TECHNICAL EVALUATION OF THE MATERIAL AND HUMAN CAPACITY NEEDS FOR SMALL WATER RETENTION STRUCTURES IN KENYA'S ARID AND SEMI-ARID AREAS: A STUDY OF KITUI DISTRICT.

Research Report submitted to the Kenya National Commission for UNESCO (KNATCOM)

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December, 2003

Executive Summary

This study is a technical evaluation of the material and human capacity needs for small water retention structures in Kitui District.

The specific objectives of the evaluation were: to document the processes followed by different development partners in initiating water projects in the district, identify and analyze the existing capacity gaps in the community with a view to developing viable capacity building strategies, and to document the current material and human capacity statuses in relation to water retention structures.

The evaluation employed the multi-stage cluster sampling in selecting respondent communities. As such, the study was done in four purposively selected divisions namely, Mutomo, Chuluni, Yatta and Central of Kitui District. Methods of data collection utilized included Focus Group Discussions with community members and Key Informant Interviews with divisional water officers, local administration and area councilors.

The evaluation revealed that most of the water harvesting structures in the district had minimal success in water provision. Most of such structures add to the existing seasonal water sources. However, the sand dams and the boreholes have been identified as an addition to the few existing permanent water sources. It was also

found out that most of the water structures failed because of poor workmanship and inappropriateness of the technology used.

The assessment further revealed that the community is over reliant on external support in initiation. Indeed, there are minimal community-initiated projects most of which are the scoop-holes in ephemeral rivers. During the construction period, village elders do community mobilization and there is gender differentiation in community participation.

The NGOs, bilateral organizations, and the government enter the community either through local leadership or the administration. More specifically, the NGOs and bilateral organizations hold public barazas to inform the community about the intended project, the community's roles, and facilitate election of a committee to oversee the construction phase. Government-sponsored projects are mostly communicated to the community through the local administration. Depending on the nature of the project, the community may or may not be required to participate. This presents a weakness in project ownership and subsequent management.

Several challenges were highlighted as impinging on project implementation process. Participation dwindles during the construction process as some people become weary of the hard work involved, while the participation of others is erratic for they devote most of their time looking for food. The cost-sharing component seems to weigh heavily on the community. Many people are unable to raise the required monies thereby delaying the implementation process. Lack of financial and material transparency and accountabilityBY WHO was also identified as a contributing factor to project failure in the area. Misappropriation of materials and fundsBY WHO results to poor quality structures and negatively affects the morale of the community to participate in future projects.

Failure to review the terms of reference for construction committeeS after project completion was singled out as the cause of weaknesses in the management of water structures. This is in the sense that the construction committee, in most instances, transforms itself to a management organ without specification of its new roles. In the event that there is change of committee membership, the incoming members are usually untrained and this poses a danger of running down the project.

Project sustainability in the district is largely threatened by weaknesses in human capacity.EXPLAIN As such, there is little horizontal and vertical collaboration among water management committees and development agencies respectively.MICRO/MESOOR MACRO In some instances, male dominance in management committees ignores the management skills of the actual drawers of water (women). Financial mismanagement has LED TO resulted to lack of repairs in most projects thereby occasioning long periods of non-operation of such projects. These projects ARE faced with the danger of being abandoned as community members look for alternative water supply sources.

This evaluation underscores the need to fully involve the community in the project implementation process through participatory techniques to enhance project ownership. In addition, there is need to stimulate training of the community on integrated water resource management specifically on natural resource management, financial management, record keeping, and operation and maintenance aspects.

Acknowledgement

Many people were involved in the planning and actualization of this assessment. First, we would like to recognize with appreciation the financial support accorded to us by KNATCOM.

A word of thanks goes to the people of Yatta, Central, Chuluni and Mutomo divisions for availing their time to participate in the insightful discussions during data collection.

Special thanks to the field researchers, David Kawai, Epiphania Nthenya, Matthew Kitema, Joseph Muinde and Julius Munyao for their perseverance and excellent data collection; and to Roseanne Njiru and Mutua Isika for the preparation of literature that formed a crucial part of the data used in this study.

Sincere gratitude to John Njoka for his supervisory role and giving the assessment a professional touch, and to Rose Njeri for her secretarial support.

Lastly and not least, we appreciate the cooperation accorded to us by SASOL and KDC staff during the exercise.

Again, to all those who participated in one-way or the other, *ASANTE SANA.*

UNESCO Chair

List of Acronyms and abbreviations

ACK: Anglican Church of Kenya

ADRA: Adventist Development and Relief Agency

AMREF: African Medical and Research Foundation

ASALs: Arid and Semi-arid Lands

CBOs: Community Based Organizations

DANIDA: Danish Development Agency

FDA: Focal Development Approach

FGDs: Focus Group Discussions

ICA: Institute of Cultural Affairs

KAP: Kitui Agricultural Project

KDC: Kitui Development Center

KNATCOM: Kenya National Commission for UNESCO

KNRE: Kitui Natural Resource Evaluation

MoWD:Ministry of Water Development

NGOs: Non-Governmental Organizations

SASOL: Sahelian Solutions

UNESCO: United Nations Educational, Scientific and Cultural Organization

Table of Contents

INTRODUCTION

At the global level, statistics show that 1.3 billion people do not have access to safe water. 800 million are malnourished and hunger is their constant companion (African Academy of Sciences, 2002). Currently, over 26 African countries, including Kenya, have more people than their water supplies can adequately support.

Most governments in developing countries are shifting their development roles from "provision" to "facilitation". Contracting SOURCES OF EXTERNAL MONEYresource bases and failure of "top-down" approaches to development have DICTATEDnecessitated this shift, which in turn has placed more emphasis on resource development and management at the community level. The latter calls for the empowerment of users, in addition to enhancing their interaction with such other institutions as government departments, non-governmental organizations (NGOs), private sector, universities and other stakeholders. Indeed, management of water sources has become an issue of major concern under this paradigmatic shift.

Kenya is among a group of countries faced with the problem of inadequate resource base,ALL RESOURCES especially in the arid and semi-arid areas (ASALs). A weak institutional development framework compounds this problem. Given that water often dictates SETTLEMENT PATTERNS habitation, in addition to conditioning human existence, scarcity of water has a devastating impact on the environment, human life, food and livestock productionINCOMPLETE SENTANCE. During drought, a common occurrence in ASALs, communities in these areas resort to charcoal burning as a survival mechanism, which results in serious environmental damage. HOW IS THIS RELATED TO WATER

Only 45% of Kenyans have access to clean water. Households living in high and medium potential areas are considered to have safe water if they can get 20 liters of clean drinking water daily from sources within a kilometer away (Kimuyu, 1998). Studies show that communities living in ASALs have limitations in accessing sources of water (Kenya Human Ddevelopment Report 2001:; Economic Survey 2003). They use open water sources, which are prone to contamination. Distance to a source of water, quality and quantity are important considerations in choosing technologies for providing and conserving water.

Conventional methods of water provision have largely been used in ASALs. The methods in question BY WHOinclude: construction of earth dams, boreholes, rock-catchments, and piped water. These methods have not succeeded in providing sustainable water systems due to, among other reasons, the INAPPROPRIATENESS OF THE TECHNOLOGIESinappropriate technologies envisaged in these efforts. The appropriateness of a water system should take into account aspects such as climatic conditions in the area, its maintenance costs and the extent to which it is user-friendly.

This technical evaluation IS aimed at investigating the major MATERIAL,TECHNOLOGICAL AND HUMN RESOURCES weaknesses and gaps LIMITING WATER PROVISION IN KITUI.relating to the material and human capacity gaps for all water retention structures in Kitui District.

Statement of the Problem

Water is a common denominator and a major development input the world over. CUT In Kitui district of Kenya, it remains the most essential development priority and

commodity CUT. The search for water in this area has been a major pro-occupation of Non-governmental Organizations (NGOs), Community Based Organizations (CBOs), Church Organizations, Philanthropists, the Government of Kenya, and local persons, both individually and communally. This is mainly due to the fact that the area is minimally endowed with natural resources that promote availability of water, such as, forests, springs, permanent rivers and others. To be sure, water is scarce in the area.

Efforts by most development partners to put up water projects have amounted to little or no success since many of the projects have stalled or failed. ARE YOU SURE ABOUT THIS-Moreover, the approach by these partners was largely top-bottom and therefore less participatory (UoN, UoA Students' Report 2002). Hence, they did not inculcate TO WHOMrelevant skills to increase communities' capacity in project management for sustainability.

Given the above scenario, it was clear that there was need to evaluate the material and human capacity needs of different communities in Kitui district with a view to developing intervention measures for capacity enhancement for small and sustainable water retention structures in the district. This, therefore, was the purpose of this evaluation.

The specific objectives of the evaluation were as follows:

1. To document the processes followed by different development AGENCIESpartners in initiating water projects.
2. To identify and analyze the existing capacity gaps in the community with a view to developing viable capacity building strategies.
3. To document the current material and human capacity statuses in relation to waterPROVISION retention structuresAND PROCESSES.

Unit of analysis

The unit of analysis in this project was the material and human capacity in Kitui district.ARE YOU SURE THIS IS GOOD THEORYOR METHODOLOGY The observation units were the local persons in the community.

Sampling

This assessment employed the multi-stage cluster sampling. Thus, four divisions were purposively selected from the 8 divisions making up the district. These were Mutomo, Chuluni, Yatta and Central. The THEY HAVE DIFFERENT LAND POTENTIALS choice of these four divisions exhibited a perfect contrast in land potential. Chuluni and Central divisions are in the high land potential zone while Mutomo and Yatta are in the low land potential area.

Two locations were selected from each of the four divisions and from each location, a sub-location was selected and treated as a community. However, note should be taken that even one sub-location could have two communities depending on the project approach. This was the case in Kitui Central where SASOL employs the catchment approach and thus one catchment from each of the two sub-locations was treated as a community. The sub-locations selected for the study were: Wii in Mulango location and Tungutu in Kyangwithya West location in Central division; Kaw'ongo in Nthongoni location and Makusya in Yatta location in Yatta division; Kyatune in Kyatune location and Uai in Ikanga location in Mutomo division; Kiongwe in Nzambani location and Utwiini in Nzangathi location in Chuluni division.

