FACTORS AFFECTING SELF-HELP INITIATIVES ON ALLEVIATION OF WATER PROBLEMS IN MOROGORO DISTRICT, TANZANIA

BY

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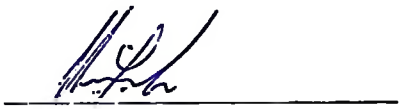
ABSTRACT

In developing countries water and sanitation problems cannot be solved by government, donor organisations or private sector alone. Tanzania water policy also puts the responsibility in the hands of communities through self-help initiatives. The purpose of this study was therefore to assess factors affecting self-help initiatives on alleviation of water problems in Morogoro district. The specific objectives were to: (i) determine water supply projects implemented through self-help initiatives; (ii) identify factors affecting self-help initiatives in identified water supply projects; and (iii) assess types of available resources and their utilisation. Data were collected from 134 respondents, including 120 community members household heads, 4 change agents and 10 key informants using questionnaires, researchers' diary and checklist. The study identified different types of water supply projects from different water sources through self-help initiatives; different factors affecting self-help initiatives; and availability and utilisation of different types of resources. It was concluded that existing self-help initiatives to improve water supply in the study area need to be encouraged and supported; self-help initiatives are affected by various factors, and most self-help initiatives result in water supply to an extensive user group; and potential advantages of self-help initiatives lie in the ownership of, and identification with, the water source by owner/initiator through utilisation of available resources. It was therefore recommended that there is a need for the government and NGOs to consider how they might encourage existing self-help water supply sources or construction of new sources by community empowerment, training, technical advice, partial subsidy, access to credit, provision of equipment or other means. Areas for further research are also suggested.

DECLARATION

I, HENRY CHUKWUMA UMEODUM. do hereby declare to the Senate of Sokoine University of Agriculture that this dissertation is my own original work and that it has neither been submitted nor being concurrently submitted for degree award in any other institution.



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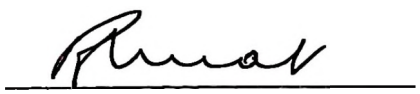

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DEDICATION

To my family members: my mother, Rosaline Umeodum; my brothers, Chukwuemeka, Chukwubuike, Ugochukwu, Ifeanyichukwu, Ogochukwu, and my sister, Eberechukwu. In a special way, to my late father, Stephen Anisinna Umeodum. May God grant him eternal repose in His kingdom –Amen.

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LIST OF ABBREVIATIONS

AWEC	-	Annual Water Experts Conference
CCM	-	*Chama Cha Mapinduzi*
DSI	-	Development Studies Institute
FHH	-	Female Headed Household
FGD	-	Focus Group Discussion
GDP	-	Gross Domestic Products
KNH	-	Kindernothlife
LG	-	Local Government
MDG	-	Millennium Development Goal
MHH	-	Male Headed Household
NAWAPO	-	National Water Policy
NGO	-	Non-Governmental Organisation
SDS	-	Society of Divine Saviour
SNAL	-	Sokoine National Agricultural Library
SPSS	-	Statistical Package for Social Science
SUA	-	Sokoine University of Agriculture
TAS	-	Tanzanian Shillings
UN	-	United Nations
URT	-	United Republic of Tanzania

CHAPTER ONE

1.0 INTRODUCTION

This is a study of factors affecting self-help initiatives on alleviation of water problems in Morogoro district, Tanzania. In developing countries water and sanitation problems cannot be solved by government, donor organisations and private sector alone. Tanzania water policy also puts the responsibility in the hands of communities through self-help initiatives. Understanding of principles of self-help can result in improved quality of life. The purpose of this study was therefore to assess factors affecting self-help initiatives on alleviation of water problems and draw implications on the importance of community sector, awareness and self-help spirit in alleviation of water problems.

1.1 Background Information

Unsafe water and inadequate sanitation and hygiene in small communities throughout the developing countries are some of the world's most important timely challenges. At least one third of the population in developing countries has no access to safe drinking water. Lack of adequate water supply and sanitation facilities causes a series of health hazard and exposes many to the risk of waterborne diseases (Guy and Haller, 2004). The first edition of World Water Development Report was titled '*Water for People, Water for Life*' (UN, 2003). On the occasion of the third World Water Forum held in Kyoto, the Pontifical Council for Justice and Peace of the Holy See presented a paper titled '*Water, an Essential Element for Life*' (Martino, 2003). In a succinct but clear manner, both titles underline the necessary connection between water and life. The growing awareness of the importance of water to humans and their development accounts for the current heavy emphasis on the need for its accessibility, proximity, sufficiency, decency and purity. The degree of this emphasis has continued to attain a greater height, especially with the

rapid population growth and the contemporary people's reckless exploitation of the environment which has provoked a devastating change in the climate, alarmingly causing critical water scarcity.

Not just the development of efficacious theoretical frameworks, policies and strategies, enormous concrete actions have also been globally recorded –all an effort to ameliorate the excruciating water ordeals, which is in line with the Millennium Development Goals (MDG) Target 7.C: 'Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation'. The United Nations, world governments and international agents spend so much annually on water projects. To a large extent, actions to improve water conditions are being spurred by the understanding that access to safe water is essential for addressing poverty and health problems (AWEC, 2002). The problems of poverty are inextricably linked with those of water - its availability, proximity, quantity and quality. Improving the access of poor people to water has the potential to make a major contribution towards poverty eradication (UN, 2003). Lack of water hampers development through constraining food production, health and industrial development (Donkor, 2006). Although there are many bilateral and multi-lateral cooperation programmes focusing on this issue, such problems cannot be solved by government alone, in other words, multi-tasks and multi-actors approach are indispensable. Thus building a capacity of unserved communities in developing countries in order to enable them to release themselves from such acute water and sanitation problems is a must (Chambers, 1983).

In Tanzania, even though WaterAid has helped almost 1.1 million Tanzanians gain access to safe drinking water and sanitation services since 1983 (WaterAid, 2006), the recent Ministry of Water figures suggest that 70.0 % of the rural population, and 30.0 %

of urban dwellers have no access to safe water (URT, 2007). Some of the problems affecting rural communities and water supply are historical events, occurring after Tanzania's independence in 1961. Rural drinking water supply came high on the agenda in 1971, when the party (CCM) declared that by 1991 all population (both rural and urban) should have access to safe water with easy reach of their homes. The construction of new schemes and their ongoing operation and maintenance was to be the responsibility of the government. However, in the mid 1970's, foreign donors started developing water supply programmes, largely bypassing government structures. During this decade and the following International Drinking Water and Supply and Sanitation Decades in the 1980s, considerable efforts were made to improve water coverage, albeit with negligible long term effect. Facilities were rapidly built and then transferred to regional water engineers who had neither budget nor capacities to operate them. These early efforts to provide sustainable water supply and sanitation services thus proved a failure (Therkildsen, 1998; URT, 2002; Kyessi, 2005).

In response to the poor performance of water schemes, the government introduced a New National Water Policy (NAWAPO) in 1991. Since then, Tanzania has been facing transition from a socialist economy–based on the principle of "free water for all" –to more liberal economy where cost recovery has become a priority. A revised NAWAPO was launched in 2002 (URT, 2002) as a starting point of the policy framework, which was to be developed at national scale. NAWAPO (URT, 2002) was based on: (i) the process of "decentralisation by devolution"; (ii) cost-recovery; and (iii) the issue of ownership. Implementation of these principles has entailed significant implications for agencies of rural water sector and the way they operate. The government's new role ("hands off, eyes on") is one of the policy guidelines in formulation, coordination, monitoring and regulation. The management and coordination of the day-to-day

activities moved to the local authorities which undertake the primary responsibility for implementation of new rural water supply schemes and sanitation infrastructure. Communities are expected to initiate demand for improvement of facilities since it is to be demand-driven approach. Not only that their participation throughout the project cycle has to be guaranteed, users are also committed to achieve full cost-recovery on ongoing operation and maintenance. Finally, while in the past donor interventions often bypassed recipient organisations at national, regional and local level, they are currently required to implement their projects under the supervision of the government.

Therkildsen (1986) underscored that the main features of Tanzania's rural water supply development emerged from 1965 to 1972. During the next ten years the only major policy change was the declaration in 1975 that all villages should be provided with one good source of water by 1981. The most dramatic change introduced by the independent government concerned the financing of rural water supplies. Therkildsen noted that in a clear break with colonial policies, user payment towards construction costs was abolished in 1965, and user contribution to operation and maintenance ceased in 1970. During the same period local government taxation was gradually abolished so that central government eventually carried the financial burden of the rural water sector alone. From then on a rural water supply was regarded as a free public service.

Therkildsen went on to observe that the role of villages and villagers in the rural water sector has in general been very modest since 1970. They have become the passive receivers of state-provided water supplies. Their involvement has mostly been limited to sporadic contribution of self-help labour during construction. And once completed, operation and maintenance has also been the responsibility of government. Local participation has therefore been much more restricted than is implied by Tanzania's

professed ideology. Declaration of the 1991 goal and the concomitant emphasis on pervasive bureaucratic blueprint planning obviously leaves little room for local participation (other than the provision of free labour). Also the excessive emphasis on production targets, which the Party (CCM) and bureaucracy have shared with donors, has left little room for village participation. Moreover, the so called decentralisation of 1972 effectively restricted participation. This according to Therkildsen removed the rural bourgeoisie from the leadership role it had played in self-help projects both during colonial rule and immediately after independence, and replaced it with district and regional bureaucrats who owed their loyalty to the state. Local funds previously controlled by District Councils were taken over by the Ministry of Finance. Central government became the only source of funds. The role of villages in selection, planning, implementation and operation of schemes has therefore changed little despite decentralisation. These historical realities to a great extent account for the rural people's passivity with respect to self-help initiatives and development issues that enable poverty reduction.

The most recent initiative is the Tanzania water policy which puts responsibility completely in the hands of communities through self-help initiatives (Koppen, 2000). This requires considerable devolution, training and retraining and financial resources. In particular, the local government (LG) workers at district level are expected to change their role from that of being a service provider to that of facilitator, regulator and promoter. At the time they were not performing the partnership role as envisaged. They mainly performed crisis management, carrying out their roles and responsibilities at less than full power, and consequently found it difficult to evoke a partnership response from the communities to run water projects (Koppen, 2000). Morogoro region (where data for this study were collected) is one of the 26 administrative regions in Tanzania (Fig.1).

