Political Science Review 53 March, 1959 pg. 69.

Lukwaro E.A.

Decentralization of Regional Administration. A case Study of Pare-Kilimanjaro B.A. Dissertation, University of Dar-es-Salaam, 1972.

Marguette J.F.

"Social Mobilization and the Phillipine political system" in Comparative Political Studies 4th October, 1971.

Matango R.R.

"Maji na Maendeleo Vijijini. The experience with Rural Self Help water scheme in Lushoto District, Tanzania" in Schanner T. (ed) Proceedings of the conference on Rural water supply in E.Africa. University of Dar-es-Salaam, Research paper No. 20 5-8th April, 1979.

Mauluka L.

"Community Participation in the construction and maintenance of rural ground water supplied in Malawi" in Falkenmark M. and Lundquist I. (ed) Water for All: Cooperation, education participation. Report for an International Seminar, University of Linkoping, Department of Water, Environment and Society, 1983.

Mayo M. (Ed)

Women in the community. London, Routledge and Kegan/Paul, 1972.

Mazingira Institute

A guide to women's organisation and agencies service women in Kenya. Nairobi, Mazingira Institute 1985.

Mbilinyi M.

The participation of women in African Economics. Dar-es-Salaam, Economic Research Bureau paper 71.12, 1972.

Miller D.

"Research on self-help and participation in seven countries, Botswana, Cameroon, Kenya, Lesotho, Malawi, Tunisia and Zaire" in Miller D. (Ed) Self-Help and popular participation in rural water systems, Paris Development Centre Studies, 1971.

Misra K.K.

Safe water in rural areas: an experiments in promoting community participation in India in International Journal of Health Education 18, 1 1975. pg. 53-59.

Moore M.P.

Some economic aspects of women's work and status in the rural areas of Africa and Asia, University of Sussex D.P. No. 43, 1974.

Msukwa L. and Kandoole B.F.

Water by the people. An Evaluation of the rural water supply programme in Zomba District, University of Malawi, Centre for Social Research, 1981.

Myin M.A.O.

"The involvement of rural women in village development in Tanzania" in Canadian women studies. Vol. 6 No. 1 New York, University of New York.

Nachmias David, Nachmias Chava

Research Methods in Social Sciences. New York. St. Martins Press, 1981 pg. 440-467.

National Academy of Sciences

More water for Arid Lands. Promising Technologies and Research Opportunities. Washington D.C., National Academy of Sciences, 1974.

Ngethe N. and Chege F. (ed)

Arid and Semi Arid preinvestment study: Kitui, Embu and Meru.
Vol. 1: Sectoral Inventory, Nairobi, 105, 1982.

Arid and Semi Arid Preinvestment. Study: Kitui, Embu and Meru.
Vol. II: Project proposals. Nairobi IDS, 1982.

Arid and Semi Arid Lands preinvestment Study. Kitui, Embu and Meru Vol. III: Statistical Appendix. Nairobi IDS, 1982.

Ngethe, N.

"Development Administration, Decentralization and the special rural development programme in Kenya, some Administrative and Political consideration". A paper for discussion at a seminar on, Decentralization and Integrated Rural Development in Africa: Present experiences and Future Direction at Moshi, Tanzania August 4-16, 1975.

Nzomo M.

Preliminary findings of Research on the impact of Foreign Aid on Women Projects in Kitui District 1987.

Okeyo A.P.

Role of African women in Rural Development. University of Nairobi, IDS D.P No. 203, 1974.

Overhold C. Anderson M, Cloud K. and Austin J.E.

Gender roles in Development Projects. A Case book. Connecticut, Kumarian Press, 1986.

Owako, F.H.

The Machakos problem. A study of some aspects of Agrarian problems of Machakos District. Ph.D. Thesis University of London, 1969.

Oyugi D.W.

"Participation in Development planning at the local level in Kenya" in Leonard D.K. (ed) Rural Administration in Kenya. Nairobi, East african Literature Bureau, 1973.

Padfield H.

Issues in Development Research. The case of water in Kenya. Workshop 31 May - June 3, IDS D.P, No. 107, 1971.

Pala A.

"Definitions of Women and Development" in Signs 3 Autumn 1972.

Palumbo D.J.

Statistics in political and behavioural science (Revised Edition) New York, Columbia University, 1977. pg. 331-40.

Papandreou A.G.

The Impact approach to project selection. New York, Prager Publishers, 1973.

Premitt K.

Introductory Research Methodology. University of Nairobi, IDS OP No. 10, 1974.

Republic of Kenya

KANU Manifesto. Nairobi, 1988.

National Development Plan 1979/83 Nairobi, Government Printer, 1977.

Republic of Kenya

National Development Plan 1984/88, Nairobi, Government Printer, 1984.

National Development Plan 1989/93, Nairobi, Government Printer, 1989.

National water master plan, Nairobi, Government Printer, 1978.

Master water plan, Ministry of Water, Unpublished, 1975.

Population Census 1979 Vol. 1 Nairobi, C.B.S. Ministry of Economic Planning and Development, 1981.

Water policy paper, Ministry of Water, Unpublished, 1984.

Republic of Tanzania, DANIDA and Institute of Resource assessment and Centre for Development Studies.