Methods of Data Collection

Focus Group Discussions (FGDs) and Key Informant interviews were the major methods of data collection. Other sources of data were observation and review of literature (secondary sources) on water retention structures in the district. Two FGDs were carried out with committee or ordinary project members in each community selected. Through the FGDs data gathered related to water sources in the area, project implementation processes followed by different development partners, challenges relating to implementation of water projects, and aspects of training imparted on the community before, during or after completion of water projects. The key informants interviewed included the divisional water officer (DWO) from each of the four divisions, local administration- an assistant chief from each sub-location or a chief from the location covering the sub-location, and a councilor from each division. Through them data was gathered to clarify aspects raised by the community on the above-mentioned issues. Additional data from the key informants related to reasons for failure of water projects and the quality of water structures in the area.

A lengthy discussion was also held with officials of a local NGO and a CBO to clarify issues raised in the different FGDs in the entire study area.

Methodological Challenges

The methodology for this study was unique in the sense that apart from collecting data through focus group discussions, there was an extra component of identifying a suitably located well for the purposes of fitting it with a hand pump. HOW THE HELL DID A RESEARCH PROJECT GET INTO THIS.CONSIDER DROPPING IT FOR IT WARPS ALL YOU WRITE. IT IS BOTH BAD RESEARCH METHODOLOGY AND THEORY AS WELL AS BAD DEVELOPMENT METHODOLOGY AND THEORY.In other words, this was a research exercise that provided material benefit to the researched community. However, this should not be interpreted as buying data or enticing the community to release information since discussions about the pump always came after the Focus Group Discussions. Nevertheless, the challenge was that only one pump could be provided to a sub location where two focus group discussions were conducted. Such two groups did not belong to the same community or did not share the same water source. In effect, it was difficult to determine which community to give the pump. In addition, using a focus group discussion to identify a centrally located well that is used by many people was in itself a flawed procedure. This is because the groups were made up of committee members of a water project and thus not representative of the entire community. In this way, the decision to equip a certain well with a pump was not unanimously arrived at by the community at large. But it was the subjective decision of the committee members of a single water project.

In cases where discussions were held with ordinary community members, it was difficult for them to identify a common well since they used different water sources. In addition, giving the pump to one segment of the community was clearly identified by a local development agency as creating conflict in the community. This was the case in Wii sub-location in Mulango location of the Central division. To resolve this inherent conflict, the local NGO (SASOL) agreed to hold a meeting with the entire community to identify a suitable well for the pump. It is therefore, clear that different focus groups may not concur on where to place a promised material good in a research endeavor. IF YOU INSIST ON USING THIS HIDE IT AS AN END FOOTNOTE.

LITERATURE REVIEW

THIS SHOULD LEAD

Background Information On Kitui District

Geographical Location and size

Kitui district is located in the Eastern province of Kenya. It is one of the twelve districts making up the province. Kitui lies between latitudes 0˚ 7' and 3˚ 0' South and Longitudes 37^0 50' and 39^0 0' East. It borders Machakos and Makueni to the West, Mwingi to the North, Tana River to the East and Taita Taveta to the South. The district covers an area of approximately 20,555.74 km^2 including 6369.1km^2 occupied by the uninhabited Tsavo National Park (Republic of Kenya, 1997). It extends roughly for 200km from North to South and 120 km from East to west.

Administrative Divisions

Kitui district is comprised of eight administrative divisions. These are Central, Chuluni, Yatta, Kabati, Mutomo, Mutitu, Ikutha, and Mwitika. The divisions are divided into 38 locations and 134 sub-locations as shown in the Ttable below:

Administrative units by Division

Division	Locations	Sub-locations
Yatta	3	7
Kabati	9	27
Mutomo	5	20
Mutitu	3	12
Central	7	25
Chuluni	4	17
Ikutha	4	14
Mwitika	3	12
TOTAL	**38**	**134**

Source: Kitui District Development Pplan 1997-2001

The district has two local authorities namely, KITUI County Council and Municipal Council of Kitui. The district has four constituencies: Kitui South, Kitui Central, Kitui East and Kitui West.

Demographic Characteristics.

The population in Kitui has continued to grow at an alarming rate since 1910 when the population rapidly increased from 95,000 to roughly 640, 304 in 1989 ARE YOU SURE(Republic of Kenya, 1989). The current population of 515,422 shows a drop in the population growth. WHAT IS THISThis is because Mwingi district, formerly a constituent of Kitui district, was carved off. The population growth rate is estimated at 3.8 per annum.

Population Growth in Kitui District 1910-1999

YOU HAVE TO REJIG ALL THIS DATA TO ACTUALLY SHOW THE DATA FOR THE AREAS WHICH ARE TODAY KITUI DISTRICT OR DISCUSS THE LIMITATIONS AND ASSUMPTIONS. TO PRESENT A TABLE LIKE THIS WHICH ALL OF YOU KNOW IS UNTRUE IS HIGHLY UNPROFESSIONAL.

Year	Total	Annual growth %
1910	95,000	-

1932	152,759	1.70
1948	203,035	1.68
1962	284,659	2.20
1969	342,953	2.60
1979	464,283	3.50
1989	640,304	3.80
1999	515,442	2.21

Sources: Population Census Reports. Population numbers of 1910 and 1932 are based on hut counts by the colonial government. The 1999 figure excludes Mwingi District Data.

The average population density stands at 30 persons per square kilometer. However, this density varies from division to division. By 1997, Central division had a population density of 213 persons per km^2 while Mutomo had the lowest density of 8 persons per km^2. These were estimated to increase to about 230 and 12 persons per km^2 by the year 2002 respectively. The variation in the densities is due to climatic conditions. Land potential largely determines densities. Central and Chuluni divisions have a high density due to high land IS IT LAND OR IS IT RAINFALLpotential while the low population densities in Yatta, Mutito, and Mutomo divisions are attributed to low land potential.

Climatic conditions

Kitui district falls in the area classified in Kenya as arid and semi-arid Lands (ASALs). In fact ASALs[1] make 83% of the country. These areas fall under agro-ecological zones IV-VII. The arid areas receive less than 250 mm of rainfall while semi-arid areas receive between 250 and 800mm annually. WHERE DOES KITUI LIE MORE SPECIFICALLY WHERE DO YOUR SAMPLE DIVISIONS LIE

Kitui district lies between 400m and 180 m above the sea level.WHERE DO YOUR DIVISIONS LIE The climate is generally hot and dry for most part of the year with very unreliable rainfall. The situation is aggravated by the high rate of evaporation, which limits intensive and meaningful land use and other development. WHAT IS THE EVAPO-TRANSPIRATION RATE FOR YOUR DIVISIONSThe area experiences two rainy seasons, the long rains come from April to May and the short rains from November to December. Dry periods fall between June to October and January to February. The amount of rainfall received is highly influenced by topography of the area. Hills such as Mumoni THIS IS IN MWINGIin Kitui Central and Mutitu in Eastern parts of the district receive 500-760mm per year. The Endau areas receive less than 500mm per year.INCLUDING ENDAU HILL

Mean annual temperatures vary from 14° c to 18° c in the western parts and 18° c to 22°c in the eastern parts. The maximum mean annual temperatures range from 26^0 c to 30^0 c in the Western parts and 30^0 c to 34^0 c in the Eastern parts (Republic of Kenya, 1997). HOW DOES THIS FIT TO YOUR DIVISIONS

Geology, Soils and Topography

The geology of the district is characterized by metamorphic and igneous rocks of the basement complex system (Mailu, 1993). The southern WHICH DIVISIONSpart of the district is composed of Permian deposits while the western partWHICH DIVISIONS is

[1] Eastern Province: Moyale, Marsabit, Isiolo, Tharaka, Mbeere, Kitui, Makueni, Machakos; North Eastern Province: Wajir, Garrissa, Mandera and Ijara; Coast Province: Tana-River, Kilifi, Taita Taveta, Kwale, Malindi; Rift Valley Province: Kajiado, Narok, Baringo, West Pokot, Turkana, Marakwet, Laikipia, Samburu.

dominated by volcanic systems. These rocks hold extractable water only in small cells, a phenomenon in low areas near stream channels. HOW ABOUT WATER HOLDING IN CENTRAL BEFOR EYOU JUMP INTO SOILS.The central part of the district has soils, which are mainly derived from the metamorphic rocks of the basement system although there are some isolated pockets of vertisols (black cotton soils), which are tertiary sediments. These (vertisols) are usually high in fertility thus good for crop farming. These areas include Kavisuni and Maliku in central division, Uai and Kavingoni in Mutomo sub-district. Some pockets of vertisols are found in Kitui East (Ngure, 2003).

In the eastern parts of the district,WHICH OF YOUR DIVISIONS the most dominant soils are the red sandy soils, which are low in natural fertility. The comparatively low rainfall in the region worsens the possibility of any successful crop farming. These soils are very rich in sodium and are considered to be the best for ranching. The western part of the district is dotted with pockets of black cotton soils (Mailu, 1993, Jaetzold and Schmidt, 1983).

The vegetation of Kitui is mainly comprised of trees, shrubs and grasses.REALLY The dominant tree species are Acacia, Combretum and Commiphora while Lantana Camara is the most common shrub. The grasses WHICH GRASSES and other species of plants have short life cycles to enable them take advantage of the short and unreliable rainy seasons (Sasol and Maji na Ufanisi, 1999).

The topography is undulating and gives way to plains towards the east. The Yatta plateau is towards the westNONSENSE. There are also the ranges of hills in the central part of the district.

Economic Activities

As is the case in other Arid and Semi-arid land (ASAL), dry land farming is mainly practised in the district. Agricultural activities are mainly subsistence in nature and are highly constrained by weather conditions. Only 2 % of the district is high potential, 32 % is medium potential. The high and medium land potential areas are found in central part of the district mainly Central, Chuluni, and Kabati divisions. About a third (66 %) of the land is of low potential and comprises mainly the Eastern and Southern lowlands of Mutitu, Mutomo and parts of Yatta divisions (Republic of Kenya, 1997).

Major food crops grown in the district include maize, beans, sorghum, pigeon peas, green grams, and millet. Among the cash crops are cotton, mangoes, pawpaws, bananas, and citrus fruits. Others are tobacco, grown mainly in Central and Chuluni divisions and coffee in Central and Kabati divisions. These crops are, however, grown on small scale. The district also produces vegetables such as karella, brinjals, okra, tulia, tinda, tondoni, and chillies. These are grown under irrigation along Athi River in Mutomo division. Local vegetables such as tomatoes, cabbages, kales, spinach, onions, and capsicums are grown under rain-fed conditions all over the district. About 40 % of the local vegetables are grown under irrigation along Thua, WHO SAYSAthi and Mwitasiano RiversWHO SAYS. Nevertheless, irrigation potential DERFINED HOW AND STUDIED BY WHO along these rivers has been minimally exploited. A lot more cultivation would increase food production in the district with use of these rivers.