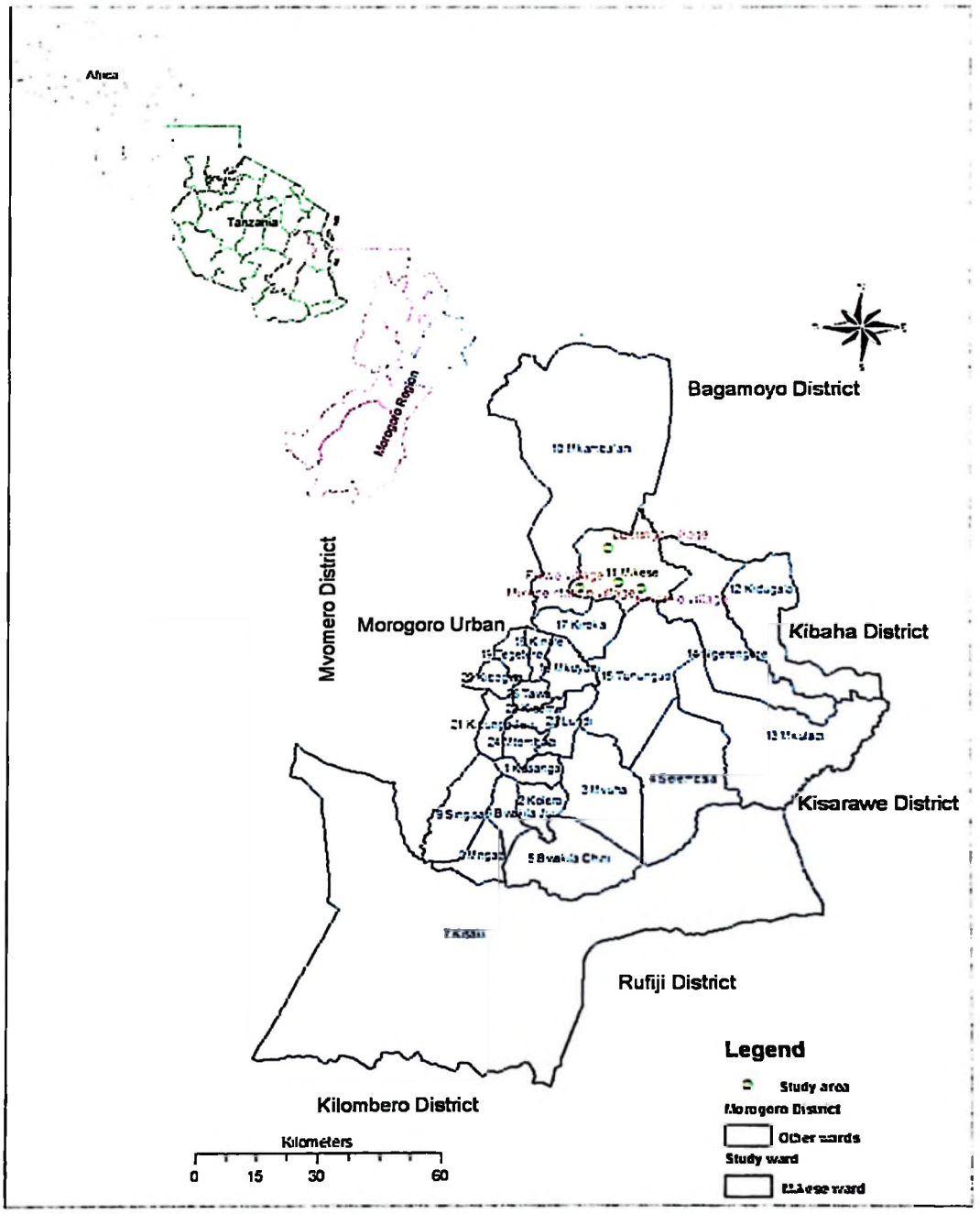

Figure 1: Morogoro region map showing Morogoro district and study villages

The region has an area of 73 039 km^2. Administratively, it is divided into 6 districts of Mvomero, Morogoro, Ulanga, Kilombera, Kilosa and Morogoro urban. It comprises of 543 villages which are grouped into 141 wards with the population of 1 759 809 at annual growth rate of 2.6 percent (URT, 2010). Due to its fertile soils, favourable rainfall

and wide range of altitudes, a considerable number of crops are grown in the region. Sisal is the major cash crop grown in large scale plantations, while coffee and cotton are grown on limited scale by smallholder farmers. Major food crops produced are maize, paddy, sorghum, sugarcane, cassava, oil seeds and pulses and fruits and vegetables. Morogoro district farmers are among farmers who utilise water for irrigation and domestic purposes, and need self-help initiatives to alleviate their prevailing water problems. The district (Fig. 1) covers about 1 192 575 ha comprising a population of 263 920 people (2002 census), at an annual growth rate of 2.6 percent (URT, 2010). The factors affecting self-help initiatives on alleviation of water problems and their policy implications remain to be clarified by this study. With this in mind, the problem outline for the study is set in perspective.

1.2 Problem Statement and Justification

In the context of global water and sanitation, various activities related to appropriate technology development and self-help actions conducted by communities remain in the periphery. On the other hand, water and sanitation problems in developing countries cannot be solved by government, donor organisations and private sector only. Therefore, incorporating appropriate technology development and community self-help action into water and sanitation is indispensable. In Tanzania, communities beginning to contribute to this process were handicapped in number of ways. With villagisation there was a destruction of ways of working together and traditional conflict mechanisms. The last thirty years have perhaps made worse certain issues in the communities that are not talked about easily: the corruption; alcohol; and witchcraft. These divide communities and can negatively affect progress. The purpose of this study was therefore to assess factors affecting self-help initiatives on alleviation of water problems in Morogoro district, Tanzania. Since the most recent initiative is the Tanzania water policy which

puts responsibility in the hands of communities through self-help initiatives, it was worthwhile to assess the importance of community sector, awareness and self-help spirit in alleviating their water problems, so as to advocate decision makers. Understanding the basic principles of self-help work (independence and ability to master one's life) can result in improved quality of life and can increase the opportunities of the individuals to partake in communities.

1.3 Objectives

1.3.1 General objective

To assess factors that affect self-help initiatives on alleviation of water problems in Morogoro district.

1.3.2 Specific objectives

1. To determine water supply projects implemented through self-help initiatives in the study area.
2. To identify factors affecting self-help initiatives in water supply projects determined in (1) above.
3. To assess the types of available resources and extent of their utilisation in alleviation of water problems.

1.4 Research Questions

1. What type of water supply projects are implemented through self-help initiatives?
2. What are the factors that affect self-help initiatives in water supply projects?
3. What type of resources are available in the community?
4. How have the people utilised their resources in alleviation of water problems?

1.5 Operational Definition of Terms

The terms that will be frequently used in the text are defined here to provide a common basis for conveying meaning. These include: self-help initiatives; factors affecting self-help initiatives; participation; poverty reduction; and rural/agricultural development.

1.5.1 Self-help initiatives

Equipped with knowledge, through self-help people are enabled to get out of poverty as they take control of their lives (Bamutungire, 2007). The primary purpose of self-help is socio-economic and political empowerment. Community self-help actions are very essential for poverty reduction (Walter, 2007). Especially in developing countries, socio-economic problems cannot be solved by government, donor organisations and private sector alone. Individuals, groups and communities have the responsibility to contribute towards alleviating those predicaments that severe their well-being (Umeodum, 2008). The beneficiaries are the primary stakeholders, who must not only, or not just sustain what is established, but also initiate solutions and undertake projects in the complete absence of the involvement of the State and development agencies. In this study self-help initiatives connote own efforts on projects initiated or established by a person or community in order to bring about improved livelihood through enhancement of poor domestic and community water conditions.

1.5.2 Factors affecting self-help initiatives

Various factors positively or negatively influence self-help initiatives on individual and community levels. With respect to improvement of socio-economic conditions, these factors shape dispositions and self-determination of individuals and groups. Encouraging self-help requires various structural conditions. According to Berg-Schlosser and Kersting (2003), many governments in developing countries only permit limited self-

determination at the local level. Poverty-oriented self-help projects often fail because the people involved are given too little opportunity of co-determination. At the macro level, a political culture which is orientated strongly towards the state and gives the state a central role in relation to development projects hinders the encouragement of self-help. In this study factors affecting self-help initiatives imply those elements that positively or negatively influence people's ability, or conditions that provide the enablement to personally initiate or engage in activities that bring about improved domestic and community water conditions.

1.5.3 Participation

According to Hoddinott *et al.* (2001), interventions for poverty reduction are multidimensional. Meaningful and sustainable participation requires clearly defined political structures for dialogue between all stakeholders at national and local levels. Particularly on water, its management requires the participation of all stakeholders in order to achieve sustainable access, efficiency, equitable use and adequate protection and conservation of water (AWEC, 2002). While efficiency arguments consider participation as a tool for achieving better project outcomes, equity and empowerment arguments view it as a process which enhances the capacity of individuals to improve their own lives and facilitate social change to the advantage of disadvantaged or marginalised groups (Cleaver, 1999). In this study participation implies involvement in the water development actions of a group or community. As a dimension of self-help, participation is an essential element for surmounting the socio-economic problems faced by the community.

1.5.4 Rural/agricultural development

In examining sectoral contribution to poverty reduction, agricultural growth has

traditionally been regarded as instrumental for a number of reasons. Through its multiple consumption and production linkages and externalities with the rest of the economy, agriculture in low-income economies has been considered an engine of growth for the rural and overall economy (Bresciani and Valdes, 2007). The importance of agricultural transformation for poverty reduction in rural communities cannot be over-emphasised. Agricultural transformation is a gradual process, essentially having its undercurrent as rapid and prudent decision-making by the individual farmers and policy-makers. In this study the terms rural and agricultural development underline the importance of the rural agriculture and the degree to which agricultural development serves as the springboard for economic development and the overall development of a place, *ipso facto*, poverty reduction. Alleviation of water problems is considered essential for agricultural transformation.

1.5.5 Poverty reduction

Poverty remains one of the greatest problems of our time, causing starvation and humiliation in poor countries and contributing to problems of conflict, migration and environmental degradation (Albert and Kircher, 2002). In their report, Geekie and Nokkala (2004) defined poverty as a state of deprivation prohibitive to decent human life, caused by lack of resources and capacities to acquire basic human needs, evident through factors like malnutrition, prevalence of disease, high infant, child and maternal mortality, low life expectancy, low per capita income, poor quality housing, inadequate clothing, low technological utilisation, environmental degradation and unemployment. Furthermore, poverty reduction (or poverty alleviation) has been considered to be any strategy that seeks to reduce the level of poverty in a community, or people or countries. Such poverty reduction strategy may be aimed at economic or non-economic poverty, enabling the poor to live better lives through long-term, redistributional transfers

(Barder, 2009). Some popular approaches used to reduce poverty are education, economic development and income redistribution. Poverty reduction efforts may also be aimed at removing social and legal barriers to income growth among the poor. In this study poverty reduction connotes strategies that seek to attain increased income and decreasing inability to attain the basic needs such as water. Considering that alleviation of water problems in rural communities is very pertinent for overcoming the problem of poverty, in this study self-help is seen as a means to facilitate the process of poverty reduction. Literature review is presented in the next Chapter.

CHAPTER TWO

2.0 LITERATURE REVIEW

This Chapter reviewed literature of other studies in order to provide a theoretical framework which guided the development of the study model on which the analysis of data for the present study was based. It is based on: Rural and agricultural development: the role of water in agricultural growth: participation in practice: self-help initiatives; factors affecting self-help initiatives: and conceptual framework for analysis of the study data.

2.1 Rural and Agricultural Development

Enormous resources are repository in rural areas. but unfortunately the term rural is almost synonymous with socio-economic backwardness and poverty. Poverty is usually more widespread and more intensive in rural than in urban areas. In most developing countries the majority of the poor still live in rural areas. Increasing agricultural growth may have a large positive impact on poverty (Lopez, 2007), if distribution is fair. Enhancing African agricultural productivity is a prerequisite for eradicating African poverty and associated food and nutrition security, as agriculture is the engine of growth for the rural and overall economy (Bresciani and Valdes, 2007). Lopez (2007) contends that the long term solution to poverty is not through higher incomes for unskilled workers, but through more schooling and technical training to make the unskilled become skilled workers. This capacity building equips for self-reliance through self-help initiatives.

Agriculture is a lead sector in Tanzania, employing about 80.0 % of the economically active population, and accounts for more than 40.0 % of GDP, 75.0 % of the exports and

50.0 % of foreign exchange earnings (Msambichaka *et al.*, 2006). Given these contributions, agriculture has the pre-conditions necessary for industrial development that the country envisages (Msambichaka *et al.* 2006). According to Annan (2008), for Africa to again feed itself and rejoin the league of agriculture-exporting regions there is the need to increase the productivity and profitability of the continent's family farmers.

2.2 The Role of Water in Agricultural Growth

The role of water in agricultural growth, *ipso facto*, poverty reduction, cannot be over-emphasised. Lack of water hampers development through constraining food production, health and industrial development (Donkor, 2006). Consequently, improving the access of poor people to water has the potential to make a major contribution towards poverty eradication (UN, 2003). Water, especially irrigation aspect of it, is essential for the basic food requirements of billions of people (Fraenkel and Thake, 2007). Among the major entry points for poverty reduction, water availability for domestic and productive uses, particularly irrigation, has the greatest potential (Kulindwa, 2001).

Although the Earth is largely covered by water, the acute shortage of water for humans and their livelihoods is of global proportion (Fraenkel and Thake, 2007). Where rainfall is unreliable and inadequate, water shortages often severely limit crop production. Water conservation and harvesting can carry crops over an otherwise disastrous dry period, consequently facilitating increase in production. Water harvesting systems do not only use water locally but can manipulate the direction of water flows to reach areas suitable for crop, tree or pasture production. Unfortunately, despite the apparent use of water harvesting systems, they are not widely used (Pretty, 1995), and this borders on self-help. The literature as a whole points to a steady progress in the face of continuing challenge in raising rural water supply coverage using "conventional" community based

approaches in a decentralised and privatised environment. Carter *et al.* (2003) noted that the focus on technologies such as rainwater harvesting and shallow groundwater especially lend themselves to self supply initiatives and careful targeted external support.

2.3 Participation in Practice

Oakley (1991) defined participation as a strategy of graded devolution of authority and powers, resources, distribution of rights and duties from state to local levels of governance and from public to civil society and to individuals. As Sletten *et al.* (2008) buttressed, such devolution involves transferring policy formulation and policy implementation from central to local levels. Participatory approach was developed as a criticism to top-down development paradigms of 1960s and 1970s (Bryman, 2004). Unfortunately, experiences reveal that in reality approaches are still *top-down* and not entirely *bottom-up*. It is not surprising since the principle of participation fundamentally stresses collaboration. In a study carried out by Sletten *et al.* (2008), it was observed that people in the study area (Elgon National Park, Uganda) do participate to some extent but the participation was still found to be very controlled and contingent, with Ugandan Wildlife Authority controlling both process and the structure and form of agreements. There were both formal and informal asymmetric power relations, where Ugandan wildlife Authority at any time could withdraw from the agreement.

