THE BASIC NEEDS APPROACH TO DEVELOPMENT: A CASE STUDY OF RURAL WATER SUPPLY IN KENYA

By

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ABSTRACT

The meeting of the basic needs of people, particularly the poor, has come to be an important focus of rural development efforts in the Third World. This is largely due to the realization that the benefits of previous development efforts have not reached the poor. The basic needs concept of development places the focus on the ends of development. This means a direct attack on poverty through meeting the basic human requirements of the neediest segment of society, the poor.

There are two approaches that can be taken when one adopts the basic needs concept as the theoretical framework for a project. The first is a top down effort concerned with satisfying basic needs as quickly as possible and is referred to in this thesis as a technocratic approach to meeting basic needs. The second is concerned with developing a sustainable project based on the community so that it can continue to meet its basic needs and is referred to in this thesis as a community development approach to meeting basic needs.

The purpose of this thesis is to identify those elements in the planning process that contribute to the success of efforts to meet basic needs in developing countries. Success is defined as the meeting of immediate and long term water needs leading to improvements in health, economic and social conditions of communities.

To accomplish this objective a literature review of efforts to meet the basic need of water is undertaken. The focus is on identifying elements found in the literature, dominated by
advocates of the community development approach to meeting basic needs, which contributed to the success of rural water supply projects in providing an adequate supply of water to the poor. These success elements can be grouped in the following five categories: appropriate knowledge; appropriate technology; appropriate institutions; appropriate support; and community participation. The assumption articulated by most writers is that each of these five elements is an essential part of a community development approach to meeting basic needs. There is very little in the literature on the technocratic approach, yet it is used in practice.

A case study of a rural water supply project in Kenya, East Africa, which used a technocratic approach, was undertaken with the expectation that it would show a lack of success because of its failure to include the five elements of the community development approach. In fact, the project was found to be a success. However, the study did reveal that the planners involved in the project now believe that, for the long run sustainability of the project, it is vital to make the five elements of the community development approach an essential part of the project.

The main conclusion of the thesis is that a project using a technocratic approach to meeting basic needs can succeed in the short run but that for this project to continue to be successful there comes a point where the elements assumed to be part of the community development approach to meeting basic needs must be included.
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*All maps are oriented towards the north.*
ABBREVIATIONS AND ACRONYMS

BNA - Basic Needs Approach.
CARE - Cooperative for American Relief Everywhere.
Decade - International Drinking Water Supply and Sanitation Decade (also referred to as the Water Decade).
ESCAP - Economic and Social Commission for Asia and the Pacific.
FAO - Food and Agricultural Organization.
GOA - Government of Australia.
GOK - Government of Kenya.
ILO - International Labor Organization.
km - kilometers.
mm - millimeters.
MSP - Magarini Settlement Project.
MWD - Ministry of Water Development.
NGO - non-governmental organization.
NTIS - National Technical Information Service.
RWS - Rural Water Supply.
SSA - Sub-Saharan Africa.
UN - United Nations
UNCTD - UN Conference on Trade and Development.
UNDP - UN Development Program.
UNEP - UN Environment Program.
UNICEF - UN International Children's Emergency Fund.
USAID - United States Agency for International Development.
WASH - Water and Sanitation for Health Project.
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I would also like to thank my parents who took on the responsibility of ensuring that the questionnaires were both carried out in Kenya by the appropriate persons and completed on time. I would like to thank Mr. Vidzo Musha for his time and effort in conducting the questionnaires in the 34 villages. Finally, I would like to thank my brother and sister for their comments on early drafts.
"Could it be that the relative failure of aid, or at least our disappointment with the effectiveness of aid, has something to do with our materialist philosophy which makes us liable to overlook the most important pre-conditions of success, which are generally invisible? Or if we do not entirely overlook them, we tend to treat them just as we treat material things - things that can be planned and scheduled and purchased with money according to some all-comprehensive development plan. In other words, we tend to think of development, not in terms of evolution, but in terms of creation....

Development does not start with goods; it starts with people and their education, organization, and discipline. Without these three, all resources remain latent, untapped, potential....

Here then lies the central problem of development. If the primary causes of poverty are deficiencies in these three respects, then the alleviation of poverty depends primarily on the removal of these deficiencies. Here lies the reason why development cannot be an act of creation, why it cannot be ordered, bought, comprehensively planned: why it requires a process of evolution. Education does not 'jump'; it is a gradual process of great subtlety. Organization does not 'jump'; it must gradually evolve to fit changing circumstances. And much the same goes for discipline. All three must evolve step by step, and the foremost task of development policy must be to speed this evolution. All three must become the property not merely of a tiny minority, but of the whole society."

E. F. Schumacher.
1. INTRODUCTION

A. PURPOSE.

The satisfaction of the basic needs of people has come to be an important focus of rural development efforts in the Third World. The general term used to describe this focus is the basic needs approach (BNA) to development or the basic needs concept of development. The terms are used synonymously in the literature and in this thesis.

Basic needs can be met in a number of ways ranging from an outside agency simply delivering a good such as food or water, to the community itself initiating and working towards providing the needs themselves. The former method is concerned with satisfying a basic need as quickly as possible and is usually carried out by technically competent agencies. It is referred to in this thesis as a technocratic approach to meeting basic needs. The latter is concerned with helping the people themselves meet their basic needs and to develop a long run capability of being able to continue to meet their basic needs. It is referred to in this thesis as a community development approach to meeting basic needs.

Certain elements in the planning process vary between the two approaches, and identifying these elements may provide a clearer distinction between the methods and give an explanation of why projects fail or succeed.

The purpose of this thesis is to identify those elements in the planning process that contribute to the success of efforts to
meet basic needs in rural communities in developing countries. Planning process is defined as the formulation and implementation of policies, programs and projects. The focus is on rural water supply projects.

C. RATIONALE.

In November 1980, the General Assembly of the United Nations formally declared the decade 1981-90 as the International Drinking Water Supply and Sanitation Decade (referred from here on as the Water Decade or simply the Decade). Its official target was clean water and adequate sanitation for all by 1990 (Agarwal, 1981).

At the beginning of the Water Decade, over half the people of the Third World did not have safe water to drink. Now, more than half way through the decade in 1987, the situation is even worse. This is so in Africa and worse in its semi-arid regions. The rural water supply situation is particularly severe with only 26% of Africa's rural population having reasonable access to water compared with 61% for the urban population (WHO, 1980).*

Part of the reason behind the low figure for rural water supply (RWS) is due to the high number of projects that have failed. The designation of the Decade has served to focus much more attention on the problems and a significant number of project cases have been studied dealing with the question of what makes projects work and what makes them fail. The predominant

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*Reasonable access is defined in the rural context as a situation where "the housewife or members of the household do not have to spend a disproportionate part of the day in fetching the family's water needs." (Agarwal, p. 5, 1981).
theme running through the literature produced as a result of these studies is that the community development approach to meeting basic needs should be an essential part of rural water supply projects. Little reference is made to the technocratic approach even though it is used in practice. The assumption, articulated by most writers, seems to be that the technocratic approach leads to failure and the community development approach to success.

This assumption will be examined in this thesis through identifying those elements in the planning process that contribute to the success of efforts to meet the basic need of water in rural communities of developing countries. Success is defined as the meeting of immediate and long term water needs leading to improvements in health, economic and social conditions of communities.

D. ORGANIZATION OF THE THESIS.

Chapter Two begins with a brief description of the basic needs approach (BNA) to development. The primary purpose of this chapter is to provide an understanding of the BNA and why it has come to be accepted as a legitimate strategy for development in the context of poverty and scarce resources.

Chapter Three examines the basic need for water and the attention it has received globally since the designation of the Water Decade. Interestingly enough, the global focus on water supply coincided with the International Labor Organization's (ILO) endorsement of the basic needs concept.
The Decade is described for the purpose of highlighting the issues related to the basic need of water, and the participants involved in the efforts to supply water to rural communities. Included in this chapter is a brief description of some of the problems encountered in these efforts, the progress made and the identification of some elements in the project implementation process.

The main participants studied in this thesis are the governmental and non-governmental organizations which are responsible for the planning of rural water supply (RWS) projects and their implementation in the field. The sections in Chapter Three dealing with the difficulties faced, progress made and elements in successful projects are based, for the most part, on reports from these participants.

In Chapter Four, a case study in RWS is described. The regional context within sub-Saharan Africa (SSA) is explained first, followed by a description of the host country, Kenya. To provide a context for the case study, an analysis of the organization of planning in Kenya follows. The focus on rural development and basic needs in the policies of the Government are discussed, followed by a description of the water sector in general, and RWS in particular. This provides a base from which to move to the case study of RWS among the Giriama, a tribe located in the region north-west of Malindi on the coast.

Chapter Five is an analysis of the RWS project. The first objective is to determine whether or not the project is successful. The second will be to identify the elements that
contributed to its success and compare them with the elements identified through the literature review of Chapter Three. The third will examine the project in terms of the BNA and its relationship to the elements identified as contributing to the success of the project to see whether this is indeed a valid approach to take in rural development.

The main question asked concerns the elements in the planning process that contribute to the success of efforts to meet the basic need of water. Subsidiary questions include the following:

- was the project successful?;
- what are the obstacles and supporting forces of successful water supply projects?;
- are the elements contributing to the success of RWS projects a part of the BNA to development?; and
- is the BNA to development one of the important elements in successful rural development efforts?

Chapter Six is a summary and conclusions.

D. METHOD.

Chapters Two and Three are based on a literature review. Chapter Two focused on the basic needs literature found mainly in the University of British Columbia Library. Chapter Three utilized the Library as well as inter-library loans and some research done at the United Nations Headquarters in New York City.
The first part of Chapter Four was also based on literature. The last part of the chapter is a case study in Kenya, East Africa. Information for the study was obtained through questionnaires.* The first went to villages benefiting from water supply projects. The second went to villages with no water supply projects. The third went to planners involved in water supply projects in the region.

The questionnaires sent to the villages were designed to gather general household information. The one sent to villages with water supply was designed to provide additional information on how the villagers viewed the project and what they perceived as its benefits. The one sent to villages without water supply projects was designed to provide further information on how the villagers viewed their lack of a reliable water supply and what they saw as the possible benefits of an improved water supply. A final objective was to discover whether a program to educate the villagers as to their need of a clean and dependable source of water and a training program teaching selected villagers how to operate and maintain the water supply system had been set up.

The questionnaire sent to the two planners was designed to provide information on how they viewed the planning process for RWS and what they saw as the benefits of the projects they were responsible for.

*The questionnaires are included in the Appendix.
"Judged by the usual yardsticks of economic growth, the development process of the past three decades was a spectacular, unprecedented, and unexpected success: it resulted in an annual increase of more than 3 percent in income per head in the developing world. Judged by even the normal measures of social development, the development process must also be labeled a success. Life expectancy at birth increased from only forty-two years in 1950 to nearly sixty years in 1980. But judged by the reduction of poverty, it was far less successful. The aggregate statistics quoted above hide tremendous disparities between nations and within nations. Overall economic growth and social progress did not mean much improvement in the circumstances of the poorer segments of the population. By World Bank calculations, even now some 750 million people live below a nutritionally defined poverty line. This is nearly one-third of the combined population of the developing countries.

Must such a large number of people be condemned forever to live in absolute poverty?

Paul Streeten.
2. BASIC NEEDS: FRAMEWORK AND PLANNING

The purpose of this chapter is to provide the conceptual framework for the thesis. Planning for rural water supply in a developing nation takes place in many instances with the aid of international development agencies. The basic needs approach (BNA) is one of the more recent development strategies of these agencies. It has emerged largely as a result of recent experiences in the development process and related studies of the relationship between poverty, scarce resources and development over the last 20 years.

This chapter is divided into two parts: the first part is a brief overview of the concept of development, tracing the evolution in development thought to the current focus on basic needs. The second part is a discussion of the BNA to development. Included in this discussion are: the early years of the basic needs concept; a definition of basic needs; critiques of the BNA; some implications of the BNA; and a discussion of the appropriateness of the BNA.

A. THE CONCEPT OF DEVELOPMENT.

A general definition of development as it has been viewed is: "Development has meant the pursuit of (it is assumed) the almost completely correlated aims of modernization, economic growth, and social advancement." (Allen and Anzalone, 1981, p. 210). Allen and Anzalone go on to identify the means to these ends (strategies for development) as being "the capitalization of
agriculture, industrialization, and the building of mature social infrastructure." (Ibid). The ultimate goal of international development is the eradication of world poverty (Sameter, 1984; Sandbrook, 1982; Srinivasan, 1984; Streiten, 1981;).

The early development strategies focused primarily on economic growth. Sir Arthur Lewis and other development economists strongly influenced the adoption of this policy in the mid 1950s (Sameter, 1984; and Streiten, 1981). They emphasized that underdevelopment could be summed up in terms of very low per capita incomes. Furthermore, a growth in per capita income, initiated and sustained, would, in time, lead to the solution of the other problems associated with underdevelopment such as poverty and the inequitable distribution of income (Allen and Anzalone, 1981; Sameter, 1984; and Srinivasan, 1984).

Paul Streiten lists three justifications for this emphasis on economic growth as a means to development:

"One justification assumed that through market forces—such as the rising demand for labor, higher productivity, higher wages, or lower prices—economic growth would spread its benefits widely and speedily, and that these benefits could best be achieved through growth...[The second] assumed that governments are democratic, or at any rate are concerned with the fate of the poor. Therefore, progressive taxation, social services, and other government action would spread the benefits downward. The alleviation of poverty would not be automatic, but governments would take action to correct situations in which market forces concentrated benefits. The third justification, more hard headed than the previous two, said that the fate of the poor should not be a concern in the early stages of development. It was thought necessary first to build up the capital, infrastructure, and productive capacity of an economy so that it could improve the lot of the poor later." (Streiten, 1981, p. 9).
Among the more influential development economists, Simon Kuznets argued that average income levels are very much related to an index of equality (Ibid.). His basic theory was that the early stages of growth are accompanied by growing inequality until the point where income per capita is $1000 US (1979 dollars). Beyond these income levels, further growth is associated with reduced inequality (Kuznets Curve).

Economic growth in the long-run, according to the development economists, was the best route for the underdeveloped countries to follow as they sought to become like the industrialized countries of the West. This approach had not only worked for the West but also, as Sameter argues, in Soviet experience. The story seemed to be "...sacrifice everything before the growth idol, and prosperity will be your reward." (Sameter, 1984, p. 2). The result: "Armed with this faith in the long-run healing effects of economic growth, bureaucratic planners, economic advisors, government agencies from East and West, the so-called international community - all rushed headlong into the Development Decade." (Ibid.).

Economic growth had worked for the West, did it work for the developing countries? The initial evidence was positive. To quote Streeten, "...the development process since World War II has been a spectacular, unprecedented, and unexpected success." (Streeten, 1981, p. 11). Per capita income increased more than a third in the first Development Decade, 1960-1970 (Sandbrook, 1982). The annual growth rate of GNP per capita for all
developing countries was 3.5 percent during the first Development Decade and 2.7 percent in the second (Sameter, 1984).

Economic growth had occurred but the more important goal of reducing poverty had not been achieved. Streeten argues that, "Despite the high rates of growth of industrial production and continued general economic growth, not enough employment was created for the rapidly growing labor force. Nor were the benefits of growth always widely spread to the lower income groups." (Streeten, 1981, p. 11). In fact, other scholars write that the lot of the lowest 40 percent of the people in the poor nations was getting worse (Sameter, 1984; and Sandbrook, 1982). Many development theorists expressed concern over increasing social/economic inequality in spite of observed economic growth:

"...hundreds of millions of desperately poor people throughout the world have been hurt rather than helped by economic development. Unless their destinies become a major and explicit focus of development policy in the 1970s and 1980s, economic development may serve merely to promote social injustice." (Irma Adelman and C.T. Taft in Sandbrook, 1982, p. 2).

The realization that economic growth had not worked as expected led to the questioning of this development approach. Streeten sees the problem as one where none of the assumptions given earlier turned out to be true; i.e. 1) that through market forces economic growth would spread its benefits widely and speedily, 2) that governments are democratic and concerned for the poor, and 3) that the fate of the poor would improve later as a result of economic growth (Streeten, 1981). Robert McNamara emphasized the primary concerns regarding development and alleviation of poverty as early as 1972:
"Increases in national income - essential as they are - will not benefit the poor unless they reach the poor. They have not reached the poor to any significant degree in most developing countries in the past, and this in spite of historically unprecedented average rates of growth throughout the sixties." (in Sandbrook, 1982, p. 7).

The developing countries were not necessarily the same as the countries of the West. The assumptions that were valid and enabled economic growth to produce the expected results in the West were not applicable in the Third World.

With this realization came a search to identify the development elements in Third World countries that were different from those in the West. There was a need to turn to more than just 'growth in production' for development. Dudley Seers, in his speech to the International Development Association in 1969 on "The Meaning of Development", identified three elements that he felt caused the theory of economic growth to meet with so little success in developing countries. They were the provision of food (a focus on poverty), a job and the question of equality (Seers, 1969). He advocated that in order to know if development has taken place in developing countries, three questions should be asked: 1) What has been happening to poverty?; 2) What has been happening to unemployment?; and 3) What has been happening to inequality? (Seers, 1969, p. 3). He believed that all three had to decline before one could say that development had taken place.

Seer's remarks initiated, or at least helped to initiate, a rash of new theories on development. The World Bank started to shift from a preoccupation with economic growth to a broader
concern to eradicate poverty and the idea of redistribution with growth. The International Labor Organization (ILO) attempted to promote employment. The idea of a New International Economic Order has emerged along with the concepts of appropriate technology and the basic needs approach (Allen and Anzalone, 1981; Ghai, 1977; Sameter, 1984; Sandbrook, 1982; and Streeten, 1981).

The first two of these new ideas, employment and redistribution with growth, have a common problem. Streeten identifies it as "...an instance of the transfer of inappropriate intellectual technology from modern societies to the entirely different social and economic conditions of developing countries." (p. 12). Similarly, Ghai views the proposed solutions to development problems in the last two decades as coming from the perspective of dominant western schools of thought (Ghai, 1977). They are not always appropriate to the Third World situation.

During the years 1974-77, a great deal of thought was going on regarding development and what it meant or how it should be achieved. The simple notion "...that the purpose of economic development and international cooperation is to meet the human requirements of people, and especially the minimum needs of the neediest" began to emerge out of this thinking (Harlon Cleveland in Allen and Anzalone, 1981, p. 211). This notion is now known as the BNA to development which has taken "center stage", so to speak, in the continuing drama of world development.

Paul Streeten puts it this way:
"The evolution from growth as the principal performance criterion, via employment and redistribution, to basic needs is an evolution from abstract to concrete objectives, from preoccupation with means to a renewed awareness of ends, and from a double negative (e.g., reducing unemployment) to a positive (i.e., meeting basic needs) (Streeten in Sameter, 1984, p. 4).

B. THE BASIC NEEDS APPROACH TO DEVELOPMENT.

In this section the BNA is described and briefly analyzed to provide an understanding of what the framework is. This includes a short description of the early years of the focus on basic needs, a definition of basic needs and some critiques of the BNA.