Other than CROP agricultural production, livestock production is THE a major economic activity. Majority of the rural households, especially in Mutomo, Mutitu, and Yatta keep cattle either for beef or milk production. Dairy farming HOW SIGNIFICANT WHAT ARE THE NUMBERSis carried out mainly in Central, Yatta, and

Kabati divisions. Goats are reared in all divisions but with heavy concentration in Mutomo, Mutitu, and Yatta divisions. Sheep AREis kept in Mutitu, Kabati, Mutomo, and Yatta divisions. Donkeys are kept in the whole district and are important for transportation of goods and fetching water especially during dry periods. Poultry keeping is carried out district wide. Bee keeping is a major economic activity; bees are kept for honey and wax.

Industrial activities in Kitui district are very few due to water scarcity. Existing industries are mostly small-scale and agricultural related. They include cotton ginning, flour milling, honey refining, tile making, brick making and handcraftS.

Food availability

The district normally experiences food deficit due to recurring drought, which mostly hits the Eastern and Southern parts. DATA PLEASE Food supply is supplemented by the government and other donor agencies through relief food supplies. Therefore, to avail food to the majority of the population, there is need to increase water supply so that food production can increase.

Migration and settlement

The Akamba migrated to their present settlement by branching off into Kenya from a group of Bantus who were moving northeastwards along the coast of the East Africa region from the Shaba region of Zaire during the early 14th century (*Ogot, 1968; Murdock, 1959; Guthrie 1962)*.

They first settled in Mbooni hills where their social character developed and their primary institutions began to emerge. By creating terraces and simple dams, the Akamba society adjusted to their highland environment. From Mbooni, the Akamba families migrated to neighboring hills such as Kilungu, Mbitini, Kalama, Iveti and Kanzalu. These hill lands of Machakos became known as *Iulu* (meaning ‘high up’), to be later corrupted as "Ulu" in colonial geography. Subsequent population growth and increasing denudation of the hill tops resulted in erosion such that by the beginning of the eighteenth century small groups migrated from Mbooni hills, crossed the Athi River and established the Akamba settlements in the central hills of Kitui and at Miusyani in Ikutha. Lindblom (1920) dates the crossing of the Athi River into Kitui at about 1715 A.D. About 1740 A.D, larger groups followed into Kitui and movements continued until 1780 A.D (Lindblom, 1920:162). In Kitui, the Akamba continued to migrate. From Miusyani they moved to the hill complexes of Ikutha, Kanziku, Mutha, and Inyuu, eventually reaching the central block of mountains in Kitui Central and into Mutito hill about 1800 A.D. From there migrations went southeastwards towards Zombe. At Zombe, one migratory path was towards BOTH ARE EAST OF ZOMBE SO WHAT DO YOU MEANMakongo hill and later changed course towards Endau hill. Another path led southwards towards Mutha and Kanziku where there were already Akamba settlements.

Another migratory route headed northwards through Mutonguni and Migwani hill ranges reaching as far as the hills surrounding Mwingi at about (1820 A.D). From Mwingi one migratory route continued northwards reaching Mumoni range at about (1850 A.D); the other followed the Enziu River eastwards. WRONG GEOGRAPHY AGAINAt Nguni this path split. One route led northwards reaching the Nthunguthu hills (Mai), Ngomeni, and Tolotwa at about 1860 A.D. The other wave turned southwards towards the hill complexes of Imba and Ukasi (O'Leary, 1984:19).THESE ARE TO THE NORTHEAST OF NGUNI

The continued population growth forced people to move from the better-watered hill lands into the more arid and drought prone plains. This migration, in response to

population pressure, was stopped at the beginning of the twentieth century by the imposition of the colonial system and ancillary differentiation in society (Mutiso, 1977:11; Munro, 1975; 125). It is evident that at the advent of the colonial period, there were only three main isolated pockets of population concentration in Kitui District, that is, the Central Hills, the Southern block of hills at Mutha, Kanziku and Ikutha, and the Northern range of hills at Mumoni. Another isolated pocket of population settlement was around the hills at Engamba in Eastern Kitui.

Today, the Akamba continue to migrate internally, a consequence of population pressure in the high potential lands. They move from their settlements in search of land to cultivate, water, and pasture to graze their animals. Kisovi, (1989), notes that, migrants are in fact moving from Kitui South, Kitui East and settling or cultivating in the state lands and even in the game reserves.

The history of the Akamba from the eighteenth century is replete with accounts of devastating droughts and famine. Historically, the Akamba coped with the vagaries of their environment through a variety of traditional mechanisms. Hunting, gathering, and trade became viable options for survival. Out-migration from the devastated areas was an option in an area where land was an abundant resource. Raiding became common in times of extreme stress. These traditional mechanisms of coping with drought and hardship are no longer viable alternatives, yet drought and famine remain a persistently recurring problem.

Surface Water

River and ground water resources are scarce. River Athi, which forms the southern boundary of the district, is the only permanent river. The river is highly polluted with sewerage and industrial wastes from the city of Nairobi. River Tiva, however, carries water for a long time after rains but during prolonged drought, it dries up.ARE YOU AWARE IT IS CONTAMINATED BY KITUI TOWN Lack of water is the main obstacle to development of the district as most of the rivers dry up for most part of the year, although most rivers flood for a few hours when it rains.

By 1990, only about 5% of the rural population were within reach of piped water in the district (KNRE, 1990). WHAT IS KNRE NOT IN REFERENCESDuring dry periods, most people have to walk for distances of up to 15 miles (≈ 24 kilometers) in search of water. In the Southern part of the district, during the dry season, some people walk for 42 km in search of water. (Muticon, 2002; U.o.A and U.o.N, 2002).

High intensity rainfall causes massive runoff and flooding, which results in increased soil loss and degradation. This is a major factor causing siltation in earth dams. Sediment loads of the order of 600-tonnes/km^2/ year have been reported in Kitui District by Dunne WHO IS HE WHERE WAS THE RESEARCH DONEE IS THE REFERENCE (1974). Estimates of total sediment or the rates of erosion are not available for the district. According to the (KNRE, 1990), one of the major problems with water development in Kitui District is siltation in dams. The Kalundu dam built in 1958 as a reservoir for Kitui Township, was completely silted up by 1974 (Daines, Njoroge, Njui 1978). IT HAD BROKEN BEFORE THIS

Daines and Njoroge (1979), estimate that the mean annual open PAN KELLY ESTIMATED IT IN 1950S TO BE 2500MM evaporation for Kitui dam (1963-70) was 1935 mm, with a low of 133mm for June and high of 198 mm for October. The high radiation and evaporation make surface water/open conservation methods IRRELEVANT OR DIFFICULT IF YOU EVAPORATE MRE THAN ANNUAL RAINFALL HOW CAN YOU TALK OF DIFFICULTIES difficult in most parts of the district rendering sand dams the most appropriate technology.

Ground Water
Groundwater is tapped through boreholes, wells, springs, and scoop holes. The main methods of extracting ground water in the district include; boreholes HOW CAN BOREHOLES BE AMIN HOWMANY ARE THERE HOW MANY PEOPLE USE THEM and shallow wells. The rivers flowing to the eastern parts of the district originate from the hills in Central and Kabati divisions. Most rivers flowing to the eastern side of the district originate from the higher, better-watered area around Kitui Township. The yield of boreholes varies from 0.045 m^3/ hour at water treatment works at Kitui to 27.273 m^3 / hour at Ithookwe. The average yield of boreholes in the district is about 5 m^3 /hour (900/hour). VAN DONGE HAS 2003 DATA SHOWING 85 % OF ALL BOREHAOLES ARE SALINE AND HAVE FAILED

The main sources of water for domestic use, livestock watering, irrigation and construction include earth dams, sand dams, weirs, rock catchments, springs and bore holes. In 1979, there were 18 boreholes in Kitui District, 3 WHIOCH ONES YOU CONTRADICT YOUR EARLIER ARGUMENTpermanent rivers, 103 springs/wells, 164 dams/weirs and 42 Rock catchments. A total of 85 Dams were silted or broken down. These figures show that siltation is a major problem with dams through out the district (MoWD, 1979). WHAT HAPPENED TO KELLYS 2,200 DAMS

ManyWHERE homes have shallow wells but most of these wells dry up during drought. Most boreholes are dry while others have saline water. Some are non-functional due to mechanical breakdown and vandalism. This makes it quite unreliable to use borehole water for domestic purposes, livestock watering and irrigation. The salinity problem is very severe in the southern part of the district especially Mutomo and Mutha division. Casual observation shows that water in Mutha may be heavy with life-threatening metals, such as the highly visible red oxide. IS THIS DEADLY. WHAT OF THE BADIES IN KANZIKU AND OTHER PARTS

Water Quality
Generally, the District, there is no serious pollution of surface water since there are no industries discharging wastes into rivers, no towns discharging their refuse into rivers, HAVE YOU EVER HEARD OF NZEEU AND KALUNDU. ARE THEY NOT BIOLOGICALLY POLLUTED BY KITUI TOWNand use of agro-chemicals is not extensive. However, the continued pollution of Athi River and Kalundu are raising concern. The major source of pollution of the river water is erosion, IS EROSION POLLUTIONwhich contributes considerably to the silt loads of the rivers passing through the district or originating from it.

Boreholes in Kitui district have water of varying quality. Tests done on 59 boreholes in 1979 showed that of these; GET THE VAN DONGEN DATA IT WILL CHALLENGE THIS37 had good quality water, 11 had rather saline and hard water while the remaining were of poor quality. Salinity and hardness are caused by presence of salts of magnesium and calcium. Borehole water is free from organic impurities and in most cases is safe for domestic purposes. However, very saline and hard water may cause gastric problems in human beings.

A synopsis of the development of water projects in Kitui District
THIS IS PREACHY AND MAINLY IRRELEVANT
The first attempts to initiate water development projects in Kitui district were made by the colonial government. The colonial government did not involve the local communities and where the locals were involved, it was through forced labour. In such cases, the projects became very unpopular with the communities in question.

