



Poverty and Environment Initiative – Kenya



Voices from the Field Bondo, Muranga and Meru South Districts

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Poverty and Environment Initiative – Kenya

The Poverty and Environment Initiative (PEI) aims to support the integration of environment into development policy, planning and budgeting processes in Kenya. The PEI project responds to the identified need by Government on the importance of the environment in achieving its economic recovery and poverty reduction goals. The 9th National Development Plan (2002-2008) state *“the full integration of environmental concerns in development planning at all levels if decision making remains a challenge to the country”*. It acknowledges, *“in view of the high incidence of poverty in the country, the need to integrate environmental concerns in development activities should be given high priority”*.

The Ministry of Planning and National Development (MPND) leads the project in partnership with the Ministry of Environment and Natural Resources (MENR) and the National Environment Management Authority (NEMA). The project receives support from UNDP and UNEP, and financial support from the UK's Department for International Development (DFID) and the Government of Luxembourg.

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ACRONYMS

ASAL - ARID and Semi Arid Lands

CBO - COMMUNITY-Based Organization

CDF - CONSTITUENCY Development Fund

FBO - FAITH Based Organization

NGO - NON-Governmental Organization

HIV/AIDS - HUMAN immunodeficiency virus/Acquired immune
deficiency syndrome

LATF - LOCAL Authority Transfer Fund

KIOF - KENYA Institute of Organic Farming

1.0 INTRODUCTION

1.1 A BRIEF OVERVIEW

This report is an account of the community consultation process held in the three districts of Bondo, Meru South and Muranga. The report contains information from a study on the districts' poverty and environment challenges, causes and solutions. In earnest, it presents the perceptions and views of local community people in the districts on poverty and environmental challenges, causes and solutions. During the study, the participants indicated that poverty has a negative impact on environment as their communities turn to unsustainable use of natural resources in order to cope with increased poverty situation. They demonstrated that such dependency on natural resources results in a degraded environment. As regards the districts level poverty reductions activities, the communities stated that focus was on agriculture, fishing, forestry and environment, health, free primary education and opening of road network within the districts. They stated that the decentralized district planning processes do not however, consult them in making decisions on project priorities. This has resulted, according to the participants, in the social services delivery, which is not only inadequate to the poor but also unevenly distributed geographically in the districts.

The communities acknowledged the funding available from the government to the local people but mentioned that none of such funds take specific environmental approach to poverty reduction. Instead, the funds are linked to political institutions and processes making them vulnerable to political patronage, exclusion and discrimination.

Similarly, direct funding to community-based initiatives by external donors through the civil society is highly donor driven, short term and does not establish sustainable systems to address poverty and environmental degradation.

Capability deprivation over a long period mainly due to bad governance and external shocks like droughts have driven poor community members into chronic hunger and diseases. This further marginalizes them as active local elites that have access to information on available funds at constituency level take advantage to fund own initiatives that are unpopular with the poor.

The participants in the study raised issues with the framework of decentralization that makes the district the hub of planning and decision making processes, yet has no mechanisms for linking community-based planning and action with the district processes. As a result, in their view, the district processes do not address local livelihood issues and options for increased community involvement in the planning and implementation. Across the communities in the three districts studied, participants could not recall being consulted to state their preferred poverty reduction strategies. In this regard, they recommended that a deliberate effort be made to put in place mechanisms that will ensure that the formulation of District Environment Action Plans (DEAPs) stems from the grassroots, from where communities especially the poor, will have the opportunity to identify and prioritize poverty/environment opportunities that need to be incorporated in those plans in order to address their most important livelihood issues and problems.

1.2 THE DISTRICTS PROFILE

1.2.1 BONDO DISTRICT¹

Bondo district lies between 0° 26° to 0° 90° and from longitude 33° 58° E and 34° 35°W. It borders Siaya District to the North, Kisumu District to the East and Homa Bay and Suba across the Lake Victoria to the South East and South respectively. To the West is Uganda. The District covers a total of 1,972km² out of which 972km² is land mass while the rest 1,000km² is water surface.

Topographically, the District is divided into scattered highland such as Got Ramogi and Usenge in Usigu Division, Got Abiero and Sirafuongo in Nyang'oma Division, lowlands of Yala Swamp and Uyoma Plains. These result into differences in relief, soils and land use. These features give rise to altitudes ranging between 1140m and 1400m above sea level. The oldest exposed volcanic rocks such as basalt, elite and ryloite are also found in the district. In Uyoma Peninsula are found tertiary volcanoes consisting of the nepheline lava agglomerates.

Administratively, the district is divided into five divisions namely Maranda, Nyang'oma, Rarieda, Madiany and Usigu (see map below), each headed by a district officer. The district has a total of nineteen locations and forty-nine sub-locations. Nyang'oma has two locations and seven sub-locations, while Maranda, Madiany and Rarieda have four locations each. However, there are thirteen sub-locations in Madiany, ten in Maranda respectively. Usigu leads with five locations but only ten sub-locations.

Rarieda is one of the five divisions in Bondo with the highest population density estimated at 319 persons/km² while Nyang'oma has the lowest population density estimated at 186 persons/km². The Major factor influencing the settlement pattern is climatic conditions and physical features besides the influence of urbanization. The Majority of the population is poor with poverty levels reaching 71%.

The district has a modified equatorial climate with strong influence from local relief and the expansive lake, which influence rainfall amounts and distribution. Predominantly, the district has warm, dry and humid climate with mean annual rainfall between March and May and short rains occurring between October and November.