According to Maghimbi (2004), participatory rural development in Tanzania cannot be described as a success since rural poverty does seem not to have declined. He further stressed that participation in Tanzania is not something new, and that rural development in Tanzania is not the absence or presence of participation. In Maghimbi's study (2004), it was not argued that participation is irrelevant. What was stressed is that as long as the concept of participation does not embody the principal requirements of self-help then

rural development efforts may not produce the desired results. Participation has become such a prominent concept that has gained a wider recognition in many sectors. Individual sectoral approaches to implementing participation at the project level are now discernible. Indeed it could be further argued that participation has emerged as a single unifying principle across the breadth of rural development and, in theory at least, it would appear to be the single major influence on project implementation, particularly in agricultural development, environmental conservation, health, forestry, irrigation and water supply (Oakley 1991; Vihemäki, 2005).

2.4 Self-help Initiatives

Self-help is a way to combat poverty in a sustainable way. Perhaps no other articulation captures the concept of self-help better than the one projected by Kindernothlife (KNH, 2002). Kindernothilfe believes that development which is sustainable does not come from outside, but is based on the capacities and potentials of the target group. Self-help approach hinges on principles that every human being has tremendous potential in her/himself and that this potential can be unleashed if the right environment is provided. Individuals and communities are the main players, who should achieve adequate living conditions through own efforts in sustainable ways. Change, development and empowerment come through community initiatives by self help and mutual help (KNH, 2002).

Although the freedom and power of individuals vary greatly, all can do something (Chambers, 1983). The primary purpose of self-help is socio-economic and political empowerment (Bamutungire, 2007). Fundamentally, individuals have it as their responsibility to improve their lives. According to Nyerere (1974), people cannot be developed, they can only develop themselves. Man develops himself by what he does, by

making his own decisions, by increasing his understanding of what he is doing, and why, by increasing his own knowledge and ability, and by his own full participation in the life of the community. In a similar vein Maghimbi (2004) underscored that individual development cannot be achieved collectively but through the individual's struggle to ensure personal development to himself/herself and his/her dependants.

However, as a community, there is a common responsibility to work towards the actualisation of the common good. Economic growth and poverty alleviation is possible through the united efforts of the members of the society because the substance of the common good consists in the actual participation by the members of the society. Duties arise between members of single communities, bound by ties of mutual co-operation and reciprocity. They are duties people have because of the social relationships they have towards one another within our society (Dower, 1993).

The fact that the individual has a claim on the society (Whitmore, 1995) is a direct reference to government's responsibility to provide for the common good, which is its *raison d'etre*. Political authority exists for the integral well-being of all, for the harmonisation of people's good interests and mobilisation for the fulfillment of these good interests, simply put, for the realisation of the common good (Umeodum, 2004). Government enhances human capacities through establishment of adequate infrastructure and provision of basic human needs through social amenities. Though individuals can enhance their capacities through their own efforts, findings from Participatory Poverty Assessment in Uganda indicate that the poorest segment of Uganda's society lack the ability and capacities to reduce poverty among their ranks due to lack of enabling environment, namely productive assets, access to market, production skills, credit, transport and communication (Kirumira, 2004). Building the capacity of people is

pertinent to sustainable rural development. This is achieved by strengthening rural organisations and local institutions through training and skills development. Capacity building or enhancement measures are often critical to programme or projects that aim to introduce new technologies (Wagayehu, 2004).

On the role of development partners, Mkapa (2004) states that partners can support the governments to create the political and economic environment that fosters indigenous capacity enhancement, and assist communities directly by providing opportunities to demonstrate their innovativeness, and act as brokers to help exchange experiences across communities, countries and regions. Development partners play a critical role in helping to scale up successes of transferable or replicable indigenous innovations. Tarimo (2004) stresses the responsibilities of religious and secular institutions towards the socio-economic growth.

2.5 Factors Affecting Self-help Initiatives

Some harmful experiences which the Tanzanian people shared with the rest of the Africans may have contributed in attenuating their chances of socio-economic growth, particularly slavery and colonialism (Umeodum, 2008). Slavery and colonialism opened the way to the problem of dependency syndrome, as well as to the problems of diminishing human resources in Africa, in the twin realities of *mass exodus of Africans* to Europe and America, and *brain drain*. The psychological consequences of colonialism and slavery are as grave as their socio-economic and political consequences. Colonialism as a reality in Africa embodied theories concerning the supposed superiority of the white man over the black man, which was propagated in Africa. The Africans' apparent inability to end their dependency on the West is partly sustained by the presumed

superiority of the white people. Dependency syndrome gravely hinders self-help initiatives and efforts.

The economical and psychological relations existing between the West and Africa replicate itself within Africa, in the relation that exists between the urban areas and rural communities. The African rural communities heavily depend on the urban areas. specifically on government. no less than African nations depend on the Western governments. This dependence hampers self-help and undermines development by severing people's potentials and capabilities to initiate and speedily facilitate socio-economic growth. Just as foreign aid cannot provide a lasting solution to the African problems (Umeodum. 2008). government efforts alone are insufficient in ensuring the required development in the rural communities. The problem is compounded by mass exodus of the rural youth to the urban areas. the same reality that is witnessed in the larger picture. whereby the African youth move *en masse* to the West in search of greener pastures.

Umeodum (2008) identified complacency as one of the main problems that hinder people from improving their conditions. He lamented that, even amidst unbearable sufferings and scandalous degree of poverty, most Africans remain in merriment and calmness, doing little or nothing to improve their very poor condition. Such is complacency, which according to Umeodum, is baseless. Baseless complacency harms self-determination, as it suppresses vision and foresight, as well as sense of responsibility. This seems to be evident in most rural communities where many people do little or nothing to improve their conditions, especially on water problems. Disunity, individualism and selfishness, lack of cooperation among people, corruption, ignorance of existing problems and the need for self-help, financial constraints, lack of skills and

technical training –these are some of the other identified factors that affect self-help (Kirumira, 2004; Wagaychu, 2004; Kiragu, 2002; Oakley, 1991).

2.6 Conceptual Framework for Analysis of the Study Data

The literature from the present Chapter has been reviewed from a wide perspective of self-help initiatives. The reflections drawn in this review provides a basis for assessing factors affecting self-help initiatives on alleviation of water problems in Tanzania. In the context of the present study, the purpose of which was to assess factors affecting self-help initiatives on alleviation of water problems in Morogoro district, the conceptual framework shown in the Fig. 2 was developed. This conceptual framework is for analysing a large volume of data and is oriented towards establishing findings which fulfill the objectives of the study. It allows drawing implications on the extent to which self-help initiatives could result to improved people's livelihood through alleviation of water and sanitation problems in Tanzania. The operational definitions of key variables used are given in Appendix 1. The research methodology is presented in the next Chapter.

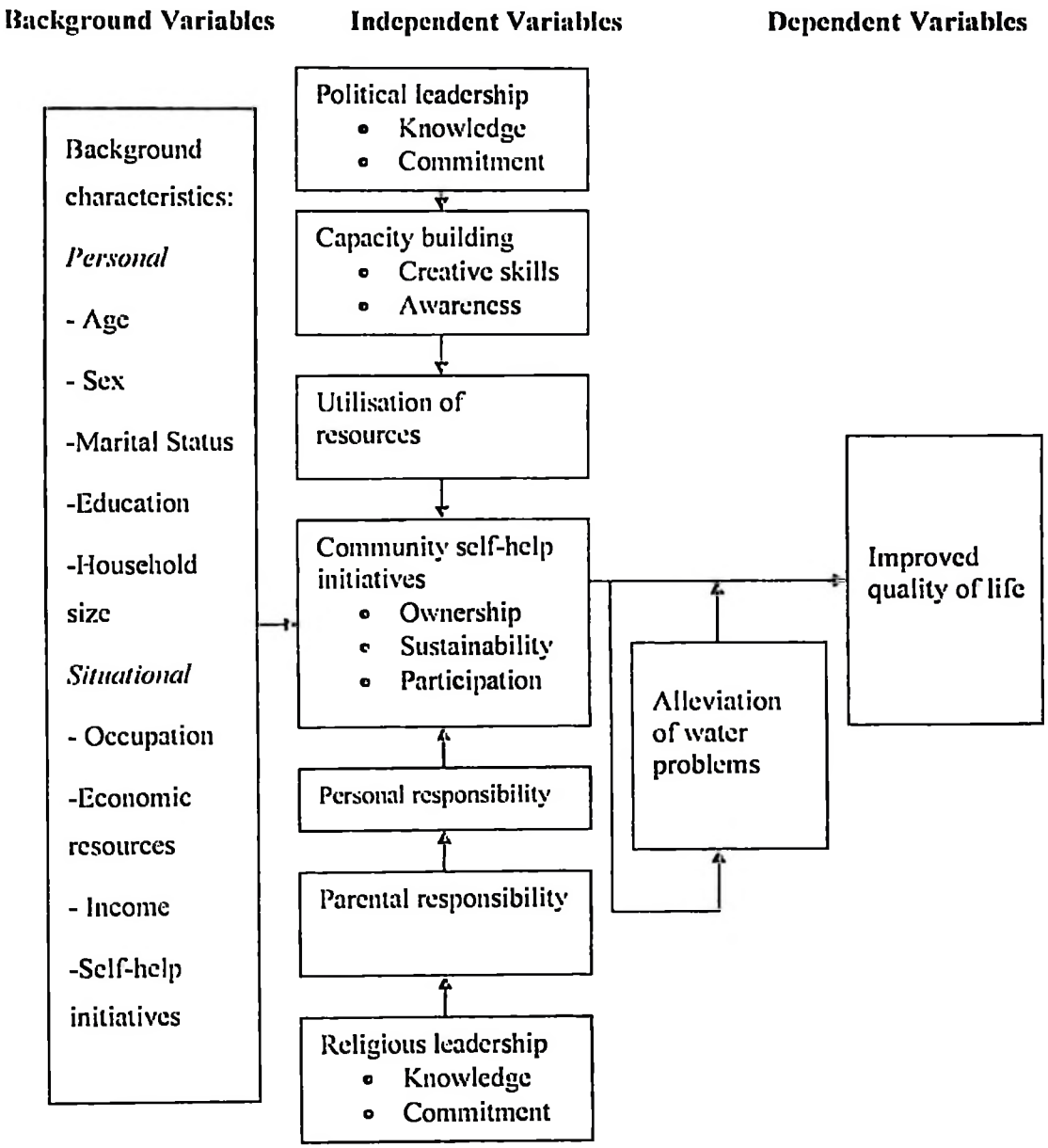

Figure 2: Conceptual framework on factors affecting self-help initiatives

CHAPTER THREE

3.0 METHODOLOGY

The study sought to assess factors affecting self-help initiatives on alleviation of water problems in Morogoro district. This Chapter discusses the methodology adopted under seven parts: (a) study area; (b) study design; (c) sampling procedures: (d) data collection instruments; (e) data collection procedures; (f) data processing and analysis.

3.1 Study Area

The study was conducted in Morogoro district of Morogoro region, Tanzania. The district was purposefully selected based on existing water problems which to some extent associate with the question of self-help efforts. The study took place in four villages, namely: Lubungo, Kinonko, Mikese Station and Fulwe, as shown in Fig. 1.

3.2 Study Design

A cross-sectional design was adopted in the study. This design allows collection of data on different groups of respondents at one point at a time, and this minimises time and financial resources (Bailey, 1994). Cross sectional design can also be used in descriptive study and determination of relationships between variables (Singleton *et al.*, 1993).

3.3 Sampling Procedures

A multi-stage sampling technique that involves some other sampling methods at different stages was adopted in the study. It mainly involved purposive selection of the study area and respondents based on evidence of self-help efforts in alleviating water problems. This technique is convenient for a large sampling unit (Kothari, 2004). The technique was done under two main stages:

Stage 1: First sampling stage involved selection of divisions, wards and villages based on evidence of self-help initiatives on water projects. There were 6 divisions, 25 wards and 132 villages during the time of data collection in Morogoro district. Each division had more than 1 ward and each ward had more than 10 villages. Thus one division was purposely identified, namely, Mikese, and in turn one ward was purposely selected, namely, Mikese. Finally, the same sampling procedure was used to select 4 out of 7 villages from the selected ward, namely: Lubungo, Kinonko, Mikese Station and Fulwe.