Where water projects were initiated by the colonial government, the communities were not trained on how to manage the water sources at all. KELLYS PROJECTS DENY THIS SEE DATA IN ARCHIVESThis was also the case in projects initiated later on by a consortium of development agencies in 1970's. Community training picked up in the 1980's.WHO ACTION AID, ASAL,CATHOLIC DIOCESE, USAID,DANIDA, ANGLICAN CHURCH.DOCUNENT IT FOR THE STATEMENT IS NOT TRUE However, the training was limited in approach. In most cases, the concerned bodies limited themselves to the project in question without caring about how it would be affected or affect other sectors.

Notably, some of the agencies apply (ied) wrong technologies as a result of limited information or lack of information on, for example, the climatic conditions of the district, which do not favor open surface methods of water conservation. Even with the availability of such information, some agencies are still applying technologies inappropriate in ASALS.

Most water projects seem to have been donor driven with limited community participation in the choice of technology to be used and the type of project to be implemented. After withdrawal of the donor assistance, most communities have no management structure in place and this has led to a collapse of many projects.

The government agencies, donors, NGOs and community groups have operated without consultation amongst themselves for quite a long time. There is very little coordination among these bodies. The result has been duplication of water projects, some of which are not viable in the area and do not meet the needs of the people. SPECIFICS PLEASE

Recent WHENattempts in water development projects are more focused on community involvement both at the identification and implementation levels. Training has become an inseparable component in such projects. However, the current challenge in most community-based projects is the cost-sharing component that is said to weigh heavily on the community.

MATERIAL AND HUMAN CAPACITY NEEDS ASSESSMENT FOR SMALL WATER RETENTION STRUCTURES

Water Harvesting Structures in the District

THIS SECTION LACKS FACTUAL DATA AND PERIODIZATION OF WHEN THE STRUCTURES WERE BUILT AND WHAT HAPPENED TO THEM A LITTLE EFFORT WITHIN THE AGENCIES WOULD SOLIDIFY YOUR ARGUMENT

A variety of water harvesting structures exist in the district. Such structures are either for providing water for domestic use, watering of livestock or for small-scale irrigation. Certain structures such as the earth dams, sand dams and boreholes are able to fulfil the above three purposes while others such as water tanks, rock catchments, retention ditches, cut-in drain (fanya juu- a type of terrace), and pawpaw pits can only serve one purpose. The cut-in drains, the retention ditches and pawpaw pits benefit from surface run-off harvesting and are thus apt for agricultural activities.

In Kitui district, there exist a few permanent water sources. Permanent water sources are those that provide water through out the dry season and include the boreholes, and sand dams—particularly those with off-take wells. The THIS IS NOT TRUEpermanent rivers include Kalundu, Mutendea, Athi and Tiva where people draw water from scoop holes. The depth of the scoop-holes increases as the season gets drier and as the number of users increases. Most of these water sources are used as MAIN the last resort for the population. A largerHOW MANY SEE SOCIOECONOMIC AND GIVE BREAKDOWN PER DIVISION IT IS THERE proportion of the people live more than two kilometers away from these sources and have alternative water supply sources particularly during the wet periods of the year. When the alternative sources dry up, they shift to the few permanent WHICH ONES water sources thereby creating stress on the source. Only a few people depend on these permanent WHICH water sources through out the year because of their proximity to the sources. Majority GIVE DIVISIONAL DATA IT EXISTS IN SOCIOECONOMIC 2002of the population use the numerous seasonal water sources for the wetter part of the year.

Some seasonal WHICH ONESstreams that have sand storage dams constructed in a series have water all year round and the depths of the scoop-holes are shallower than in river channels without the sand dams. This water is only available to the members of the sand storage dam. There are also a few earth dams that hold water through out the year. A few shallow wells also have water all year round.

A larger majority of the water sources in the district are seasonal and include privateSCHOOLS ARE PUBLIC water tanks [in schools], shallow wells, some sand dams and earth dams, seasonal rivers and streams. This is in concurrence with the existent rainfall patterns in ASALs characterized by short to very short rain seasons with long interposing dry spells.

The development of reliable water sources in the community has been low. COMPARED TO WHATPreviously, only natural sources existed.WHAT ARE THESE However, as a result of interventions geared towards increasing and distributing water sources in the community, there has been an upsurge of both seasonal and permanent water sources. These interventions have been facilitated through the collaborative efforts between the community and various development agencies such as the government of Kenya, bilateral organizations, NGOs, church organizations and philanthropy associations such as the Lion club.

It is a grim reality that there has been minimal community initiative in developing their own water structures. This is because community cohesion has been through

the formation of community self help groups whose agenda in most cases has been other than water. Nevertheless, the scoop holes in the permanent rivers (during the driest season) have been dug and managed by the community without external assistance.

DANIDA, a bilateral organization, has helped in the construction of earth dams, HOW MANY DAT IN DISTRICT DATA BASE?protection and piping of springs, and construction of water tanks in schools. SASOL, a local NGO has facilitated the construction of numerous sand dams some of which have shallow wells fitted with pumps. HOW MANY AMREF has assisted the community in construction of several HOW MANYshallow wells fitted with hand pumps. The Catholic Diocese of Kitui has helped in the construction of communal and private water tanks. HOW MANY IT ALSO HAS SAND DAMSThe government has been instrumental in the sinking and piping of boreholes in the community while ICA is helping the community to construct earth dams.WHERE AND HOW MANY. HOW ABOUT THE EGYPTIANS

The overall picture is that, much of the interventions have been geared towards increasing the seasonal water retention structures. Indeed, it is mostly the boreholes and the sand dams that provide water to the community throughout the year. Nevertheless, with a heavy and long down pour of rain, a few earth dams can retain water through out the dry spellHOW MANY DO THIS. Pertinent to note is the fact that the sand dams are not in the entire district and that the boreholes are unevenly distributed in the district. This means that majority of the people in the district face water scarcity during the dry seasons. It should be noted that SASOL is currently working in five divisions namely; Central, Chuluni, Yatta, Mutomo, and Mutha.

Quality of the Water Structures

The quality of the structures was assessed by the capability of the structure to hold water through out the year and the number of years they are operational. The quality of most water structures in the district is fairMEANING WHAT. This is because not all of them are operational. There are structures that did not work well such as the water tanks HOW MANY WHICH DIVISIONin schools constructed by DANIDA. NOTE BEFORE DANIDA WAS KEELY MINISTRY OF WATER USAID AND CATHOLIC AND ANGLICAN DIOCESESThis was attributed to the fact that they did not hold water long enough and the tanks cracked and their roofs collapsed. This was as a result of poor sand and cement ratio, which the community had no control over since the artisans were in charge of the materials from the funding organization. Design was another factor for failure of the water tank projects. For example, the design of the Ferro cement THESE ARE DIFFFERENT FROM THE LARGE TANKS IN SCHOOLS SEGREGGATE EACH TECHNOLOGYtanks was such that all the water could be drained from the tank thereby exposing it to the risk of cracking. Ferro cement tanks were said to have a shorter lifespan than the masonry tanks. Masonry tanks have a lifespan of about 50 years while the Ferro cement tanks could last only up to five years. THIS IS NOT TRUEFerro cement tanks are no longer being constructed in the area for they did not appeal to the community. Likewise the water-jar tanks were too small to meet the communities' water needs and were thus not appealing.

In other parts WHICH ONESof the district, most earth dams were said to be of poor quality because they leaked profusely. Indeed, they could only hold water for a very short stint of time after the rains. Others were shallowly dug WHERE AND WHENthus holding very little amounts while a significant number were being threatened by siltation—most dams constructed during the colonial period are in the verge of being filled up yet the community is not able to cater for the cost of desiltation. Perhaps

this is clear indication of the inappropriateness of the earth dam technology in the ASAL regions, especially where the soil structure does not favor their construction.

Sand dams were qualified BY WHO-DISCUSS THE TECHNOLOGYas the only structures of excellent quality and adaptable to the local realities of use and maintenance since they have minimum leakage and can hold water throughout the dry season in addition to re-hydrating the surrounding areas. Their life span was pegged at 90 yearsBY WHO if constructed in firm soilARE YOU SURE ABOUT THIS. THE Sasol POSITION IS THAT IT MUST BE ON ROCK. THE EARLIER, CATHOLIC, ANGLICAN, USAID,ASAL,DANIDA ACTIONAID ETC ON SOIL HAVE FAILED. They provide water for the longer part SASSOL ONES ARE INTER DROUGHT NOT JUST YEAR.SEGREGATE CONSTRUCTIN METHODS TO BE FACTUALof the year and require little maintenance.

Most WHERE BY WHO WHEN HOW MANYshallow wells are well constructed and only a few are fitted with pumps. However, some pumps are non-functional because of lack of repairs after breakdown. A large number of wells done by SASOL lack pumps and are either left open or have moveable lids. Such wells are considered dangerous to the users and are a risk to the safety of children. Majority of the windlass fitted in most of the wells constructed by SASOL are not functional.

Some off take wells dry up early in the year. This is attributed to poor siting where some wells are dug on very fresh rocks thereby yielding very little or no water.

Only a few HOW MANYearth dams are functional. Like other water structures, earth dams are considered functional because they hold water for most part of the year. The major threat to such dams is the high rate of siltation during the rainy seasons. It is quite expensive for the community to de-silt the dams and as a result some have been filled up and abandoned. In such instances, community members dig wells (deep holes) near the soil embankment of the dam especially at the start of the dry season.

MostHOW MANY AND WHERE of the boreholes in the district have stalled due to the high cost of maintenance that the community cannot afford. Further, the government does not avail any funds for their operation and maintenance. In cases where individual boreholes raise enough money for their maintenance, such funds are misused by the management committee to enrich themselves. Research findings revealed that such misappropriation of monies collected from public projects is done with the full knowledge of the local administrators who are part of the syndicate. BOX ON CASES OR DROP THE GENERALISATION IF NOT SPECIFIC DATA

Project Implementation Process and Stakeholder Roles

Community Approach

In the whole district, there are minimal water projects initiated by the communities without external support. The only communal water sources in the communities are the scoop-holes made in the semi permanent rivers during the driest months of the year. Other efforts to get water in the community are as a result of individual efforts. These include private domestic water tanks and shallow wells. Some wealthy persons have also constructed their own earth dams.