The District has various soil types including *ferralsols* found in West Sakwa, South Nyang'oma and usigu divisions, *luvisols* with low- moderate fertility found in North Sakwa, east and Central Yimbo, *gleysols* which are water logging, fertile and variable found in Yala Swamp in Usigu division, photozeous found in Madiany division has fertile and moderately deep soils. Nyandiwa valley in South Asembo has valley soils of low fertility

It also has forest reserves as indicated in the table below:

Table 1: Bondo district forest reserves

Hilltop	Area (ha)	Status	Use
Got Abiero	62	Trust land	Grazing, grass, firewood
Got Usenge	83	Trust land	Grazing, grass, firewood
Got Ramogi	283	Forest reserve	Partly intact natural forest; Partly exotic trees planted by KEFRI cultural attachment, herbal medicine
Rambugu Hills	5.4	Trust land	Grazing, grass, firewood
Sirafuongo	10	Trust land	Grazing, grass, firewood

1.2.2 MERU SOUTH DISTRICT

Meru South is one among thirteen Districts in Eastern Province. It is situated between Longitudes 37 18'37" and 37 28'33" East and Latitude 00 07'23" and 00 26'19" South.

¹ Source: Status of environmental report 2004, Bondo district.

The total area of the Districts is 1092km² and this includes 360km² of Mt. Kenya Forest. It borders Meru Central to the North, Embu to the South, Tharaka and Mbeere to the East, Kirinyaga and Nyeri to the West at the peak of Mr. Kenya. The District is divided into five administrative Divisions namely Chuka, Igambang'ombe, Magumoni, Muthambi and Mwimbi Divisions. It has a total of 25 locations and 76 sub locations as shown below.

Table 2: Meru district administrative divisions

Division	Area km ²	No. of Locations	No. of Sub-Locations
Chuka	169.6	6	19
Igambang'ombe	210.09	5	12
Magumoni	64.2	6	14
Muthambi	84.8	3	10
Mwimbi	203.4	5	21
Total	732.9	25	76

Source, District Statistics Office

The District has one constituency – Nithi and three local authorities – Chuka Municipal Council with 5 wards, Chogoria Town Council with 4 wards and Meru South County Council with 12 wards.

The District has bi-modal rainfall pattern with rains falling during the month of March to May and October-December. The highest amount of rainfall ranges from 2200mm in Chogoria forest station to 500mm in the lower areas of Igambang'ombe Division. The upper areas experience reliable and poorly distributed rainfall. The short rains of October to December are more reliable than long rains. Temperatures in the highlands ranges between 140 to 170c while those of the lowlands between 22^oc to 27^oc.

The District covers an area with an altitude ranging from 5200 meters at the peak of Mt. Kenya to about 300m in the eastern parts of the District's Igambang'ombe Division. This wide range of altitude gives the diverse range of Agro-ecological zones including tropical alpine forests. The district is divided into the following agro-ecological zones a fact that reflect agriculture potentials.

Table 3: Agro-Ecological Zones

AEZ	LAND USE	CARRYING CAPACITY
UHo(Upper Highland)	Forest Reserve.	--
LHo(Lower Highland)	Forest Reserve	--
LHi(Lower Highland)	Tea, Dairy, Food crops	0.4 L unit/acre/year
UM ₁ (Upper Midland)	Tea, coffee, Dairy Horticulture	0.4 L Unit/acre/year
UM ₂ (Main Coffee zone)	Coffee, Dairy, Food crops, Rain fed horticulture	0.2 L unit/acre/year
LM ₃ Main cotton zone	Cotton, Food crops, dry land, green grams and pigeon peas	0.1 unit/acre/year
LM ₄ Marginal cotton zone	As in LM ₃	0.03 L unit/acre/year
LM ₅ Livestock/millet zone	Millet, sorghum, dry land, Pulses and livestock	0.03 L unit/acre/year

Source DAO Meru South

NB. Carrying capacity – No of stock in given class or classes expressed in livestock unit or herd, which a rangeland unit will support for a period of grazing or if feeding is allowed. *Livestock unit* – this is the standard animal unit where different ages, types or species of livestock can be related for the purposes of forage availability to animal needs or comparing different livestock enterprises or different livestock types.

The District can geologically be separated into the volcanic western part and basement system on the eastern part. The volcanic part has ridges on the middle and lower slopes of Mt. Kenya with uplands and scattered plateaus. The basement system shows several different landforms such as hills, uplands, plateaus and valleys. The soils of the ridges are formed from volcanic parent material and are very deep red clay (nistols and andosols). The soils of the volcanic plateau are moderately deep to shallow with various textures.

The soils formed from the basement system rocks are predominantly moderately deep to shallow with loam to clay textures (cambisols lavisols and regosols). The soils of the hills are very shallow and rocky (leptosols). The exact natural vegetation reflects soils, altitude, relief and climate.

Mt. Kenya and slopes in the upper region and the rivers that have cut v-shaped valleys and ridges from the mountain to the middle parts, the hills, plateaus and valleys in the lower parts of the district, form diverse physical features and have an effect not on human settlement and land use in Meru South district.

The upper zones of the District are utilized principally for growing food, cattle rearing through zero grazing and cash crops such as tea and coffee while the lower drier areas are mainly used for livestock production. Tree crops are grown together with the agricultural crops across the region.

The steeper slopes close to the Mount Kenya is susceptible to severe soil erosion and landslides. The deep v-shaped valleys have not maximally benefited from irrigation but abstraction from rivers is possible through gravity flow.

1.2.3 MURANGA DISTRICT PROFILE

Murang'a District is one of the seven districts in Central Province. It is bordered by Nyeri District to the North, Maragua District to the Southwest, Nyandarua District to the West and Kirinyaga to the East. It lies between latitudes 0° 34'South and 1°07' South and longitudes 36° East and 37°27' East.

The district has a total area of 756Km² (excluding the Aberdares Forest, which is 174 km²). It has four administrative divisions namely Kiharu (239.6 km²), Kahuro (167.9 km²), Kangema (127.7 km²) and Mathioya 220.8 km²). There are seventeen locations and seventy sub-locations. It has three local authorities namely; Murang'a Municipal Council, Murang'a County Council and Kangema Town Council. There are three constituencies, namely, Mathiaya, Kiharu and Kangema.

Murang'a District is predominantly an agricultural with farm holdings, which are generally small but varying in size from the highlands areas, the middle zone and the low areas. The

land rises gradually from an altitude of 914m in the east to 3,353m above the sea level along the slopes of the Aberdares to the west. The highest areas to the west have deeply dissected topography and are well drained by several rivers, which include Mathioya North, Mathioya South and Maragwa flowing eastwards to join the Tana River. This type of topography has high potentials for agriculture.