Stage 2: The second sampling procedure involved sampling of study respondents. A sample of 120 community members household heads (HHs) was selected from the four selected villages (30 from each village). Purposive and stratified sampling techniques were used to get names of male and female community member HHs respondents from the village registers of each of the four selected villages. Each of the selected villages had one change agent who was involved in the study. In addition, 10 key informants were also selected using snowball technique. Thus a sample of 134 respondents was identified and involved in the study.

3.4 Sample Size

A total sample of 134 respondents comprising of community members HHs, village extension agents and key informants was selected and involved in the study. A summary of the distribution of all respondents involved in the study is shown in Table.1

Table 1: Distribution of all respondents (N=134) involved in the study by gender

Type of Respondent	Number		Total
	Male	Female	
• Community members HHs	70	50	120
• Change agents	3	1	4
• Key Informants	8	2	10
Total	**81**	**53**	**134**

3.5 Data Collection Instruments

Data collection instruments used for the study were questionnaires, researcher's diary and checklist, as follows:

(a) Questionnaires: Two types of questionnaires were used to collect primary data, namely: community members HHs' questionnaire and change agents' questionnaire (Appendix 2 and 3). All the questionnaires were completed by means of personal interviews conducted by the author and two research assistants.

(b) Researcher's diary: This was used to collect secondary data from relevant documentary sources including internet websites, Sokoine University National Agricultural Library (SNAL), district and village files, observations of community self-help initiatives related to water supply activities, and focused group discussions (FGDs) with community members.

(c) Checklist: This type of tool was used to collect primary data from the key informants (Appendix 4) to supplement information gathered through researcher's diary and interview schedules.

3.6 Data Collection Procedures

Field work was conducted during the period September to January 2010. The permit for data collection was obtained from the District Administrative Secretary (DAS) for Morogoro district after getting the introductory letter from the Director of Research and Postgraduate Studies at Sokoine University of Agriculture (SUA). Much care was given to legitimising the study in the eyes of relevant government officials at district and village levels as well as community members. This was done by reconnaissance survey to allow the researcher orient and familiarise to the study area and then acquire general information on factors affecting self-help initiatives on alleviation of water problems

through directed discussions with community members, village leaders and change agents. The community members' questionnaire was translated from English to Kiswahili then pre-tested among few community members who were not involved as study respondents for reliability and validity, and then corrections were done accordingly.

Of the 120 interview schedules meant for community member respondents, all were properly completed constituting a return rate of 100.0 %. Likewise, all the 4 interview schedules meant for change agent respondents were also completed. As far as possible, the interviews were conducted in community member respondents' private environment and each lasted for about 30-40 minutes. When interview was completed in one village, the researcher moved to the next, usually spending about 4-5 days in each village. In addition, data were collected from 10 key informants through directed discussions. The author also reviewed relevant information from Morogoro district water files related to different types of water sources. Furthermore, websites from internet; Sokoine University of Agriculture National Agricultural Library (SNAL); and focused groups were rich sources of information. Observations made on community members' self-help initiatives related to alleviation of water problems were also recorded.

3.7 Data Processing and Analysis

3.7.1 Data processing

Data from completed 120 community members' interview schedules were coded for computer analysis. Each schedule had 125 variables. In addition, data from the bulky change agents' schedule, researcher's diary and checklist were summarised manually in single sheets of paper. In summarising the data, great care was taken as to ensure that it accurately reflected the original meanings of the statements made.

3.7.1 Data analysis

Data from community members HHs interview schedules coded for computer analysis were analysed using programme for Statistical Package for Social Science (SPSS). The method of analysis involved univariate and bivariate analysis. It used techniques of frequency counts, means and percentages. Furthermore, data processed from change agents' questionnaire, researcher's diary and checklist were examined. Qualitative data were analysed using "content analysis" technique which mainly involved translation of recorded notebooks and then clustering information into sub-themes. Quantitative data were processed and analysed into frequencies to facilitate assessment of factors affecting self-help initiatives on water problems in the study villages.

3.8 Limitations of the Study

1. With respect to the study respondents, gender balance was desired. However, the real outnumbering of female household heads by male household heads did not make gender balance possible.
2. During the study it was discovered that some few women whose husbands travelled or lived in different locality presented themselves as household heads. They were, however, interviewed as their inputs were as relevant as those of the few men they represented, especially as being women the greater users of water in the household. The study results and discussions are presented in the next Chapter.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSIONS

This Chapter presents the major results and discussions arising from the data analysis related to the factors affecting self-help initiatives in alleviation of water problems in Morogoro district. These were discussed under four main sections: The first section deals with household heads (HHs) respondents' personal and situational characteristics. The second section focuses on types of water supply projects implemented through self-help initiatives. The third section discusses factors affecting self-help initiatives in water supply projects. The fourth section assesses the types of available resources and extent of their utilisation in alleviation of water problems. The results from these sections are examined from the perspective of their implications on alleviation of water problems through community self-help initiatives in the study area.

4.1 Household Heads (HHs) Respondents' Characteristics

HHs characteristics covered personal and situational characteristics in self-help initiatives in two categories. The first category involves personal characteristics which were: sex; age; marital status; household size; and level of education. The second category deals with situational characteristics. Those examined involved: main occupation; HHs economic resources; average monthly income; and types of HHs self-help initiatives.

4.1.1 HHs respondents' personal characteristics

Personal characteristics of HHs have important social and economic connotations to discussions based on self-help initiatives. HHs composition usually influences the decision on alleviation of water problems through self-help initiatives. Among the more

important personal characteristics dealt with are: sex; age; marital status; household size; and level of education. The examination of HHs sex revealed that of the 120 HHs, 70 were male household heads (MHHs) and 50 female household heads (FHHs). Further examination of HHs respondents characteristics are organised under: age; marital status; household size; and level of education, as given in Table 2.

Table 2: Percentage distribution of HHs respondents (N=120) personal characteristics

HHs personal characteristics	Number	Percentage
Sex		
Male	70	58.3
Female	50	41.7
Age		
18-29	30	25.0
30-40	34	28.3
41-50	28	23.3
51-60	8	6.7
60-68	20	16.7
Marital status		
Married	72	60.0
Single	17	14.2
Divorced	19	15.8
Widowed	12	10.0
Household size		
<5	62	43.3
5-10	52	51.7
>10	6	5.7
Level of education		
Adult	32	26.7
Primary	82	68.3
Secondary	6	5.0

4.1.1.1 Age

The age distribution of HHs respondents was between 18 and 68 years, as given in Table 2. The majority (76.6 %) were below 50 years of age. The results generally suggest that HHs study respondents were drawn from different age groups of rural communities in the study villages. However, the results also suggest that the involvement of respondents above 50 years was a rich source of information on community initiatives on alleviation of water problems in the study area.

4.1.1.2 Marital status

According to the results of the study, as shown in Table 2, the majority (60.0 %) of the HHs were married couples. These findings suggest that marital status did not significantly influence study findings. However, relation exists between marital status and self-help initiatives. Married couples are likely to be more productive than single persons because often with marriage comes responsibility and commitment to the common good and socio-economic transformation (Koso and Wilmoth. 2002). Collaboration and mutual efforts characterising marital life can bring about improved water conditions through self-help initiatives. However. in relation to self-help initiatives even those with the status of divorced, widowed and single can be seen in the positive light because by virtue of the independence of their opinions and decisions, they enjoy the privilege of establishing self-help projects without hindrances arising from a partner in marital life.

4.1.1.3 Household size

The findings in Table 2 show that most (51.7 %) of the HHs respondents had household size ranging from 5-10. This observation implies that large household sizes were common in HHs respondents. This is due to the fact that "many people in the study area practise polygamous (more than one wife) marriage, especially people belonging to Islamic religion who are allowed to have up to four wives and consequently having large household size, as reported by one of the key informants. The study further revealed that the average household size was 5.34. This figure is higher than the one found during the population census of 2002 which was 4.6 for Morogoro region and 4.7 for Morogoro district (URT, 2003). The larger average household size in the study area may imply increased population growth in the place. Though Nyangas (2008) found in his study that households with larger size (7-9 persons) were wealthiest while households of 1-6

people were among the poorest, but due to the heavy financial strain and demands arising from the material needs of offspring, large household size can negatively stifle economic progress by gravely affecting self-help initiatives. It was further noted that self-help initiatives and projects were more minimal in households characterised by meager resources, lower education level, low rate of income and then large household size.

4.1.1.4 Level of education

It was expected that the extent to which people in rural communities were educated would tend to influence their ability to gain knowledge. Education equips people to face challenges of the world which are most likely to influence their participation in alleviation of water problems. The HHs respondents were therefore asked to indicate their level of education. The distribution of HHs respondents' level of education is shown in Table 2. The data show that all HHs respondents had obtained different levels of formal education. That is, 26.7 % had obtained adult literacy (reading and writing) up to secondary education (5.0 %). The data in Table 2 also show that a high proportion (67.5 %) of the HHs respondents had obtained primary education. This is a reflection of Tanzania's efforts of national campaign on universal primary education in 1970s. This suggests that formal education was an important criterion in self-help initiatives on alleviation of water problems in the study area.

With respect to acquisition of knowledge and skills, education constitutes one of the fundamental grounds for alleviation of water problems through self-help, since through education comes both the ability to discern and grasp what ought to be done to better oneself and the community, as well as the technical and financial capacities to execute that which brings about improved livelihood. The relation that exists between education

and self-help was implicitly underlined when the study found that 80.8 % of the HHs respondents alluded to lack of technical skills as one of the factors affecting self-help initiatives in the study area. If significant evidence of self-help is yet to be recorded on household level in the study area, then partly blamable is the low education level of the people. This implies that level of education was an important factor for this particular study.

4.1.2 HHs respondents' situational characteristics

The HHs respondents situational characteristics examined were in four categories. The first category is concerned with the main occupation of the HHs respondents. The second category is involved with their economic resources. The third category focused on average monthly income. Finally, the fourth category dealt with self-help initiatives on water sources. The findings are summarised in Table 3.

Table 3: Percentage distribution of HHs respondents' (N=120) situational characteristics

HHs Characteristics	Number	Percentage
Main occupation		
• Farmer	117	97.5
• Business	3	2.5
HHs economic resources		
• Farm land & petty trading items	14	11.7
• Farm land and livestock	36	30.0
• Livestock	7	5.8
• Business items	3	2.5
• Farm land	53	44.2
Average monthly income		
< 20 000	60	50.0
20 000-35 000	37	30.8
36 000-51 000	15	12.5
52 000-67 000	5	4.5
>68 000	3	2.5
Self-help initiatives on water sources		
• HHs with self-help initiatives	48	40.0
Types of water sources (n=48)		
• HH rainwater catchments	26	54.2
• Water hole –locally improved domestic water source	10	20.8
• Household unprotected shallow well	21	43.8

4.1.2.1 Main occupation of the HHs respondents

According to the study data given in Table 3, virtually all the study sample consisted of farmers (97.5 %). Just 2.5 % of the HHs respondents were engaged in business activities. When the importance of water for agriculture is taken into consideration then one conceives farmers as those who ought to work harder to reduce water problems. Not only that (like others) farmers are required to ensure water availability for domestic use, they also have to struggle to provide water for farm and agricultural use. Safe and clean water for domestic use is not the only problem facing the people in the study area. Given the problem of income poverty, irrigation system seems beyond the financial capacity of the people. The people are then limited to small scale farming, consequently unable to generate sufficient income to support other development activities. This implies that comprehensive capacity building arrangements are required by the people so that they can by themselves facilitate and improve their livelihood through self-help initiatives.

4.1.2.2 Household economic resources

According to the findings given in Table 3, farm land consists the main household economic resource (44.2 %). Cash crops and trees were also included among the primary resources in the land that generate income. While those having farm land and livestock together constitute 30.0 % of the HHs study respondents, those having livestock alone as their economic resource consisted of 5.8 % of the respondents. This implies that those engaging in livestock farming do it in a very small scale that the meager income the source may generate can scarcely impact positively on households and community water problems. The findings in Table 3 suggest that the high dependence of the respondents' income on agriculture provides insight on how the community from which the sample was drawn is vulnerable to hunger and starvation given the possible reality of drought. Unfortunately, given the problem of income poverty, unaffordable is the large scale

farming required to generate enough income that can aid diversification of income sources.