The communal establishment of the scoop holes is demand driven. The community meets during the dry season under the initiative of the village elder. Different community groups gather together to dig their own scoop-holes. These groups are

mostly formed at village level and the village elder is in charge of community mobilization.

During the actual scoop-work, men are assigned the role of digging and fencing of the scoop-holes, while women carry away the sand and provide the fencing materials, which are normally thorny branches. Women are also in charge of cooking for the whole community at the site. The youth assist the men and women with the roles segregated by sex. The aged women are the baby sitters on site while the old men assist in general work at the site such as fixing shovels and hoes. The beneficiaries of the *scoop- hole project* are the members who participate in its construction.

NGO and bilateral approach

In the district, there are several non-state development agencies working in the water sector. These include NGOs, philanthropic associations and church organizations. DANIDA is the only bilateral organization in the district.NOT TRUE THE BELGIANS ARE THERE ALSO, USAID WAS THERE BEFORE DANIDA STARTED ASAL IN MUTOMO It works in collaboration with the respective government departments depending on the project type and approach. The NGOs involved in water development in the district include SASOL foundation, AMREF, ADRA, Action Aid, ICA (Institute of Cultural Affairs) and church organizations such as the Catholic Diocese and the ACK.

These organizations have typically embraced similar approaches in initiating water projects in the district.THIS IS NOT TRUETHE CATHOLIC MODEL IS DRIVEN BY THE TEN PERCENT AND THE CHURCH, SASOL IS DIFFERENT-THE CASCADE APPROACH, USAID WAS CONTRACTED ENGINEERING, DANIDA IS GOVERNMENT DEPARTMENTS ETC On the one hand, the bilateral organization in the district uses the district focus for rural development strategy. In this strategy the projects have to be approved by the District Development Committee, ASLL PROJECTS ARE APPROVED BY THE DDC SO THE POINT IS A FALSEHOODwhich comprises of different development partners in the district, such as district departmental heads, NGO representatives and elected leaders in the district. The communities propose projects from the grass root level through sub locational leaders via the locational leaders that are approved at the divisional level before final approval at the district level. Once the proposals are approved, the respective stakeholders MEANING WHATguide the people in initiating and implementing the projects. The same leaders convey back the information to the community on the approval of their projects and mobilize them through *barazas* where the people are informed about the project and what is expected of them and what the implementing agency will provide. The bilateral agency facilitates the government’s technical team to assess and confirm the suitability of the project site proposed by the community by carrying out the technical works.

On the other hand, the NGOs enter the community through the provincial administration. Normally, the first person to be officially approached is the chief of the location where the project is to be based. This locational administrator then informs the sub locational leaders together with the village elders who organize for a community *baraza* to inform the people about the project and their role. In the *baraza*, the NGO representatives lead the discussions about the project and what is expected of the community.

In most instances the community is asked to collect available local materials like construction stones and sand. They are also advised to form water committees to

oversee the construction and maintenance of the structure. The committee is also charged with the responsibility of formulating by-laws to govern the community on the project. The NGO then asks the community to propose sites for the project and the NGO technical staff carries out a survey to confirm the suitability of the sites. Afterwards, construction work commences with the NGO providing skilled labour and technical advice while the local community provides the manual unskilled labour. The NGO also provides the materials that are not available in the locality such as cement, metal bars, barbed wire, hand pumps, windlass, and pipes. They also supervise the project and monitor its progress till completion. They are also charged with building the capacity of the community to be able to manage and maintain their projects. This is done through trainings on hygiene and sanitation, natural resource management, water structure maintenance, overall project management, formulation of by-laws, community leadership, record-keeping and financial management. It should be noted that even though these trainings are diverse, their application or use of training knowledge gained by the community is minimal. This is suggestive of the presence of reasons and factors that scuttle the implementation of the training. THIS PARA IS TOO GENERAL TO MAKE SENSE

In the recent past, the notion of cost sharing in project implementation has become a pre-occupation of most NGOs, bilateral organizations and the government. This is because these development agencies have, with time, realized that project sustainability can be achieved when the community contributes towards project cost. It is the responsibility of the community to contribute 10% of the total project cost. Nevertheless, this has been difficult for the community resulting to delay in the project implementation process and sometimes projects are left incomplete. SASOL, a local development agency, requires that in addition to providing locally available materials, the community should also cater for accommodation and subsistence needs of the skilled artisans. This way, the community contributes more than the 10% and this promotes project ownership. Noteworthy is the fact that the approach by SASOL is less burdening to the community since monetary contributions are minimal, if any. ARE YOU AWARE THAT COMMUJITY CNTRIBUTION TO SASOL DAMS IS OVER 60% OF TOTAL COST/

Government strategy

Government support is through the ministry of water, which has divisional water officers charged with coordinating water issues in their respective divisions. They work in collaboration with the local administration to identify and implement water projects.

As pointed out, government’s efforts in provision of water to the people of Kitui have been seen through the construction of earth dams HOW MANY WHERE and the drilling of bore holes HOW MANY WHERE In the earth dam projects, the government provides the bulldozer and skilled labour for excavation of the reservoir. They also train the beneficiaries on soil conservation to protect the dam from rapid and unprecedented siltation. They do this in collaboration with other government departments like the public health and forestry department in giving trainings on environmental conservation. In drilling of boreholes, the government contracts the driller, equips the borehole with a pumping system (machine) and provides pipes. The community digs the trenches for laying the pipes to take the water nearer to the people from the source.

The lower cadre of the provincial administration, i.e. the chief and the assistant chief are charged with the responsibility of mobilizing the members of the community to work in development projects in their respective areas. Through these offices, most

government-funded projects are communicated to the people. They are charged with passing information about water projects and mobilizing the community members to participate in them. Just like the bilateral organizations, they use the district focus for rural development approach.

Generally, during the construction phase the different stakeholdersWHO? ARE GOK PROCEDURES THE SAME AS CHURCH AND NGOS make contributions as follows; the donors provide industrial materials such as cement and reinforcement bars, skilled labour, working tools and transport of local materials to the construction site. The men in the community are in charge of site clearing, stone breaking, and ballast preparation. The women carry the ballast, water, and sometimes load sand for transportation to the construction site. Digging of trenches is done by both men and women. Men are instrumental in loading sand for transportation to the construction site.

Challenges Faced in Project Implementation.

The project implementation process was said to be marred with several challenges. Such challenges ranged from poor participation (the involvement of the community in project implementation process, from initiation to completion of the project), to lack of working equipment. It was asserted that in the initial stages of a project, the people did not see the benefit they would get from the project in the long run and thus convincing them to participate was difficult.

At the start of any water project, the people's participation is at its best. However, due to the hard (heavy) work involved, like breaking rocks and carrying other materials, participation dwindles with time. IS THIS ALSO TRUE FOR BOREHOLES AND ERATH DAMS This slows down the implementation process as it negatively affects the morale of the remaining participants. In other instances, participation is hampered by hunger and famine. Kitui district is a drought and hunger prone area. As a result, implementation of many projects is caught up by the hunger situation. In effect, people spend much of their time looking for food and can afford very little time for the project.

Projects with the cost-sharing component were said to be difficult because either people are too poor to pay or are not willing to pay.SEGERGATE THE DIFFERENT PROCTICES OF CATHOLICS, ANDLICANS SASOL ADRA, ACTION AID ETC Some people are not willing to pay because of a misconstrued mentality of free things i.e. they have a high dependency syndrome, where they think that the government or the agency should provide everything and should not ask for money from them. With this notion, many people do not participate in projects.

Participation is also affected by people's experiences in former projects that they worked in and failed. TO USE THIS YOU NEED TO DEVELOPMTHE SEQUENCE OF TECHNOLOGIES SINCE KELLY TO SASOL AND ADRA THE LATEST ENTRANTSThey do not see why they should participate in projects that are supposedly not beneficial. False promises by former project agencies make the community have low trust on incoming agencies.

Lack of working toolsTHIS IS TECHNOLOGY SPECIFIC, THEREFORE YOU CANNOT HAVE A GENERAL STATEMENT in project implementation if the agency does not provide them slows down the work. This affects the morale of the people because of the long period taken to complete projects. This also means that the artisans stay longer than planned thus becoming expensive for the community to maintain them in the field. Consequently, some projects are left unfinished.

Another major challenge is acquiring land to put up the water project since some people are reluctant to donate land. TOO SIMPLIFIED, DIFFERENT AGANCIES HAVE DIFFERENT APPROACHES DISCUSS THEMSome times, when a member of the community donates land, the community may feel that the structure belongs to the owner of the land or benefits him or her more and this conception negatively affects participation of a significant proportion of the community.

In other instances, the provincial administration is reluctant to enforce the by-laws governing use of the water. CASE STUDY BOXESThis gives a leeway for non-members to make use of the water project thereby demoralizing the bonafide members (those who participated in its inception). This impacts negatively on the future participation of the community in subsequent projects.

There is minimal collaboration between project agencies and the ministry of water in the district. As such, the divisional water officers are only aware of the structures being built but have no opportunity to give their technical advice on the same. IS THERE NOT AN ISSUE ON WHETEHR THEY ACTUALLY KNOW THE TECHNOLOGIES USEDIn addition, the divisional water officers have no support staff, forcing them to comb a whole division on their own in difficult terrain and badly maintained roads. This limits frequency of visits to the different water projects. In other instances, the community is supposed to facilitate them by fueling their motorbikes. Given the low socio-economic levels of the people, such facilitation is unaffordable.

Financial and material transparency and accountability in the project implementation is also a major problem.WHERE AND HOW Incorrect ratios of building materials (such as cement) are used as project staff and the committee members secretly sell some. This leads to poor workmanship resulting to leaking structures that cannot hold water as required. Such manner of construction negatively affects the life span of the structure.

Management of the water structure presents another challenge in the sense that the first management committee is made up of trained persons. Once their term in office expires, untrained persons replace them. In addition, the handing over procedure is irregular since some outgoing committees are forcefully replaced. In some instances, they abscond with the records to conceal mismanagement of funds. The outgoing committee members do not see themselves as trainers of the incoming officials. Consequently, subsequent management committees are weak resulting in failure of the once progressive project.