Water master plans for Iringa, Ruvuma and Mbeya regions. Socio-economic studies: village participation in water and health Vol. 13 Dar-es-Salaam, Ministry of Water and Energy, 1983.

Riegleman, M.A.

Women in Community Development, Colorado, Westview Press, 1975.

Rogers, Barbara

The Domestication of Women. Discrimination of Developing societies 'The segregation of women in development project'. London, Kogan Page Ltd., 1980.

Ronald C.H. (ed)

Dependency and Maxism. Towards a resolution of the debate.
Colorado, Westview Press, 1982.

Sandbrook R.

The politics of assaulting poverty in Africa. London, Heinemann
1982.

Schmink M.

Community Management of Waste recycling. The SIRDO (seeds) New
York, Population council, unpublished.

Seslar D.S. and Wijetilleke Sujattia

Nayamaga training activities for group building, health and
income generation. Colombo Women's Bureau Washington D.C.
Overseas education Fund, 1983.

Siboe J.G.

UNICEF NGO Water for Health (An Evaluation Report 1979-82),
Nairobi, UNICEF, 1982.

Schmink, M.

Community management of waste recycling. The SIRDO (seeds)
New York, Population Council, Unpublished, 1980.

Smith B.C.

Field Administration: An aspect of decentralization London,
Routledge and Kegan Paul, 1967.

Soha A.K.

Women water and sanitation: Primary health care. Cairo, American
University Social research Centre, 1983.

Soon A.K.

Women's Garden Groups. A Self-Help project in Casamene, Senegal.
New York, UNICEF and Environmental sanitation Unit, 1983.

Swantz M.L.

"The identity of women in African Development" in Development: seed of change village through global order 2/3 Journal of the Society of International Development, Christengraf, 1987.

Swantz M.L.

Women in Development. A creative role denied? The case of Tanzania. London, C. Hurst and Company Limited, 1984.

The Report of the South Commission.

The Challenge to the South. Oxford, Oxford University Press, 1990.

Toit F.P.

A design for rural water points in Zimbabwe water supply and drainage services in developing countries.

Proceedings of a Seminar on water supply and drainage services in developing countries. National Building Research Institute, C SIR, 1980.

Uma L.

The Design of Rural Development: Lesson from Africa. London Baltimore, 1975.

Uma L. and Egboke C.E.B

"Problems of rural water supplies in a Developing Economy. Case Studies of Anambra and Imo States of Nigeria" in Maxwell W.H.C. (ed) Water International Journal of the International Water Resource Association, Vol. 13 No. 1, University of Illinois, March 1988.

UN

"National machinery for integrating women in Development in African countries" in G.S. Were (ed) Women and Development in africa Journal of Eastern African Research and Development Vol. 15, Nairobi, G.S. Were Press, 1985.

UN,

Report of Habitat. Vancouver 31st May - 11 June, 1974.

Report of the United Nations Water Conference. Mar del Plata
14-25 March, 1977.

UNDP

Promotion and Support for Women's participation in the
International Decade. Nairobi, UNDP, 1985.

UNECA

"Women the neglected Human Resource for African Development" in
Canadian Journal for African Studies Vol. 6 No. 2, 1972.

UNCRD

Regional Development Dialogue Vol. 7 No. 1 Nagoya, UNCRD, 1986.

UNICEF

The Unicef assisted Imo State Rural Drinking water and sanitation
project. Description and analysis of the project and its health
impact evaluation (Report submitted to the Executive Board)
New York, UNICEF, 1984.

USAID

Malawi Self-Help rural water supply programme. A mid-term
Evaluation. (Field Report No. 125) Washington D.C., USAID, 1983.

Wekullo C.C.

Rural water. A Development constraint: Machakos District. A
report for the Ministry of Water, Unpublished, 1978.

Wellin E

Socio-cultural impact of water on far highland communities in
Peru. Washington D.C., USAID, 1982.

Vengert N.

"Citizen participation in search of a theory" in Natural Resource Journal Vol. 16. No. 4 1974.

White F.G., Bradley J.D. and White V.A. (ed).

Drawers of water: Domestic water use in E.Africa. Chicago, University of Chicago Press, 1978.

Whiting M et al

The impact of Rural Water supply projects on women. Nairobi CARE (Kenya), 1978.

Vignaraja P

"A critique of the old (Anti-Rural) Framework of Development and its reformist option" in Development: seeds of change. village through global order No. 2 New York, UNDP 1984.

Wipper A.

"The roles of African women, past, present and future" in Canadian Journal for african Studies Vol. 6. No.2, 1972.

Wisardjoro

"People's participation at the local level in Sakarta" in S. Chee Meow et al People's participation at the local level Bangkok, Stiftung, 1978.

World Bank

Survey for International Drinking water supply and sanitation Decade. How women have been and could be involved in water supply and sanitation at community level. Washington D.C., World Bank, 1984.

Water Supply and Waste Disposal: Sector policy paper Washington D.C., World Bank, 1980.

World Bank

Women and Kenya's Economic Prospects. A country study of women in Development. Unpublished.

Yeomane K.A.

Statistics for the social scientist: Applied Statistics.
Victoria (Australia) Penguin Books Limited, 1968.