Temperature varies with altitude. In the lower areas the maximum annual temperatures range between 26^o and 30^o Celsius while the minimum annual temperatures range between 14^o and 18^o Celsius. In the western area, which has mostly high altitudes, the minimum temperatures can be as low as 6^oC. The temperature is moderate in the medium potential areas.

There are two rainfall seasons, that is, March-May (long rains) and October-November (short rains). The high potential areas receive an average annual rainfall of between 1400mm and 1600mm. Within the medium potential areas, annual rainfall averages between 900mm and 1400mm. Low potential areas receive rainfall of less than 900mm per annum. Rainfall in high and medium potential areas is reliable and well distributed throughout the year and is adequate for cultivation. In contrast, rainfall in the low potential areas is unevenly distributed and thus unsuitable for cash crop production.

Variation in altitude, rainfall and temperature between the highland and lowland coupled with differences in the underlying geology of both volcano and basement system rocks give rise to a variety of soil type. Coffee, maize and dairy farming is also practiced in this region. Soils in the lower areas are predominantly black cotton soils.

The district has a combination of both natural and exotic forests all forming the expansive Aberdares forest, which occupies a fifth (174km²) of the district's total area.

Kiharu Division has the lowest population density of 354 persons per km² and falls under the lowlands areas. The farms here are relatively large in size ranging between 2 to 7 acres. The climate is unsuitable for cash crop production (tea and coffee). This area however, has a high potential for food crops with the majority of the people concentrated in the peripheral areas of Murang'a Town. The farmers engage mainly in subsistence production and therefore realize little to support modest livelihood.

Kahuro Division, on the other hand, falls under the transitional zone, that is middle zone and has the highest population density of 552 persons per square kilometer. A large part of the division enjoys a moderate type of climate suitable mainly for food crops and cash crops especially coffee. However, tea is also grown but it is limited to suitable climatic conditions found in the areas bordering Kangema Division. Dairy farming is also popular. The larger part of the terrain is moderately steep but does not significantly affect settlement patterns because of the relatively small farm holdings, which range between 1 to 3 acres per household. Human settlements are evenly distributed across the division including the steep slopes in some areas.

Both Kangema and Mathioya Divisions whose population densities are 482 and 502 persons per km² respectively border the Aberdare Forest. The two divisions generally have a steep hilly topography and enjoy a climate suitable mainly for tea production. The human settlements are found along steep slopes and generally limited flat areas. Average farm holdings are very small with some households occupying less than one acre of land.

Crop diversification is however very limited because of the unsuitable weather patterns. Households have to purchase their food requirements from outside. This bears heavily on household income and impacts negatively on other forms of livelihood. The most vulnerable groups to poverty include the unemployed youth, the landless, the widows and orphans. Some parts of Mathioya Division, which border Kiharu Division and the lower parts suffer from unfavorable climatic conditions similar to those of Kiharu Division. Most inhabitants of Kamacharia Location, which is in Mathioya Division, live below poverty line.

Table 4: Population Distribution and Density by Division (Year 2002)

Division	Population	Density Persons per Km²
Kahuro	92,633	552
Kangema	61,533	482
Kiharu	85,355	356
Mathioya	110,771	502
Aberdare Forest	11	0.06
Total	350,303	377

Source: District Statistics Office, Muranga, 2001

2.0 POVERTY – ENVIRONMENT NEXUS

2.1 OVERVIEW OF STAKEHOLDERS' INTERESTS

There are formal and informal stakeholders with interest that relate closely to poverty and environment issues. Most of the formal stakeholders are registered community self help groups working in collaboration with NGOs and/or government departments. Others are constituency level based committees formed to handle designated government funds disbursed to constituencies. Most of the CBOs and community based projects mentioned to have had some poverty environment initiatives in Meru South and Muranga districts are mainly funded by Christian organizations supported by among others the PCEA, Catholic, Anglican and Redeemed Gospel Churches. Government extension services offered by the departments of agriculture, forest, fisheries and NEMA were acknowledged as present in the communities but viewed to offer limited guidance to communities on participatory environmental conservation in the districts. Although yet to make impact in environmental conservation, the collaboration between Fisheries department and Beach Management Units (BMU) have made good progress in mobilizing local people to address rampant poverty in Bondo district. BMUs are local organizations formed by communities at village level. NGOs are also yet to make impacts in the communities as far as poverty environment issues are concerned. Green Belt Movement (GBM) however, has targeted women as entry point to tree planting in Muranga district and has made impact with the beneficiaries. “We owe the presence of the available trees in our locations to the efforts by GBM”, said a female participant at the community consultation meeting in Muranga. In all

the districts, here are very active informal community groupings formed around interests and perceived conveniences in the exploitation of a given natural resources. For example young men have informal grouping around natural resources whose exploitation need surmountable force, energy and hard labour. For example in Meru South district the groups are formed around illegal logging in forest areas, charcoal burning and quarrying sites in Muranga and at the sand harvesting sites and fishing points next to the beaches in Bondo.

2.2 TRENDS IN POVERTY AND ENVIRONMENT

There is evidence of negative change in environmental assets and poverty situation in the three districts. An analysis of the trend in quality and quantity of the natural resources done by the communities (see table below) showed that the resources are actually diminishing and destined for extinction if no intervention is carried out. Similarly poverty situation has worsened over the period. The analysis on the changes realized over 50 years since the 1960s to date indicated a sharp decline in quality and quantity of environmental assets and increase in poverty situation in the three districts.