In some cases, the design of the water structure is incomplete SPECIFY HOW DIFFEERN T ORGANISATIONS DEAL WITH THIS. For example, most water projects lack watering troughsHOW MANY HAVE YOU SEEN EVEN WHERE THEY WERE DESIGNED AND CONSTRUCTED. DID YOU INVESTIGATE WHY AGENCIES LIKE SAASOL, CATHOLICS, AND ANGLICANS DID NOT BUILD THEM AGANCIES ARE NOT AS STUPID AS YOU IMPLY forcing the community to use unhygienic and at times unacceptable methods to water their cattle. The resultant effect is that the water is polluted especially where cattle are left to drink from the source. Lack of watering troughs and other water lifting devices also lead to flouting of by-laws governing use of water from the structure.SHOULD YOU NOT RAISE THE QUESTION WHY SIMPLE LIFTING CONTRAPTIONS ARE NOT MAINTAINED BY COMMUNITIES. I ALSO KNOW MANY WHICH DO DID YOU INCVESTIGATE The resultant consequence is a collapse of the entire water project.

In ASALs, there is barely enough ground cover resulting to high surface run off. This presents the challenge of siltation in earth dams and open shallow wells. This has been the case in most parts of the district. Indeed, many earth dams have silted up and hold very little water that cannot sustain the community through the dry spell. This experience lowers the spirit of participation in similar water projects employing inappropriate technology. In essence earth dams have been deemed an inappropriate technology in ASAL regions where evapo-transpiration and siltation are a challenge to the technology.

Poor environmental conservation in the project area has also been a challenge. For example, lack of riverbank protection at the anchor points of a sand dam wall has been identified as weakening the structure thereby resulting to side leakage. The overall effect has been reduced water quantity at the reservoir. The need for natural resource management training comes handy in such instances.

Resource Availability

RETITLE THIS OR DECIDE WHAT YOU WANT TO SDISCUSS. IT IS AGGLUTINATED
When deciding on a project in an area, it is vital to take an inventory of the available resources, both human and material. In Kitui district, such readily available resources include community labour, local construction materials such as stones, gravel, water and sand. It is pertinent to note that communities in the district are differentially endowed with these resources. In some cases, communities are forced to fetch water, sand, gravel and carry stones from far distances. This constitutes very hard/difficult task that sometimes lowers participation levels. As such, the number of people participating in a project decreases as the project progresses.

Management of Water Structures

Management of the water structures is the responsibility of an elected committee, the community at large and to a lesser but vital extent, the provincial administration. Each of these community categories has their own specific responsibility. For example, the local administration has the responsibility of enforcing the by-laws HOW MANY ORGANISATIONS OTHER THEN SASOL HAVE BYLAWS. IF MANY DO NOT HAVE THEM WHAT IS THE BASIS OF THIS DISCUSSION OR ARE YOU RELYING ON SASSOL ALONEpassed by the committees, while the general community reports any persons found illegally using or even polluting the water. Pertinently, the community is vested with the responsibility of electing the committee, replacing those who pull out of the committee, and is a watchdog regarding the operations of the committee. The committee itself is charged with the overall responsibility of overseeing that the water is used as per the by-laws and that the structure is well maintained. In many instances the committee admits new members to the project, fines those who break the by-laws and reports those who use the water forcefully to the administration.

It was found out that management of water structures fails because the terms of reference for the construction committee are not changed to reflect management and use of the water. DID Y0U LOOK AT MANY BYELAWS.DO THEY NOT INCLUDE ACCESS AND MANAGEMENT ISSUESAs such, the construction committee transforms itself into a management committee without the mandate of the people. In other instances, the community is reluctant to elect a new committee for purposes of management. They have a perception that the construction committee might as well be good at management. On the other hand, the construction committee feels that they have accomplished their mission and entrusting them with management of the project is an extra burden. This inherent assumption is the cause of a lapse in management. In a few cases where the project is generating funds, the construction committee is reluctant to leave office for a management committee. They usurp the

management of the structure for their own benefit. Any monies accrued are misappropriated thus making it impossible to meet operation and maintenance costs of the water structures.

Formation of the management structures

SEE ABOVE

As alluded above, there are two levels of management structures or committees. The construction committee is formed after the first public baraza involving the NGO, local administration and the community. In this baraza, the NGO representatives explain the project objectives and approach. They also outline the different roles of the various stakeholders. They spell out the need for a committee to oversee the construction process.

Election of members into the committee is done through acclamation or the secret ballot. Generally, a person is proposed, seconded by a number of persons and if no objection is raised, such a person qualifies to be a committee member. It should be noted that the different positions in the committee require people with certain relevant qualities. For example, the chairman should be a development conscious person, devoted to the course of providing water to the community, honest, and tolerant. The secretary should be a literate person, a good listener, and a humble person who can tirelessly explain committee deliberations. The treasurer is supposed to be an honest and trustworthy person who is a permanent resident in the locality. In most cases, women are elected to this position since it is believed that a married woman, with children, is most unlikely to leave her matrimonial home either on divorce or to look for a job. The insistence on a woman treasurer was evident at Kaw'ongo borehole in Yatta division where this position is held by a female pastor. She is the only member of the committee against twelve men.

The construction committee takes up the coordination of the project. Once the construction is over, the ideal situation is that the terms of reference are reviewed and a new committee elected for operation and maintenance. However, reality on the ground shows that in most water projects the construction committee assumes the role of operation and maintenance committee.

Role of the management structures

THE MANAGEMENT ISSUE IS NOT JUST MICRO, IT IS ALSO MESO AND MACRO GIVEN THE MINISTRY DIRECTIVES ON OWNERSHIP OF WATER STRUCTURES. THEAT IS THE BEGINNING POINT. THEREFORE DESEGREGATE BY TECHNOLOGY AND AGENCY FOR ALL DO NOT RESPOND THE SAME AND THEY WORKED UNDER DIFFERENT MICRO,MESO AND MACRO FRAMEWORKS

As pointed out earlier, water management structures are at two levels, the construction committee and the operational and maintenance (O & M) committee. The construction committee is responsible during the construction process. It is charged with the responsibility of mobilizing the community to collect the locally available raw materials, clear the site for construction, do the manual project work, and look for a store to keep other materials provided by the development agency. To ease management during the construction period, this committee sets up by-laws. Those who flout such by-laws are fined accordingly to deter others. The committee supervises the community in the construction process, keeps records of attendance and membership, collects monies/other levies either for accommodation of the artisans or for food for the community working at site. This committee reports the details of operation and progress to the development agency. They hold meetings with the community to gauge their level of success in the project. By extension, they are answerable to both the community and the development agency.

The operation and maintenance committee is either a newly elected committee or a modification of the construction committee charged with the overall responsibility of ensuring that the structure meets the objective of the project- providing water to the community. Specific duties of this operation and maintenance committee include; modifying the by-laws to make them relevant in the completed project, register new members following the set procedures, collect levies for maintenance of the structure and keep financial and membership records. In addition, it is their responsibility to charge and fine those who flout the by-laws. The notorious by-law breakers are reported to the administration for further action. It is upon the committee to oversee water source protection through fencing, employing a watchman and doing repairs. It should be noted that the operation and maintenance committee is mostly in operation at a time when the development agency has phased out of the area. There is thus a danger of mismanagement of any funds accrued since such a committee is only supposed to be answerable to the community, but in most cases, it is not.

Financial and Material Support to the Committees

Both construction and operation and maintenance committees work on voluntary basis. In this case, they do not receive any financial or material assistance for their own benefit. However, to fulfil their role on maintenance of the water structures they use levies from the water users. Other times, as is the case when the project requires major repairs, such is assessed and the cost distributed amongst the members/users. It should be noted that there is no financial support for the completed project from the development agencies, the local administration nor the government.

In cases of a total breakdown of the project, the committee seeks technical advice and assistance from the ministry of water since the development agencies have no finances to maintain projects after they phase out. Such assistance is either done directly by the committee officials or via the local administration and elected leaders. Otherwise, tools and equipment for repair are bought with funds raised from the levies. The local administration assists the committees to enforce by-laws especially during the operation and maintenance stage.

Given that committee members are persons with family responsibilities, the notion of working on voluntary basis presents a critical challenge. Devoting one’s time in managing communal affairs without compensation for such time is in itself demoralizing. In effect, there is the temptation amongst committee members to compensate their efforts and time by appropriating any monies accruing from the projects.

Community Role in the Management of the Water Structures/Project
SEE LAST COMMENT
As a development partner and a beneficiary of the water projects, the community is in charge of electing both the construction and the operation and maintenance committee. As such, they monitor its performance, replace incompetent members and sometimes overhaul the committees. To facilitate the repair process, it is the community’s responsibility to make monetary contributions as required. In certain cases, they are required to provide manual labour especially in source protection through fencing, terracing, planting trees etc.

Projects Follow Up
There is a weakness in the issue of follow up in most projects. This is because in most donor-funded projects there is a set project period within which the project has to be completed. Thus, there are no extra funds allocated for follow up activities. Even in the way many project proposals are drawn, there is never a provision in the budget

for follow up activities. This has caused project failures in the sense that when the community is left in full charge of a project, they have no access to the development agency for technical assistance in case the project develops problems or stalls.

Community Training for Capacity Enhancement

In almost all development projects in the district, there has been a component of training for project management. The general focus of such trainings has been on community leadership, community mobilization, financial management, record keeping, natural resource management, and hygiene and sanitation. It should be noted that most of the trainings were project specific. Such project specific trainings included, grain storage, soil conservation, organic farming, animal husbandry, personal health issues and income generating activities. However, there has been little focus on operation and maintenance training aspects, which is crucial in project sustainability. THIS IS DEPENDENT ON SPECIFIC TECHNOLOGY SAND DAMS NEED VERY LITTLE, BOREHOLES NEED A LOT INCLUDING MONEY

The above trainings were carried out by each development agency individually without any collaboration with government ministries and other development agencies. This manner of capacity building resulted in duplication of efforts and waste of resources. In addition, the training contents became monotonous to the community resulting to poor attendance in subsequent trainings.

Pertinent to note is the fact that training was done to only a few members of a project, mostly committee members. ARE THERE REASONS WHY THIS IS SOFROM A DONOR/AGENCY POINT OF VIEW AND FROM A COMMUNITY POINT OF VIEWThe trained persons were expected to be resource persons in the community. This strategy has proved to be a failure because the resource persons were expected to cover a very wide area with limited or no resources at all. Further, once the term of office for the trained committee members expired, a new committee of untrained members was elected. In almost all the areas selected for the study, there were no reports of the outgoing committee training the incoming office bearers. As a result, such projects were under the management of untrained persons. This was identified as the hallmark of project failures in the district.