4.1.2.3 Average income per month

The data given in Table 3 vividly show that 50.0 % of the HHs study respondents earned less than TAS 20 000 a month. This was followed by a category that earned between TAS 20 000 and TAS 35 000 (30.8 %). Only 2.5 % earned from TAS 68 000 and above. The extent to which self-help projects are established by people may be largely determined by the amount of income they earn. It was noted that those with higher income in the study area made more establishments with respect to self-help. For instance, higher income earners were found to have roofed their houses with iron sheets, and consequently were able to harvest rainwater. However, generally water harvesting was very uncommon in the area given the fact of poverty, a reality that have not allowed great majority of people to do better than build mud and thatch houses. The fact of very low income in the area makes it understandable why none of the HH respondents owned neither protected shallow well nor deep well. Pipe-borne water was also not available in the area at household level. This implies that there is a need to get people to generate sufficient income to support development activities at household or community levels in the study area.

4.1.2.4 Self-help initiatives on water sources

The study sought to find out whether HHs respondents had self-help initiatives on alleviation of water problems and the type of water sources involved, as given in Table 3. The findings in Table 3 show that 40.0 % of the HHs study respondents had self-help initiatives on water sources. The findings further indicate that 54.2 % of those having self-help initiatives had self-help initiatives in rainwater harvesting, followed by those

who had initiatives on household unprotected shallow well (43.8 %) and water hole – locally improved domestic water source (20.8 %). These findings indicate the extent to which HHs respondents had initiatives on different types of water sources that could be supported to alleviate water problems in the study area.

4.2 Types of Water Supply Projects Implemented Through Self-help Initiatives

The identified water supply projects implemented through self-help initiatives in the study area have been discussed under five parts: The first part is concerned with rainwater catchments. In the second part, water hole --locally improved domestic water source is considered. The third part focuses on valley tank –locally constructed acting as shared source for water. The forth part discusses shallow well –water shared. Finally, the fifth part involves constructed shallow well. Also borehole and pipe-borne water as safe and reliable water sources *per se* have been considered. The summary of the findings is presented in Table 4.

4.2.1 Rainwater catchments

The findings in Table 4 show that only 21.7 % of HHs respondents initiated and owned rainwater catchments in the study area. It was noted that one of the most active areas of rural rainwater self-help initiatives was roof water harvesting for those who were living in houses roofed with iron sheets, and was mainly used for domestic purposes. These findings show that roof water harvesting is primarily a household activity since it is unsophisticated in view of technology, involving as well limited capital investments. The implication drawn from this and from the lower proportion of HHs respondents that harvest rainwater is that rainwater harvesting is low in the study area. Mchome (2010) underscored that rainwater harvesting is yet to be common in rural communities in Tanzania. Water conservation is not only good but necessary. Rainwater harvesting may

also be considered necessary even in places where safe and clean water sources are reliable, like in some cities (Stark, 2008). But in rural areas where reliable and safe water sources scarcely exist, rainwater harvesting is a necessity.

Table 4: Percentage distribution of HHs respondents' (N=120) opinions by type of water supply projects implemented through self-help initiatives

Water supply project self-help initiatives	Number	Percentage
HH rainwater catchments		
• Household heads	26	21.7
• Government	0	0.0
• Community	0	0.0
• NGOs	0	0.0
Water hole –locally improved domestic water source		
• Household heads	10	8.3
• Government	0	0.0
• Community	0	0.0
• NGOs	0	0.0
Valley tank –locally constructed acting as shared source for water		
• Household heads	0	0.0
• Government	30	25.0
• Community	30	25.0
• NGOs	0	0.0
Shallow well –water shared		
• Household heads	0	0.0
• Government	0	0.0
• Community	120	100.0
• NGOs	0.0	0.0
Constructed shallow well		
• Household heads	0	0.0
• Government	0	0.0
• Community	0	0.0
• NGOs	120	100.0
Borehole and pipe-borne water		
• Household heads	0	0.0
• Government	0	0.0
• Community	0	0.0
• NGOs	0	0.0

In accounting for the low proportion of rainwater harvesting system in the study area, it was revealed by some participants during FGDs that many people lack the knowledge of

rainwater harvesting systems. This implies that there is the need to educate the people in the study area on the importance of rainwater harvesting. Having its *raison d'etre* as providing for the common good (Umeodum. 2008), government ought to create awareness, educating people on rainwater harvesting systems. as well as showing concrete examples so that people learn and copy from what they see the government do. But not even in the government's schools and structures in the study area were found rainwater catchments.

4.2.2 Water hole –locally improved domestic water source

Water hole–locally improved domestic water source was among the water supply projects implemented through self-help in the study area. As shown in Table 4. only 8.3 % of the HHs respondents initiated and owned such a water source. This implies that with respect to water hole –locally improved domestic water source there is the need to encourage self-help initiatives in the study area. Though many lack funds required to establish some kinds of water supply projects, there are cost-friendly water projects that are within the financial capability of many people in the study area. Using the available local materials, people can alleviate their water problems through self-help initiatives. Most of the key informants for the study stressed the need to educate the people on self-help initiatives for alleviating water problems.

It was noted that water hole –locally improved domestic water source whose water served for domestic purposes was a shallow (water within 0.5 meters on surface) hole, usually unlined but sometimes protected by earth bounds and/or timber. It is typically a hill slope or valley bottom location whose shallow ground water almost emerges as spring, but it could only be accessed by shallow excavation. Besides cutting household water expenditure, as a handy source of water for domestic purposes, locally improved

domestic water source saves people the time of going to a distant location in search of water, and consequently allows household members time to engage in other income generating activities.

4.2.3 Valley tank –locally constructed acting as shared source for water

Locally constructed valley tank which serves as a shared source for water was identified as one of the water supply projects initiated by the people in the study area through self-help initiatives. The data in Table 4 show that while 25.0 % of the HHs respondents (in Fulwe village) held that the community initiated and owned locally constructed valley tank through self-help initiatives. also 25.0 % of HHs respondents (in Kinonko village) referred to the government as the initiator of the water source, though owned by the community. The study revealed that in the course of construction of the valley tank in Kinonko village the community members contributed labour, and hitherto occasionally engaging in cleaning and excavation works in order to sustain the water source. This implies that even though the valley tank was not initiated by the people, they engage in self-help activities for the sustainability of the water source.

On the other hand, it was observed during the study that the valley tank –locally constructed acting as shared source for water at Nelo in Fulwe village was in a deplorable condition. The insufficiency of their self-help mechanisms which involved their use of local implement in cleaning of the water source was stressed by the people during FDGs, hence suggesting the need for intervention by development agents who can employ mechanised means –precisely the use of bulldozer to excavate deeper as to improve the situation. On the use of the water from the locally constructed water source, domestic and farm uses were mentioned by the respondents, though they indicated that they drink the water as it is especially during dry season when water is very scarce. Since

the water is unsafe, it implies that there is the need to conceive and integrate issues of hygiene when encouraging self-help initiatives. Furthermore, since there is no locally constructed valley tank in Lubungo and Mikese Station, there is equally the need that the people of these villages learn from the other communities where such water source exists.

4.2.4 Shallow well –water shared

According to the survey data shown in Table 4, all the HHs respondents affirmed community members' initiation and ownership of shallow well implemented through self-help initiatives. This implies that shallow well is the commonest type of water supply implemented in the study area through self-help initiatives. Its being a commonplace reality also implies high water table in the study area, an opportunity that can be exploited to alleviate the water problems in the area. However, during the study it was revealed that in some places some wells go dry especially when dry season is protracted, consequent upon the contemporary reality of decreasing rainfall due to global warming. This suggests the need for intervention to enable the people attain greater depth in order that sufficient water can be guaranteed even during dry season.

Furthermore, it was observed that unprotected shallow well (Fig. 3) was among the household water source established through self-help initiatives by the HHs respondents, its depth ranging between 1 and 6 meters and it was mainly used for washing and farm purposes. Though a bit saline, it was indicated that households resort to it for cooking and drinking especially in dry season when water is scarce. Where there is a good water table (like in the study area) the availability of such shallow wells can go a long way to alleviate the water problems of the people. Being unprotected and unhygienic, such wells also have been a source through which people get water-borne diseases like

cholera, typhoid and diarrhea. This implies that there are two-fold challenges to be surmounted in the study area: First, to encourage and aid the people to initiate such shallow wells, improving on its present forms by the use of available local technologies. Secondly, to educate the people on how to make the water safe and clean in order to avoid the prevailing water-borne diseases in the area.

Figure 3: Shallow well –water shared

In addition, in the course of the study it was also revealed by some change agents and key informants that as a result of the unprotected nature of the shallow wells, health complications are experienced by the people due to dual realities of water-borne diseases and water salinity. Their non-adoption of purification and filtration methods adds to make situations worse. This suggests lack of effective interventions to augment the

community's self-help initiatives so that positive and integrally transforming impacts can ensue from the realities on the ground. Change agents, key informants and some HHs respondents lamented about lack of government intervention in the aspect of water. Particularly one of the HHs respondents stressed that: "*Wasimamizi wa kuangalia mfumo mzima wa maji hapa kijijini kutoka serikali hakuna*". (No government supervisors coming to their village to see the whole situation of water). The people have then remained with their water problems. This implies that when necessary effective interventions (particularly interventions of educative forms) are not made then the whole bedrock for such transformations which come about through self-help initiatives remains shaky.

4.2.5 Constructed shallow well

As shown in Table 4, all the HHs respondents indicated that the available constructed shallow wells were built by NGOs. As indicated by one change agent, an element of self-help in the constructed shallow wells was the people's participatory contribution of labour during digging processes. However, as also observed during the study, some of the constructed shallow wells suffer sustainability problems. On this, change agents stated that most often NGOs intervened to make repairs when the well malfunctioned, as the people sometimes fail to make the repairs given lack of funds. Haysom (2006) observed that lack of funds in communities gravely affects sustainability of established structures, as most people in rural communities are normally unable to bear the burden of maintenance. This suggests the need for a cost-friendly water structures in the study area, such that their maintenance and repairs fall within the financial capacity of the people.

However, during the study some key informants also blamed sustainability problems on disunity and selfishness of some people, because as they said, on maintenance and repair issues some community members refused to make monthly financial contributions for the maintenance of the wells, refusing too to participate in works organised by the community. One change agent stressed that self-help problems are partly accounted for by the facts of lack of knowledge and awareness of the importance of water for life, as well as the problem of lack of sense of ownership. Fig. 4 depicts constructed shallow well funded by one of the NGOs in the study area.

Figure 4: Constructed shallow well in one of the study villages

Another change agent observed that many people fail to participate in self-help projects because of their "*inability to see activities giving benefit to the individual*". This implies the need to educate people in the study area on the great importance of water for their

development and good health, as well as to understand that contributing towards the common good is a benefit to both oneself and posterity.

4.2.6 Borehole and pipe-borne water

Both the HHs respondents and change agents indicated that neither borehole nor pipe-born water is available in the study area. Considering the importance of borehole or pipe-borne in the community, these findings suggest that there is a need for borehole and pipe-borne water sources in the study area. As has already been pointed out above, some of the available shallow wells in the study area do go dry in thick dry season. During such season few wells that contain water become so congested, their pumps speedily wearing out being strained beyond its limit by the large population that relies on it as the only source. Lubungo village is a case in point. Not only that the heavy pressure due to incessant use wears the pump and its accessories down, during dry season people have to spend many hours in queue waiting for water, thereby compromising the time for other development activities. Another unsavory impact of such experience is grave educational implication, as children have to be late to school, or in some cases failing to attend at all, given wastage of time at the well. Borehole and reliable pipe-borne water will not only go a long way in enhancing the people's economic growth and educational performance, these sources will as well alleviate their health problems which arise from use of unsafe water from unprotected shallow wells. Consequently, the challenge is how to harness the available local resources, co-ordinate local and external inputs in order to address water problems through meaningful intervention and people's own self-help efforts.

In general, the findings in this section suggest that self-help initiatives to improve water supply are alive in the study area, but need to be encouraged and supported. This implies that the government and NGOs should see water source improvement as an incremental

process, in which unsafe, inconvenient, unreliable, distant, and polluted sources can be transformed step-by-step into safe, convenient, reliable and close manageable water points. The present dualism of "safe/unsafe" or "improved/unimproved" needs to be replaced by the ladder of improvements.

4.3 Factors Affecting Self-help Initiatives

The factors affecting self-help initiatives relating to alleviation of water problems have been examined under the following ten parts: (a) lack of technical skills; (b) self-help achievements; (c) main elements of self-help initiatives: (d) water sources discouraged by the government: (e) government and NGOs assistance; (f) recognition of achievements of individuals and communities; (g) availability of resources for constructing protected shallow wells or boreholes: (h) community over-dependence on government and NGOs; (i) awareness of responsibility for solving water problems; (j) lack of committed and competent community leaders. The HHs respondents' percentage responses are summarised in Table 5.