1. THE EARLY YEARS OF THE BASIC NEEDS APPROACH.

Douglas Rimmer in his paper "Basic Needs and the Origins of the Development Ethos" argues that the concept of basic needs is not really new (Rimmer, 1981). In fact, he places its beginnings prior to World War II during the world depression. It was at this time that nutritional discoveries were being made and attention was drawn to food and its relationship to human well-being. The League of Nations was largely responsible for much of the work in this field. Rimmer argues that their concern with nutrition expanded into a concern for other aspects of the wider problem of the standard of living by the late 1930s.

A major step in this regard was a study by the ILO in 1938 entitled, The Worker's Standard of Living. The report discussed norms of consumption "...which represented a combination of goods and services that were recommended by 'experts'" (Rimmer, 1981, p. 227). This further led to what Rimmer calls the "Living-
Standards Movement" which was still based primarily on food but was moving towards including other items under its umbrella. The question of the international implications of this ideology was raised by men like Sir John Boyd Orr (director-general of the FAO, from 1945-1948) and M.F.W. Joseph who recognized that if the arguments of the proponents of the movement were to be taken seriously, "We shall have to enlarge our ideas of community. Just as we are now prepared to a certain extent to tax the richer parts of the population in order to raise and maintain an adequate standard of living in the lower sections, we shall have to be prepared to do this internationally" (in Rimmer, 1981, p. 230).

In 1954 Abraham Maslow published his work, Motivation and Personality. In this, he outlines his famous hierarchy of needs. He describes them as existing at five different levels, the bottom two are needs that are of a material nature and therefore more urgent, while the top three are needs of a non-material nature. "According to Maslow one must proceed up the hierarchy, from considerations of biological survival to 'self-actualization'" (Allen and Anzalone, 1981, p.213). The "survival" needs are met first before one can progress any further. Maslow's work was later to have an impact on international development theories.

The 1960s brought a lull in the concern for basic needs largely because it was an era of high optimism and confidence. The world economy was booming. Towards the end of this decade, coinciding with the realization that in spite of the healthy
In many developing countries, economic growth was not accomplishing its objective as expected, this optimism "...gave way to a growing disenchantment with the process and the fruits of industrialization" (Ibid.). In 1969, Dudley Seers crystallized his concern, stating "The starting point we now face is to brush aside the web of fantasy we have woven around 'development' and decide more precisely what we mean by it" (Seers, 1969, p. 2).

Shortly after Seer's speech, in 1971, Denis Goulet published *The Cruel Choice: A New Concept in the Theory of Development*. This work, drawing on Maslow, brought the notion of basic human needs into sharper focus by organizing needs into three levels: the first - food, shelter and clothing; the second - enhancement needs; and the third - luxury needs (Ibid.).

In the mid-70s, the concept of basic needs moved from the pages of scholarly works and the desks of small non-governmental organizations to policy statements issued by a number of world organizations involved in Third World development (Allen and Anzalone, 1981). D.P. Ghai in his article "What is a Basic Needs Approach to Development" refers to five influential statements on basic needs made in the years 1974-1976. These are: 1.) The *Declaration of Cocoyoc* (1974) which was issued by a group of social scientists, natural scientists and economists at a seminar organized under the auspices of UNCTD and UNEP; 2.) "What Now - Another Development" (1975) from the Dag Hammarskjold Foundation at the Seventh Special Session of the United Nations General Assembly; 3.) The ILO Report (1976); 4.) *Catastrophe or New*
The most well-known and generally accepted endorsement of the basic needs concept is that given by the ILO in 1976. In their report they state, "Strategies and national development plans and policies should include explicitly as a priority objective the promotion of employment and the satisfaction of the basic needs of each country's population" (ILO, 1976, p. 13). The central theme running through the report "...is the desirability of making the satisfaction of the basic needs of the poor the central focus for national and international development efforts" (Ghai, 1977a, p. 9). By this time, there appeared to be a general agreement among organizations and people involved in development concerning the relevance of this theme.

2. A DEFINITION OF BASIC NEEDS.

Reflecting the general consensus that satisfaction of basic needs should be central to development, the Cocoyoc Declaration said the following:

"Our first concern is to redefine the whole purpose of development. This should not be to develop things but to develop man. Human beings have basic needs: food, shelter, clothing, health, education. Any process of growth that does not lead to their fulfillment - or, even worse, disrupts them - is a travesty of the idea of development" (in Ghai, 1977a, p. 6).

The most commonly cited definition of basic needs was initiated by the ILO in 1976:
"Basic needs, as understood in this Programme of Action, include two elements. First, they include certain minimum requirements of a family for private consumption: adequate food; shelter and clothing, as well as certain household equipment and furniture. Second, they include essential services provided by and for the community at large, such as safe drinking water, sanitation, public transport and health, educational and cultural facilities.

This thesis is concerned with one of the items in the second element of this definition, that of the essential service of providing safe drinking water.

3. CRITIQUES OF THE BASIC NEEDS APPROACH.

Even though the BNA to development has taken center stage, there are differing views on the concept. The first of these raises the issue of the relationship between growth and the basic needs concept. The ILO Report of 1976, in its Programme of Action, stated, "...basic needs cannot be achieved [in developing countries] without both acceleration in their economic growth and measures aimed at changing the pattern of growth and access to the use of productive resources by the lowest income groups." (ILO, 1976, p. 13). The problem, as the critics of BNA see it, is that by emphasizing consumption oriented activities, the BNA implies a reduction in the growth rate (Hicks, 1979; Sameter, 1984). One possible rejoinder to this is development based on economic growth, as pointed out earlier, has not worked.

A second argument is based on the view that the BNA does not necessarily mean a reduction in growth. Norman Hicks of the World Bank made some econometric estimates of the variables
explaining developing countries' growth during the years 1960-73. His findings suggest the following:

- first, it would appear that countries making progress in meeting basic needs do not have substantially lower GNP growth rates; and
- second, the attainment of a higher level of basic needs satisfaction appears to lead to higher growth rates in the future. (Hicks, 1979, p. 992).

There will probably be continuing discussion on this relationship between growth and the basic needs concept but whatever the outcome, there are some important advantages of the basic needs concept over emphasizing growth. Growth is still important and may, in fact, be a precondition and necessary element in meeting basic needs, but the emphasis, as shown in the following paragraphs, should be on basic needs when the ultimate goal is the eradication of poverty.

Paul Streeten argues that the BNA is an integrating concept. He lists four advantages when the focus in development is on basic needs; 1) it is a reminder that the objective of development efforts is to provide all humans with the opportunity for a full life; 2) it goes beyond abstractions such as money, income, employment; 3) it appeals to the national and international community and is therefore capable of mobilizing resources; and 4) it has great organizing and integrating power intellectually and politically (Streeten, 1981, p. 21).

The BNA does not have to be in opposition to the traditional development theories but can be "...an adjunct to, and a modification of... these strategies" (Ibid., p. 33). The main difference is that it is a more direct attack on poverty. As
Hicks argues, "...the basic needs approach shifts attention from the goal of output maximization to poverty minimization" (Hicks, 1979, p. 985). The needs of people, particularly the poor, are in a different category than the wants that markets serve. The BNA makes this distinction much clearer.

Not all views of this approach are so positive. According to Streeten, some see it as a "sop to keep the poor quiet" (Streeten, 1981, p. 26). Sameter sees the BNA as a smokescreen. By this he means it is nothing more than "...a new installment in a long chain of fabrications designed to co-opt and confront any challenge to the dominant system" (Sameter, 1984, p. 8).

Others, however, view this approach as "...revolutionary because it calls for the radical redistribution not only of income and assets but also of power, and for the political mobilization of the poor themselves" (Streeten, 1981, p. 26). This view points to the implications of the BNA which the following section will examine.

4. SOME IMPLICATIONS OF THE BASIC NEEDS APPROACH.

The first implication is political. Sameter does not believe that many Third World governments would adopt the BNA. They may do so in principle, to please their people and the international community, but not in practice (Sameter, 1984). He argues that it is not in the interests of the ruling class, both national and international, to change the existing power structure. According to Sameter, the BNA, if adopted, would change this structure. What this leads to is a requirement to
view the BNA as a political process (Friedmann, 1979; Ghai, "What is..., 1977; Ghai and Alfthan, 1977; Lisk, 1985; Sameter, 1984; Sandbrook, 1982; and Stewart, 1985).

When the BNA is viewed as a political process, the context within which this process is to be carried out becomes very important. As Ghai and Alfthan argue, the "...satisfaction of material needs can never be accepted without regard to the system and means by which it is brought about" (1977, p. 23). There seems to be two factors that the BNA emphasizes in this regard. The first seeks to create conditions in a particular country so people can achieve a minimum standard of living, and the second seeks a redistribution of economic benefits of development in favor of the poor (Allen and Anzalone, 1981, p. 22).

There is a great deal of literature on the political implications of the BNA. The discussion concerning this will not be dealt with any further here. The main purpose of the preceding paragraphs was to raise the issue and stress the importance of understanding the country's political context within which basic needs planning is carried out. This will give an indication of how much can be accomplished in creating the conditions so a minimum standard of living can be achieved and in redistributing the benefits of economic growth in favor of the poor.

The main implication discussed in the basic needs literature concerns the need to take a community development approach to meeting basic needs. The first element that this approach emphasizes is that of participation by the people in the
communities. The ILO included the following in their 1976 definition of basic needs:

A basic-needs-oriented policy implies the participation of the people in making the decisions which affect them through organizations of their own choice." (ILO, 1976, p.24).

Following the ILO's lead, Douglas Rimmer states: "It is essential that the people whose basic needs have to be met should participate in the determination of these needs rather than having them handed down from above." (1981, p. 235). He is not alone in this (see Dell, 1984; Friedmann, 1979; Ghai, 1977a; Ghai and Alfthan, 1977; Hope, 1982; ILO, 1976; Lisk, 1985; and Streeten, 1981) and thus the issue of participation is one of the elements in the planning process for rural development examined in the thesis.

The general consensus seems to be that a broad-based participation by the people is important for successful implementation of a basic needs oriented project. This calls for a decentralized or grassroots type of planning. This, again, reflects the political implications of the BNA but emphasizes the value of attaining input from the people for whom the development plans are for. This brings with it some advantages; the people feel a part of the development process (Friedmann, 1979; ILO, 1976), and the people are able to then mobilize and channel local resources to help meet their own basic needs (Allen and Anzalone, 1981; Lisk, 1985; Streeten, 1981).

Popular participation becomes even more effective when the planning is broken down to particular communities. Friedmann
believes that most basic needs must be satisfied through production at the local level. He goes even further and tries to encourage the creation of a basic needs economy based on community choice (Friedmann, 1979).

A second element associated with the community development approach is the need for appropriate technology. Hans Singer, in his article, "Appropriate Technology for a Basic Human Needs Strategy", stresses the importance for the development of this kind of technology. Kempe Hope argues that the provision of basic needs and the transfer of appropriate technology go together (Dell, 1984; Hope, 1982).

Sandbrook defines appropriate technology as, "...one that is more congruent with a society's needs, resources and physical environment than an alternative." (Sandbrook, 1982, p. 11). The move to develop this technology began fairly recently. Organizations such as Appropriate Technology International are beginning to make some progress in this field. The basic assumption is that technology appropriate to a particular country, and even a community within that country, is an important part of the community development approach.

In addition to the question of appropriate technology, the issue of the appropriateness of the BNA itself has been raised. The arguments concerning this raise some important points and are discussed below.
5. THE APPROPRIATENESS OF THE BASIC NEEDS APPROACH.

Allen and Anzalone in their article, "Basic Needs: New Approach to Development - But New Approach to Education?", raise the issue of the appropriateness of the BNA to development in Third World countries. They begin by pointing out that the BNA may "...be biased toward the experience of the Western industrial nations, and some aspects may be inappropriate for the social realities found in developing countries." (1981, p. 209). Some of the representatives of these countries do not look too kindly on the approach because of this. They feel that Western nations are trying to block the transfer of high technology and so lock them into their present stage of development (Allen and Anzalone, 1981).

They go on to argue that little attention has been paid to the conceptual side of the basic needs message. They raise the question that if it is biased to the Western experience, then it is trying to operate on psychological and sociological assumptions that are not generalizable (Allen and Anzalone, p.215, 1981). If this is true then the BNA should be critically examined by developing countries who want to adopt this strategy.

In order to examine this suspicion of a cultural conceptual bias, Allen and Anzalone analyze the work of William Leiss in his book, The Limits to Satisfaction: An Essay on the Problem of Needs and Commodities. Part of Leiss' argument concerns the appropriateness of Maslow's classification of needs. Leiss states:

...
The succession (up the hierarchy) is at the same time ontological: that is the later stages represent a higher stage of being, or the more appropriate domains of human existence as such. ... Maslow's arrangement reflects the specific organization of life in a technologically advanced society, where there is a high degree of specialization among functions and activities. The classification of needs seems far less applicable to the general pattern of earlier societies..." (Leiss in Allen and Anzalone, 1981, p. 216).

The BNA has arisen out of the developed world, Third World nations have had little input into the development of this concept. Allen and Anzalone come to the conclusion that, "Leiss' arguments suggest that the basic needs doctrine is perhaps too closely linked to a prevailing technocratic view of the world— a view that reduces complex social, economic, political and cultural issues to the category of 'technical' problems." (1981, p. 216).

These arguments raise an important point. If the BNA is to have any relevance to the Third World, the Third World itself should be intimately involved in the development of the concept. This does not mean that there is no place for international agencies to become involved in meeting basic needs, but it does suggest they work together with developing countries.

Dell discusses the relationship between international agencies and host government's in developing countries who are working together to meet the basic needs of the people. His conclusion:

Finally, however important it may be for countries to make more deliberate provision for the needs of their poorest citizens, it does not follow that international agencies have any special competence or expertise to offer in dealing with poverty problems through projects
addressed directly to the poor. On the contrary, lack of familiarity with the complex political, economic, social and cultural problems of assisting the rural and urban poor should prompt the agencies to offer their resources and services in the areas where they know from past experience that they can perform well. They do, however, have a responsibility to advise governments on the goals that the latter have frequently accepted in international forums, and on the means of achieving those goals within the framework of each nationally-determined strategy (p. 141).

Chapter Three examines the above relationship in more detail through focusing on the basic needs of water.
"For at least a quarter of mankind, a clean and adequate supply of water is neither their lot nor an early prospect. Most industrialized cities take it for granted that abundant flow, free from harmful organisms, will be available to those who can afford to pay, and they assume that the price will be within reach of all. Yet the growth of population in rural areas and on the burgeoning margins of tropical cities probably now exceeds the rate at which improvements in water supply are made. Roughly two-thirds of the human family draw their water daily from sources outside the household and carry it in containers to their homes...the sources range in quality from continuously polluted pools to systems offering supplies as pure as the most sophisticated in Europe or America. Boreholes, dug wells, open ponds, streams of many types, rooftop rain collection, public fountains or standpipes - all are in common use. In quantity, they run from intermittent and feeble streams to completely reliable and unlimited flows through pipes. Reviewing the scanty global statistics, it seems likely that at the very least one out of every four persons now uses domestic water from sources subject to contamination."

3. THE BASIC NEED OF WATER

The present chapter will briefly lay out the steps leading towards the decision to designate the 1980s as the Drinking Water Supply and Sanitation Decade. It will then examine the Decade's goals and objectives, followed by a look at the progress made, problems encountered and identify some of the key elements that were found to be present in some of the successful water supply projects. These elements will then be compared to the success elements identified through the case study.

It must be stressed that the elements identified in this chapter are all related to the community development approach to meeting basic needs. The assumption articulated by most writers is that appropriate knowledge, appropriate technology, appropriate institutions, appropriate support and community participation are part and parcel of a project that is concerned with meeting the basic needs of the poor. It must also be stressed that this assumption is based on two decades of experience in providing a rural water supply (RWS) to communities.

B. THE DESIGNATION OF THE DECADE.

The United Nations (UN) and its various international components have played an important role in focusing attention on the basic need of water. The beginning of this concern can be traced back to a World Health Organization (WHO) survey in 1970. Most of the statistics that are available on water supply are
found in the WHO surveys. The survey of 1970 was carried out through questionnaires sent to developing countries, 71 of which returned them. The data generated can only serve as a somewhat rough indication of where the global water supply situation stood at that time (World Bank, 1976).

In 1970, 15% of the rural population of developing countries had reasonable access to safe water. The urban situation was significantly better with 70% having access to a piped water supply (Ibid.). The RWS situation is much more of a problem in the developing countries, particularly when one realizes that 75-90% of the population resides in the rural areas.

Using the information generated in the WHO survey, the UN set goals for the global improvement of water supply in the Second Development Decade (1971-1980). The goal with regard to rural water supply was to increase the coverage from 15% to 25% by 1980 (World Bank, 1976 and Biswas, 1979).

Halfway through the 70's, WHO published the results of another survey based on information to the end of 1975. As in the previous survey, questionnaires were sent out and 67 developing countries responded (Biswas, 1979). In the rural areas, 20% had reasonable access to safe water compared to 75% in the urban areas (Ibid.).

In the following year, 1976, water supply and sanitation began to be identified and recognized as an area for concern on a broader scale (the same year that ILO endorsed the basic needs concept). The first international forum to enunciate the need for a global approach to water supply and sanitation took place
in 1976 in Vancouver, Canada at the UN Conference on Human Settlements (UN, Decade Dossier).

This was followed in 1977 by the UN Water Conference in Mar Del Plata, Argentina. This conference designated 1981-1990 as the International Drinking Water Supply and Sanitation Decade, and is the conference most closely identified with the Water Decade (Ibid.).

In 1978, the WHO and the UN International Children's Emergency Fund (UNICEF) sponsored the International Conference on Primary Health Care which concluded that safe water and basic sanitation were both vital for achieving primary health care. The conference set out two related strategies that were to be pursued during the Decade: to have more relevant health care and to put more emphasis on preventive health (closely tied to safe water) and all-round social and economic development (Ibid.).

The 34th UN General Assembly in 1979 decided that it would have a special one day meeting to formally launch the Decade, to take place in its 35th session in 1980. Prior to this launch date, the World Conference of the UN Decade for Women: Equality, Development and Peace, held in Copenhagen, Denmark, in 1980 recognized the time and health burdens the lack of water imposed on women. This conference encouraged governments and international and non-governmental organizations (NGOs) to promote the Decade's objectives in co-ordination with related sectors of development.

The Decade was launched in the 35th session of the UN General Assembly.
The significance of these conferences must be stressed. They have set goals that the individual governments are to try to achieve through their own nationally devised plans. As noted in the quote from Dell that closed off the previous chapter, this lays a responsibility on international agencies to advise countries on these goals and the ways to achieve them, leaving the actual decisions to the respective governments. The main international agency responsible for the focus on water supply is the UN and its associated branches. In the following section, the Decade will be examined, mainly through utilizing the literature the UN system has produced.