It should be highlighted that in some projects such as organic farming, soil conservation, hygiene and sanitation and grain storage, a large cross-section of the community was trained. The knowledge gained in such trainings is still in use by most members of the community as evident in digging of terraces, construction of pit latrines, establishment of utensil racks and tree nurseries. Use of knowledge gained in income generating activities is also in use as evident in brick construction for purpose of sale and in growing of vegetables and other horticultural products for sale.

Despite the enormous exposure to different trainings, it was established that project management issues, community leadership, community mobilization, financial management, and record keeping knowledge is not used effectively. WHYThis could be explained by lack of commitment among committee members due to the low level of motivation in most projects.

Current Status of Collaboration

In some of the areas visited for the study, the communities were not working in collaboration with any NGO, or a bilateral organization. This is because development agencies have relocated to other areas of the district and as pointed out earlier, such

agencies do not make any follow-ups on the finished projects.WHY As such, communities lose touch with such agencies. In the areas WHAT ABOUT THE HISTORICAL AGENCIES WERE THEIR PATTERNS DIFFERENT visited, it is only SASOL and KAP (a project by DANIDA) that are working with the communities. SASOL is working with the communities in the construction of sand dams and off-take wells while KAP deals with agricultural production, natural resource management, animal husbandry and training of self help groups in the community. Admittedly, there are other NGOs in the district striving to provide water for the people of Kitui. These include AMREF and ICA. Given that each development agency has its own approach and goals, it was established that it is difficult for them to collaborate. IS THIS NOT DRIVEN BY TECHNOLOGIES OR MANAGEMENT OF THE ORGANISATIONS In addition, there is little or no information exchange between the development agencies and as such most development agencies are not aware of what the others are doing. Specifically, most NGOs in the district do not work in collaboration with the ministry of water even when their main goal is to provide water to the communities.

Study findings also reveal that there is hardly any collaboration between the different committees in one community even though they have interrelated functions. For example, the soil conservation committee does not see how its work is related to that of the range rehabilitation committee, THIS IS NOT TRUE ALL THE TIMESTHERE ARE SITUATIONS WHERE THERE IS COORDINATION IN TERMS OF PERSONNEL AND PROCESSES MBITINI, MUTHA, YATTA ETCthe water committee, or the natural resource management committee. Surprisingly, under the Focal Development Approach (FDA) of DANIDA (KAP), all these committees are under one umbrella committee yet there has never been any discussion on how each committee's work relates to that of the other.

The major reason given for lack of horizontal collaboration between the various committees was that committee members have never seen the inter-linkages between the works of different committees.THIS IS ASOCIOLOGICAL-FROM GENERAL SOCIOLOGY WE KNOW THAT INFORMATION TO A COMMUNITY IS PROCESSED. HOW DID WII MAKE THE DICISION TO STOP WORKING WITH DANIDA AND WORK WITH SASOL ETC Some groups asserted that due to lack of vision, people have never thought of uniting the different committees. Indeed, each committee is interested in performing their own tasks and there is no moment of reflecting on how they can assist each other.

The interesting bit to note about horizontal collaboration is the fact that a person could be a member of several committees in the same community, yet during each committee deliberations there is never a motion to integrate the activities of these committees. DID YOU INVESTIGATE TIME LINES SUCH INVESTIGATION WOULD CHANGE THIS LINE OF ARGUMENTThough this has been pegged on the lack of vision, the lack of a village development committee has been singled out as a major factor contributing to the laxity in collaboration issues. Such a village development committee is meant to look at the overall development of the village and would thus take inventory of activities of all committees. This would be a feasible channel for horizontal collaboration.

Project Performance

Project performance could be explained as the extent to which its goals and objectives are actualized. In ASALs, water projects are deemed a success if they are capable of providing water through out the dry spell.OR INTERDROUGHT As already pointed out earlier, most water projects in the district are a flop. The few that are considered a success are marred with numerous problems ranging from poor

management to incessant breakdowns. Anyhow, several reasons were identified as causes of poor performance of water projects in Kitui district.

It was asserted that most projects are a failure if they do not provide enough water to meet all the needs of the people especially during the dry season. This is largely the case in Kitui and is attributed to IS THIS NOT TECHNOLOGY SPECIFICpoor design of the structure and poor workmanship resulting to leaking structures. In other instances, some water structures are wrongly sited thereby failing to optimize the water intake capacity of the structure. This is the case in many dry off take or shallow wells.

Most water tanks in the district have collapsed rooftops or leak as a result of poor workmanship, while most earth dams are usable for a very short period due to high underground seepage resulting from poor siting. The water jar DEFINE IT CONCRETELY AS THE FRENCH SAY project (some kind of water tanks) failed because the structures built were too small to meet the needs of the community. Indeed, the size of some such tank-types was too small to meet the domestic needs of one family! This is squarely an issue of inappropriate technology being imposed on a people. It needs to be noted that most rock catchments in ASALs are not suitable because of high evaporation rates due to the hot temperatures; earth dams need constant de-silting and this is too expensive for the locals while water tanks hold limited amounts of water.

A number of projects have stalled as a result of weaknesses in the management structure. This is the case when the committees are not in a position to fully enact the by-laws.TOO SIMPLE. IF YOU CONTROL FOR SPECIFIC TECHNOLOGIES YOU MAY HAVE MORE CREATIVE ARGUMENTS Consequently, both the members and non-members misuse the water structure. The failure of the administration to support committees to implement their by-laws is innately interpreted to mean that the by-laws are improper and thus can be disregarded. This is an additional cause of diminished morale among the committee members thereby aggravating the problem of poor management.

Study findings revealed that most projects initiated for political reasonsWHICH ARE THESE, WHERE ARE THEY WHEN WERE THEY DONE are a failure. This happens mostly because the project does not originate from the community and are therefore not actively involved. Most of these projects are meant to impress a particular community for specific political gains and may not be the community's felt need. Upon completion of such projects, there is hardly a strong and interested management structure in place. In addition, the community has no sense of ownership in the project and this is detrimental to the sustainability of such a project.

Cost sharing has also been identified as a cause of project failure. The current community contribution is pegged at 10% of the project total cost. Some projects, though appropriate, require high financial input. In such cases, most communities are unable to realize the 10%. This results in delay in project implementation and subsequent completion. For example, phase 2 of Mamole borehole water project in Yatta division was estimated to cost Ksh.20 Million. THEIS DOCUMENTS THE POINT I HAVE MADE ALL ALONG THAT YOU HAVE TO SEGREGATE FOR SPECIFIC TECHNOLOGIESThe community was supposed to contribute Ksh.2 Million, an amount that could not be realized. Were it not for the support of the area member of parliament such a beneficial project would have stalled.

Corruption and lack of transparency DEFINED AND OPERATIONALISED HOW. IS IT NOT A SOCIOLOGICAL PROBLEM-COMMUNITIES SUSPICIOUS OF LEADERS AND VICE VERSA

AND DONORS EQUALLY NOT COMMITTED TO DISCUSSIONS ON COSTS ETC ALSO WHY DO COMMUNITIES ALLOW MATERIALS FOR THEIR PROJECT TO BE STOLEN. WHAT MANAGEMENT STRUCTURES-PARTICIPATORY HAVE ORGANISATIONS LIKE SASOL PUT IN PLACE AND HOW HAS THIS INTERMEDIATED THIS PROBLEM COMPARED TO SAY ASAL MUTOMO OR EVEN THE CATHOLIC Sand accountability during initiation and implementation of some projects has been identified as a cause of failure. As a result of poor supervision, project materials such as cement have been stolen. Structures under construction have been built using incorrect sand and cement ratios resulting to poor workmanship of the structures. Consequently, the community is not motivated to participate in subsequent water projects.

The case of success of water projects in the district is clearly exhibited by the sand-dam project spearheaded by SASOL foundation. Sand dams are underground water storage structures that require minimal operation and maintenance costs. Water is drawn from the structure either through an off- take well or scoop holes. There are minimal chances of pollution of the underground water given that industrial development in the district is naught. These structures are considered a success for they provide water for livestock, agriculture and domestic use even at the peak of the dry season. Their success is a combination of technological appropriateness in the ASALs, maximum community participation and low maintenance requirements.

Capacity Gaps

The failure of many past water projects established in Kitui district is suggestive of a major weakness in the ability of the community to manage their projects. Even though various committees were trained on different project maintenance aspects, weaknesses still abound in certain significant areas.

Firstly, despite the interrelatedness of the various functions of different committees, there is hardly any collaboration among them. As such, each committee strives to meet their terms of reference in disregard of the work of the rest. This may squarely be attributed to lack of an umbrella body to coordinate the work of these committees. In addition, the lack of a village development committee has been singled out as a point of weakness when doing a needs-assessment exercise for project identification.

Secondly, during project implementation, a construction committee is in charge of the process. Upon project completion, the same committee takes charge of operation and maintenance without a review of their terms of reference. The feeling of this committee is that their work was only to complete the construction process and that it is an extra burden to let them manage the structure. This has paved way for laxity in management. In any case, once the term of office for one management committee expires, the incoming one is composed of untrained persons. The outgoing committee members do not consider themselves a resource to the incoming committee. Thus, over time, mismanagement of the project becomes apparent.

Thirdly, even though project work is done by men and women, the management portfolio seems to be a reserve of the males. Where women are in management, they take up the role of the treasurer. The implication is that the management potential of the actual drawers of water (women) is relegated to the periphery.

Fourthly, lack of information sharing among different development partners has been identified as a major cause of project duplication. Sometimes, such duplicated projects are concentrated in one community thereby tiring them and occasioning non-participation of a large cross section of the community.

Lastly, record keeping is poor in the various water projects. This is more so in relation to financial records. This makes it difficult for any project audit to be done and opens a leeway for misappropriation of funds accruing from the sale of water. Once the community realizes such misappropriation, they are reluctant to pay subsequent levies for project maintenance.

It should be noted that the community has been trained on various aspects of natural resource management. However, there is minimal use of the knowledge gained from the training. Even though trained on catchment protection, community members still engage in charcoal burning and farming along riverbanks. This has resulted in wanton destruction of the very base of their livelihood - water.

Project Sustainability (in the process)-

Conclusions

Water source management and catchments conservation and protection are essential. These are aspects of sustainable water management that are missing in Kitui district. Lack of coordination between the different development committees in an area is a major weakness towards integrated water resource management.