4.3.1 Lack of technical skills

As shown in Table 5, high proportion of the HHs respondents in Lubungo (90.0 %) and Kinonko (93.3 %) villages were of the opinion that lack of technical skills affects self-help initiatives in the study area. Though comparatively smaller, but all the same, majority of HHs respondents in Fulwe (56.7 %) and Mikese Station (83.3 %) also affirmed that lack of technical skills affect self-help initiatives in their villages. Chi-square test signifies that there is significant association ($P<0.05$) between lack of technical skills and self-help initiatives. This suggests that lack of technical skills have bearing on self-help initiatives in the study area. Beside the fact that the data in Table 5 provides credence to the reality of lack of technical skills in the aforementioned villages,

another implication that can be immediately drawn from Table 5 is that lack of technical skills is more pronounced in the villages of Kinonko and Lubungo, and as such, these villages should be given priority on the question of alleviation of water problems by means of people's empowerment with skills.

Table 5: Percentage distribution of HHs respondents' (N=120) opinions on the factors affecting self-help initiatives by village

Statement	Village				
	Fulwe Lubungo		Kinonko		Mikese Station
	(n=30) %	(n=30) %	(n=30) %	n=30) %	Chi-Square
• Lack of technical skills	56.7	90	93.3	83.3	18.178*
• Self-help achievements	90	86.7	76.7	73.3	5.782^{NS}
• Main elements of self-help initiatives	36.7	76.7	83.3	63.3	26.097**
• Water sources discouraged by government	86.7	90	63.3	63.3	10.695^{NS}
Government and NGOs assistance	76.7	100	76.7	73.3	12.054^{NS}
• Recognition of achievements of individuals and communities	76.7	83.3	80	63.3	7.672^{NS}
• Availability of resources for constructing protected shallow wells or boreholes	37.7	30	40	16.7	26.713**
• Community over-dependence on government and NGOs	100	73.3	86.7	83.3	12.772*
• Awareness of responsibility for solving water problems	80	83.3	60	76.7	7.151^{NS}
• Lack of committed and competent community leaders	86.7	66.7	46.7	93.3	21.971***

NS = Non Significant P>0.05, * =Significant at P<0.05; ** =Significant at P<0.01; *** =Significant at P<0.001.

Judging by the technicalities that associate water issues and projects, one may rightly affirm that skills are necessary for such self-help initiatives that address water problems. For instance, skills are imperative for geological survey through which availability of water is determined in a place. Well drilling may also require no less skill than geological survey. However, it is not all form of activities to procure water that requires complex technical skills. In some instances, common sense, experience and ordinary

human knowledge that should characterise especially an adult person are sufficient to address some degree of water problems, such as rainwater harvesting. Consequently, in addition to promotion of technical skills among the people in the study area, raising awareness among the people on the need for ordinary self-help water projects using available local materials will go a long way to improve their livelihood.

4.3.2 Self-help achievements

Data in Table 5 imply that majority (73.3 % and above) of HHs respondents in the study villages were of the opinion that self-help achievements are often unrecorded, invisible and less glamorous than conventional projects and therefore underestimated. Underestimation of self-help initiatives implies not giving support to self-help efforts, consequently its grave effect on self-help initiatives. When underestimation of self-help is considered in this sense of lack of support to self-help initiatives, then the variant proportions of HHs respondents in different villages as evident in Table 5 suggest that the people of Fulwe and Lubungo villages might have been much more affected by lack of support to their self-help initiatives than those of Kinonko and Mikese Station. However, that Chi-square indicates significant difference ((P>0.05) implies that the aforementioned opinion has no effect on self-help initiatives in the study area. Nevertheless, suffice it to point out that it is mostly the case that conventional projects and projects of wider dimensions, magnitude and impacts gain greater admiration and recognition, while those of lower scale normally established by households or small groups win no appeal especially to the government and development agents. One key informant particularly pointed out that the government does not intervene to help households to improve their little self-help efforts. There is therefore a need for the government to encourage self-help initiatives in the study area to alleviate their water problems.

4.3.3 The main elements of self-help initiatives

Results in Table 5 also show differences of opinions among people of different study villages. While majority (83.3 % and 76.7 %) of the HHs respondents in Kinonko and Lubungo villages, respectively, were of the opinion that skill transfer, advice and assistance constitute the main elements of self-help, in Mikese Station majority (63.3 %) of the respondents also held skill transfer, advice and assistance to be the main elements of self-help initiatives. On the other hand, just a small proportion (36.7 %) of HHs respondents in Fulwe village identified skill transfer, advice and assistance as the main elements of self-help. This implies that for majority of HHs respondents in Fulwe village, skill transfer, advice and assistance alone do not constitute the main elements of self-help. Consequently, there is the need to find out what basically constitutes the main elements of self-help initiatives to the people of Fulwe village. The result of Chi-square shows a significant relationship ($P<0.01$) between skill transfer, advice, and assistance on the one hand, and self-help initiatives on the other. This implies that to alleviate water problems in the study area, not only that skill transfer is necessary to the people, it is also imperative that advice and assistance in whatever form be provided to the people. Because skill transfer is a component of advice and assistance, sustainable and efficacious skill transfer must be the one that goes with advice and assistance. Particularly at Kinonko and Mikese Station, some participants at FGDs stressed the need for their empowerment and capacity building by government and development agents.

4.3.4 Water sources discouraged by the government

HHs respondents' opinions where sought on whether water sources falling short of government standard are discouraged by the government. The result in Table 5 shows that majority (63.3 % and above) of HHs respondents in the study villages were of the

opinion that sources which fall short of government standard are discouraged by the government. The result of Chi-square shows that no significant relationship (P>0.05) exists between discouraging sources which fall below government standard and self-help initiatives in the study area. Consequently, by statistical implication discouraging sources which fall short of government standards has no effect on self-help initiative in the study area.

The degree of variation among the villages (as evident in Table 5) suggests the level to which the HHs respondents in different villages have been affected by the problem. And so, with 90.0 % of HHs respondents in Lubungo, and 86.7 % in Fulwe village responding that sources which fall short of government standard are discouraged by the government, it implies that these villages have been affected much more than the villages of Kinonko and Mikese Station. A case in point is the allusion made by one key informant to government's insistence that wells should not be situated very close to living homes. He also alluded to the government position on the need for water testing. These are all good ideals to ensure good health. Standards and ideals are good measures that ensure and maintain not only harmony and equilibrium but also protect and enhance human life. However, in some cases standards can also slow or even hinder progress. This implies that there is a need to devise ways to promote good standards without compromising growth and development.

4.3.5 Government and NGOs assistance

Though the contribution of government and NGOs to rural development in Tanzania is enormous (Kontinen, 2002), there are little records of individual households directly receiving development assistance from government and NGOs. The result in Table 5 shows that majority (73.3 % and above) of HHs respondents in the study villages

affirmed that government and NGOs do not assist individual households. However, Chi-square negates significant relation (P>0.05) existing between the opinion that government and NGOs do not assist individual households and self-help initiatives in the study area. Consequently, though it is important to direct development activities also to household level, in statistical parlance, it is immaterial to self-help initiatives whether this is done or not in the study area.

However, the high proportion of HHs respondents' affirmation that government and NGOs do not assist individual households suggests that it will be advantageous to self-help efforts in the study area if government and NGOs direct development assistance to individual households, after all development interventions are required to be learning process that can be flexible and accommodate changing conditions and needs of the beneficiaries (Kontinen, 2002). Furthermore, the variations in the percentage of HHs respondents in different villages suggest the variant degree of effects of the factor on self-help initiatives. That the entire (100.0 %) HHs respondents in Lubungo were of the opinion that government and NGOs do not assist individual households implies that Lubungo village is much more affected by this problem than the villages of Fulwe, Kinonko and Mikese Station. Consequently, while there is the need that government and NGOs also direct development assistance to household levels in the study area, Lubongo village should be given priority.

4.3.6 Recognition of achievements of individuals and communities

It is not only that lack of external support hampers self-help initiatives of a people, self-help initiatives also remain not encouraged and fostered when significant achievements of individuals and communities are not recognised. The result in Table 5 shows that majority (63.3 % and above) of HHs respondents in all the study villages indicated that

most organisations appear blind to significant achievements of individuals and communities. However, Chi-square test shows that there is no significant relationship ((P>0.05) between the opinion and self-help initiatives in the study area, implying that organisations being blind to the significant achievements made by individuals or communities does not affect self-help initiatives in the study area. Nevertheless, it ought to be pointed out that people's self-help efforts are greatly encouraged and consequently enhanced when they receive support from organisations or governments. For instance, it is already a big and good start the self-help habit of the households in the study area digging shallow holes and wells which serve as domestic water source especially during periods of rainfall. Government and Non-Governmental organisations could devise a programme to enhance the people's capacities so as to improve local methods and approaches. Programme as such will not only empower the people to make wells of more profound depth (ensuring sustainable water source) and to maintain principles of hygiene (overcoming problems of water-borne diseases), as well, those households with no self-help habits will learn from what others do.

4.3.7 Availability of resources for constructing protected shallow wells or boreholes

Establishing self-help projects for alleviation of water problems is largely contingent on resource availability, such as: funds, local materials and labour. On resource availability for construction of protected shallow well, the result in Table 5 shows that very low proportion (below 50.0 %) of HHs respondents in study villages held that resources necessary to construct protected shallow wells or boreholes are available to very few individuals. Chi-square test indicates that there is significant relationship (P<0.01) between the factor of resource availability to few individuals and self-help initiatives in the study area. This implies that availability of resources necessary to construct protected

shallow wells or boreholes to just few individuals affect self-help initiatives in the study area.

Furthermore, Table 5 also reveals that the problem of availability of resources to construct protected shallow wells or borehole to very few individuals is much more pronounced in Mikese Station than in the villages of Fulwe, Lubungo and Kinonko. This implies that the people of Mikese Station require much more assistance with respect to resources than the people in the other study villages. Both in personal interview and in some sessions of FGDs, it was revealed that those who indicated non-availability of resources necessary to construct protected shallow wells and borehole principally meant lack of funds. On the other hand, those who indicated that resources necessary to construct protected shallow wells are available to some few individuals referred to the availability of local materials and labour. This implies that any external assistance needs to focus on real needs of households or communities in particular villages.

4.3.8 Community over-dependence on government and NGOs

One of the principal foundations of self-help is the ability to take control of one's life. Hampering vision and creativity, over-dependence constrains the dispositions that enable one to take control of his/her life and as a result it hinders growth and development (Umeodum, 2008). Data in Table 5 show that majority (73.3 %, 86.7 %, and 83.3 %) of HHs respondents in Lubungo, Kinonko and Mikese Station, respectively, stated that over-dependence on the government and NGOs by the community has accounted for the perennial water problems. On the other hand, all the HHs respondents in Fulwe village were of the opinion that over-dependence on the government and NGOs by the community has accounted for the perennial water problems. Chi-square test indicates that there is statistical significant association ($P<0.05$) between over-dependence on

government and NGOs and self-help initiatives. implying then that over-dependence on the government and NGOs by the community has accounted for the water problems in the study area.

Data in Table 5 further show that the degree of problem of over-dependence differs among the HHs respondents in the study villages (Fulwe 100.0 %; Lubungo, 73.3 %: Kinonko. 86.7 %. and Mikese Station. 83.3 %). This implies that. being more pronounced in Fulwe, the people should be given priority on the need for education and sensitision for self-reliance. Fulwe village seems better positioned in terms of location, but not much is evident with respect to self-help achievements. Also during the study it was observed that some protected shallow wells which were constructed by NGOs lacked maintenance (sustainability problem). It was revealed by one of the change agent respondents that the intervention of the NGO was expected for the repair and maintenance of the well. Therkildsen (1986). considering people as passive receivers of state-provided water supplies, blamed the problem of over-dependence on government policy which in 1965 abolished user payment and made water supply a free public service, government carrying the financial burden of rural water supply alone. There is therefore a need for the contemporary policy makers to device educational strategies that can enhance people's self-help spirit so that people can complement the efforts of the government through self-help initiatives.

4.3.9 Awareness of responsibility for solving water problems

The problem of over-dependence on external bodies does not arise only because people have no resources to alleviate their water problems by themselves. Over-dependence can also result if people lack the awareness that it is their responsibility to take control of their lives with respect to alleviation of water problems. Table 5 indicates that majority

(60.0 % and above) of HHs respondents in the study villages were of the opinion that many people do not know that it is their responsibility to solve their water problems. Chi-square test shows no significant relationship (P>0.05) between not knowing that it is one's responsibility to alleviate water problems and self-help initiatives. This implies that statistically not being aware of one's responsibility to alleviate water problems does not affect self-help initiatives in the study area. However, the need to educate people that it is also their responsibility to alleviate their water problems remains. Many of the key informants emphasised that the prevailing water problem is ascribable to education problems. All the change agents also stressed the importance of education for development in the study area.