B. THE DECADE.

The International Drinking Water Supply and Sanitation Decade is concerned with providing a safe and reliable supply of water to people everywhere. This section will provide a description of the Decade which will serve as a basis from which to examine the difficulties faced in efforts to provide water, the progress that has been made and some elements found in successful projects. In order to do this, this section will describe the 1980 WHO Survey, the needs identified at the beginning of the Decade and the participants in the Decade.

1. THE 1980 WHO SURVEY.

One of the first steps taken once the Decade was launched was for the WHO to carry out another survey of the global water supply situation focusing on the developing countries. This
survey serves as the point at the beginning of the Decade from which the progress of water supply in countries would be assessed. The WHO has a central reporting function on Decade progress in coordination with the UN's regional economic commissions. The global monitoring function they perform uses information provided by countries and contained in reports called "country sector digests" (WHO, 1984).

The information was not received from all developing countries. Out of a possible 140 countries, forms were received from 87. Unfortunately, one of the WHO regions most affected was Africa, with 51% of the countries missing. There were also a few problems with no answers to some questions, misinterpretation, etc. Nevertheless, the data gives a general indication of the global situation in 1980. In addition to this information, the survey broke the data down into regions. The rural situation in Africa will be the main focus in the following summary.

In 1980, 74% of the urban population globally was provided with a safe water supply. At the same time, 33% of the global rural population had a safe water supply. The 1990 target is 100% for urban areas and 85% for rural.

In Africa, 22 countries responded to the survey and 16 of these stated that 50% or more of their population lacked safe water. Five of these countries had set total coverage targets in RWS by 1990 while thirteen had prepared or were preparing formal Decade plans. For SSA, 22% of the rural population had access to safe water compared to 66% for the urban population (see Fig.1). The 1990 targets are 96% for urban and 81% for rural areas.
FIG. 1. PERCENT OF RURAL POPULATION WITH SAFE WATER AND SANITATION.
The above data are based on averages of the information received for Africa and so do not identify the countries who are doing the "best" or "worst" in their water supply efforts. It must also be stressed again that the information only represents 22 of the African countries. Nevertheless, the data are useful and will be used as a reference point when needed.

2. THE NEEDS IDENTIFIED.

There are a number of needs that the Decade has served to highlight and focus attention on. This is revealed in the goals of the Decade and the concerns of the various international bodies. The needs are here organized into five categories which will be discussed briefly and tied in with the goals laid out at Mar Del Plata. They are: the need to relate planning in the water sector to planning in other development sectors; the need for a rural emphasis and for community participation; the need for education and training; the need for appropriate technology and funding; and the need for continued operation and maintenance.

a). Water and Other Sectors.

Two of the goals for the Decade laid out at Mar Del Plata were to:

1. "Ensure the co-ordination of community water supply ...planning with overall water planning and policy as well as with overall economic development."; and

2. "Carry out a program of health education parallel with the development of community water supply and
sanitation, in order to heighten the people's awareness with respect to health." (UN, 1981b)

One of the main sectors that would need to be considered is that of health. This was evident in the conclusions of the WHO/UNICEF conference. E.H. Hofkes points to a study that indicates 80% of all diseases in the world are associated with unsafe water (Hofkes, 1981). This is not simply a problem with the quality of water but also with the quantity. There needs to be sufficient water to not only wash oneself but also to clean food utensils, clothes, etc. (Ibid.). The Decade Dossier, a document on the Water Decade published by the UN development program (UNDP), states that water related diseases may claim as many as 25 million lives annually. Agarwal et. al. also discuss the problems of water-related diseases and concludes that "ill-health [largely as a result of unsafe water] can drive a poor man into starvation." (Agarwal et.al. p.25, 1980). A poor man who suffers from frequent illness is unable to work his land and produce his food. This requires him to buy his food, largely through the sale of other goods such as livestock, which in turn reduces his productive potential once he is well. Eventually this kind of cycle can lead to starvation.

The above points to a second area that safe water can affect. This is rural development and even the general economic development in a country. A poor man who is afflicted with ill health cannot work productively and at the same time drains his income through the purchase of medication for his illness. The Decade Dossier argues that this can lead to a loss in national productivity.
A third area for consideration concerns women and children. The Decade Dossier argues that this group is the most affected by a lack of safe water within a reasonable distance from their homes. Biswas gives some more specific statistics such as: 90% of all water (and fuel) in Africa is collected by women; 50% of their working time is spent in getting water; and 12% of their daytime caloric needs are taken up in getting water (Biswas, p.450, 1979).

Other writers also argue that safe water is important to overall development in a country. Hofkes writes, "for significant socio-economic development of a community, an adequate supply of water is a prerequisite." (Hofkes, p.13, 1981). G.A. Brown, the Chairman of the Steering Committee for Cooperative Action of the Decade, sees the Decade as "a [comprehensive] development effort, long overdue, rather than an isolated seemingly arbitrary 10-year program merely for the laying of pipes and installing of pumps." (Brown, p.4, 1983).


Two of the goals for the Decade by the UN were to:

1. "Adopt policies for the mobilization of users and local labor in the planning, financing, construction, operation and maintenance of projects for the supply of drinking water...;"

2. "Consider carefully inequalities in the standard of drinking water...services among the various sectors of the population...Priority should be given to the provision of drinking water...services in areas where the quality and quantity of water supplied are inadequate, or...in rural areas..." (UN, 1981b)
The small percentage of people who have access to safe water in the rural areas has already been referred to. This emphasis and that of community participation will receive much more attention in following sections of this chapter. However, it is important to highlight the need and point out the relationship between the Decade and the rural areas and community participation. Bahman Kia believes the Decade can serve as an entry point to develop more effective community participation and rural development (Kia, 1984). The Decade Dossier states "maximum participation by those who will benefit from new systems is central to the approach.".

c). Education, Training and Organization.

Two goals for the Decade set out by the UN at Mar Del Plata were to:

1. "Review the organizational infrastructure for community water supply and sanitation, and where this is considered appropriate, set up a separate department for this purpose;"

2. "Establish, at the national level, training programs to meet immediate and future needs for supervisory staff." (UN, 1981b).

Similar to (b) above, this need will receive more attention in following sections. The need is for the ability to educate, train and organize people, to first of all understand the need for improved water, and secondly how to build, operate and maintain the new system.

d). Technology and Funding.

One goal related to this need set by the UN was to:
1. "Provide mutual assistance in the transfer and application of technologies..." (UN, 1981b).

There is a great deal of concern on the question of the cost of the Decade. This is an important area and one that can have a large impact on water supply projects. However, the question of how the projects will be financed, how much they will cost, etc. will not be dealt with to any great degree in this thesis. The need focused on here is for appropriate technologies which is more directly related to the purpose of this thesis than the broader need of funding.

e). Operation and Maintenance.

Similarly to (b) and (c) this need will receive more attention later. Even though it is related to the other needs it is singled out to stress the importance of the need for on-going operation and maintenance to any water-supply project. The Decade Dossier points out a WHO estimate where 40-80% of handpumps installed in developing countries are inoperable within three years. A UNICEF study in Asia in 1976 showed 70% of the pumps not working (Decade Dossier, p.22).

3. THE PARTICIPANTS.

The Decade has many participants, being a global effort. The participants have been grouped into four categories: the UN and its bodies; the national governments; the governmental and non-governmental organizations; and the local communities.
a). The UN and Its Bodies.

One of the proposals formally accepted by the countries at the meeting in New York in 1979 was that: "A seven agency steering committee be formally recognized and formally structured as the focal point within the United Nations." (McDonald, p.140, 1981). This Steering Committee was made up of eight UN bodies: UNDP; World Bank; WHO; UNICEF; FAO; ILO; UNESCO; and the UN itself. The chair of the Committee is the UNDP with a Global Water Supply Unit in WHO assisting in secretariat functions (Decade Dossier, p.11).

This Committee was formed to help co-ordinate their (the UN system) work with the national governments in the planning and implementing of water supply activities. The UNDP Resident Representatives bear the responsibility for co-ordination in each country.

The strategies the Committee emphasizes promotes and supports Decade programs through various avenues. These include technical co-operation, build-up of national capacities, generating self-sustaining programs, promoting co-operation among developing countries, and encouraging the flow of external funds into national activities (Decade Dossier, p.11).

b). The National Governments.

The main responsibility of national governments is to develop "National Action Plans" that emphasize Decade goals. The governments are in charge of public policy and action programs in their respective nations.
There are three broad areas of focus for the governments. The first is in defining the legal and administrative dimensions of the programs. The second relates to the kind of external aid it needs for these programs and the third is to identify its own resources (UN, 1982b), and how to utilize them. The most important resource being the people.

c). Governmental and Non-Governmental Organizations.

These are organizations that actually carry out the bulk of water supply projects. They deal with the issues discussed in preceding sections and have the responsibility for successfully implementing the projects.

The governmental organizations are those identified with a particular country, mostly in the North. Some examples are the Canadian International Development Agency (CIDA), the United States Agency for International Development (USAID) and the Sweden International Development Agency (SIDA). There is a great deal of bilateral aid going on in the Decade and the contributions of these agencies is significant.

The non-governmental organizations (NGOs) come in two general types; those in developed countries who work in Third World nations and those indigenous to the developing countries. Both play an important role in water supply projects. D. Collet estimates that their investment to 1983 in the Decade was approximately $120-130 million per year (Collet, 1983).
It is mainly the work of this category of participants that is examined in this thesis. It is the elements in their planning process that are under examination.

d). Local Communities.

We come finally to the local communities, the most important of all the participants. It is for them that the Decade was launched. It is the communities that will ultimately determine the success or failure of many of the projects. The Decade Dossier argues that participation of local institutions and communities is vital:

"Members of local communities are to be involved in all aspects of water...—from planning, construction and financing, to training, operation and maintenance." (UN, Decade Dossier, p.16).

C. THE DIFFICULTIES FACED.

Prior to the designation of the Decade and within the first few years, a number of problems have been identified that have served to prevent the success of many water supply projects in rural regions. These obstacles can be grouped into four general areas: political; institutional; human resources; and other factors.

1. POLITICAL.

Within the political realm, the problems can be analyzed in terms of two areas, national and local politics. The national level would be the first obstacle encountered when trying to
introduce a water supply project into a country. In the past, development in Third World countries has been a top-down exercise (Kia, 1984a; Kukielka, 1985; and Gow and Sant, 1985). There has been an unwillingness of the central ministries to give meaningful authority to project staff or the communities.

At the national level, the politics in a country more or less determines the development environment that is in place. Farront argues that this environment can affect the speed at which things get done, the type of projects approved, the availability of information that could be beneficial to a project, etc. (Farront, 1986 and Kukielka, 1985).

Below the national level, local politics can also be a major obstacle to a project. There are several groups involved at this stage. The project manager and his staff play a vital role. They are responsible for factors the plan takes into consideration and for the implementation of the program. If they wish to ignore certain elements such as training the people, involving the people, etc., they have the freedom to do so (Sant and Crawford, 1985). Many times this is largely due to a reluctance to interfere with host government policies or because they are being driven by other political imperatives to ignore these elements (Ibid.).

The literature also discusses the local leaders who were also found to create some problems. The main one being a desire to manipulate project resources and activities for their own ends (Gow and Sant, 1985).
The last group are the villagers themselves. In certain cases the villagers refused or were reluctant to participate in the project (Ibid.). Kukielka found that the people in one village did not use the water that the project supplied simply because it did not taste right.

These types of "political" problems can take up large blocks of time and other resources designated to the project, in many cases leading to an unsuccessful effort.

2. INSTITUTIONAL.

The lack of well developed institutions at both the national and local level was another problem identified. Institutions will refer to organizations that have a social and educational purpose (Webster's New World Dictionary) both at the national and local levels. Many government agencies were found to have overlapping responsibilities with no clear idea of who had responsibility for what (World Bank, 1976). Morss, Gow and Nordlinger found in their studies that, in most cases, no institutional capacity had been developed to promote and carry out the projects.

Sant and Crawford identified three problem areas related to institutions. The first was that the administrative capacity of existing institutions was inadequate to the task in many cases, especially in local organizations. A second was a problem with access to resources by the jurisdictions that were responsible for development. The framework that was in place did not allow the free flow of the necessary inputs to the project. Related to
this was the third problem, a weakness in the structures that were to support the effective flow of information both vertically and horizontally.

3. HUMAN RESOURCES.

One of the major constraints identified in the literature contributing to failed projects was a lack of personnel educated and trained in all aspects of water supply. This was found to be a problem at both the professional and sub-professional levels (Biswas, 1979; Farront, 1986; World Water, 1986; Okun, 1982; Morss, Crawford and Owens, 1985; and Gondwe, 1985).

A fundamental problem, identified by Biswas (1979) was a lack of educating the villagers on hygiene. As a result the water that was supplied was not stored safely and people still drank water from waterholes when too far away from the safe source. The result was the projects did not serve their purpose and the safe water did not help the communities.

A second major problem more directly related to the project is that of trained personnel for the operation and maintenance of the system. In Africa, particularly, this was, and is, one of the biggest problems (UNDP, Vol.5, No.4). McNeill found that RWS systems in developing countries frequently fall into misuse and disrepair within only a few months of completion (McNeill, 1985). Similarly, Agarwal et. al. (1981) report 30% of RWS systems out of order in the developing countries. They also give a figure of 30-70% of handpumps breaking down on average. Kia (1984b) states that 40-80% of handpumps do not work after three years. A lack
of trained personnel may not be the only reason for these figures but is certainly one of the main contributing factors.

4. OTHER FACTORS.

There are a number of other factors that were found to contribute to the lack of success of projects. The problem of inappropriate technology is one of the more often cited (World Bank, 1976; Farront, 1986; Okun, 1982; Honadle, Silverman and Mickelwait, 1985; and Agarwal et. al., 1981). Technology that is too complex for the local people leads to many of the maintenance problems pointed to above and is usually linked with high costs.

The high costs were a second problem. The developing countries are poor and cannot afford the sophisticated technologies that were being presented to them. Okun discusses a fundamental issue in development where he reveals the dilemma communities, and nations, find themselves in. He states, "Given an opportunity of investing in a modern monument that can announce to the world that the community is in the vanguard of progress, or investing in simple technology, the community is likely to adopt the former." (Okun, p.14, 1982). Inappropriate technology seems to be the rule rather than the exception due to this desire to put on a good front. Unfortunately it works to the detriment of the communities and the nation.

A third factor bringing frustration to national efforts for improved water supply since 1980 has been the unrealistic objectives each country laid out at the beginning of the Decade
(Kukielka, 1985). The unrealistic goals create a feeling of defeat, rather than one of hope.

One of the reasons for this frustration is the increase in population which has adversely affected the plans of countries to supply their populations with safe water (Biswas, 1987). In spite of the successes there are more people without reasonable access to water than ever before (Ibid.).

A fourth obstacle has been found to be cultural, largely due to the fact that it has been ignored (Honadle, Silverman and Mickelwait, 1985; and Kandawire, 1982). This is particularly true in health where the traditional view of the causes of illness come in conflict with the scientific reasons.

A fifth problem was found to be the size of the projects. The larger the project the more obstacles it encountered (Farront, 1986). Farront argues that a larger area is more difficult to manage because of the likelihood of more diversity in the physical and social areas of the region and thus the more difficult it becomes to take all the necessary factors into consideration.

D. THE PROGRESS MADE.

In 1986 the WHO published the International Drinking Water Supply and Sanitation Decade Review of Regional and Global Data (as at 31 December 1983). This survey is three years later than the 1980 Survey and provides an indication of the progress made three years into the Decade. The global situation in 1983 indicated that 74% of the urban population was supplied with safe
water compared to 39% for the rural areas. These global statistics include developed countries and thus provide a somewhat distorted picture of the situation in the Third World.

The number of countries reporting from Africa had increased from 22 to 26. Nineteen out of the 26 had 50% or more of their population lacking safe water. The number of countries with total coverage targets for RWS had decreased from 5 to 2. The number of countries that had prepared or were preparing Decade plans increased from 13 to 22. For Africa itself, 26% of the rural population had access to safe water compared to 61% for urban populations.

In terms of the statistics available, the progress has not been too spectacular. For Africa 41 million new beneficiaries of RWS were reported. This is a significant improvement. Unfortunately, due to the high population growth rates in Africa, millions still have to wait for safe water.

The progress can be measured in other ways. The plans that countries were encouraged to make at the start of the Decade provide one such way. G.A. Brown reports 70 countries involved in Decade planning who have established priorities in the water sector. Bahman Kia (1984b) is encouraged by the fact that 25 countries have developed plans that incorporate ideas focused more on the people who are to benefit from the projects. As a result of some of the difficulties encountered, 22 countries revised Decade targets downwards to a more realistic level (World Water, 1986). Biswas takes a slightly different view and reports
75% of developing countries have national water policy statements (Biswas, 1987).

These plans or national policy statements serve an important function. They put attention on certain areas and as a result more resources are applied to that area. For example, Biswas believes that a number of things have happened: the assessment of water resources has improved; community water supply has received a lot more attention; environment and health have received more attention; and human resources received more attention even though it is still a major constraint (Biswas, p.1, 1987).

The national plans can also serve to reflect some of the lessons that have been learned so far in the Decade. Kia (1984b) identifies some of these elements. He believes the plans reveal a shift from large-scale engineering and construction approaches towards methods that work with people to bring about lower-cost "appropriate" solutions. They emphasize more self-financing from the community and national sources rather than a dependence on external donors. They place more emphasis on adequate training, integration with other sectors and community-based maintenance systems. They also reflect a turning towards people-technologies, health education and the involvement of women.

These are important trends but simply because they are written down does not mean they will be applied. In another article Kia (1984a) states that he does not believe that the plans actually accomplish much. They pay verbal attention to the problem but do not make them an explicit part of the planning.
As a result many of the plans are imposed on communities rather than soliciting the input of the community (p.2, 1984).

The progress made to date has not really been in the increase of the number of people served. Rather it has been in the realization of what the problems are and of what elements are important for successful RWS projects. The following section will examine in some detail what these elements are.

E. ELEMENTS IN SUCCESSFUL PROJECTS.

Successful water projects have been defined by Dennis Warner as involving "...a set of activities that achieve the objectives for which they were planned." (Warner, p.118, 1981). He then goes on to expand a little on this by saying "...successful water...projects represent technological, behavioral and institutional changes leading to improvements in the health, economic and social conditions of participating communities." (Warner, p.119, 1981).

The first definition stresses the importance of the objectives. The task then becomes one of identifying them. Warner argues that project planners usually focus on input/output relationships - costs, the number of projects built, the amount of water produced, etc., while paying little attention to what he calls development goals - improved health, greater social well-being, etc. (Warner, 1981). It is these development goals that his second definition takes into account.

The definition used in this thesis is a combination and simplification of Warner's definitions. Success, in this thesis,
is defined as the meeting of immediate and long term water needs leading to improvements in health, economic and social conditions of communities.

When one turns to identifying the elements in the literature that seem to be integral parts of successful projects, one general element should be noted. The planner and the person who is to implement the project must first of all design a flexible, open-ended plan that responds to community conditions (Kalbermatten, 1985 and Kia, 1984a). The next step would be to gain the villagers acceptance of the plan and their trust in the person responsible for implementing it (Saunders and Warford, 1976 and Stewart and Rull, 1981).