According to the communities in the three districts, the changes on the quality and quantity of their natural resources has shown tremendous depreciation giving a negative trend. For example, Bondo district had a lot of sand deposits along the beaches of Lake Victoria up to the 1990s when the sand deposits began to be targeted for construction work in the newly created Bondo district. Increase in sand harvests and quarries in Muranga and Meru South districts show negative trend according to the communities who say this contributes to environmental degradation. According to Muranga people for example, before 1980 sand was mainly harvested from rivers where it was deposited by run off. By 1980 the demand drastically increased leading to creation of big sand harvesting sites that now impacts negatively on the environment. The same community explained that animals in 1960s included hyena, monkeys, porcupine, gazelle, impala and forest hog. Today it is almost impossible to see any of these animals. Springs and wetlands areas were owned communally managed by the whole community (in all the three districts). Later in the 1980s the springs were grabbed by individuals who used them for their on personal gains. The wetlands and springs were therefore degraded. Traditionally, the communities reported, the wetlands were not cultivated and remained with vegetation. However, farming in the wetlands cleared vegetation leading to reduced water availability. Reduced water in these wetlands has caused local extinction of wetland food resources such as arrow roots and sugarcane. The causes of the negative trend in quantity and quality of the natural assets in the three districts are human activities that the participants linked to poverty.

Poverty manifestations have also increased in the communities over the same period. Landlessness especially in Kiangundo and Kajuki areas of Meru south and early marriages among other manifestation have respectively been driven by population increase and lack of income. In Bondo, degraded land over time has resulted in endemic hunger. Malnutrition also manifests poverty in the area. Collapse of coffee industry in Muranga has occasioned poverty manifested in poor dressing, malnutrition, school drop outs and alcoholism. Coffee trees were cut down and replaced with other crops that have not retained the soil fertility. The tables² below on (i) changes and trends in environment and

² The groups discussed the changes and trends in natural resources in their respective districts. They first listed down the natural resources they earlier identified, discussed what they perceived as the changes in quality and quantity for each natural resource over 50years period beginning in the 1960s, 1970s, 1980s, 1990s, and 2000 to date. Similarly, the participants also identified and listed what they believed were manifestations of poverty in their communities and discussed their perceived changes and trends over 50 years beginning 1960 to date. The groups used locally available materials, mainly small stones, to ranks their scores in a matrix drawn on the ground. The scores were awarded based on the participants' perceived quantity and quality of a natural resource within a given decade. The scores ranged between

(ii) changes and trends in poverty manifestation gives an account of communities own experiences.

TABLE 5 - CHANGES AND TRENDS IN ENVIRONMENT: COMMUNITIES' PERSPECTIVES

DISTRICT	Natural resource	Historical trend in quantity and quality of natural resources over the last 50 years					Causes of the changes in the trend
		1960s	1970s	1980s	1990s	2000	
		Score key for quantity and quality: 10 = Highest: 1 = Lowest					
							- 05
MERU SOUTH	Rivers/Streams	8	6	4	2	1	River bank farming Destruction of catchments areas
	Forest	10	8	6	5	3	Demand for timber for construction
	Quarry sites	2	4	6	8	10	Increased demand for building materials
	Sand harvested	2	4	6	8	10	Erosion Demand and consequent tapping by harvesters
	Wildlife	10	7	5	3	1	Destruction of forests, transfers to other places
	Land	10	8	6	4	2	Reduced fertility, overpopulation reducing size available per family
BONDO	Seasonal Rivers	10	3	5	11	2	Lack of rainfall except during the elnino rains of the 1990s
	Sand deposits	10	10	6	6	1	Increase in demand for sand for construction
	Trees	10	7	4	4	1	Charcoal burning
	Fish	10	7	5	12	1	Reduced rainfall, fishing of undersize fish, increased fishing activity
	Lake	10	7	5	10	1	Reduced rainfall
	Wildlife	10	7	6	4	1	Destroyed habitat
MURANGA	Land	10	7	6	4	1	Increased pollution, poor fertility
	Forests	10	8	4	2	1	Deforestations due to charcoal burning, wood industry, farming
	Rivers	10	9	6	4	2	Deforestation Agriculture activities along river bank Tree cutting along the river banks
	Springs/wetlands	10	9	6	3	1	Farming Land grabbing
	Quarries/Sand	8	10	14	16	18	Poverty Population growth Unemployment Climate change

TABLE 6 - CHANGES AND TRENDS IN POVERTY MNIFESTATION

DISTRICT	Poverty manifestation	Historical trend in poverty manifestation over the last 50 years					Causes
		1960s	1970s	1980s	1990s	2000	
		Score key for increase: 10 = Highest: 1 = Lowest					
							- 05
MERU SOUTH	Landlessness, especially in Kiangundo and Kajuki areas	2	4	6	8	10	Population increase
	Unemployment	2	4	6	8	10	Retrenchments
	Inability to pay for education	2	4	6	8	10	Expensive education Lack of motivation due to low income
	Early marriages	2	4	6	8	10	Lack of income
	Diseases like HIV/AIDS	0	0	6	8	10	Poverty
BONDO	Many diseases	2	4	6	8	9	Malnutrition

10 for (highest score) and 1 (lowest score). Once the ranking was complete, the groups made conclusions on the general trends discussed the human activity causes for the trends in poverty and environment.

MURANGA	Land conflicts	2	4	6	8	9	Dispute over diminishing arable land
	Endemic hunger	1	4	5	7	10	Low soil fertility resulting in failed crops
	Low income	2	3	6	7	9	Lack of produce to sell, no jobs
	Migration for jobs	1	2	3	8	10	No motivation for farming
	HIV/AIDS				7	9	Poverty
	Over cultivation	1	4	6	8	8	Few fertile portions of land
	School dropouts	3	5	5	8	8	Failure in the coffee industry
	Malnutrition	4	3	5	7	8	Loss of income resulting from failure in the coffee, drought
	Poor dressing	4	3	6	4	5	Collapse of coffee industry
	Alcohol	5	8	4	8	6	Corruption
Depression	5	4	5	6	7	Idleness, Unemployment, diseases like /HIV/AIDS/malaria Drugs	

2.3 STATUS OF NATURAL RESOURCES

The communities are endowed with rich natural resources, parts of which are legally protected as reserves or parks for biodiversity, water and soil conservation. Due to population growth and poverty, natural resources have increasingly been converted into cultivated and constructed areas. The increasing dependency on natural resources to cope with poverty as seen above has put pressure on the e natural resources.