4.3.10 Lack of committed and competent community leaders

The importance of having both competent and committed leaders for integral societal development cannot be over-emphasised (Umeodum, 2008). Vision, creativity and sincerity are indispensable values that ought to be possessed by those who lead communities, for a sustainable rural development. The data in Table 5 show that majority (86.7 %, 66.7 %, and 93.3 %) of HHs respondents in Fulwe, Lubungo and Mikese Station, respectively, were of the opinion that the community water problems have remained essentially due to lack of committed and competent community leaders. On the other hand, smaller proportion (46.7 %) of HHs respondents in Kinonko held that community water problems have remained essentially due to lack of committed and competent community leaders. This implies that Kinonko village does not face the problem of lack of committed and competent community leaders with the same intensity with which Fulwe and Mikese Station do face such problem.

Observations during the study revealed not only the leadership competence of the Kinonko village leadership, but also the gregarious and fraternal relation existing between them and their people. On the other hand, a change agent at Fulwe village particularly added discouragement of the people by their leaders to the factors affecting self-help initiatives, pointing out too that these leaders do not ensure feedback on income from water projects. Chi-square shows that there is significant relationship ($P<0.001$) between lack of competent and committed community leaders and self-help initiatives in the study area. This implies that the prevailing water problems in the study area equally derive from the fact that competent and committed community leaders are lacking in the study area. Consequently, for alleviation of water problems in the study area there is a need for leaders that are both competent and committed.

In general, the findings in this section suggest that self-help initiatives are affected by various factors, prioritised as follows: lack of committed and competent community leadership; main element of self-help initiatives: availability of resources for constructing protected shallow wells or boreholes; community over-dependence on government and NGOs; lack of technical skills; self-help achievements; water sources discouraged by the government; government and NGOs assistance; recognition of achievements of individuals and communities; and awareness of responsibility for solving water problems. It was also noted that most self-help initiatives result in water supply to an extensive user group, and very few are reserved for use of the owners. This implies that the government and NGOs should recognise that in assisting self-help initiatives they are not targeting support on individuals but more extensive water user groups.

4.4 Types of Available Resources and Extent of Their Utilisation in Alleviation of Water Problems

The availability and extent of utilisation of community resources were covered under two parts. The first part deals with types of available resources. The second part discusses the extent of utilisation of the available resources.

4.4.1 Types of available resources

This section examines the types of the available resources in the study area, under five parts. In the first part labour availability is discussed. The second part is concerned with the available local materials. The third part gives considerations to the availability of knowledge and skills. The availability of funds is discussed in part four. Finally, the availability of experts and professionals is considered in part five. Table 6 contains the summary of the findings.

Table 6: Percentage distribution of HHs respondents' (N=120) opinions on the type of available resources by village

Type of resource	Village			
	Fulwe (n=30) %	Lubungo (n=30) %	Kinonko (n=30) %	Mikese Station (n=30) %
• Availability of labour	99.3	100.0	93.3	93.3
• Availability of local materials	96.7	100.0	96.7	90.0
• Availability of knowledge and skills	43.3	43.3	46.7	36.7
• Availability of funds	50.0	40.0	40.0	40.0
• Availability of experts/professionals	0.0	0.0	6.7	3.3

4.4.1.1 Availability of labour

Because self-help water projects require manpower, availability of labour in a household or community facilitates alleviation of water problems through self-help initiatives. Data in Table 6 show that all HHs respondents from Lubungo village and 93.3 % of the HHs

respondents in Fulwe, Kinonko and Mikese Station villages indicated having labour available in the their respective villages. When the fact of labour availability in the study area is considered from the perspective of the lower proportion (40.0 %) of the HHs respondents who stated that they have self-help initiatives in their households (Table 3), as well as the little evidence of community self-help initiatives (Table 4), then it will be seen that the available labour force in the study area is scarcely utilised for alleviation of water problems in the area through self-help initiatives. This implies that there is a need to make the available labour in the study villages productive so that through self-help people will start solving water problems in complementation of government efforts towards rural development.

4.4.1.2 Availability of local materials

Availability of local materials is necessary for solving community water problems through self-help. The data in Table 6 show that excluding the village of Lubungo where all the HHs respondents were of the opinion that local materials are available in the village, the majority (90.0 % and above) of the HHs respondents in other villages indicated that the local materials that can aid alleviation of water problems were available. The data in Table 6 imply that with respect to self-help initiatives, lack of local materials does not constitute a factor that affects self-help initiative in the study area. The available local materials in the study area were noted to be sand, stones, burnt bricks, land, and wood. If utilised, the plentifully available local materials in the study villages can go a long way in alleviating the water predicaments of the people, but as has been presented in Fig. 5, the plentifully available local materials were not much utilised given some inhibiting factors shown in Table 5.

4.4.1.3 Availability of knowledge and skills

Prolific self-help efforts towards alleviation of water problems require knowledge and skills. The data in Table 6 show that low proportion (below 50.0 %) of HHs respondents in the study villages were of the opinion that there are knowledge and skills among the people of the study area. This implies that few community members in the study area possess the knowledge and skills necessary for the alleviation of water problems through self-help initiatives. These findings then suggest that low knowledge and skills in the study area constitutes one of the factors that affect self-help initiatives in the study villages. Consequently, in order to alleviate water problems in the study area through self-help initiatives, it is important to enhance knowledge and skills in the community.

4.4.1.4 Availability of funds

Availability of funds is necessary for implementation of water development projects. According to the findings shown in Table 6, 50.0 % of the HHs respondents in Fulwe village and 40.0 % in Lubungo, Kinonko and Mikese Station villages, respectively, maintained that funds for self-help water projects are inadequate in their villages. Thus implying that Fulwe village experiences less financial constraints than other villages, as far as availability of funds for self-help water projects is concerned. However, data in Table 6 generally imply that there is a need for financial support to the people on self-help water projects. The position of some key informants and change agents that the people in the study area are economically poor provides credence to the assertion that financial support is required by the people for self-help water projects.

4.4.1.5 Availability of experts/professionals

The foregoing discussions point to the fact that sufficient availability of labour and local materials is not enough for alleviation of water problems through self-help initiatives.

Availability of funds, knowledge and skills, experts and professionals are also required to surmount the prevailing water problems in the area. The data in Table 6 show that none of the HHs respondents in Fulwe and Lubungo villages indicated that experts and professionals were available in their villages. On the other hand, very low proportion (6.7 % and 3.3 %) of the HHs respondents in Kinonko and Mikese Station, respectively, held that experts and professionals were available in their villages. Further discussions with key informants during the study revealed a relative understanding of the terms experts and professionals. It was noted that those they considered experts and professionals were not to be judged so in a professional sense, but merely ordinary technicians. Consequently, there is a need to have indigenous water experts and professionals who can facilitate proper harnessing and adequate utilisation of the available water resources in the area. Stakeholders can also devise a manner in which experts and professionals from outside the study area can be regularly sent to the area to assist the people on technical issues concerning water, its exploitation and conservation mechanisms, as well as issues of hygiene.

4.4.2 Utilisation of the available resources

This section is concerned with the examination of utilisation of the available resources in the study area. This has been done under five parts. In the first part utilisation of labour is considered. The second part deals with the utilisation of local materials. Utilisation of knowledge and skills is discussed in the third part. Part four focuses on the utilisation of funds. The utilisation of experts and professionals is examined in the fifth part. The summary of the findings is provided in Fig. 5.

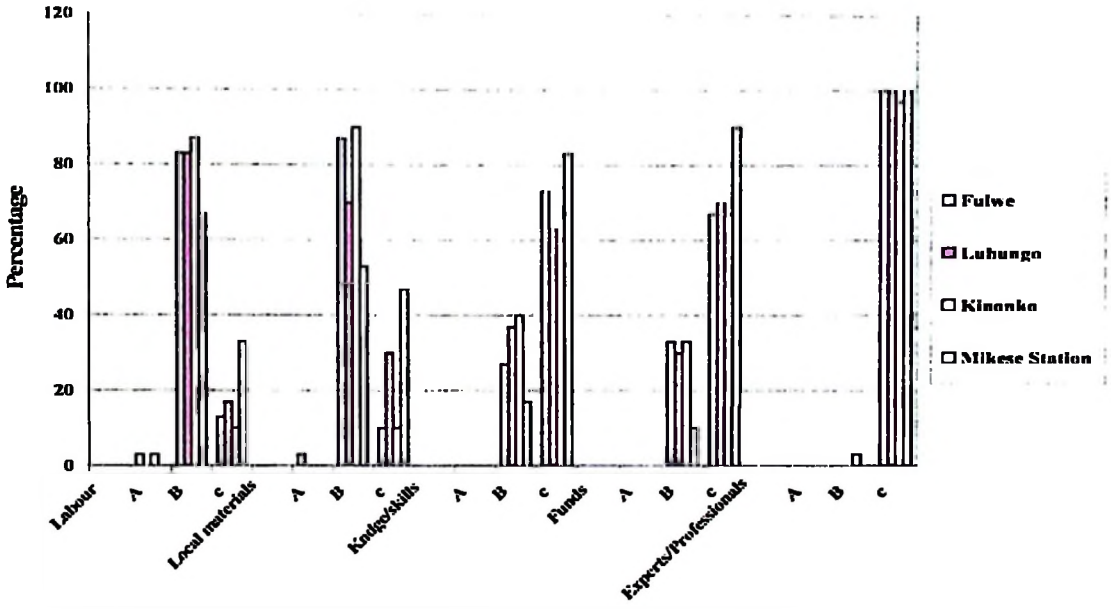

Figure 5: Utilisation of resources in the study villages

Key: A= adequately utilised

B= partially utilised

C= not utilized

4.4.2.1 Utilisation of labour

The availability of labour in the study area has been unambiguously shown in Table 6. However, Fig. 5 shows that the available labour was not adequately utilised in alleviation of water problems in the study villages. Fig. 5 further reveals that, among the study villages, Kinonko village leads in utilisation of the available labour for alleviation of water problems. In Table 5 it was shown that Kinonko village did not face the problem of lack of competent and committed community leaders with the same intensity as the other study villages. This implies that good leadership promotes utilisation of available resources. However, since the level of utilisation of labour in the study area is generally low, it implies that there is the need to address the factors that constrain high utilisation level in the study villages.

4.4.2.2 Utilisation of local materials

Like labour, local materials were also found to be plentifully available in the study area (Table 6). Like in labour utilisation, Mikese Station also lagged behind while Kinonko village scored high compared to other villages. The high utilisation of local materials in Kinonko village could also be an indication of the positive impact of competent and committed community leaders. Generally, the low utilisation of available local materials in all the study villages suggests that there is a need for: leadership by competent and committed individuals; capacity building that instills and enhances technical skills; knowledge and increased income, as well as strategic fight (through education) against over-dependence of the people on government and NGOs.

4.4.2.3 Utilisation of knowledge and skills

With high utilisation of available knowledge and skills comes a certain degree of impacts. The data in Fig. 3 show that none of the HHs respondents in the study area indicated that knowledge and skills were adequately utilised in alleviation of water problems in the area, which is also reflected in Table 6. Thus, implying that in addition to addressing leadership deficiencies in order to enhance the degree of utilisation of resources in the study area, greater efforts should be directed to strategies that can enable the people in the study area acquire knowledge and skills that will aid them to alleviate their water problems through self-help initiatives.

4.4.2.4 Utilisation of funds

According to the study findings given in Fig. 5, there is no adequate utilisation of funds in the study area. The low level of fund utilisation that generally characterise the study area stems from the fact of insufficient availability of funds in the area (Table 6). According to key informants, household meager financial resource would be placed to

serve other competing interests like health, education and food to the extent that little, if at all anything would remain, for self-help projects that address water problems. Furthermore, it was also disclosed during some sessions of FDGs that selfishness of some people accounted for low utilisation of funds in alleviating water problems; and that people are reluctant when it comes to contributions for community development. This implies that there is a need to educate the people in order that they imbibe the value of selflessness and zeal to contribute towards community development initiatives.

4.4.2.5 Utilisation of experts and professionals

The data in Table 6 further reveal that all the HHs respondents in Fulwe and Lubungo villages indicated that experts and professionals were not available in their villages. Hence, none utilisation of experts and professionals in Fig. 5 denotes their non-availability. Given the findings in Table 6, it seems that there is a need to train indigenous water experts and professionals who can facilitate proper harnessing and adequate utilisation of the available water resources in the area. All the emphasis on the need to empower the people of the area with technical skills aims at adequate utilisation of water resources in the area.