In order to gain their acceptance and trust a number of elements have been found to be of key importance. They are grouped here into five categories: appropriate knowledge; appropriate technology; appropriate institutions; appropriate support; and community participation.

Pickford (1983) supplies a working definition of appropriate that conveys the concept as it is used in this thesis.

"Cultural, economic and sociological circumstances of the people in any place determine what is appropriate for them. To make water supply...really appropriate for people it is necessary to know something about their background, their traditions, their family and community structures, their employment, the extent of their poverty or affluence, the incidence of disease and so on." (p.206).

1. APPROPRIATE KNOWLEDGE.

The literature discussing key elements in water supply projects important to their success identifies three components
of appropriate knowledge. The first two refer to knowledge the implementers need, the last to knowledge villagers need.

The first has been part of the activities of development organizations for many years. It can be given the label of "technical" information. This includes data on the physical features - topography, soil, water table, water source, climate, natural resources, etc; biological features - water quality, water related diseases, etc.; economic features - assets, access to resources, liabilities, infrastructure, etc.; and demographic features - population, birth rate, infant mortality, life expectancy, ethnic composition, etc. (Isely, 1981). This kind of knowledge gathering presents little difficulty to the agencies, it is facts and figures. However, Warner (1981) argues that studies gathering the facts and figures should be kept brief in order to avoid frustrating the villagers.

A more important component of knowledge vital to those responsible for planning and implementing the project is what will be called "people-oriented" knowledge. This places the emphasis on knowing the community in its fullness. Widstrand argues that the, "lack of ...knowledge [of local conditions] is very often the reason for the gap between the plan and the social/physical reality." (p.141, 1976). Sant and Crawford put it a slightly different way, "...effective development planning requires an awareness of the policy environment combined with a sensitive and detailed knowledge of local conditions, practices, and needs." (p.18, 1985).
Stewart and Rull (1985) refer to this as a social diagnostic process. They found there is a need to identify: various groups within the community; formal and informal leadership - decision-makers, influential people, competing groups, etc.; traditional healers and diviners; new individuals and groups; and the relationship between the people's needs and concern and those of the water program. Warner stresses that this "...social analysis can and should be incorporated within all stages of the planning process." (p. 91, 1981).

In addition to gaining this knowledge about the community, writers such as Chambers (1983), Saunders and Warford (1979), Warner (1981) and Kandawire (1982) stress the importance of utilizing knowledge of the community's members. Knowledge on how water has traditionally been supplied, religious taboos that can influence the use of technology, and the local understanding of the link between water, sanitation, personal hygiene, environmental hygiene, health, etc., is very important if one is to understand the whole community, including its cultural dimension.

The third component of appropriate knowledge is concerned with the knowledge the people within the community may need. Educating villagers as to their need of clean water and the benefits of it is one of the more fundamental areas. With this knowledge they may be more willing to work towards improving the water situation (Saunders and Warford, 1979). A second focus would be to train villagers how to operate and maintain the systems.
An important thought to keep in mind is that all communities are different and should always be approached with that awareness (White, 1981).

2. APPROPRIATE TECHNOLOGY.

Farront (1986) declares appropriate technology as, "one of the most significant and fruitful concepts of our time..." (p.7). This is largely due to the fact that the concept takes technology, a non-human thing, and emphasizes the human factor. It is an appealing concept that seems to be catching on. Biswas (1987) reinforces this view by pointing out the popularization of it in recent years.

Appropriate technology has been defined in many ways. Kalbermatten (1985) believes that technology should be based on the objectives to be achieved. This includes the sociocultural environment and the ability of the user to maintain the technology. Farront (1986) stresses the need for appropriate technology to be tailored to human circumstances and physical requirements. Koloko (1979) writes that appropriate technology should be: adaptable to local conditions; acceptable to the existing work force who will handle it; and capable of reducing dependence on external sources. The UN declared that appropriate technology, "...is to be considered in reference to existing natural conditions, existing economic conditions and the human factor" (UN, 1981d, p.9).
The common theme running through the above definitions is that of the human element. Technology is no longer viewed as being separate from the location within which it is placed. The choice of the kind of technology to be used has been found to have a significant impact on water supply projects. Sandbrook's definition provides a good basis on which to choose the technology used. Appropriate technology should be, "...one that is more congruent with a society's needs, resources and physical environment than an alternative." (p.11, 1982).

3. APPROPRIATE INSTITUTIONS.

Under appropriate knowledge the identification of various groups and leaders within the communities was listed as important to understanding the community. Related to this is the identification of appropriate institutions within the local community and how they relate to both national institutions and aid agencies. Local institutions can play an important role in providing a link between the communities and organizations at higher levels. Sant and Crawford (1985) argue that this is important because, "Indigenous social and economic arrangements survive because they perform necessary traditional functions and satisfy local needs." (p.18). Institutions such as these could be adapted to contribute to RWS programs.

The lack of appropriate institutions in developing countries has been found to be detrimental to the success of water supply projects (Farront, 1986; Koloko, 1979; and Spencer, 1985). Where they were in place, projects ran more smoothly (Warner, 1981).
Warner is referring particularly to local level institutions where local committees, who have been selected according to custom, are involved in setting priorities and management procedures. In this way these local institutions can be strengthened by the project and become strong and dynamic community organizations (Kia, 1984a).

The greater need at a broader level is for institutionalized human resource development (Biswas, 1987). This was identified at the Interregional Symposium on Improved Efficiency in the Management of Water Resources held in New York in January of 1987. The recommendation puts an obligation on aid agencies to train beneficiaries in operation and maintenance of RWS projects and stresses the need to focus efforts on educational institution building as part of a water supply project. Another recommendation at the Symposium was for greater collaboration among local, national and international agencies.

4. APPROPRIATE SUPPORT.

Appropriate institutions are a key component of appropriate support. Support refers to maintaining the people, mainly through education and training, and the project (parts, advice, technical assistance, etc.). With the institutions in place the ongoing support would be much easier to develop. One aspect of this support is human resources development. Isely et. al (1986) argues that, "all users of water supply...systems have a large role to play in maintaining them." (p. 20). The UNDP (Case History #4) advocates the training of 'barefoot engineers'
defined as, "often a volunteer, usually selected by the community, this person keeps pipes, pumps and wells in basic repair and, equally important, reflects the community's view that trouble-free operation of water-supply systems is as much its own responsibility as that of the government." (p.2).

In addition to this barefoot engineer, there is a need to develop skills within the village to take on responsibility in problem-solving and other aspects (Stewart and Rull, 1981). The focus should be on taking the emphasis off the project staff and developing a strength from within the village. Until this happens, there should be a maintenance of continued support by the outside agency to the RWS project in the village until they can maintain it themselves (Ibid.).

Warner (1981) identifies technical, institutional, administrative and infrastructural factors as support conditions needed to nourish and sustain the project. In particular, villagers need to have access to appropriate information on technology and how to use it and access to the necessary physical resources important to the project (i.e., spare parts).

Morss, Gow and Nordlinger (1985) argue that the support conditions need to be developed locally as far as possible. The dependence on external sources of support takes away from the strength of local institutions and community development leading to a decreased chance of success for water supply projects. Questions that focus on how to achieve the development of local support conditions need to be included at all stages of planning and implementing the project.
5. **COMMUNITY PARTICIPATION.**

In October 1986, representatives from 30 African countries and 15 external support agencies met in Abidjan, Ethiopia and signed the "Abidjan Statement."

"Lasting health and economic benefits for the rural and urban fringe populations of Africa can be achieved through increased community management of water supply and sanitation systems based on proven low-cost technologies. African governments and donors are urged to identify and commit adequate resources and provide all necessary support for the direct involvement of communities in choosing, managing and paying for their water and sanitation systems." (UNDP, Vol.5, No.4, p.2, 1986).

The Abidjan Statement calls for more effective community participation. Community participation has been found to be the key element in successful water supply projects by a number of writers (Mission to Malawi, 1981; Isely et. al, 1986; UN, 1979a; Gow and Sant, 1985; Roark, 1980; Hofkes et. al, 1981; Kukielka, 1985; Stewart and Rull, 1981; White, 1981; Kandawire, 1982; Kia, 1984a; Warner, 1981; and Farront, 1986). Community participation is involved in appropriate knowledge, appropriate technology, appropriate institutions and appropriate support.

Warner (1981) and White (1981) argue that villagers should be given the responsibility of deciding whether or not they want the project at all. Hofkes et. al (1981) writes, "analysis of existing small community water supplies has shown that participation in the early design stages greatly contributes to the success of a project." (p.28). The responsibility for what happens in a village should be placed on the villagers. As Kukielka (1985) points out, "villagers themselves are the best
judges of what should be done in their village. And even if their decisions are sometimes wrong, they still have the right to make them." (p.12).

An important element of the effectiveness of community participation is that of responding to a felt need. It is not a need they have been told they have but one they have discovered or know to be a real need in their community (Mission to Malawi, 1981; UN, 1979a; and Kandawire, 1982). As Kandawire (1982) writes, "...when people know that self-help work will benefit them, though it is organized by outsiders, they will offer to participate in the project." (p. 300).

Community participation has been found to be important in all aspects of the planning and implementing of water supply projects. The project is for the people and should be focused on the people at all stages. The conclusion of the UN article on citizen participation (1979a) summarizes the comprehensive effect of genuine community participation.

"When people accept a project or program as the solution to a need they feel, participation is more effective, their village wisdom is a guide to the choice of appropriate technology, and their understanding of the institutional arrangements can facilitate effective follow-up." (p. 9, 1979).

In summary there have been a great many RWS projects planned and implemented over the past years. Some have succeeded, but a discouragingly high number have failed. The preceding discussion has identified some elements found in the literature that are in successful projects. The common thread in these elements is a
focus on the people for whom the projects are designed. As Haile (1981) points out, "During the last two decades, it has become more and more widely accepted that it is futile to implement rural development programs without the participation of the intended beneficiaries, the poor." (p. 92).

An encouraging sign of the direction aid agencies may be going is found in USAID's publication "Policy Directions for Rural Water Supply in Developing Countries."

"Success seems more likely to be assured, however, if the motivation and understanding extends all the way to the village level. This can be achieved with increased attention to health education, to genuine community participation, and by making sure that knowledge of the social and cultural aspects of community life in relation to water supply is developed and used in program planning and project design." (found in Roark, p.50, 1980).

The literature reviewed in this chapter dealt with longitudinal studies of RWS projects and focused on the community development approach to meeting basic needs. The case study in the next chapter deals with a project that is relatively young, which began a few years after the ILOs endorsement of the basic needs concept and which takes a technocratic approach to meeting basic needs. Because of this it provides an excellent example to examine to determine whether the assumption articulated by writers in the basics needs literature is a valid one. That is, that a technocratic approach leads to failure and a community development approach (with its associated elements of appropriate knowledge, appropriate technology, appropriate institutions, appropriate support and community participation) to success.
"Now I have answered your questions, when is this man bringing me water?"

An elder from a village in Bungale Location in the case study.
4. THE CASE STUDY: A DESCRIPTION

Water is of particular importance in Africa. The purpose of this chapter is to narrow the analysis down to rural water supply (RWS) in a district of Kenya, East Africa. In order to do this, the context of the case study within Kenya and Kenya within Sub-Saharan Africa (SSA) will be set out before going into the specific case study.

A. THE REGIONAL CONTEXT: SUB-SAHARAN AFRICA.

Sub-Saharan Africa is a vast region. Sai (1986) states that it has a land area two and a half times larger than the United States (see Fig.2 and Fig.3). It consists of forty-five countries and is considered to be one of the least developed areas of the world. Wolfson (1985) estimates that 23 of the world's 35 poorest countries are in SSA. The total population of the region is approximately 450 million with an average density of 18 people per square kilometer (Sai, 1986).

One of the major problems in the region is its fast growing population, estimated by Wolfson (1985) to be the fastest in the world. This becomes a severe problem when the population growth rate exceeds the growth of food production leading to a need for the countries to import their food. Sub-Saharan Africa suffers from such a situation and as a result, the World Bank (1984) estimates there are about 100 million malnourished people in SSA.

Contributing to this problem of poverty is the nature of the region. The Sahel (defined by Grove, 1978) is a zone of
FIG. 2. SUB-SAHARAN AFRICA.

North Africa

Sub-Saharan Africa
The following countries could fit within Africa:

- China: 3,705,387 sq. mi.
- U.S.A.: 3,615,102 (includes 50 states)
- India: 1,269,338
- Europe: 1,506,176
- Argentina: 1,068,296
- New Zealand: 103,736
- Total: 11,668,035 sq. mi.

The area of Africa is 11,706,166 sq. mi.

FIG. 3. THE VAST CONTINENT OF AFRICA.
grassland, scrub and thorn brush extending north to the Sahara and south to the savanna which goes through 19 countries. The land in the Sahel is arid and semi-arid, characterized by frequent droughts. Rainfall occurs in short concentrated spells but 80-90% of this moisture is lost through evaporation (Brabyn, 1977). Jeremy Swift (1977) points out that rainfall in the region is both spatially and temporally unreliable. With a mean annual rainfall of less than 150 mm (Grove, 1978), the need for water is obvious.

Within SSA in general, Green (1985) argues that the physical infrastructure for water supply is one of the weakest sectors and that the human infrastructure sectors in drinking water are in many cases in just as bad or worse condition. He goes on to say that this is a particularly severe problem in rural areas. Daniel, Green and Lipton (1985) argue that the rural poor are the poorest group in SSA and an emphasis must be put on them. This is of particular importance with regard to water.

Kenya is one of the countries which has a large portion of its land in the Sahel (see Fig.4). Kenya shares many of the same problems as other Sahelian countries, water being one of the more urgent. The problems in her rural regions with regard to infrastructure (as Green writes) are also characteristic of other SSA countries. To understand these problems in more detail, a case study concerned with RWS in Kenya will be undertaken in the following pages. However, before doing this the context of the study is important to understand.
FIG. 4. THE SAHEL (From Grove, p. 408, 1978).
B. THE COUNTRY CONTEXT: KENYA.

Kenya is located in eastern Africa astride the equator. Figure 5 shows the Republic of Kenya within the context of Africa (the case study area is north of Malindi on the coast and is shown in more detail later on). Ethiopia, Tanzania, Uganda, Somalia and Sudan are her immediate neighbors. The country is 580,367 km$^2$ in size with 11,230 km$^2$ of this being water (Kaplan, 1984). Kenya has a remarkable variety of topographical and climatic conditions. There are three regions within the country; the first is the coastal belt with hot and humid weather; the second is the central highlands region and the adjacent lower plateaus to the west that border Lake Victoria; and the third is the rest of the country with low plateaus that encompass the greater part of Kenya (Kaplan, 1984).

The land in the first two regions is the best suited for agriculture. Haddow (1980) gives figures of 9% as being of high agricultural potential and a further 9% of medium potential for agriculture. The remainder is low potential arid and semi-arid land. Bernard (1985) describes these Kenya drylands as having low and variable precipitation, high evaporation rates, sparse vegetation, shallow soils and widely spaced rivers with intermittent flows.

The pressure put on Kenya's resources is exacerbated due to having approximately 80% of the land in the arid and semi-arid zone. This becomes even more problematic when the demographic situation is examined. Approximately 75% of the people live in the 18% of the land that is of good agricultural potential. As a
FIG. 5. THE REPUBLIC OF KENYA.
result these lands are densely populated. Sai (1986) gives an average figure for all of Kenya of 34 people per square kilometer while UNEP (1981) gives a figure of 500-999 people per square kilometer of arable land. To further exacerbate the problem, Kenya currently has a population close to 20 million and a population growth rate that has been estimated to exceed 4% (Sai, 1986). The fertility rate (the average number of children per woman) is 8.1, more than double the average of the world (Ibid.).

The above indicates the pressure put on the arid and semi-arid lands is increasing. Approximately 85% of the population is rural and it is they who are in need of more land as the population rises. The only land left is of low agricultural potential with low rainfall and the need for managing these lands in the right way is of vital importance.

Saggerson (1972) analyzed the water situation in East Africa. He concluded that most of East Africa was without an adequate and potable water supply. Many of the rivers and streams only carry water during the wet season. Eastern Kenya was highlighted as being water scarce due to low rainfall, excessive evaporation and many sources being saline. Griffiths (1972) found that Kenya received a reliable 30 inches (762mm) of rain per annum in only 15% of the country (see Fig.6).

The problems facing the government are becoming more severe and their need of a solution more urgent, particularly in the rural areas of the marginal lands. The pressure to meet the water needs of its population is increasing as people have to move to regions where water is not as readily available. The
Fig. 6. Mean Annual Rainfall.
following section examines the planning framework the government has set up in trying to provide water.

C. THE PLANNING CONTEXT: KENYA.

On December 12, 1963 Kenya received her independence. The First Development Plan (1964-70) had two main objectives, the raising of national income and the facilitation of the Kenyanization of the economy (Walker, 1986). Planning efforts started at the national level with subsequent Plans showing the change in focus and policy of the Government towards various issues. To facilitate an understanding of where RWS fits into these plans, this section is organized into three levels of analysis: the first will look at the organization of planning in Kenya; the second will look at the focus on rural development and basic needs; and the third will examine the water sector with an emphasis on RWS.

1. ORGANIZATION.

The organization of planning in Kenya began after the First Development Plan. In 1966, at what has come to be called the Kericho Conference, there was a recognition of the necessity for development planning at levels below the national (Ambrose, 1980). The District Level was thought to be an appropriate unit. In 1967 the Government issued a directive requiring physical planning to be undertaken at national, regional and local levels (Ibid.). As a result, the current administrative framework of Kenya was set up. This starts at the top with the Central
Government followed by Provinces, Districts, Divisions, Locations, Sublocations and Villages (see Fig.7) (Kingoriah, 1984).

There are eight provinces in Kenya. Kingoriah (1984) argues that there are a number of problems with the provinces as administrative units. Among them are that they have been a carry-over from colonial times and as a result some are very large, long provinces with their capitals far removed from the extreme edges of the province. Others are too small, the obvious case is the densely populated Western Province (see Fig.8). He points out that few provinces have homogeneity in physical, ecological and economic characteristics. His main argument is for a redefining of provincial boundaries to make them more suitable for administrative purposes.

The Districts, on the other hand, he considers as being, in general, "...more compact and more functionally integrated than the provinces." (Kingoriah, p.23, 1984). Peter Delp (1980) deals in detail with District Level planning and much of what follows is based on his District Planning in Kenya.