Forests and woodlands are important sources of economic, social and environmental benefits to the local communities. The spread of farming and grazing, firewood collection and illegal logging and sand harvesting is leading to the irretrievable loss of indigenous forests and soil fertility in the communities. Those who do not have long term security for their farm or grazing land do not feel any incentive for planting trees and consequently rely on communal or government owned natural resources for fulfilling their subsistence needs. In times of hardship (drought, floods, wildlife menace, and fires), rural poor rely even more on the surrounding natural resources for their survival, increasing the pressure to unsustainable levels.

Increased poverty is leading to increasing land and biodiversity degradation in rural areas. During the community consultations, the participants analysed status of various environmental assets in their respective districts as follows (Also see table... on status of environmental assets).

2.3.1 BONDO DISTRICT

Poverty in Bondo district, according to the participants of community consultation process, is felt with varying intensity for each category of persons in the community. The coping mechanisms to poverty also have a lot of negative impact to the environment. For example, unknown number of children of school going age have dropped out of school and gone into casual job opportunities in order to provide for themselves and their families. The children dropped out of school for lack of money to buy school uniforms and food. At the same time, youth from poor families do not attain enough education qualification to compete for professional jobs. They cope in life by offering cheap labor at sand harvesting sites along the beaches and also by fishing in Lake Victoria. Women on the other hand have the burden of providing basic necessities like food; water, treatment, clothing and general care for their family. Quite a number of them resort to petty trade like selling fish at the lakeshore. Participants at the Bondo community consultation also mentioned that some women engage in commercial sex at the beaches to cope with their family demands for basic needs. The aged and disabled members of the community rely on handouts to cope with chronic hunger and poverty (see table annexes for more details). The participants

identified the following natural resources and discussed how their availability impact on the poverty and environmental situation in their community.

(a) Land

According to participants of community consultation in Bondo, ownership of productive assets, especially land, is increasingly becoming an important economic factor used to distinguish those who are rich from those who are poor in Bondo district. Participants said that land available for crop husbandry has decreased in both quantity and quality due to factors they alluded to increased population and poor farming methods. Parts of the district are not arable. 'Our district is semi arid with large portions of land bare without vegetation and not fit for subsistence farming,' said one participant. During a reconnaissance visit in one of the villages in Bondo, the participants demonstrated the difficulties that the poor people of Bondo face when they gave the example of an elderly woman found seated in front of her house watching her daughter cultivating their farm and worrying about the yield that would come out of the farm. The size of land available for the family is large but the section where subsistence farming can be done is less than a quarter of an acre. One part of the land is covered with stones and not arable yet this is the only piece that her late husband inherited from the father. The woman recalled the good old days when there was enough fertile land for each family. She wished she were born during those days that her mother told her of very large chunks of arable land available for a whole clan use. Today, according to her, "population has grown reducing the size of land available for each family and also resulting in over cultivation and land conflicts due to encroachments". Apart from fishing at the lake and urban-based jobs, most of the poor people still derive their livelihood from land. As a result, people who lose their land or have no land or other means of earning an income are said to descend almost instantly into poverty. With the decreasing availability of land, fish and forest resources³, traditional sources of food and income are disappearing. Sharecropping is still common. In many areas, absentee landlords leave productive farm land fallow.

While size of fertile land available for use by each family has drastically reduced, poor agricultural practices such as ploughing along the hill slopes, riverbanks and slash and burn cultivation, have contributed to accelerated soil erosion evident in the area and loss of soil fertility. Landlessness and depleted natural resources have caused many people in Bondo to exploit the beach land too.

(b) Freshwater Resources and wetlands

The participants reported that some streams and ponds are dry completely and no longer have water. In addition, wetlands that provided sources of fresh water have dried up due to agricultural encroachment. Remains of what used to be wetlands only become wet for a short time during rainy season but for a period too short for subsistence farmer to grow food crops. The members of the community also scramble for such "wetland". Because of dry wetlands, people walk long distances in search of water for domestic use and for their livestock. This situation has portended suffering and subjected people in Bondo to poverty.

Drinking water is also sourced from ponds that are dirty and contaminated. "We need money to buy the water purification stones", said the participants who also added that water from the ponds are not proper to drink or wash cloths unless it is treated and yet they

³ Refer to the table on changes and trend....

have no alternative. In spite of this fact, the remaining ponds have reduced in size too. Cutting down of trees for charcoal and overgrazing in the areas surrounding the ponds respectively contribute to the bare land and loose soils that cause soil erosion blamed for the diminishing of the pond. The community members have to contribute money in order to meet the cost of maintaining them. The participants also observed that due to poverty, some people cannot afford to treat the water and just consume the dirty water. Such people have encouraged myths that only threaten their health. An old man for example, remarked during the consultation, “look at me, I am older than all of you and not sick. It is this water that I have consumed since the time I was born. My father and forefathers also consumed the same. I find it okay.”

(c) Sand Mining

Beaches along Lake Victoria have provided sites for sand harvesting. Community reported selling of sand as a major alternative to getting money by the poor who are not able to afford recommended fishing nets for the lake fishing. According to participants, sand mining in Bondo is a new lucrative business being sponsored by middlemen from far-flung areas. They find sand very cheap at the beaches. It costs as low as Ksh 300 to fill a 7-ton lorry with sand that is then sold for more than Ksh 6000 in Bondo town and elsewhere in the neighboring districts. Some of the poor who have given up their farms for sand mining say it is the surest way of getting money than using the same farms for farming that has become very unpredictable due to unreliable rainfall and exhausted soils. Some fishermen have also turned to sand harvesting as an alternative to fishing at the lake, which has become expensive due to fishing regulations. They say that in sand mining they do not have to risk their lives by hiding for long hours in the deep waters from enforcement and security officers. The businessmen who purchase sand come with ready cash however small it may be. One woman narrated how sand mining has affected her livelihood, “I had lost the whole of my farm to sand harvesters. All the fertile soil was removed and washed into the lake causing me to abandon the farm and I have only returned to it after stoppage of sand mining in the area by the District Environment Officer, Bondo. I can now grow some crops although I have lost all the fertile soils”. Several families face similar situations of submerged farms due to sand harvesting. Sand harvesting has resulted in so much environmental degradation as well subjected farmers to poverty after their farms have been overexploited.