Capacity buildingDEFINED HOW is the key to successful integrated water resource management. Capacity building should be seen as part and parcel of the project implementation process. At the completion of any project, the management committees need to be trained on the various aspects of management and an umbrella body to coordinate the collaboration of the various committees set up in the form of a local CBO.

Involvement of all stakeholdersDEFINED HOW in the project implementation process is important. This has been singled out as a major cause of project failure in the district. It is vital that the administration, the politicians and the beneficiaries are well informed of the project, its perceived benefits and operations so as to appreciate its worth in the community. There is need to document the project activities and share them with other development agencies to avert duplication of efforts or concentrate too many projects in one community there by tiring the community. This will ensure complementarity of projects and minimize (a perception of) competition between the development agencies.

Striking a gender balance/equity in the water management committees is essential. As found out, there is skewness of gender representation in the water management committees in the district, with majority of its membership being male. As such, the skills of women in water management are not fully tapped. Being the majority of the actual drawers of water, there is need to involve them in the management of this vital commodity.

Recommendations

- The sand dams have been identified as the most viable water retention structures in Kitui as an ASAL area. With this realization, a full package of a sand dam, an off-take well and a pump needs to be replicated in the

remaining four divisions (Mwitika, Mutitu, Kabati and Ikutha). This should be done with maximum community participation to enhance project ownership.

- There is an urgent need to stimulate training of the community on integrated water resource management especially on operation and maintenance techniques with the overt aim of building their capacity in project management. Training should be geared towards the realization that water is the basic production factor; and should be used for the purposes of creating wealth through farming, the sell of it, brick making, establishing of tree nurseries, etc. To ensure the continuity of these projects, an effective and efficient management structure for the water source is vital. Efficiency and effectiveness of this structure can be ensured through training geared towards capacity enhancement.
- There is need to develop a monitoring system by the relevant local development partnersDEFINED HOW to assist the community in gauging the status of their projects at any given time.
- There is need to fully involve the community in the project right from the start. This can be done through the use of participatory techniques to ensure both men's and women's participation in decision making concerning the type of the project, the technology to be used, and facilitate them to come up with their own operation and maintenance arrangements. The projects should be identified through a needs assessment exercise.ARE YOU SURE NOBODY DOES THIS WHAT IS THEREI EXPERIENCE In addition, there is a need to form village development committees, which are crucial in the needs assessment exercise. The current problem in identifying the people's needs is that the process is flawed. This is in the sense that proposals are first submitted to donors for funding before a baseline survey is done. As for the government projects, community needs are identified at the DDC level where politicians have an influence yet the needs isolated may not be the genuinely felt ones by the community.
- To enhance water conservation and minimize pollution of the sources, there is need to promote horizontal collaboration between the different committees dealing with water, soil conservation, reforestation, hygiene and sanitation. This is only possible if there is an umbrella body to coordinate such collaboration. Such a body should be in the form of a management structure that takes care of the village activities in total and not in isolation. The case of *Manya Takwa Tuthi (a CBO in Yatta division, Kaw'ongo sub-location)* is a good example. (See annex 1)
- Ensure adequate information sharing between the different development agencies including NGOs, the government and the community. HAVE YOU EXPLORED THE KITUI DDC NGO SUBCOMMITTE EXPEREINCEThis is vital to ensure that there is no duplication of projects. The information is also crucial for the incoming agencies to improve on the implementation process and to minimize the incidents of project failure. It is also useful to share information so that agencies do not fatigue the community by initiating too many projects in one community at the same time. Such a move may be interpreted as competition and not complementary. With information sharing, agencies would be in a position to distribute projects over time and space.
- Include the local provincial administration (chiefs and assistant chiefs) in the community trainings so that they can act as resource persons and supervisors of the water projects in their area upon completion of the project and phase out of the development agency. ARE YOU SERIOUS WHAT IS THE SOCIOLOGY OF DOMINATION BY CHIEFS IN DISTRICTS LIKE KITUIThis way they will partner with the committees in enforcing by-laws thereby ensuring sustainability of the project.

- The capacity of the local CBOs needs to be built so that they can assist in monitoring of the area water projects since they do not *phase out* like other external development agencies. There is need to re-orient the CBOs from dependency on external support to local resource mobilization. Pertinent to capacity building is the training of management committees on record keeping. Such records are vital since through them the community is able to fathom the cost of the project against the benefits.

ANNEX 1: Case Study

Coordinating Horizontal Collaboration,
The Case of Manya Takwa Tuthi (MTT)

Manya Takwa Tuthi is a CBO in Kaw'ongo sub-location in Yatta division. This was formed by professional retirees from the area to oversee development in the sub-location. It started as a self-help group charged with the responsibility of coordinating development activities in all the villages.

To keep them going, they have common property such as goats and sheep. Currently, they have 72 goats and sheep. Members of this group see themselves as sponsors of all development projects since they never let any of them to collapse. They educate needy children in the area, rehabilitate their schools, and are currently rehabilitating a social hall for community meetings.

They are highly respected and consulted by the local administration. They are given most of the records of the local administration to audit (especially where money is involved). This way, misappropriation of funds or even privatization of public property is prevented. They see themselves as auditors of development and the administration sees them as a council of advisors.

In water projects initiation, they oversee the implementation together with the various selected committees. This way, they are able to show the community the inter-relatedness of the work of the various committees. They are key in vetting the viability of projects in the area thus making it impossible for an NGO to initiate a white elephant project for they will never approve it.

It should however be noted that there is an inherent weakness in such centralized bodies in the sense that they are prone to misuse by the administration in its favor. Since they form the elite in the community, development is most likely to take an elitist approach thereby not satisfying the needs of the very poor. There is a likelihood of such a body to bulldoze project committees regarding finances and overall management of the projects. The centrality of this body in vetting projects in the area could be detrimental to the community in the sense that they may vet out projects that are beneficial to the community if they cannot fathom the benefits of such a project.

Despite these weaknesses, this is a classic case of a central body that can be used to oversee the continued operation of various management committees; vet project initiation in the area and facilitate the community in identifying viable projects. It is through such a body that integrated water resource management can be achieved. Nevertheless, the capacity of such central bodies needs to be enhanced.

ANNEX 2: FGD Guide

Water sources

1. What are the different water sources in this community?
2. Which of these sources are:
    a) Seasonal
    b) Permanent
3. Which of the sources are a result of
    a) Community efforts only
    b) NGO and community effort
    c) Government effort

Project Implementation

4. As a community, how did you initiate your own water project?
    a) Why did you decide to initiate a water project?
    b) Who was in charge of mobilizing the community?
    c) What role did men, women, youth, aged, and children play?
    d) What type of water structure did you initiate?
    e) What resources did the community lack during implementation of the water projects.
    f) What community projects were a success and why? Which are a failure and why?

Partnership with NGOs

5. How did you implement water projects in partnership with NGOs?
    a) Which NGOs were these?
    b) Who was in charge of mobilizing the community?
    c) What role did men, women, youth, aged and children play?
    d) What role did the NGO play?
    e) What type of water structures were built and by which NGOs?
    f) Which of these projects succeeded and why, which ones failed and why?
    g) Currently, are you working with nay NGOs? Which ones? In which areas?

Partnership with the GoK

6. Has the government implemented any water projects in this community? If yes,

   a) What types of water structures were built?
   b) What was the role of the community?
   c) What was the role of the government?
   d) How was the project communicated/introduced to the community?
   e) Who was in charge of community mobilization?
   f) Which of the projects have succeeded and why, which ones have failed and why?
   g) Currently, are you working in partnership with the Government of Kenya?

Quality of works

7. How would you describe the quality of the water structures in this community?

8. How is the workmanship of the structures? Why do you say so?

Challenges in Project Implementation

9. What challenges/obstacles/inadequacies did you face during:

   a) The initial stages of initiation of projects by (i) Community only
      (ii) NGO and Community
      (iii) Government
   b) Actual implementation of projects by i) Community only
      (ii) NGO and Community
      (iii) Government

Follow up

10. After project completion has the Government and/or NGOs come back to evaluate the projects they helped the community to implement?

Community water management structures

11. Are there community groups/committees involved in the management of the various water sources in this area? (*Incase FGD is not held with committees).*

    a) Which groups are these? (Identity)
    b) How were they formed?
    c) What is their role?
    d) Who supports them materially and financially?

e) What is the eligibility /selection criteria (consider gender, age, education, skills social class)

12. What is the role of the rest of the community in management of water projects/sources?

Sustainability

13. Would the community manage the water projects without external assistance?

a) How would this be possible

b) What would be the challenges?

Training

14. Has the community been trained on the following:

a) Community leadership? By who? Who was trained? How many times was the training done? Are the skills being used? How are they being used?

b) Project management? By who? Who was trained? How many times was the training done? Are the skills being used? How are they being used?

c) Financial management? By who? Who was trained? How many times was the training done? Are the skills being used? How are they being used?

d) Book keeping? By who? Who was trained? How many times was the training done? Are the skills being used? How are they being used?

e) Hygiene and sanitation? By who? Who was trained? How many times was the training done? Are the skills being used? How are they being used?

f) Natural resource management? By who? Who was trained? How many times was the training done? Are the skills being used? How are they being used?

Horizontal Collaboration

15. Do you work in collaboration with any other committees/community groups?

a) Which ones? In which areas?

Recommendation

16. What do you think needs to be done to ensure that projects do not fail in future?

17. What support would you recommend for the community?
    a) From what sources should this support come?

ANNEX 3: Key Informant Guide

- Divisional water officers (DWOs)
- Local administration
- Councilors
- NGO officials

1. What types of water structures/sources exist in this area?

2. Which of these structures are a result of

   a) Community efforts only
   b) NGO + community efforts
   c) Government + community
   d) Government only

3. Describe the processes followed by the
   a) Community
   b) NGO
   c) Government in implementing the water projects in this area

4. What were the different roles of

   a) Community
   b) NGO
   c) Government in the project implementation

5. Who manages the water projects in the community? What are their qualifications?

6. What local resources are available for use in water project implementation?

7. Why do some water projects fail in this area?

8. How is the quality of the water structures in this community? Why do you say so?

9. How do you describe the quality of the workmanship of these water structures?

10. What challenges are faced in implementation of water projects in this area? *(Probe for resources)*

11. What do you think can be done to ensure that water projects succeed in the area?

ALPHABETISE

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