There are 41 Districts in Kenya, Nairobi being a Province and a District. The other 40 Districts were mostly drawn on historic, ethnic or linguistic lines. One of the main reasons for dividing the units to this extent is the great diversity of the country. The size of the Districts range from 78,078 km² in Marsabit District, a sparsely populated area, to 1959 km² for Kirinyaga District in Central Province. The division into
<table>
<thead>
<tr>
<th>Administrative Unit</th>
<th>Officer</th>
</tr>
</thead>
<tbody>
<tr>
<td>COUNTRY (KENYA)</td>
<td>President</td>
</tr>
<tr>
<td>PROVINCES (Coast)</td>
<td>Provincial Commissioner</td>
</tr>
<tr>
<td>DISTRICTS (Kilifi)</td>
<td>District Commissioner</td>
</tr>
<tr>
<td>DIVISIONS (Malindi)</td>
<td>Division District Officer</td>
</tr>
<tr>
<td>LOCATIONS (Margarini &amp; Bungale)</td>
<td>Chief</td>
</tr>
<tr>
<td>SUB-LOCATIONS</td>
<td>Sub-Chief</td>
</tr>
<tr>
<td>VILLAGES</td>
<td>Elders (Kambi)</td>
</tr>
</tbody>
</table>

Fig. 7. Administrative Framework.

Key to Administrative Map
Coast Province
1 Mombasa
2 Kwale
3 Kilifi
4 Tana River
5 Lamu

Fig. 8. Provinces and Districts (From Kingoriah, p.22, 1984)
Districts attempts to more adequately address the needs of the people within the diverse country.

The District was to become the focus of planning and implementation. To date, two sets of District Development Plans were produced, each corresponding to the Third and Fourth Development Plans.* The District Commissioner is responsible for the implementation of the plans with, under him: the Division District Officers as head of the divisions; the chief as head of the location; and the sub-chief as head of the sub-location. The purpose of District Level planning was to, "...shift...planning responsibilities from headquarters to field personnel...[so]...the plans should be better designed to meet local constraints, and exploit local opportunities, while promoting stronger commitment from the officers charged with implementing the project." (Delp, p.8, 1980).

To facilitate this there are the District Development Committees. They actually exercise the central role in District planning and are made up of district heads of departments, Members of Parliament, chairman and clerk to the County Councils, and any local or community leaders, representatives of boards, government corporations and private or voluntary organizations which the District Development Committee may wish to invite from time to time. It is the District Development Committee who have the responsibility of approving Harambee (self-help) projects and

*There has probably been a third set produced for the Fifth Plan but I was unable to find this information.
to make sure that locally initiated projects are integrated with the District Level plans for development.

Delp believes the preparation of District Level plans for the Fourth Plan served to significantly decentralize planning to the District Level. In spite of this optimism he also believes that the Kenyan bureaucracy is still highly centralized. He states, "The central responsibility of coordination, setting policy and ultimately control of the purse strings will shape the preparation of development plans and their implementation for the conceivable future." (p.23). The important fact is that the trend is towards decentralized planning and some significant steps have been taken in that direction.

2. THE FOCUS ON RURAL DEVELOPMENT AND BASIC NEEDS.

Development efforts in Kenya are directed largely through the national development plans. The First Plan (1964-70) was based on the traditional "trickle-down" view of development (House and Tillick, 1983). It was believed that if the national income was increased, benefits would eventually accrue to the poorer segments of society. However, in Kenya as well as globally (as discussed in chapter two) this assumption, in relation to the results, has become questionable as to its validity.

The Second Plan (1970-74) indicated a questioning of the trickle-down view. Its objective was the acceleration of rural development and the rectification of the imbalance between urban and rural incomes (Carroll, 1986).
Halfway through the Second Plan, in 1972, the Kenyan Government invited the ILO to send a mission to Kenya to investigate the problems in their development efforts, both rural and urban. The ILO's subsequent report, published in 1972, came to exert a significant impact on development policies. The Report urged an integrated approach to the development of the rural economy. House and Tillick (1983) identify the following elements that were to be included in this:

"the intensification of land use, with a concentration of effort directed to the poorer households; a redistribution of land towards more labor-intensive units; the settlement of unutilized or underutilized land; greater provision for famine relief; rural works programs; and improved social services and amenities." (p.45).

This, in general, meant a shift in national development strategy towards the alleviation of poverty mainly through the expansion of productive, income-earning employment opportunities, or "redistribution with growth".

The Third Plan (1974-78) never really had a chance to address these issues due to the oil crisis. The Plan was revised to include measures directed at lessening the effects of the crisis rather than to problems within the country (Carroll, 1986).

By the time of the Fourth Plan (1979-83), the Government was able to respond to the ILO Report and to other more recent theories on development and had as its main theme the fighting of rural poverty which included a basic needs strategy focusing on a community development approach (Ergas, 1982). The Government of
Kenya (GOK, 1981) writes that the objective of alleviating poverty was to be attacked on four fronts:

(1) the creation of income-earning opportunities;
(2) the improvement of expenditure patterns;
(3) the provision of other basic needs, such as nutrition, health care, basic education, water and housing; and
(4) institution building." (p.91).

The GOK (1981) also included a description of four principles which they felt defined the nature of the development process in Kenya. These included:

1) widespread participation;
2) diversity of organizational forms and incentives;
3) Government participation; and
4) mutual social responsibility (p.90).

These principles were to apply in any development efforts concentrating on the alleviation of poverty. The principles were aimed at building on the indigenous strength of Kenyan society.

Included in the GOK's description of the Fourth Plan is an emphasis on at least four areas. One of these was on arid and semi-arid lands. A second was a stress on the need for developing appropriate technology. A third, stated explicitly in the Plan, was a focus on a basic needs strategy. The final emphasis, also explicitly included, was on institution building.

In reference to the latter, the Government writes,

"During the planning period, the nation's institutions will be strengthened and extended more widely throughout the countryside in order to provide essential and supporting services for the programs [referred to]... They will be shaped to utilize the skills and resources available in the rural areas, to meet the needs identified by the local people, and
generally to fit into the cultural, economic and social setting in which they must function." (p.95).

Evident in these emphases is the focus on the people which reveals a significant shift from the First Plan. The Government still maintains the major role in meeting basic needs but encourages *Harambee* activities whenever possible.

The present Plan, the Fifth (1984-88) reflects even more of a shift towards a focus on the rural poor. It stresses the need to develop a reliance on domestic resources for financing development. It has a special emphasis on projects that help the poor. It has an emphasis on attaining a better balance between urban and rural areas (Carroll, 1986).

Based on the Development Plans, the focus in Kenya has moved to the rural poor and a BNA to development, and more specifically, a community development approach to meeting basic needs. An important aspect of this is the move towards developing a strength from within the nation rather than increasing dependence on external sources.

3. THE WATER SECTOR AND RURAL WATER SUPPLY.

Up until 1964, the Ministry of Works was responsible for water and sewerage development. Within the Ministry of Agriculture, the African Land Development Organization was responsible for the development and operation of RWS (Haddow, 1980). In 1964 the Water Development Department was formed in the Ministry of Natural Resources. It combined the responsibilities of African Land and Development Organization and
The Ministry of Works with regard to water. In 1968, the Water Development Department was transferred to the Ministry of Agriculture. In 1974 a new ministry, the Ministry of Water Development (MWD), was formed and still exists today. It has overall statutory responsibility for the conservation, control and apportionment of national water resources under the Water Act Laws of Kenya (Shikwe, 1981). This includes water development and water supplies.

Concurrent with the development of the water sector as reflected in the formation of MWD, was the growing concern with RWS. Toward the end of the First Plan in 1970, a national goal was set to provide water to the entire population by the year 2000 (Shikwe, 1981). This 30 year plan was to be implemented through a series of water supply phases, the greater emphasis being on RWS. In 1970, RWS I began. Its goal was to construct 72 water schemes by 1972 but was actually completed in mid-1976 (Haddow, 1980). The second phase (RWS II) began in 1972 with an objective of 29 schemes, and was completed by the end of 1978. RWS III started in 1974 and consisted of 73 schemes due for completion by 1980. Haddow points out that by April 1980, only 9 out of the 73 were constructed. The fourth phase began in 1978 and had 64 schemes targeted for construction by mid-1982, two of which were completed by January 1980.

The RWS program in Kenya has received a special emphasis within the MWD but, as evident in the above, many problems have been encountered. In 1977, Haddow (1980) and Dworkin (1980)
estimated that only 1.5 million people in the rural areas had a reliable water supply.*

With the designation of the Water Decade, the Kenya National Master Water Plan was developed. The Government embraced the philosophy of the Decade and renewed efforts to solve the water problem. Part of the Master Water Plan was a water balance study up to 2008 which showed the total water available in Kenya was more than sufficient to meet projected demands (Haddow, 1980). It seems that the problem is not the amount of water (except perhaps in the arid and semi-arid regions) but how to utilize it.

The MWD bears the responsibility for finding the solution to this problem. In order to understand how the MWD is to meet her responsibilities, a description of how the MWD is organized and how projects are chosen is important.

Dworkin (1980) describes the MWD as being highly centralized. The headquarters is in Nairobi with a branch office in each of the other seven provinces. The Provincial Water Engineer is the head of the regional office. His responsibilities include the operation and maintenance of systems, the extension of existing distribution lines, the installation of individual connections, and the provision of technical assistance to small self-help projects (Dworkin, 1980). To do this he can utilize the District Offices, each headed by a District Water Officer. The District Water Officer can use the District Development Committee to help him carry out his work.

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*Dworkin (1980, p.8) defines a reliable water supply as, "...those which do not have repetitive interruptions in service which continues for two days."
Any water system built with Government assistance must be approved by the District Development Committee. Many Harambee projects must also be approved by this committee. If these projects are approved, the MWD assists the effort by furnishing advice on the design, construction and operation of the system and by contributing materials (Dworkin, 1980).

One of the goals of the MWD is to provide water fairly to rural communities throughout the country and to develop a coordinated and integrated effort between local communities and the GOK. However, there are some problems with their program pointed out by Haddow (1980) and Dworkin (1980).

Haddow argues that the District Level is unable to collect the necessary information on demographic, economic and social factors. As a result, the plans at all levels cannot be based on accurate data. In addition, the MWD is responsible for the operation and maintenance of the systems but Haddow argues that due to the lack of fulfilling their role, the systems break down and approximately 44% of the population in areas covered by existing water schemes actually have access to a reliable water supply.

Dworkin points to the preference of the Ministry for individual house connections as a major constraint. Because of this the MWD restricts the number of communal water points, closes some communal water points after construction, does not repair communal water points that break down, and restricts the operating hours of communal water points. As a result, it is usually only the rural elite that actually have access to water
because they can afford the in-house connections. Dworkin also argues that the provincial and district offices are unable to fulfill their responsibilities due to factors such as the large size of some districts, transportation problems and manpower shortages.

D. THE CASE STUDY.

The following description of the case study will be divided into four sections. The first will describe where the study takes place within Kenya, a brief description of the Giriama and an explanation of how the study was carried out. The second describes the results of a questionnaire sent to villages with no external help in their water supply. The third describes the results of a questionnaire sent to villages with help in their water supply. The final section gives the views of two planners who are involved in RWS in the region.

1. THE LOCAL CONTEXT.

The case study takes place in Kilifi District located in the north-eastern part of Kenya, East Africa. The people in the area are descended from the Mijikenda, which literally means, "the nine villages" (Spear, 1978). Nine ethnic groups make up the Mijikenda, the largest being the Giriama who are the predominant tribe in the study area.

The questionnaires number one and two were conducted by Vidzo Musha, a Form IV graduate Giriama student. I was advised that an African who spoke the same language as the villagers
should do the survey rather than a foreigner who would be treated with suspicion and given little cooperation. Vidzo Musha did a commendable job and deserves to be recognized for his contribution to this thesis.

The *Giriama* identify themselves according to which village they belong to. On the questionnaires, the last name of the head of household is also the name of the village. For example, Dhidho Mbauro is from Mbauro Village.

The social structure of the *Giriama* revolves around the males and when they were circumcised. Boys are divided into *rikas* (age-sets) according to the time they were circumcised which occurs once every four years (Mwangudza, 1978). There are usually thirteen *rikas* at any given time (Spear, 1973) and the first *rika* are the senior elders who are given the name, *kambi* (Mwangudza, 1978). It is the *kambi* who are the main political leaders and who are responsible for affairs in the village. At the family level, the father is the most important. The women and girls are responsible for household duties, including the fetching of water.

In recent years, other ethnic groups have been coming into the region, attracted by government supported schemes of various kinds. However, the *Giriama* are still predominant and were the only group involved in the questionnaires.

Questionnaire number one was taken to an area approximately 40 kilometers north-west of Malindi, a town of 12,000 on the Kenya coast. The villages visited here were benefiting from the Magarini Settlement Project (MSP), a joint Government of
Kenya/Government of Australia (GOA) venture (labelled Magarini in Fig. 9, #3). The approach the GOK/GOA takes regarding the project is a technocratic approach to meeting basic needs.

The project area comprises flat to undulating bushland with no permanent watercourses, ranging in elevation from sea level to 150 meters. Soils fall into two main types which together cover 80% of the project: the yellow sands of the Marafa system in the west and the deep gray sandy clays of the Shauri Moyo system which occupy the central and eastern parts of the scheme. Temperature, relative humidity and potential evaporation show little variation from month to month. Temperatures range from 21 degrees Celsius to 27 degrees Celsius (minimum) and 25 degrees Celsius to 32 degrees Celsius (maximum). Prevailing winds are south-east from April to September and north-east from October to March. Rainfall varies from around 900 mm in the southern part of the project nearest the ocean to less than 600 mm in the north: decreasing as one proceeds north and inland. Much of the year is dry and the uncertainty of rainfall makes land marginal for farming. Rainfall varies from year to year with the short rains of October/November frequently failing leaving inhabitants dependant on the long rains of April-June.*

Questionnaire number two was sent to villages outside of the scheme, located approximately 80 kilometers north-west of Malindi. The area is much the same as that of Magarini except that it is located in more semi-arid territory (labelled Bungale

*This description is largely supplied by personnel working in the field and attained through correspondence. The writer requested he remain anonymous.
FIG. 9.
THE CONTEXT
OF
THE CASE STUDY
WITHIN KENYA.


2. Coast Province.

3. Malindi Division.
in Fig. 9, #3). The further north and west one goes from the coast, the dryer and more marginal the land.

The region for both questionnaires is linked with Malindi, the major town in the area, by an all season dirt road. However, during the rains, this road can cause some difficulty for transportation and is periodically closed.

Questionnaire number three was sent to two planners involved in water supply projects in the region. Mr. R.T. Polhill, who is the MSP Field Operations Supervisor, was kind enough to respond to my questionnaire. The second questionnaire was answered by Mr. Gaye Thompson who works on an NGO scheme that is concerned with the point of view of the local people.* They provided a somewhat different perspective on what is happening in the region. The information supplied by these two will be supplemented by additional information provided through correspondence with other personnel involved in the MSP.

2. VILLAGES WITH HELP.

The first two questionnaires were taken by Vidzo Musha to 17 villages located within the MSP area. One household within each village was surveyed. The reason for doing it this way was because each village is really a large extended family and each household would probably answer the questions similarly. The questionnaires provide views from 17 different locations within

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*Mr. Thompson is involved in research and program planning (health and nutrition) for the Kenya Freedom From Hunger Council.
the GOK/GOA sponsored scheme. The information from questionnaire 1 is presented in Table 1 and Table 2.

Of the 17 household, each head of the household was male, three of which were away working in the city (which city was not given, presumably Malindi). The acting head in these three cases was female in 2 household and male in 1. The average size of the household was 15 with the smallest consisting of 5 people and the largest of 45.

All of the households had animals of one kind or another. The Giriama are agriculturally oriented people but they keep animals for three main reasons: as a sign of wealth; for sale in emergencies (medicine, school fees, food, etc.); and for eating - mainly the chickens. Cattle, the most expensive to attain and keep, were held by 8 households, the poorest household having 2 and the wealthiest having 75. The next level down are goats and 16 households were able to have them. Everyone kept chickens.

The source of water for the villages was of varying distances. Three villages had water within half a kilometer, three within 1-2 km and three within 4-5 km. The most common distance (8 households) was from 2-3 km. Within the scheme 16 of the villages reported that the source was a power-pump, usually a communal water tap. However, during the long rains, most of the villagers also made use of ponds (both natural and man-made) and reservoirs (both natural and man-made). Only 3 households said they used a river or a stream. In all cases, wherever they collected their water, it was carried by a person back to the village in a bucket.
TABLE 1: QUESTIONNAIRE 1 (Villages With RWS)
General Information

**HouseHold Data:**

- Male Heads of Household: 15
- Head of Household Away: 3
- Acting Head Female: 2
- Acting Head Male: 1
- Average Size of Household: 15
- Range of Size of Household: 5-45

**Animal Data:**

<table>
<thead>
<tr>
<th>Animal</th>
<th>Range</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households With Cattle</td>
<td>2-75</td>
<td>24</td>
</tr>
<tr>
<td>Households With Goats</td>
<td>5-300</td>
<td>37</td>
</tr>
<tr>
<td>Households With Hens</td>
<td>3-200</td>
<td>39</td>
</tr>
<tr>
<td>Households With Ducks</td>
<td>6-33</td>
<td>-</td>
</tr>
</tbody>
</table>

**Distance to Water Source:**

- 3 Villages: 0-0.5 km
- 3 Villages: 1-2.0 km
- 8 Villages: 2-3.0 km
- 3 Villages: 4-5.0 km
### TABLE 2: QUESTIONNAIRE 1 (Villages With RWS)
Information on Water Supply, Use, Benefits, Impacts, Operation and Maintenance.

<table>
<thead>
<tr>
<th>Water Supply and Use:</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Source:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Pump</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>Ponds</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>Reservoirs</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>Rivers</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td><strong>Carried By Bucket:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>-</td>
</tr>
<tr>
<td><strong>Pay For Water:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td><strong>Users of Water Source:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Everyone</td>
<td>15</td>
<td>-</td>
</tr>
<tr>
<td>One Tribe</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td><strong>Use of Water:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic Use*</td>
<td>17</td>
<td>-</td>
</tr>
<tr>
<td>For Animals</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>For Shamba**</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>For Irrigation (Dry Season)</td>
<td>6</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Benefits and Impacts:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved Health</td>
<td>17</td>
<td>-</td>
</tr>
<tr>
<td>Cleaner Water</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>Easier to Get Water</td>
<td>17</td>
<td>-</td>
</tr>
<tr>
<td>Able to Grow More Food to Eat***</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Able to Grow More Food to Sell</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Able to Have More Animals</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>Able to Sell More Animals****</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>Able to Have More Milk</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Able to Sell More Milk</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td>Able to Have More Free Time</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>Able to Have More Time With Other Villagers</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>The Water is Better</td>
<td>17</td>
<td>-</td>
</tr>
<tr>
<td>The Water is Salty</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>Is Water Needed in the Dry Season</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Is There Fighting Over the Water@</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Has Life in the Village Changed Since the Water</td>
<td>17</td>
<td>-</td>
</tr>
<tr>
<td>Do You Like How It Has Changed</td>
<td>17</td>
<td>-</td>
</tr>
<tr>
<td>Is Life is Easier</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>Are You Happy With the Government@@</td>
<td>17</td>
<td>-</td>
</tr>
<tr>
<td>Do You Want to be More Involved in the RWS</td>
<td>13</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operation and Maintenance:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Villagers Are Responsible For the Source</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Is Access to the Water Controlled</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Is There an Education Program</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Is There Problems With Reliability of the Source</td>
<td>8</td>
<td>-</td>
</tr>
</tbody>
</table>

*Key on following page.*
Domestic use refers to washing, cooking, bathing, and drinking.