(d) Forests

Bondo in its original setting was full of trees and shrubs. Because of these forests, traditionally women born in Bondo were famously known as ‘nyar bungu’, meaning daughter of the forest. The bare semi arid land with few shrubs, which is the picture of Bondo today, was an expansive forest that engulfed the both human and wildlife habitat in the 60s. Male participants told of how they bargained several months to get a woman married to Minya village because the brides’ parents could not imagine their daughters going to marry in Bondo and mingle freely with wild animals. ‘We were in fact cautioned to be worry of hyenas and leopards when getting married to the area,’ recalled one of the ladies married to the area from the neighboring Asembo Location. Many of the villages derived their names from the forest related resources. Minya village venue of the community consultation process means a place of many trees. Today Minya stands out as an example of deforestation due to trees cut for wood fuel and construction of human settlements.

The community has tried to preserve several tree species, such as *albezia coriaira* (*ober*) and *acacia nilotica* (*obede*) by enforcing cultural beliefs that restrict their use to specific functions but this has not yielded any preservation cause. Such species are preserved by the community for medicine, construction and firewood purposes. The population increase and the consequent demand for firewood and building posts have threatened preservation. In order to cope with this demand, some individuals have opted for tree planting in order to boost the supply. “We are planting new trees species that are alien to this area but are able to mature faster and bring quick returns”, said a farmer who also participated in the community consultation in Bondo. The poor who can afford this kind of reforestation are however oblivious of the dangers caused by some of the trees species they have introduced to their farms. They have information attributed to local non-governmental organizations and Agricultural extension workers to the effect that the quick maturing eucalyptus species also renders the soil infertile and unsuitable for planting other crops.

(e)Threat to Lake Victoria

Ndari village in Nyangoma division of Bondo district is the most dramatically visible example of soil erosion. The problem of course, is not localized, as it is also a result of deforestation and soil degradation, which encourage rapid runoff. The problems here are difficult as they involve both overland and subsurface flow of water through land that cannot hold onto it. The interventions are also very different. Poor villagers from Ndari participating at the community consultation in the village had this to say about their situation, “The farmers upstream don’t believe they are to blame for the runoff, which has now caused such silting in Lake Victoria that the fish are having trouble reproducing. We try to tell them that all the problems we are seeing in the lake are emanating from upstream, but that’s hard for them to believe.” They added “The Lake has sustained our wellbeing for a long time, but now, it has become difficult depending on the lake for food. Popular fish species have disappeared; fishing nets recommended by Fisheries Department are too expensive for the poor”. The result of these has been the abject poverty in which the majority of the people in Bondo, who have for many years depended on the lake, are.

Furthermore, at Minya Beach on the lakefront, the weighing market is empty now. “It used to be you couldn’t park here because the trucks from the fish-packaging factories took up all this space.” Now the scales sway with the wind and the market echoes with the sounds of children playing on the beach. One elder spoke of a time, when he was young, when there were fewer fishermen, and more fish. “Maybe we had twenty boats. Now we have over one hundred boats. The lake is still the same size, but the fish don’t multiply like they used to. The more boats we have on the lake, the more dangerous it is. They have to out farther and farther to catch fish. The fishermen are poor and don’t have expensive gear it takes to avoid catching fish that are too young, and they are cutting off the fish spawning cycle.”

According to one elder, poverty here is so extensive many cannot afford to send their children to school. During the El Nino’ rains of the late 1990s the lake became overrun with water hyacinth. “This was a blessing and a curse. The water hyacinth caused many people to suffer. They couldn’t fish. But this meant the fish could multiply. When the water hyacinth left, people began fishing again and now the stocks are so low, they have to go farther and farther out in the lake, and get arrested fishing in the waters of other countries.” Furthermore, what few fish left, like Nile perch, seem to be significantly reduced in numbers, though scientists have not yet determined the precise cause of the fish

depletion. According to the fishermen in Minya village, fish have begun to migrate to the Ugandan side of the lake where the waters are deeper. So have the Kenya fishermen.

“If something isn’t done for us, said one fisherman we are going to die. I’m a fisherman. I used to go out and in six hours my boat was full. Now you catch nothing or maybe one kilogram of fish, that’s worth 50 or so Kenya Shillings. Our daily expenses are over 100 Kenya Shillings. You are here now, and I am embarrassed that I cannot even give you a fish as a gift.” “If a man is born and bred in Minya, he is a fisherman, and must go to the lake, even if it holds nothing for him.”

2.3.2 MERU SOUTH DISTRICT

Overcoming natural resource mismanagement to make sustainable gains in productivity while ensuring equity is the challenge in this district. Poor people in Meru South turn to the exploitation of natural resources as a means to cope with poverty problems. According to the poor in Meru South, the activities that the government sees as leading to degradation of natural resource have been driven by the need to cope with poverty in the district. As a result “we indulge in illegal logging, honey harvesting and farming in the forest to make ends meet. We find farming along the river bank much easier because water is near”, said the participants. The community also views control of wildlife, forest and rivers as sole responsibility of the relevant government departments in the district. The individual landowners control activities on their land. In either way there is no clear consultation process between government and community institutions or individuals in matters pertaining to environmental management. The use of participatory measures to respond to poverty environmental issues is still a challenge in the district. Law enforcement on the side of the government is seen as unfriendly undertaking that only perpetuates a hide and seek game between government officers and members of the community who are involved in the natural resource exploitation. During the community consultation process in the district, the participants identified and discussed poverty situation and the status of the following environmental assets.