The findings in this section generally suggest that potential advantages of self-help initiatives lie in the ownership of, and identification with, the water source by the owner/initiator through utilisation of available resources. This implies that there is a need for the government and NGOs to consider how they might encourage management of existing self-help water sources or construction of new sources by community empowerment, training, technical advice, partial subsidy, access to credit, provision of equipment or other means, in order to alleviate water problems in rural communities.

4.5 Summary of the Discussions

The overall objective of this study was to assess factors affecting self-help initiatives on alleviation of water problems in Morogoro district, Morogoro region. The study found that different types of water supply projects were implemented through self-help initiatives in the study area, namely: rainwater catchment; water hole –locally improved domestic water source; valley-tank locally constructed acting as shared source of water; and shallow well –water shared. The factors affecting self-help initiatives related to alleviation of water problems, in order of importance, were found to be under: lack of committed and competent community leadership; main element of self-help initiatives; availability of resources for constructing protected shallow wells or boreholes; community over-dependence on government and NGOs; lack of technical skills; self-help achievements; water sources discouraged by the government; government and NGOs assistance; recognition of achievements of individuals and communities; and awareness of responsibility for solving water problems. In addition, availability and utilisation of resources related to self-help initiatives for alleviation of water problems in rural communities revealed included: labour; local materials; knowledge and skills; funds; and experts/professionals. The following Chapter gives conclusions and recommendations based on major results of the study.

CHAPTER FIVE

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the study results, a number of lessons regarding factors affecting self-help initiatives on alleviation of water problems were drawn. These lessons are important because of their policy implications on alleviation of water problems through self-help initiatives in Tanzania. In this Chapter as conclusions of the study are presented, their related recommendations are also discussed. The integrated approach is based on the relationship between conclusions and recommendations, as follows: (i) water supply projects implemented through self-help initiatives; (ii) factors affecting self-help initiatives in water supply projects: (iii) available resources and extent of their utilisation in alleviation of water problems; and (iv) suggestions for further research.

1. Water supply projects implemented through self-help initiatives

The study found different types of water supply projects implemented through self-help initiatives, namely: rainwater catchment; water hole –locally improved domestic water source; valley-tank locally constructed acting as shared source of water; and shallow well –water shared. It can be concluded that self-help initiatives to improve water supply are alive in the study area, but need to be encouraged and supported. It is therefore recommended that the government and NGOs should see water source improvement as an incremental process, in which unsafe, inconvenient, unreliable, distant and polluted sources can be transformed step-by-step into safe, convenient, reliable close manageable water points. The present dualism of "safe/unsafe" or "improved/unimproved" needs to be replaced by the ladder of improvements.

2. Factors affecting self-help initiatives in water supply projects

The factors affecting self-help initiatives related to alleviation of water problems were found to be under: lack of committed and competent community leadership; main element of self-help initiatives: availability of resources for constructing protected shallow wells or boreholes: community over-dependence on government and NGOs; lack of technical skills: self-help achievements: water sources discouraged by the government; government and NGOs assistance; recognition of achievements of individuals and communities; and awareness of responsibility for solving water problems. It can be concluded that self-help initiatives are affected by various factors in the study area and most self-help initiatives result in water supply to an extensive user group, and only very few are reserved for use of the owners. It is therefore recommended that the government and NGOs should recognise that in assisting self-help initiatives they are not targeting support on individuals but on more extensive water user group.

3. Available resources and extent of their utilisation in alleviation of water problems

The study revealed availability and extent of utilisation of the following resources, at individual and community levels: labour; local materials; knowledge and skills; funds; and experts/professionals. It can be concluded that potential advantages of self-help initiatives lie in the ownership of, and identification with, the water sources by the owner/initiator through utilisation of the available resources. Consequently, it is recommended that there is a need for the government and NGOs to consider how they might encourage management of existing self-help water sources or construction of new sources by community empowerment; training; technical advice; partial subsidy; access to credit; provision of equipment or other means in order to alleviate water problems in rural communities.

4. Suggestions for further research

This study has assessed factors affecting self-help initiatives in alleviation of water problems in Morogoro district, Morogoro region. The specific objectives of the study were to: determine water supply projects implemented through self-help initiatives; identify factors affecting self-help initiatives in the identified water supply projects; and assess types of available resources and extent of their utilisation in alleviation of water problems. These objectives have been achieved. However, this study has not exhausted all aspects concerning factors affecting self-help initiatives in alleviation of water problems. It is clear that a lot more needs to be done. Two suggestions are therefore made concerning specific areas that should further be studied.

(a) To undertake a case study on interaction among self-help water projects initiators/owners, community leaders, NGOs and government in the study area. The purpose of this case study would be to elicit more reliable clues that could contribute to evidence-based policy for self-help initiatives.

(b) To undertake case studies on existence and extent of availability of self-help initiatives in alleviation of water problems in other districts. The purpose of the case studies would be to develop and enhance understanding of self-help initiatives experiences, potentials and opportunities.

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APPENDICES

Appendix 1: Definition of key variables

Variables	Operational Definitions
Age	The number of years of study respondents
Sex	Being male or female
Marital status	Married or not married
Household	Members of the same family living together in the same house
Household size	Number of people in the household
Household head	The household member who is in charge of the family, the bread winner
Income	Money earned per month
Education	The highest level of education attained
Self-help initiatives	Personal, own efforts towards bettering one's conditions of life
Community self-help initiatives and projects	Communal or collective efforts and projects for alleviation of water problems
Improved quality of life	Development towards the attainment of such standard of living that befits human dignity
Participation	Creative collective voluntary involvement in plans and activities that promote both individual good and common good
Capacity building	Empowerment and development of human potentials, spiritually, morally, intellectually, psychologically, emotionally and physically
Resources	Capacities and materials necessary for alleviation of water problems
Availability of resources	Having the capacities and materials for the alleviation of water problems
Utilisation of resources	Use of capacities and materials towards alleviation of water problems
Leadership	Power and competence to mobilise community members for the alleviation of water problems
Knowledge and skills	Intellectual capacity and technical ability that aid alleviation of water problems
Community projects	Socio-economic activities collectively undertaken by the community members for development purposes
Commitment	An unwavering and uncompromising adherence to right principles, in the service of the community

Appendix 2: Community members' questionnaire

- Confidential
- Questionnaire: Personal Interview
- Respondents: Community Members Household Heads
- Study Topic: Factors Affecting Self-help Initiatives on Alleviation of Water Problems in Morogoro District
- Region_____District_____Division_____Ward_____Village_____
- No. of Respondent_____Date_____

1.0 Community Members Characteristics

1.1 Personal Characteristics

1.1.1 Age_____ (years)

1.1.2 Sex_____(Male/female)

1.1.3 Marital status_____(Single/married/ Divorced/Separated/Widowed)

1.1.4 Size of household _____ (male____boys____girls_____Children_____)

1.1.5 Level of education? V final level and the year

Education	Tick (v)	Year
None		
Adult literacy		
Primary		
Secondary		
Others (specify)		

1.1.6 Were you born in this village _____YES/NO. If NO where were you Born_____and when did you come to this village_____ (year).

1.2 Situational Characteristics

1.2.1 What is your main occupation?_____

1.2.2 What are your household economic resources? _____

1.2.3 What is your average income per month_____ (TAS)

1.2.4 Do you have self-help initiatives in alleviation of water problems for your Household? _____YES/NO. If YES, what are they?

2.0 What is your opinion on the following different types of self-help initiative water sources. their initiators/owners and use in the village

Type of water supply projects	Initiator/Owner	Use
Household rainwater catchments		
Water hole –locally improved domestic water source		
Valley tank –locally constructed acting as shared source for water		
Shallow well –water shared or sold		
Borehole –water sold		
Others (specify)		

3.0 Factors affecting Self-help Initiatives

3.1 We would want to have your opinion on factors affecting self-help initiatives on alleviation of water problems in the village

Statement	Opinion		
	Agree	Disagree	No opinion
Community's self-help efforts often fail for lack of technical skills			
Self-help achievements are often unrecorded, invisible and less glamorous than conventional projects and therefore underestimated			
The main elements of self-help are simple measures concerned with skills transfer, advice and assistance			
Sources which fall short of government standard are discouraged by the government			
The government and NGOs do not assist individual household			
Most organisations appear blind to significant achievements made by individuals or communities			
Resources necessary to construct protected shallow wells or boreholes are available to very few individuals			
Over-dependence on the government and NGOs by the community has accounted for the perennial water problems			
Many do not know that its their responsibility to solve their water problems			
The community water problems have remained essentially due to lack of committed and competent community leaders.			

4.0 Resources needed to support Self-help initiatives

4.1 We would want to have your opinion on the availability of the following resources to support self-help initiatives on alleviation of water problems in the village

Type of resource	Availability
Labour	
Local materials (eg. Soil, timber, stones)	
Knowledge and skills	
Expertise/professionals	
Funds	
Others (specify)	

5.0 Utilisation of available resources for self-help initiatives

5.1 We would want to have your opinion on utilisation of the available resources are utilised in the village to support self-help initiatives on alleviation of water problems

Type of resource	Utilisation
Labour	
Local materials (eg. Soil, timber, stones)	
Knowledge and skills	
Expertise/professionals	
Funds	
Others (specify)	

Appendix 3: Change agents' questionnaire

- Confidential
- Questionnaire: Personal Interview
- Respondents: Change Agents
- Study Topic: Factors affecting Self-help Initiatives on Alleviation of Water Problems in Morogoro District
- Region_____District_____Division_____Ward_____Village_____
- No. of Respondent_____Date_____

1.0 Change agent personal characteristics

1.1 Age_____ (years)

1.2 Sex_____(Male/female)

1.3 Marital status_____(Single/married/ Divorced/Separated/Widowed)

1.4 Level of formal education? V final level and the year

Education	Tick (v)	Year
Primary		
Secondary		
Others (specify)		

1.5 Professional training: Complete as follows:

Professional training	Final qualification	Specialisation	Year graduation
Certificate			
Diploma			
Degree			
Others (specify)			

1.6 In service training

Organised by	Number of times attended	Last time attended (yr/Month)
Government		
NGO		
Others (specify)		

1.7 What is the length of your tenure as change agent? _____(Yr)

1.8 What is your length of service in the present village? _____(Yr)

2.0 Factors affecting Self-help Initiatives

2.1 We would want to have your opinion on factors affecting self-help initiatives on alleviation of water problems in the village

Statement	Opinion		
	Agree	Disagree	No opinion
Community's self-help efforts often fail for lack of technical skills			
Self-help achievements are often unrecorded, invisible and less glamorous than conventional projects and therefore underestimated			
The main elements of self-help are simple measures concerned with skills transfer, advice and assistance			
Sources which fall short of government standard are discouraged by the government			
The government and NGOs do not assist individual household			
Most organisations appear blind to significant achievements made by individuals or communities			
Resources necessary to construct protected shallow wells or boreholes are available to very few individuals			
Over-dependence on the government and NGOs by the community has accounted for the perennial water problems			
The community water problems have remained essentially due to lack of committed and competent community leaders.			

3.0 Resources needed to support Self-help initiatives

3.1 We would want to have your opinion on the availability of the following resources to support self-help initiatives on alleviation of water problems in the village

Type of resource	Availability
Labour	
Local materials (eg. Soil, timber, stones)	
Knowledge and skills	
Funds	
Expertise/professionals	
Others (specify)	

4.0 Utilisation of available resources for self-help initiatives

4.1 We would want to have your opinion on utilisation of available resources in the village to support self-help initiatives on alleviation of water problems

Type of resource	Utilisation
Labour	
Local materials (eg. Soil, timber, stones)	
Knowledge and skills	
Expertise/professionals	
Funds	
Others (specify)	

Appendix 4: Key informants' checklist

- Confidential
- Checklist: Directed Discussions
- Respondents: Key Informants
- Study Topic: Factors Affecting Self-help Initiatives on Alleviation of Water Problems in Morogoro District
- HQs_____Region_____District_____Division_____Ward_____Village_____
- No. of Respondent_____Date_____

1. What factors affect self-help initiatives in water projects at village level?

2. What are your perceptions on factors you have identified?

3. What resources are available to support self-help initiatives for alleviation of water problems at village level?

4. How are the available resources at village level utilised to support self-help initiatives on alleviation of water problems?

5. What are your opinion on what could be done to improve self-help initiatives at village in Tanzania?