**Shamba** is the Swahili word for a garden or small agricultural plot.

***Types of crops grown include maize, green grams, casava, coconuts, mangoes, pineapple, soya beans, beans, lemons, oranges, paw paws, tomatoes, cabbage, sukuma wiki, bananas, simsim, tobacco, rice, peas, cashew nuts, ground nuts, millit, and guavas. The main crops grown are underlined.

****Animals are usually sold for emergencies such as medicine, school fees, cooking fuel, or even food.

@The fighting over water occurs in the line-ups at the communal taps.

@@They are happy with the Government because of its efforts to supply their village with water.

Water was used by everyone in the village in 15 cases, the other 2 stating that only the one tribe (Giriama) used it. The water was used mainly for domestic use which includes washing, cooking, bathing and drinking. Ten households also used it for their animals and 16 for their shamba (a garden or small agricultural plot). An interesting point is that 6 of these 16 also fetched water during the dry season to irrigate their shamba.

A number of questions were asked to reveal how the villagers viewed their water supply and how they thought it affected them. Most of their responses were positive. With regards to the quality of water and their health: 17 said everyone's health had improved; 16 said the water was cleaner; and 17 said it was better. In terms of water availability, all 17 said it was easier now to fetch the water but 9 stated that during the dry season they still had to search for water. Their general view of their life and how it had been affected was quite positive: all 17 said life had changed and they all liked how it had changed;
14 said life was easier. The reason given by the other three for life having changed was that they could now spend more time in land cultivation since water is near, easily obtained and free for use all the time.

The villagers, in general, believed the water had benefited them. Most of the households, 11, could now grow more food to eat and 10 of these could even sell some of the surplus. Similarly, 14 households could now have more animals and 15 could sell more of them. The reason for the one extra household is probably due to its ability to grow more food to eat, but needing to sell an animal in an emergency. Because of their ability to have more goats and cattle, 7 households were able to get more milk and all 7 were able to sell a portion of the milk. The water supply also enabled the villagers to have more free time, saved in the time spent fetching water. Interestingly enough, all 15 households who reported they had more free time spent less of that time with their fellow villagers. Again, this was explained by the fact that they were now spending more time in land cultivation to grow more food to sell.

Finally, all 17 households stated they were happy with the GOK for their efforts in supplying water to them. Many of these, however, expressed a desire for the Government to do even more by bringing the water to each house so the villagers could use it for irrigation for their shambas. At present they irrigate the fields by making numerous trips to the water source and bringing the water back in buckets.
A few other questions were asked regarding the operation and maintenance of the system. Twelve households said that villagers were not responsible for the source, an employee of the project was. In 9 cases access to the source was controlled but this presented no problem. The water was turned on from 6:00 am to 7:00 pm and people would stand in lines to fill their buckets. Some reported fighting in the lines, one reason given was that the wives of project employees would go to the front to fill their buckets rather than waiting in line like everyone else.

An education program was reported to be operating by only 5 households. This mainly consisted of being taught to boil the water prior to drinking it. In one case, the respondent said project people also taught people not to step in the water.

The reliability of the source was questioned in 8 households. The main reason for this was that the taps dried up as a result of a breakdown in the powerpump, rendering the source unusable.

Thirteen households expressed a desire to become more involved in the RWS project.

In addition to the above information, Vidzo included some comments made by the villagers. One of these was that during the rainy season people would use the water that collected in rain puddles close to their homes. A second was that 5 households reported the tap water would sometimes get salty or bitter (too much chlorine) and so they would not use it, going instead to ponds, puddles and reservoirs.
3. VILLAGES WITH NO EXTERNAL HELP.

Questionnaire number two was taken by Vidzo to 17 villages located outside of the MSP area. The same method as for questionnaire one was followed, one household in each of the 17 villages being surveyed. The information from the second questionnaire is presented in Tables 3 and 4.

All 17 households were headed by males. However, in these villages, 8 heads were away working in the city, one had a female acting head and the rest were males. The average size of these households was 24, larger than those within the scheme. The smallest had 9 people and the largest 75.

Similar to the first questionnaire, all had animals. In this case only 4 were able to have cattle, 14 were keeping goats, 3 with sheep, 4 with ducks and all 17 with chickens.

The source of water was of varying distances. One village reported their water within 2 km, 6 villages within 3 km, 1 within 4 km, 1 within 5 km and the rest said they had to go further than 5 km to get their water. The households within 4 km of water pointed out that this was only during the rainy season. In the dry season they had to go much further to find water. All the villages got their water from ponds and reservoirs, with 7 households also using a nearby river. In all cases the water was carried home by bucket.

Everyone in the village used the water, mainly for domestic use. Only one household also used it for their animals and none for their shamba, depending only on the rains.
### Table 3: Questionnaire 2 (Villages with No RWS)

#### General Information

**Household Data:**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Head of HouseHold</td>
<td>16</td>
</tr>
<tr>
<td>Head of HouseHold Away</td>
<td>8</td>
</tr>
<tr>
<td>Acting Head Male</td>
<td>7</td>
</tr>
<tr>
<td>Acting Head Female</td>
<td>1</td>
</tr>
<tr>
<td>Average Size of HouseHold</td>
<td>24</td>
</tr>
<tr>
<td>Range of Size of HouseHold</td>
<td>9-75</td>
</tr>
</tbody>
</table>

**Animal Data:**

<table>
<thead>
<tr>
<th></th>
<th>Range</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households with Cattle</td>
<td>5-100</td>
<td>44</td>
</tr>
<tr>
<td>Households with Goats</td>
<td>15-120</td>
<td>69</td>
</tr>
<tr>
<td>Households with Hens</td>
<td>20-150</td>
<td>50</td>
</tr>
<tr>
<td>Households with Ducks</td>
<td>1-35</td>
<td>15</td>
</tr>
<tr>
<td>Households with Sheep</td>
<td>10-60</td>
<td>30</td>
</tr>
</tbody>
</table>

**Distance to Water Source:**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Village</td>
<td>1-2.0 km } During</td>
</tr>
<tr>
<td>6 Villages</td>
<td>2-3.0 km } Rainy</td>
</tr>
<tr>
<td>1 Village</td>
<td>3-4.0 km } Season</td>
</tr>
<tr>
<td>1 Village</td>
<td>4-5.0 km</td>
</tr>
<tr>
<td>8 Villages</td>
<td>&gt; 5.0 km</td>
</tr>
<tr>
<td>Water Supply and Use:</td>
<td>YES</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----</td>
</tr>
<tr>
<td>Source:</td>
<td></td>
</tr>
<tr>
<td>PowerPump</td>
<td>2</td>
</tr>
<tr>
<td>Ponds</td>
<td>17</td>
</tr>
<tr>
<td>Reservoirs</td>
<td>11</td>
</tr>
<tr>
<td>River</td>
<td>7</td>
</tr>
<tr>
<td>Carried By Bucket</td>
<td>17</td>
</tr>
<tr>
<td>Pay For Water</td>
<td>-</td>
</tr>
<tr>
<td>Everyone Uses Water Source</td>
<td>17</td>
</tr>
<tr>
<td>Use of Water:</td>
<td></td>
</tr>
<tr>
<td>Domestic Use*</td>
<td>17</td>
</tr>
<tr>
<td>For Animals**</td>
<td>1</td>
</tr>
<tr>
<td>For Shamba**</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Community Satisfaction With Water Source:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pleased With Their Water Supply</td>
</tr>
<tr>
<td>Is There Enough Water:</td>
</tr>
<tr>
<td>During Rains</td>
</tr>
<tr>
<td>During Dry Season</td>
</tr>
<tr>
<td>Do You Have to Search For Water in Dry Season***</td>
</tr>
<tr>
<td>Desire Government to Supply Water</td>
</tr>
<tr>
<td>Reasons For Wanting a Water Supply:</td>
</tr>
<tr>
<td>Because Water is Scarce Now</td>
</tr>
<tr>
<td>To Improve Health</td>
</tr>
<tr>
<td>To Have Water Closer</td>
</tr>
<tr>
<td>Life Will Change With a Reliable Water Supply</td>
</tr>
<tr>
<td>For the Better</td>
</tr>
<tr>
<td>There Will Be No More Searching For Water</td>
</tr>
<tr>
<td>The Villagers Will Be Healthier</td>
</tr>
<tr>
<td>Are You Satisfied With Life Now</td>
</tr>
<tr>
<td>Are There People Sick in the Village</td>
</tr>
<tr>
<td>Are The Children Sick Most Often</td>
</tr>
<tr>
<td>Able To Grow Food to Eat****</td>
</tr>
<tr>
<td>Able To Grow Food to Sell</td>
</tr>
<tr>
<td>Able To Have Animals to Eat</td>
</tr>
<tr>
<td>Able To Have Animals to Sell@</td>
</tr>
<tr>
<td>Able To Have Milk From Animals</td>
</tr>
<tr>
<td>Able To Drink the Milk</td>
</tr>
<tr>
<td>Able To Sell the Milk</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education Program:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is There An Education Program</td>
</tr>
<tr>
<td>Is The Program Effective</td>
</tr>
</tbody>
</table>

Key on following page.
Domestic use refers to washing, cooking, bathing and drinking. Shamba is the Swahili word for a garden or a small agricultural plot. The distance given by 8 households in searching for water was 30 km and 1 household gave a figure of greater than 5 km.

Types of crops grown include maize, soya beans, green grams, casava, bananas, mangoes, coconuts, cashew nuts, paw paws, beans, simsim, pineapples, potatoes, and ground nuts. The main crops grown are underlined.

Animals are sold for emergency purposes such as medicine, school fees, food, etc.

A number of questions were asked to reveal the extent to which the villagers were satisfied with their present situation regarding water and their perception of what it would mean to have a reliable water supply. None of the 17 were pleased with their present source of water. All but one stated there was only enough water during the rains, they had to search for water during the dry season, 8 households having to move over 30 km in search of water and one moving more than 5 km.

All 17 households stated they were not pleased with their lives now. All 17 reported people were sick in their village with 4 households identifying the children as being sick more often. All 17 could grow food to eat but only one actually sold any. All but one had animals to eat, 11 of these being able to sell their animals. It was stressed that the sale of animals was done only in emergencies. Only 6 households could get milk from their livestock with 2 having enough extra to sell.

When asked if they wanted the Government to supply them with water, all replied affirmatively and said their elders had asked the Government to do this. Ten households said the reason for their desire was because water was so scarce. Some other reasons
were that a reliable water supply would improve the health of the villagers (2 households) and water would be closer, thus reducing the need to move such great distances in search of water (8 households). All 17 believed their life would change for the better, the main reason being there would be no more searching for water (14 households). Interestingly enough, 7 associated a reliable water supply with improved health.

Finally, some questions were asked regarding an education program to teach the villagers the importance of having clean water and its benefits. Only 6 villages replied that there was such a program and 3 of these said it was basically ineffective. The main lesson was to boil water before drinking it.

4. THE PLANNERS.

Mr. Polhill, Mr. Thompson and the correspondence from personnel are all working within the MSP. Mr. Thompson is working in an NGO within the broader scheme, while the others work directly with MSP. It is appropriate to include the objectives of the scheme in the following description.

The general objectives are fourfold: 1) to improve the living standard of the people; 2) to settle landless people; 3) to increase agricultural production; and 4) to gain experience in developing semi-arid marginal lands.* The design objectives of phase three of the project (the present phase) related to water

*These objectives and the information regarding phase three are found in a short description of the MSP supplied to me by the Project Manager of the scheme who requested he remain anonymous.
are that piped ground water and open water storage are to be provided together with facilities for social development. The specific targets are for 183 km of water supply pipeline and 53 storage dams by the end of phase three (June 1988). It should also be pointed out that the NGO program focusing on community development of which Mr. Thompson is a part, is also included in the objectives of the MSP.

The main water related activities of the project include the drilling of deep boreholes (80m-220m) located at well fields in the south-east, the south-west and western parts of the area. These wells supply water to communal water points via a system of rising mains, storage tanks and a spreading network of pipes. The aim is to have no settler walking more than 2 km to find water. A related activity is to collect and store surface water run-off. This is to be done by constructing dams, tanks and waterholes which are to supplement the piped water supply for human use and livestock consumption.

The organization and management for the scheme presently consist of the Ministry of Lands and Settlements of the GOK and the Australia Development Assistance Bureau for the GOA. The MWD is to take over the water supply part of the scheme at the end of phase three. The Project Manager of the scheme is based in Malindi and is responsible to the Director of Settlement in Nairobi.

(a). Mr. Polhill

(i). Water Supply.
Mr. Polhill felt it was necessary to supply water in semi-arid land like that within the scheme. His main reasons for adopting this view were that the quality of life would improve, labor would be conserved, people would be able to settle down and livestock keeping would be encouraged. The water would be supplied for the people and their livestock, not their shambas.

The method used for supplying water would be pipes, dams and waterholes which Mr. Polhill thought would take five years or longer as it was a continuing process. The piped supply would be all year round while the dams and waterholes would be seasonal, mainly from April to December.

The cost of the scheme is born by the two governments, at present 20% by GOK and 80% by GOA. When the MWD takes over, this will change but nothing specific has been decided on how the water will be paid for.

(ii). Community Involvement.

Mr. Polhill states the community was not involved at all in making the plan. This was done by GOK and GOA. Villagers had no role or responsibilities in the beginning of the scheme but Mr. Polhill states they are just being involved now through the efforts of the NGOs. No decisions were made by the villagers, but this is now changing fast as the villagers are motivated to take over the water supply.

The villagers are just starting to be involved in implementing the plan, mainly in the dams and waterholes. The main actors are the elders and women. They are just beginning to
form a committee for each dam/waterhole and they will be responsible for collecting levies and maintaining the supply. The project personnel would be responsible for repairing and enlarging the dams. The committee is also responsible for fencing off the dams and controlling use of water for health reasons and livestock use. At the present time the area is understocked so there is no problem with too many animals using the source.

(iii). Social Impact.

Some of the positive impacts seen by Mr. Polhill are that the people are settling in one area, they can have more livestock, the people and animals are healthier (with training), children have the opportunity to get an education and time and energy is saved on water carrying.

He was not sure of other impacts because it was too early to tell. This includes such impacts as: people being able to feed themselves; people having more money; and deterioration of the land.

(iv). Responsibility For The Plans.

The GOA has the main responsibility. The District Office in Kenya is beginning to develop plans that are appropriate to conditions in semi-arid regions. The District Office is also just beginning to be involved in adapting the plans of the GOA to the local conditions. This was not happening in early stages of the scheme.
(v). The People and the MSP.

Both the villagers and the GOK/GOA initiated water supply projects for communities, depending on the area within the scheme. No matter who asked for the supply, Mr. Polhill states that the people are happy with what has happened.

An important part of the plans of the scheme that probably contributes to the positive response from the people includes such activities as loans being made available for farmers to start dairy or livestock farming once they have the improved water supply.

(vi). Some Comments.

In addition to the above, Mr. Polhill included some other information. He pointed out that it is now a priority to get clean water to the people and to educate them on how to use it. He states that this is a tough assignment as the Giriama people are one of the most undeveloped people in Kenya as well as being a shifting people who are just now being settled on 30 acre plots as a result of the scheme. He concludes the questionnaire with the following:

"...the Project is a classical case of being started from the top and pushed on the people without their consent or understanding. This is now being rectified as fast as possible with the people being involved by NGOs and the Project."

(b). Mr. Thompson

(i). Water Supply.
Mr. Thompson feels it is necessary to supply water in semi-arid regions with the emphasis on the people being able to define their needs so they could be adequately prepared to look after a particular water supply in their area themselves. His policy is to assist the people to help themselves overcome the problem of no water by using available resources to construct a sustainable project maintained by the people themselves. The people he is referring to are largely settlers who have been allocated plots within the MSP.

The types of projects that he is involved in are the upgrading and sustainable maintenance of traditional surface water sources through community organization and mobilization. He is involved in 14 projects to be completed in 1-3 years and sustainable after that. The water in these projects is a seasonal supply (during the rains) and are to be used by the people and their livestock, not their *shambas*.

These projects are to be partially paid by the village through raising funds themselves, and partially by the Government as part of the allocation for water development given to MSP.

(ii). Community Involvement.

The villagers are involved in the projects. The village elders, heads of households and Dam Committee members were all involved in making the plan. Their role and responsibilities included defining their problems and what they intended doing about it. The NGO played an important role in motivating them in this area. Decisions made by the villagers included deciding
they could help themselves, what they would be prepared to do and where they would need help. Decisions made by the GOK involved scooping out traditional water sources to make large dams. This was done without community involvement.

The villagers are involved in implementing the plan only as far as local organization and local physical work. Those involved included the elders, young men, heads of households, and women. Their roles and responsibilities are directed mainly to protect the water source, improve it when necessary and to use the water in ways which will have least chance of causing sickness. The decision making process is constrained where the degree of Government involvement is high.

All of the NGO projects are maintained by the people as well as, increasingly, the Government surface water supplies. Equipment is maintained by the Government. The access to the sources is becoming increasingly more controlled by locally accepted people. There is no training program concerning maintenance and repair of the source. The only maintenance done by the people is on a social organizational level not a skilled, technical level.

(iii). Social Impact.

Among the positive impacts of the projects are: the people can have more livestock; people are healthier; and children have the opportunity to get an education.

Other impacts were also identified, such as: the land near the water was being looked after better; and that through the
community development process the people are beginning to become aware that they should not continuously sit back and wait for gifts from the Government.

(iv). Responsibility For the Plans.

Mr. Thompson identifies the people and NGO staff, with other relevant Government personnel, as bearing the main responsibility for the projects he is involved in. Within the scheme as a whole the District Office has some local freedom but the overall strategy comes from Nairobi and the external agency. However, the District Office does have some freedom to adapt the plans to local conditions.

(v). The People and the Projects.

Mr. Thompson's NGO and the villagers were both involved in initiating requests for water supply.

The main purpose of the NGO projects was to integrate and strengthen community organization and independence through improving the existing social organization/structure within the MSP.

To date, the people are happy with what has been done. Mr. Thompson identifies one important component of this as being the awareness of the water problem as evidenced by the continuing cooperation of the villagers.
"If water improvement were being planned in a rural area and the planner wanted to predict the response of local water users, the procedure most likely to yield accurate results would be to arrange for the users themselves to participate in designing, constructing, and operating the scheme. There is no more direct way of finding out their preferences and their willingness to contribute to building and using the improvement..."

Gilbert F. White, 
David J. Bradley and 
Anne U. White. 
Drawers of Water: 
Domestic Water Use in East Africa.
5. AN ANALYSIS

The analysis undertaken in this chapter is based on the case study and what it can reveal about the issues discussed in Chapters Two and Three. The case study provides information on one large development project and the limitations associated with narrowing the study to this focus are many. However, it is felt that some valid lessons and conclusions can be drawn from the study with regard to rural development efforts oriented around a basic needs concept.