(a) Forests

Meru South district is endowed with forests that are part of the Mt Kenya forest. During community consultation on poverty and environment challenges, the participants reported having noticed the forest cover in their district reduced by an estimated 50% over the last 50 years⁴. They attributed this to the increase in the demand for forest products especially timber and charcoal. To them, this is what has resulted in the deforestation. People have also invaded the forest to do farming in the face of reduced available farmland per family. Honey harvesting using fire has also caused a great deal of damage to the forest. “People here, both rich and poor, use forest for all manner of ways to satisfy their needs. Some even clear forest to plant bang!” One participant narrated his practical encounters with illegal activities that have contributed to the destruction of Mt Kenya forests. He narrated that the banning of logging in Mount Kenya forest in 1999 saw the emergence of illegal activities by which unscrupulous businessmen continue to exploit the forest. Such practices have only seen the forest diminish despite ‘law enforcement agents keeping vigil for 24 hours.’

Growing of bhang inside the forest of Mt Kenya is a common practice. Since the growing of bhang entails clearing of forests, it is an important issue that must be addressed as the

⁴ See the table on the trends in environmental degradation as observed by the participants of the community consultation process in Meru south district.

activity is a threat not only to the wellbeing of the forest but also endangers the security of the local people as well as those of the enforcement agencies. 'Despite the logging ban, we are still able to purchase the high priced timber like camphor. Illegal loggers mainly youth cut the trees and take away logs at night, sometimes as far as 17km away. They carry the logs on their shoulders and follow hidden paths away from the police roadblocks', says one participant. The participants observed that forests are trust lands under the control/supervision of Forest department and, "they manage and control the forest without involving us although we are willing to cooperate", says one participant. The participants complained that the government has been unable to stop illegal logging and transportation of timber from the forest, because it excludes the local communities from the management of forests.

(b) Rivers

A number of rivers originate from Mount Kenya and cut across Meru south. The study participants named the rivers as Mutonga, Kamara, Mara, Nithi, Tongo, Naka, Ruguti and Thuci. Rivers according to them have also reduced in sizes. They have attributed this to farming along riverbanks, an activity that interferes with the riverbank vegetation. It is however difficult for the community to avoid this because they find water for irrigation nearer. Rivers have also become dumping place for the sewers from Chuka town, which pollute the waters. Other pollutants are the fertilizers coming from the farms along riverbanks. They also mentioned interference with forest as factors that have contributed to reduction of sizes of rivers. The community members reported being beneficiaries of conservation education by ministries of Agriculture, Water and natural resources.

(c) Land, Quarry and Sand

The participants at this study in the district sketched their district and showed two distinct features, which they kept referring to, as different 'worlds'. The upper and lower "worlds" of the district were reported by the respondents as having unique land problems. The upper part, which is endowed with fertile land, has steep slopes and is also densely populated. Land problems being experienced here include soil erosion due to overgrazing and poor farming practices. The inhabitants have mainly grown food and cash crops as well as practice livestock production. The urban centers within the district have no proper waste and solid waste disposal sites. People to the lower "world" of Meru south district reported an increase in quarrying and sand harvesting.

Participants mentioned quarry and sand as important environmental assets in their district. Quarrying and Sand harvesting activity, they said, is helping them raise money for food, school uniform and clothing. They view the sudden increase in the number of quarries and sand harvesting sites in the district as a way of coping with poverty. They regret however, the unsustainable use of the assets. According to the participants, the quarries and sand harvesting sites have notably contributed to environmental degradation. The gaping holes left behind are also dangerous to people.

The participants said that there are many cases of land disputes in the district occasioned by overpopulation.

(d) Wildlife

In a discussion of status and trends of natural resources during the community consultation, the participants observed that wildlife such as elephants, buffalos, Primates - black and white Colobus and Sykes monkeys, Antelopes – bush and water bucks and wild pigs has decreased in numbers. Participants observed that as these forest dwelling animals disappeared when their forest habitat was destroyed. Whenever this happens the animals

feel exposed and migrate to other areas. “When wild animals are exposed they also become vicious and attack us, their perceived enemies”, said the participants. This accounts for the reported increased incidences of human wildlife conflict in the district. The wildlife has destroyed crops and injured human beings and domestic animals.

(e) Harvesting of Honey

Part of Mount Kenya forest found in Meru south district is also home to swarms of bees known for making honey. Although beekeeping groups have been allowed to maintain beehives in the forest, their number is not documented, neither is that of the beneficiaries of bee keeping in the forest. This makes the activity difficult to monitor as the groups mix up with the general honey hunters who do not use modest methods for honey harvesting and instead use fire to harvest honey. Sometimes honey hunters are unable to control fire and it spreads to the rest of the forest causing damage to the ecosystem.

The poor people of Meru south view bee harvesting in Mount Kenya forest as an opportunity for them to make money and earn an added income. However, the only problem they acknowledged is that of the activity causes incidental forest fires and destroys the forest. The honey hunting is the preserve of men.

(f) Fisheries

Trout fish is an important fishery in the region as a source of income and nutrition (food). However, there are little incentives for fish farming as the license fees before establishing a fish farm are exorbitant and expensive. The participants said that they are charged up to Ksh 4000.00 levy for use of river water in fish farming which poor people cannot afford. Fish farming in the district, according to the participants, has the potential for growth as the district is endowed with many rivers. Those who farm fish however, are threatened by the fish poisoning at the contaminated rivers due to environmental degradation caused by effluent from the factories and chemicals from the farms into the rivers.

2.3.3 MURANGA DISTRICT

The economy of Muranga district depended on coffee industry until the industry became unreliable. Low-income earners and poor people depended on the secondary benefits of the coffee trade. “Even our petty trade boomed until the collapse of the industry” said a participant who has since abandoned her small-scale trade to concentrate on subsistence farming. Some farmers have since uprooted their coffee plants and replaced them with food crops. This change in the use of land has resulted in substantial soil erosion. “Maintaining soil fertility is a real nightmare in this area,” were the words of a participant while describing the reasons behind increasing poverty situation in Muranga. The district has experienced decline in soil fertility due to erosion caused by floods and landslides during the rainy seasons. The participants in the district blamed the prevalent poverty situation in the district on the degraded environment and the declined economy. Human activities aimed at coping with poverty have resulted in even worse outcomes. An elderly participant had the following to say when narrating his own experience of poverty and environmental situation in Muranga, *“Before 1980 sand was mainly harvested from rivers where it was deposited by surface run off. By 1980 the demand drastically increased leading to creation of big sand harvesting sites...wild animals species were many in 1960s and included: hyena, monkeys, porcupine, gazelle, impala and forest hog. Most of these are now “rare species”....springs/wetlands areas were owned communally and their management was by the whole community. Later in the 80s they were grabbed by individuals who used the resources for their own personal gains. The wetlands/springs that*

are now degraded were never cultivated and remained with natural vegetation. Today the natural vegetation has been cleared leading to reduced water in these wetlands. This has caused the extinction of wetland food reserves for such crops as arrow roots and sugar cane.”