The analysis will be on three levels. The first will deal specifically with the case study itself and ask the question, "Was the MSP successful?" The second level will identify the elements in the planning process that contributed to this outcome. This stage of analysis will be facilitated by utilizing the elements associated with the community development approach to meeting basic needs identified in Chapter Three. The third will examine the relationship between the elements that contributed to the success of the MSP and the BNA and ask, "Is the BNA itself a vital element to include in the planning process for rural development?"

A. THE CASE STUDY: WAS IT SUCCESSFUL?

In order to answer the above question, the project will be examined in light of the definition of success given in this thesis: the meeting of immediate and long term water needs leading to improvements in health, economic and social conditions
of communities within the scheme. This will be done in two parts. The first will look at success in terms of the objectives set by the GOK/GOA and the second will look at success in terms of the perspectives revealed in the three questionnaires.*

1. THE OBJECTIVES.

The general objectives of the MSP are the following:**
1) to improve the living standard of the people;
2) to settle landless people;
3) to increase agricultural production; and
4) to gain experience in developing semi-arid marginal lands.

The main task in the following paragraphs is to examine how the provision of water to rural communities within the scheme is contributing to the achievement of the objectives outlined above.

The living standard of the people within the 17 villages in the scheme definitely seems to have improved. All 17 households stated that there was improved health as opposed to the 17 households of questionnaire two who stressed the fact that there was sickness in the villages. Mr. Polhill and Mr. Thompson felt health had improved in the villages as well.

The burden on the women of getting water seems to have decreased for the households within the scheme, with 14 of the 17 having the water within 3 km. When compared to the 10 households outside of the scheme who had to go further than 3 km for their

*Section A is summarized in Table 5.

**These objectives have been expanded in Table 5 and are identified with @@.
### TABLE 5: AN EVALUATION OF THE SUCCESS OF THE MSP.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Objectives@</th>
<th>Perspectives*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Health@@</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burden on women decreased@@</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water quality@@</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education for children@@</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More food@@</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More free time##</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life is better##</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reliable Water Supply@@</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water availability@@</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance to water decreased@@</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfied with government##</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfied with MSP##</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Settle Giriama@@</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More livestock@@</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash crops@@</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More milk@@</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gain experience in developing semi-arid lands@@</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

@Objectives are described by using A=not achieved, B=uncertain, C=moderately achieved, D=definitely achieved and E=not applicable.

*Perspectives are described by using G=good, B=bad, I=in between, U=unsure and NA=not applicable.

**These are the perspectives of the villagers of questionnaire one regarding their view of the MSP.

***These are the perspectives of the villagers of questionnaire two regarding their situation, not the MSP.

#These are the perspectives of the planners regarding the MSP.

##Criteria that are specifically from the villagers.

@@Criteria that are part of the objectives of the MSP.
water, this would seem to also indicate a saving in time and energy in fetching water for households within MSP.

The question of the children having the opportunity to get an education was briefly touched on by both Mr. Polhill and Mr. Thompson. The two planners both agreed that the children within the scheme had the opportunity of getting an education. There is, however, no way to compare the children in households outside the scheme with those within due to a lack of information. It is therefore uncertain whether this objective was met.

The achievement of the objective of settling landless people is not quite so clear. It seems that the Giriama (who were already in the region) are settling down in one area more now than in the past as pointed out by Mr. Polhill. This can also be seen in a comparison of the first two questionnaires where 8 households outside of the scheme had to search for water over distances exceeding 30 km. This problem was not mentioned at all in questionnaire one. The question of landless people would refer more to tribes other than the Giriama settling the land. The movement of at least two other tribes into the area was noted on the questionnaires but nothing more specific was given. The objective would seem to be met as far as the Giriama becoming more settled than previously as a result of having a more reliable source of water.

Agricultural production within the scheme seems to have increased. In the first questionnaire the majority of households could grow more food, sell more food, keep more animals, sell more animals, have more milk and sell more milk. When this is
compared with the households of questionnaire two where only 1 household could grow food to sell, 11 households could sell animals (mainly in emergencies) and only 2 households could sell milk, agricultural production seems to have been affected positively by the provision of water.

The relationship of the increased agricultural production to the supply of water can also be seen in a comparison of how the households in questionnaire one and questionnaire two use their water. In the first questionnaire, in addition to the domestic use of water, 10 households used water for their animals, 16 households for their shambas and 6 for irrigation of their shambas during the dry season. In the second questionnaire only 1 household used water for their animals and none for their shamba. The contrast is quite significant. In addition, both planners felt the people were now able to have more livestock than previously.

The fourth objective, gaining experience in developing semi-arid marginal lands, would seem to be an integral part of any project in such regions. Experience, whether positive or negative, would have to be gained. Mr. Polhill commented a number of times on the lessons being learned and how the management of the MSP was adapting to make their efforts more suitable to local conditions.

2. THE PERSPECTIVES.

The households in the first set of villages seemed to feel that the project had benefited them in a number of ways. In
addition to what has already been discussed above, 16 households felt the water was cleaner than before, 15 felt they had more free time, 17 said the water was better than before, 17 liked how their life had changed, 14 said life was better and all were happy with the Government. The importance of these perspectives becomes more apparent when they are compared with the views of the households in the second set of villages. In these villages 17 households were not pleased with their water, all felt that life would change for the better with a reliable water supply, 10 felt that water was scarce, 14 said they would no longer have to search for water if it was supplied, all were not satisfied with their life now and all had asked the Government to supply water to their villages. Both sets of villages seem to feel that the scheme is successful.

Both planners felt that the people were happy with the scheme and what it had done for them.

In this section, the success of the MSP is based largely on the effects of the water supply part of the project. The living standard of the people was improved, agricultural production seemed to have increased, more food was sold, more livestock was kept, more livestock was sold, more milk was sold and the people felt that, in general, their life had changed for the better. It would probably be safe to say that the provision of water to the rural communities within the scheme did result in improvements in their health, economic and social conditions.
In summary, the MSP, to date, does seem to have achieved some success, both in terms of meeting its objectives and from the perspectives of villages within the scheme, villages outside of the scheme, and some of the planners involved in the scheme. The next question to ask is, "What elements in the planning process contributed to this success?"

B. THE ELEMENTS IN SUCCESSFUL PROJECTS.

In order to identify the elements in the planning process that contributed to the success of the MSP, the factors discussed as part of a community development approach to meeting basic needs will be the starting point. In other words, questions will be asked regarding whether or not the following: appropriate knowledge; appropriate technology; appropriate institutions; appropriate support; and community participation, were included in the planning process. After this has been done, additional elements that are part of a technocratic approach will be discussed.

1. APPROPRIATE KNOWLEDGE?

The "technical" information required by the agency seemed to have been an important part of the preparation of the program. In the correspondence received it was pointed out that, "The water system...now [being] installed was arrived at after extensive studies and discussion about all the alternatives." As discussed in Chapter Three, this kind of technical information
presents little or no problems for the agency and is a necessary
element in any planning process.

The "people-oriented" knowledge identified in Chapter Three
was not as clearly included. The tone of both Mr. Polhills'
responses on the questionnaire and the correspondence received
indicates very little knowledge of the people beyond the fact
they were Giriama. Mr. Thompson, working with an NGO within the
scheme, has a very different perspective on how rural development
should occur and throughout his questionnaire the focus on
knowing the people comes through quite strongly. The decision by
those responsible for the MSP to make an NGO program focusing on
community development a part of the scheme is the only indication
that a focus on the people was important. It is also the NGO
program that seems to be utilizing the knowledge of the community
members in their projects, as evident in Mr. Thompson's
questionnaire.

The knowledge the community itself needs was also an element
that did not appear strongly in the questionnaires. The
education program the MSP is involved in at present is mainly
concerned with telling the villagers to boil their water or to
not stand in puddles. This seems to be fairly shallow in its
approach and only 5 households even knew such a program existed.

Similarly, a training program concentrating on the operation
and maintenance of the system seemed to be lacking. Only 5
households reported that they were responsible for the source,
the rest pointed to the employees of the project who had to
maintain the system.
Mr. Thompson's responses provide a different view of this issue. He states that all NGO projects are maintained by the people but he also points out that there is no training program concerning maintenance and repair of the source.

2. APPROPRIATE TECHNOLOGY?

The question of appropriate technology does seem to have been considered. In the correspondence received it was stated:

"Everything was considered - shallow wells, roof catchment, offtake from the Sabaki (a river 15 km distant from the southern boundary of the project), but in the end GOK/GOA always came back to the reticulation/dam combination as being the most suitable and technically feasible for the circumstances."

The reticulation part of the system is solely the responsibility of the project staff, the local people have nothing to do with it. It does not seem that this technology is appropriate to the local people but rather it is appropriate to the physical environment of the scheme.

The dam/waterhole part of the system does appear to be more appropriate to the local people. In fact, both Mr. Polhill and Mr. Thompson report that the villagers are beginning to be made responsible for these sources. This can be done because the simple technology required to operate and maintain the dams/waterholes can be adequately handled by the villagers.

3. APPROPRIATE INSTITUTIONS?

At the beginning of the scheme the use of local institutions was very minimal to non-existent. Mr. Polhill and the
correspondence received stressed this fact. It was the GOK/GOA who had the responsibility for the project, the local people and their organizations were not included at all. Mr. Polhill did point out that the use of local committees to look after the source is just beginning to be implemented. The only other mention of a local institution was in reference to the Marafa Farmers Cooperative Society where farmers can obtain capital and seasonal credit. An institution responsible for RWS projects was not mentioned.

Mr. Thompson's NGO places much more stress on utilizing the local organizations in the villages. Mr. Thompson stressed that the main purpose of his agency was to integrate and strengthen community organization and independence through improving the existing social organization/structure within the MSP.

4. APPROPRIATE SUPPORT?

The question of appropriate support is tied in with what has already been discussed. The education and training program is only in its infancy. Mr. Polhill stated that the priority of the project now was to educate the people on how to use the water. This indicates a realization that their education program is in need of improvement. Similarly, Mr. Polhill also wrote that they were just now beginning to train villagers on how to operate and maintain the dams/waterholes. It is too early to tell in the life of the project whether appropriate support in education and training is in place. However, at least the realization is there as to a need for it.
Appropriate support in regards to the equipment and machinery is also not as strongly included as perhaps it should be. When asked about the reliability of their water source, 8 households mentioned that the taps would periodically dry up, largely due to machinery or lack of maintenance problems. The repair of these sources is left to project employees. At present the GOA bears the responsibility of making sure the sources are repaired quickly. No mention was made regarding what was to happen when the MWD took over the RWS part of the scheme. At present almost 50% of the villages report problems with their sources, if no appropriate support system is developed, this percentage could increase.

5. COMMUNITY PARTICIPATION?

Both the correspondence received and Mr. Polhill state that participation in the decision making process by the local people was poor to non-existent. The program came from the GOK/GOA and, as Mr. Polhill states, was "...pushed on the people without their consent or understanding." In the correspondence it was also pointed out that, "The water system was designed and installed without any input from the beneficiaries." On the first questionnaire this lack of involvement was also evident when the villagers were asked whether they wanted to be more involved in the RWS projects with 13 households saying yes.

It is interesting to note Mr. Polhills' view that lack of participation is a problem and, "is now being rectified as fast
as possible with the people being involved by the NGOs and the Project."

The NGOs, as represented by Mr. Thompson, place much more stress on community involvement in their projects. The emphasis throughout Mr. Thompson's questionnaire was on motivating the people to help themselves solve their water problems and to develop sustainable projects with even the funding being paid in part by the villagers.

It seems that from the MSP's point of view, participation in the project is done largely through the efforts of the NGOs working within the scheme.

6. OTHER FACTORS.

In order to discover what else has been included in the planning process that has contributed to the project's success, a short summary on the extent to which the five elements discussed above were included would seem appropriate. The conclusion of section A indicated the project, to date, could be described as successful. The following summary and discussion will attempt to identify what was responsible for this. It must be pointed out that the planning process is still continuing. The MSP is not a completed project and this must be clearly understood when reading the following paragraphs.

The GOK/GOA scheme did include the gathering of the necessary "technical" information. The extent to which "people-oriented" knowledge was included was largely left to the NGOs
working within the scheme, the higher levels (GOA personnel) were more concerned with the project than with the people.

Appropriate technology was included, at least as far as the physical environment goes. Technology appropriate to the people is just beginning to be emphasized, particularly with regard to the dams/waterholes.

The inclusion of appropriate institutions was almost non-existent at the beginning of the scheme. Similar to the first two elements, as the planning process continues the need to develop and use appropriate institutions is being recognized.

Appropriate support has also contributed little to the project. The GOA personnel are still in place and they tend to take much of the responsibility for the operation and maintenance of the system.

Community participation was almost non-existent at the beginning of the project. The extent to which it is being included in the planning process again seems to depend on the NGOs working within the scheme.

To date, the inclusion of the five elements of a community development approach in the planning process has been quite minimal. The project, however, was found to be successful. Factors other than those discussed above must have been present.

These factors are part of the technocratic approach to meeting basic needs. One factor would be the large amounts of money and capital invested in the scheme coming from technically competent agencies both in Kenya and Australia. The provision of the piped water supply system did accomplish its objective, water
was provided to the people within the scheme. This simple fact was probably the most important element contributing to the success of the project.

A second factor related to the above is the presence of Australian aid and personnel. It is these factors that provided the stability and security for the project, enabling it to proceed.

In summary, it must be admitted that the large infusion of money and capital through an external agency does meet with success, at least as long as the external agency remains. However, the more important issue of the sustainability of the project after the external agency leaves must be considered.

It was noted earlier that the MSP is still a young project. This, unfortunately, places some constraints on being able to judge whether or not it is sustainable. However, in the correspondence received, concern was raised regarding what will happen when the Australians leave:

"Now with 18 months to go until the end of Phase 3, which means the end of Australian funding, the Australians are suddenly becoming very concerned about the sustainability of the system we are installing. Indeed it seems unlikely that the Giriama settlers could themselves hope to maintain such a complex and costly water reticulation system which is based on diesel engines pumping water from deep underground (80-200 meters)."

It seems that because of the lack of the inclusion in the early stages of the MSP of the five components of the community development approach, identified in Chapter Three, the life of the scheme is being threatened. This is why Mr. Polhill and the
correspondence received now believe that it is essential to include appropriate knowledge, appropriate technology, appropriate institutions, appropriate support and community participation in the planning process.

To date the MSP has been successful. If it is to continue to meet its objectives, the planning process may have to adapt to include the appropriate elements. A positive sign of this is the inclusion of the NGOs working with the people within the MSP.

D. THE BASIC NEEDS APPROACH.

In this section, the relationship between the BNA and the elements that contributed to the success of the RWS project will be examined. This is important if the relationship between the BNA and rural development is to be understood, particularly in terms of whether or not the BNA is itself an important factor to be included in the planning process for rural development.

In Chapter Two, a number of elements were identified that the basic needs concept focused attention on. These included a focus on: the human requirements of people; the neediest segment of society; concrete objectives; the ends of development rather than the means; the development of people rather than things; directly attacking poverty; and the importance of establishing mutual cooperation between national and international agencies. In addition to this list, the organizing and integrating power of the approach and its appeal to the national and international community, and thus its ability to mobilize resources, was also discussed.
In the MSP, many of these same elements can be found. The scheme is a joint GOK/GOA venture, stressing their recognition of the importance of mutual cooperation. The MSP focused attention on the provision of a basic need, water. The MSP is located in a rural region among one of the most undeveloped tribes in Kenya, the Giriama. The scheme had concrete objectives in Phase 3: 183 km of water supply pipeline; 53 storage dams; and no settler should have to walk more than 2 km to find water.

The elements that are missing are the elements, for the most part, that the Australians recognize as being important to include if the scheme is to become sustainable. These include beginning to move from the development of things to the development of the Giriama - education, training, etc. and beginning to include the communities in the planning process and maintenance of the system.

The MSP seems to have begun with a focus on providing the people within the project with their basic need, a BNA to development. It seems that, over time, the persons responsible for the scheme have progressively recognized the need to adopt a community development approach to meeting basic needs, rather than a technocratic approach, as concern for the sustainability of the MSP has been raised. The elements that went into the planning process that made MSP successful were part of a technocratic approach to meeting basic needs. The elements that are now being included in the planning process in order to make the MSP successful in the long run are part of a community development approach.
"There was a little city, and few men within it; and there came a great king against it, and besieged it, and built great bulwarks against it; Now there was found in it a poor wise man, and he by his wisdom delivered the city; yet no man remembered that same poor man. Then said I, Wisdom is better than strength: nevertheless the poor man's wisdom is despised, and his words are not heard."

The Bible, Authorized Version, Ecclesiastes 9:14-16.

"Mwalimu Nyerere is right. So-called leaders do entirely too much talking to the peasants. No one ever wants to listen to them."

A Tanzanian agricultural extension worker.
Development, as Schumacher said, is a process of evolution. The past four decades are witness to this fact. Theories of development have been advanced, planned for and implemented with varying degrees of success. Each new theory seemed to evolve out of the lessons learned from the previous one.

This thesis has focused on one of the more recent theories of development which has been referred to as the BNA. This chapter will briefly summarize the thesis and present some conclusions which are based on what the case study of Chapter Four reveals about the BNA to development.

1. SUMMARY.

This thesis began by tracing the evolution of the newest theory or approach to development, the BNA. It is quite evident that the BNA has been formulated to a large degree on what development theorists and practitioners have learned from what has been happening in the developing countries over the last four or so decades. The basic premise upon which the basic needs concept is built is that it focuses the development effort on people not things. This focus arose out of the realization that previous approaches have not benefited the poor in general and the rural poor in particular.

The basic needs concept concentrates on the ends of development, improving the lot of the poor, rather than the means to that development. The community development approach to
meeting basic needs, however, suggests means such as community participation and the use of appropriate technology. One assumption of the community development approach is that when the focus in development is on the basic needs of people these two elements automatically will play an important role in the development effort. An assumption of the BNA to development (under which the community development approach and the technocratic approach fall) is that a broader rural development would result from a focus on meeting the basic needs of the rural poor. In other words, when people no longer have to worry about their basic needs they can channel their now available time and energy into more productive pursuits.

In order to examine the validity of these assumptions, the efforts to meet one basic need, water, and the results of those efforts, was examined. This was done in three steps.

The first step was to look at the global focus on providing a safe and reliable drinking water supply that came with the designation of the 1980s as the International Drinking Water Supply and Sanitation Decade. This designation served to stimulate a great deal of attention on RWS programs. Numerous projects were studied and many reports written on what was and had been taking place. Chapter Three reviewed this literature with the main focus being on the elements scholars and others identified as being important to the success or failure of the projects. This literature was dominated by advocates of the community development approach to meeting basic needs and the elements these writers identified as being important were grouped
into five categories. These are appropriate knowledge, appropriate technology, appropriate institutions, appropriate support, and community participation. These five elements were found to be of particular importance for the long run sustainability of projects.

The second step was to take a specific case study of RWS in Kenya, East Africa and determine what elements contributed to its success. The study was done on the basis of three questionnaires sent to Kenya: one to villages benefiting from a RWS program, the MSP; one to villages without a RWS program; and one to two planners involved in efforts to supply villages with water.

The third step was to analyze the case study in terms of the literature review of Chapter Three and the description of the BNA in Chapter Two. The aim was to identify the elements that go into the planning process for rural development and the relationship of these elements to the BNA. The results should indicate whether or not the assumptions underlying the BNA are valid and whether or not the BNA is itself a vital element to include in the planning process for rural development.

2. CONCLUSIONS.

One limitation of the case study was that it is a young project. The information acquired dealt with Phase Three of the project which was concerned with the construction and implementation of the scheme. The durability or sustainability of the project could not really be determined. Therefore, the
conclusions drawn from the case study and its analysis can only be based on the short run.

In Chapter Five it was concluded that the MSP was successful, at least in the short run. This is true in spite of a lack of inclusion of the five components of the community development approach to meeting basic needs. Community participation was basically non-existent, appropriate knowledge was limited to technical information (the technology was only appropriate to the physical environment), appropriate institutions were hardly considered and appropriate support was just beginning to be recognized as being important. The success of the project can be attributed to the adoption of a technocratic approach which included three factors: 1) the infusion of large amounts of money and equipment coming from technically competent agencies; 2) the Australian presence; and 3) the focus on the basic need of water.

The focus of the project on the basic need of water seemed to lead to improvements in the health, economic and social conditions of the communities. The villages benefiting from the MSP were better off than the villages outside of the project.

Even though the project is still in the short run, the concerns of the two planners regarding the long run sustainability of the project came through rather strongly in the questionnaires. It was at this point that the elements of a community development approach, discussed above, came to be recognized as being vital to the ongoing success of the MSP. Mr. Polhill, in particular, concluded that the people must become
involved if the project was to be sustained. Once the Australians leave, which means the end of external funding and assistance, the responsibility for the project rests on the nationals, and in particular the Giriama. Mr. Polhill realized that it was time to stop talking and to start listening to the people and how they proposed to sustain the project.

It must be stressed that sustaining the project refers to more than simply maintaining the pumps. The community development approach to meeting basic needs is also concerned with more than just maintaining the pumps. There are a number of other factors contributing to the continuing success of the scheme.

In addition to the problem of assuring a continuity in the supply of water to the communities are such issues as: who will decide on the allocation of the water; who will use the water; who is responsible for water quality problems; and who is responsible for developing an education and training program for the villagers. A final issue deals with developing self-motivation among the Giriama so that they see the scheme as their own and willingly take on the comprehensive maintenance of the MSP.

The questionnaires and the correspondence received revealed some problems in the areas mentioned above. The correspondence received mentioned that the Giriama were a somewhat undeveloped people with a lethargic attitude to development problems. They are seldom motivated to solve their own problems, preferring to wait for the government to help. The questionnaires revealed
that there was fighting in the lines at communal water points with no mention of anyone being responsible for solving the disputes. The quality of the water was salty or bitter (due to too much chlorine) resulting in the people refusing to use the source. There did not seem to be any local organization in place where these types of problems could be reported and dealt with.

The social and organizational structure of the people is important to the maintenance of the scheme. Once the external aid agency leaves, it is the local people who will have to maintain the system. A vital part of Mr. Thompson's work, as mentioned earlier, was to integrate and strengthen community organization and independence through improving the existing social organization/structure of the Giriama. If this was not an important part of the community development approach to meeting basic needs, the success of the scheme would be questionable even if the villagers knew how to maintain the pumps.

The point is that the thought process in the minds of those responsible for the MSP (and other RWS projects) should include a recognition of the importance of the community development approach. The approach places emphasis not only on the technical aspects of the MSP but also on important social factors vital to the continuing success of the project.

This is starting to occur in the MSP. In the beginning stages of the scheme the main aim was to construct the infrastructure and implement the plan. Now, the concern has turned to developing community participation, appropriate
technology, appropriate institutions, appropriate support and gaining more appropriate knowledge if the scheme is to survive.

The MSP is a success in the short run largely because of the focus on satisfying the basic needs of the Giriama. The problem now is that for the project to continue to be successful, the elements associated with the community development approach must be an essential part of the scheme.

Both a technocratic approach and a community development approach to meeting basic needs come under the umbrella of a BNA to development (see Fig. 10). The literature reviewed in Chapter Three assumed that projects which adopted a basic needs concept of development would have to include the community development approach for the project to succeed. The MSP did succeed without including this approach, rather it emphasized a technocratic approach. However, the sustainability of the scheme is questionable. The conclusion that can be drawn from this is that a project that adopts a technocratic approach to meeting basic needs can succeed in the short run but there comes a point when, for the project to succeed in the long run, a community development approach to meeting basic needs must be included.

A final conclusion is that the distinction between the phrases: a BNA to development; a technocratic approach to meeting basic needs; and community development approach to meeting basic needs must be made clear both in the literature and in the minds of those involved in rural development. At present there seems to be confusion as to what exactly is meant by these phrases.
BASIC NEEDS APPROACH TO DEVELOPMENT
Focus on:
ends of development
neediest segment of society
human requirements of people
direct attack on poverty
concrete objectives

TECHNOCRATIC APPROACH
-top down
-immediate delivery of the basic need by technically competent agencies.

COMMUNITY DEVELOPMENT APPROACH
-bottom up
-community develops self-reliance in meeting the need

In Chapter Two a reference was made to Dudley Seers concern regarding the need to determine what is meant by 'development'. The same can now be said of the 'basic needs' rhetoric. The conclusion of this thesis is that there are two distinct methodologies to employ when trying to meet the basic needs of the poor. One is a technocratic approach and the other is a community development approach. Both are part of a BNA, but the former is a top down effort resulting in immediate delivery of the basic need while the latter is a bottom up effort that results in the development of community self-reliance in meeting the need (see Fig. 10).

In summary, the conclusions that can be drawn from this study are the following:
1). A distinction between the phrases, a BNA to development, a technocratic approach to meeting basic needs, and a community development approach to meeting basic needs must be made clear in the literature and in the minds of those involved in rural development in the Third World;

2). In the short run, a project that uses a technocratic approach to meeting basic needs can be successful without the inclusion of the elements of a community development approach which are community participation, appropriate technology, appropriate knowledge, appropriate institutions, and appropriate support;

3). In the short run the funding, assistance and presence of an external aid agency is important to the success of a rural development effort;

4). In the long run a community development approach to meeting basic needs which includes community participation, appropriate technology, appropriate knowledge, appropriate institutions and appropriate support is essential to include in the planning process for rural development if the project is to be sustainable;

5). In both the short run and the long run, a BNA to development is an essential element to include in the planning process for rural development in developing countries; and

6). A project using a technocratic approach to meeting basic needs can succeed in the short run but for this project to continue to be successful there comes a point where the elements assumed to be part of a community development approach to meeting basic needs must be included.

C. COMMENT.

A final comment must be made regarding the issue of land. The land question and issues relating to it are outside the scope of this thesis, yet the importance of land, particularly in Kenya, requires that a few paragraphs be devoted to it.

There are a number of factors within Kenya that point to the importance of finding solutions to the land problem. Kenya has 80% of its land in the arid and semi-arid zone, 85% of the population is rural and 75% of the people live in 18% of the
land. In addition to these factors, Kenya is said to have the highest population growth rate in the world, estimated at around 4.1%. These four factors together indicate that there is a great deal of pressure being put on the marginal lands. This is due to the increasing scarcity of land in the highlands region of Kenya because of the rapidly growing population who move to the marginal areas looking for land to settle and grow their crops.

In response to this problem the GOK has sponsored projects similar to the MSP in an effort to provide some control over what is happening in the marginal lands. The MSP is a settlement project in addition to its basic needs orientation. It is located in a semi-arid area and attempts to settle the Giriama, a shifting people, onto 30 acre plots and provide them with water. To date, as pointed out earlier, the project has met with success. However, some potential problems related to land tenure and land use have begun to emerge and may have to be solved in the future.

Among these potential problems are increasing conflicts between the Giriama and other tribes who are beginning to move into the project area. To date there has been little or no friction between the different peoples but in the future, as the population in the nation continues to grow and land in the central regions of Kenya becomes more scarce, more Kikuyu, Kamba and other tribes could migrate to the area leading to conflicts over who controls the land and what it is to be used for.

A second potential problem may emerge within the Giriama themselves. As families grow in size, the 30 acre plots may not
be of sufficient size to both feed the families and to sub-divide the plots among the male children when they come of age. The Giriama may have to find more land elsewhere.

A third potential problem may arise concerning the susceptibility of the Giriama and their livestock to drought. They are located in a semi-arid zone to begin with which means an unreliable and insufficient rainfall. The MSP is presently able to supply water to meet the needs in the area but it may not be able to continue to supply water in sufficient quantity as the population of people and livestock in the region grows.

When one looks at the future of the MSP and the region within which it is located, a number of potential problems related to land tenure and use may arise. It may be important to start to develop the necessary institutions now that would have the responsibility of dealing with these problems in the future. The same types of principles as emphasized under the community development approach to meeting basic needs could be applied to solving this problem.
DEFINITIONS

Appropriate - cultural, economic and sociological circumstances of the people in any place determine what is suitable for them.

Appropriate Institutions - organizations accepted by the community and for the community.

Appropriate Knowledge - information on technical matters, on the people and their community and on the knowledge and skills of the members of the community.

Appropriate Support - the maintenance of the people (through education and training) and of the project (parts, advice, assistance, etc.) through a means suitable to the community.

Appropriate Technology - a technology that is more congruent with a society's needs, resources and physical environment than an alternative.

Basic Needs - needs such as adequate food, shelter and clothing as well as essential services provided by and for the community at large, such as safe drinking water.

Community Development Approach - the strategy for development which emphasizes the importance of appropriate knowledge, appropriate technology, appropriate institutions, appropriate support and community participation to efforts to meet the basic needs of the poor.

Basic Needs Approach (BNA) - the approach to development that places primary emphasis on meeting the basic needs of people.

Technocratic Approach - the strategy for development that provides for the immediate delivery of basic needs to the poor by technically competent agencies.

Community Participation - the involvement of the members of a community in both the planning and implementing stages of a project.

Giriama - the largest tribe of the Mijikenda peoples who generally inhabit the regions along the Kenyan coast.

Harambee - swahili for "let's pull together" and is usually used to refer to self-help development efforts.

Kambi - the oldest rika, the elders.

Malindi - a town on the coast of Kenya 120 km. north of Mombasa.

Mijikenda - a grouping of nine tribes of which the Giriama are the largest.
Planning Process - the formulation and implementation of policies, programs and projects.

Rika - age-set.

Shamba - a garden or small agricultural plot.

Success - the meeting of immediate and long term water needs leading to improvements in health, economic and social conditions of communities.
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APPENDIX

Questionnaire #1: Village Within the MSP.

1). Questionnaire #
   Village
   Date
   Tribe

2). Head of household information:
   Name
   Sex
   Age
   Occupation

   (a). If head of household is absent, who is acting head?
   Name
   Sex
   Age
   Occupation

   (b). Why is head of household not present?

3). Water supply information:
   (a). How far is it to the water source from your house?
      0-.5 km
      .5-1 km
      1-2 km
      2-3 km
      3-4 km
      4-5 km
      > 5 km
(b). What is the type of source?
Hand-drawn well
Animal-drawn well
Hand-pump
Power-pump
Man-made pond
Man-made reservoir
Natural pond
River
Other

(c). How do you carry water from the source to your home?
Bucket carried by human
Bucket carried by animal
Cart drawn by human
Cart drawn by animal
By bicycle
Other

(d). Do you have to pay any money for your water? Yes, No.
To the government?
To anyone in the village? Who?
Bribe?

(e). Who in the village uses the source?
Only one tribe
Just men
Just women
Everyone
4). Water use information:
   (a). What is the household size?

   (b). What do you use the water the most for:
       Drinking
       Washing clothes and dishes
       Cooking
       Bathing
       Other

   (c). Livestock information:
       (i). Number and type of livestock

       (ii). Do you collect water for your livestock?
            For the livestock to drink
            Other

       (iii). How do you feed your livestock?
            Let them roam freely to graze
            Cut grass for them and feed them

   (d). Food information:
       (i). Do you have a shamba?

       (ii). What kinds of food do you grow?

       (iii). During what months do you grow food?

       (iv). Do you collect water to use in your shamba?
5). Community satisfaction information:

(a). What do you see as the benefits of the government water?

(i). Improved health for the old.
   Improved health for the young.
   Improved health for everyone.
(ii). Cleaner water.
(iii). Easier to get the water.
(iv). Grow more food.
   If so, is the extra food used for:
       eating.
       selling.
(v). Able to have more livestock.
   If so, what do you do with the extra livestock:
       eat them.
       sell them.
       keep them.

Do you get more milk from the livestock?
If so, what do you do with the milk?
   drink it
   sell it -shillings/day
   drink and sell

(b). Are you happy with what the government has done in supplying your village with water?

(c). Do you wish that the village and villagers had more to do with the water supply that the government has provided?
6). Impacts on the village:

   (a). Do like the water you have now more than the water you had before?

   (b). Has having water near your village changed the way you live?

       Do you have more free time?
       Do you spend more or less time with other villagers?
       Can you keep your livestock nearby?
       Do you have to look for water during the dry season?
       Is life easier?

   (c). Do you like what has happened in your village since you have water near by?

   (d). Are villagers responsible for looking after the source and equipment for the water?

       (i). Is there trouble with how this is done?

       (ii). Is there fighting over the water?

       (iii). Can everyone use the water when they need it?

   (e). Is access to the source controlled?

   (f). Is there an education and training program to teach the villagers about the water and how to repair and maintain the water supply?
Questionnaire #2: Villages Outside of the MSP.

1). Questionnaire #
   Village
   Date
   Tribe

2). Head of household information:
   Name
   Sex
   Age
   Occupation

   (a). If head of household is absent, who is acting head?
      Name
      Sex
      Age
      Occupation

   (b). Why is head of household not present?

3). Water supply information:
   (a). How far is it to the water source from your house?
      0-.5 km
      .5-1 km
      1-2 km
      2-3 km
      3-4 km
      4-5 km
      > 5 km
(b). What is the type of source?
   Hand-drawn well
   Animal-drawn well
   Hand-pump
   Power-pump
   Man-made pond
   Man-made reservoir
   Natural pond
   River
   Other

   } What months of the year is there water?
   } Other

(c). How do you carry water from the source to your home?
   Bucket carried by human
   Bucket carried by animal
   Cart drawn by human
   Cart drawn by animal
   By bicycle
   Other

(d). Do you have to pay any money for your water? Yes, No.
   To the government?
   To anyone in the village? Who?
   Bribe?

(e). Who in the village uses the source?
   Only one tribe
   Just men
   Just women
   Everyone
4). Water use information:

(a). What is the household size?

(b). What do you use the water the most for:
  Drinking
  Washing clothes and dishes
  Cooking
  Bathing
  Other

(c). Livestock information:
  (i). Number of livestock

  (ii). Do you collect water for your livestock?
  For them to drink
  Other

  (iii). How do you feed your livestock?
  Let them roam freely to graze
  Cut grass for them and feed them

  (iv). Do you have enough livestock to:
  - eat?
  - sell?

  (v). Do you get milk from your livestock?
  - do you drink it?
  - sell it?
  - drink and sell it?
(d). Food information:
   (i). Do you have a shamba?
   (ii). What kinds of food do you grow?
   (iii). During what months do you grow food?
      -Do you have enough food to:
         -eat?
         -sell?
   (iv). Do you collect water to use in your shamba?

5). Community satisfaction information:
   (a). Are you pleased with the water you use?
      Do you want the government to supply your village with water?
   (b). Are the people in your village usually sick?
      Who is sick more often;
      The old.
      The young.
      Everyone.
   (c). Do you have enough water for:
      Drinking.
      Cooking.
      Washing clothes and dishes.
      Bathing.
      Growing food.
      Your livestock.
(d). Have you or the elders asked the government to come to your village and supply the village with water?

If so, why?

6). Impacts of no government assistance.

(a). Do you have to move during the dry season to find water for your: Household. Livestock.

(b). Would you like to have your water closer to the village?

(c). Do you like the way you live in the village?

(d). Do you think that your life in the village will change if the government comes to supply water?

(e). Do you think it would be: better? worse?

Why?

(f). Is there an education and training program to teach the villagers about the importance of clean water and its benefits?
Questionnaire #3. Planners Working Within the MSP.

1). Questionnaire #
   Office
   Position

   Date
   Name
   Address

2). Do you feel it is necessary to supply water in the semi-arid regions?

3). What is your explicit policy regarding water supply for small rural villages in semi-arid regions?

4). Why do you supply water to small rural villages in semi-arid regions?

5). What kinds of water projects are being carried out in the semi-arid region that your office is responsible for?

   (i). How many?

   (ii). Will these projects be completed in: 1 year? 5 years?
6). Does water supply from your perspective refer to supplying water to:

- Households only.
- Households and their shambas.
- Households and their livestock.
- Households, their livestock and their shambas.

7). Would this be a seasonal supply?

Which months?

8). Cost information.

(a). Who is to pay for the water projects?

- The village?
- The government?
- Other.

(b). How are they going to pay?

(c). How much will it cost for each village?

9). Is the village involved in the process of supplying water?

(a). Were they involved in making the plan?

(i). If so, who was consulted?

- Village elders.
- Heads of households.
- Other.
(ii). What was the role and responsibilities of the village and the villagers?

(iii). What decisions were made by the villagers?

(iv). What decisions were made by the government?

(b). Are the villagers involved in implementing the plan?

(i). Who is involved?
   The elders?
   Young men?
   Heads of households
   Other.

(ii). What are the roles and responsibilities of the village and the villagers?

(iii). What decisions are made by the villagers?
(iv). What decisions are made by the government?

(v). Who maintains the water supply source and equipment?

(vi). Is access to the source controlled?

If so, is it controlled by socially accepted members of the tribe?

Is there a limit on how many people and cattle can have access to the source?

Are too many cattle using the source?

(c). Is there a training program concerning maintenance and repair of the source?

If so, what kind?


What do you see as the impacts on the people in these semi-arid regions of supplying them with water?

- They settle in one area
- The relationships between tribes are improved
- The people can have more livestock
- The people are healthier
- The cattle are healthier
- The people are able to feed themselves
- The people have more money
- The land base deteriorates near the villages
- The land is looked after better than previously
- The children have the opportunity to get an education
- Other

11). Who is responsible for developing the plans for the water supply projects?

- Do they come from the Nairobi Office?
- Is the District Office responsible?
- Does the Nairobi Office give the District Office the freedom to develop plans that are appropriate to conditions in semi-arid regions?
- Do the plans come from an external agency?
- Is the District Office involved in adapting these plans to local conditions?

12). Did you ask the people if they wanted a more dependable water supply or did they ask you?

13). Do your plans include alternative means of livelihood for the people (if needed) once they have the improved water supply?

14). Are the people happy with what you have done?
- Why?