The participants identified the following natural resources and discussed their status and implications to prevailing poverty situation in the district.

(a) Land

Muranga is home to the world famous Arabica coffee, the area succeeds in agriculture for many reasons, not least of which are two plentiful rainy seasons. The area is densely populated with small farms per household, averaging 0.5 to 2.0 hectares, and they continue to shrink due to subdivision. Tenure security for households is fairly strong, as land is acquired chiefly through inheritance and purchase and stays within families across generations. The inhabitants are generally very successful agriculturally because they are dynamic, enterprising and innovative. They are commercially oriented and have embraced diversification of commercial enterprises as their strategy for success.

Despite their success as compared to the other two districts, the participants at the study said that they are also facing some challenges. The rising population with access to tinier and tinier plots and with increasing cost of farm inputs and inflation, the poor are increasingly finding it difficult to invest in inputs and maintain productive soils. As a result they engage in poor agricultural practices along the steep slopes and riverbanks. These poor farming practices leading to severe soil erosion and soil infertility. Besides the gully erosion, Muranga is, also, highly vulnerable to landslides that displace families and subject them to undue suffering. “I wish I never uprooted the coffee trees from my farm, it had soil retention capacity that I don’t see with food crops and the exotic tree that we have now planted...” said an elderly man perplexed by the extent of surface runoff on his farm. This has been exacerbated by high population that has reduced the size of land available for each person. The poor are even more affected as they do not have influence to own more land.

Poor development planning is also exacerbating land degradation. For example, a woman’s nightmare with gully erosion began with the recent grading of the murrum road leading past Mukuru wa Nyagathanya holy site in Muranga district. She lives in less than an acre plot next to Mukuru primary school. Her dreams of bringing up a family that is self sufficient in food, clothing, medical needs, education and shelter now lies in the deep gullies that divides her farm into two. She has to walk for 15 minutes around the 30 feet deep gully each time she wants to access her crops on the other side of the gully and 50 meters from her house. She blames her fate on the water culvert directing floods into her farm. The road constructors put the culvert. Standing next to the culvert and pointing helplessly to the direction of the floods, she does not know who to turn to next. ‘I have reported this case to the provincial administration and to the officials of Roads Ministry to know avail. I have recently been to NEMA office in Muranga but they have not acted. I now appeal to be registered as a beneficiary of food relief because I cannot produce enough for my family.’

(b) Sand and Stone mining/ Quarrying

Sand harvesting and quarrying have become one of the surest ways for making money for the poor people of Muranga district. The local people report cutting down trees and burn grass whenever it was about to rain in order to aggravate surface run off so that sand

deposits increase. This is done despite knowledge of the adverse effects of soil erosion. ‘If you see some of the residents of the lower part of Muranga district cut down trees and burn grass just before the onset of rains, a Muranga rural resident says, make no wrong guess, they are not preparing land for planting but instead preparing the ground for increased surface runoff so that sand could deposit on the lower farms down the slope!’.

Likewise, Stone mining is an important activity in Muranga. The poor people especially the youth are involved in quarrying activities, which require a lot of strength although with minimal returns. The beneficiaries of the quarrying are the middlemen. Besides the land degradation associated with stone mining such as landslides and de-vegetation, it also contributes to transmission of vector diseases especially malaria regarded by the local people as the number one killer disease in Muranga. Unfortunately, no remedial measures are taken to mitigate the adverse impacts of stone mining.

Frequent land slides in Muranga district emerge as problems for many poor families that cannot buy land to settle elsewhere from the imminent landslides in their midst. Participants attending the community consultation point out that their farms and homes become vulnerable to landslides during rainy season during which time the walls of wide and deep holes dug by sand miners and quarries become weak and collapse. Also, quarrying and sand mining leave behind deep and gaping holes. As a result. The community people say, water collects in the holes making them risky to community members especially children and the poor who cannot access clean water and instead collect water from the holes. The community people also blame the many incidences of malaria in the area to the stagnant waters in the holes that provide breeding sites for the malaria causing mosquitoes.

The abandoned sand mining holes and quarries is seen by the community as significant cause of poverty due to their contribution to increase of diseases and loss of farmland for food crops. The community blames the local land owners, elders and middle men who promote environmental degradation through sand mining and quarrying. Although they acknowledge government action that has seen the closure of a few quarries and sand mining sites, community people also accuse the government of benefiting from the cess fee of ksh 400 charged per lorry of sand bought from Muranga. The government they say closed the quarries only after accidents occur at the sites.

(c) Wildlife

The presence of wildlife such as elephants, buffaloes, antelopes and small animals used to be common in Muranga. But due to land subdivision and land use changes most of the wildlife has been decimated. The only few remaining wildlife species include hippopotamus, crocodile, and vervet monkeys, which are viewed by the community more as enemies to the poor than useful natural resources. They destroy crops and injure people. The animals are according to the community, more valued and protected by KWS than human beings. One participant remarked, “KWS stops us from killing the destructive animals!”

(d) Freshwater Resources

Participants at the study identified springs and wetlands as important places where their popular food crops especially arrow roots and cassava were grown. The participants reported communal wetlands in the district were disappearing. “All our wetlands have been grabbed by the influential rich people in the area”, says one participant. As a result there are very few springs and wetlands remaining for communal use, thus disadvantaging the poor people within the community. Due to scarcity of land, cultivators have increasingly

encroached on river banks. This contributes to increased soil erosion and sedimentation of the rivers. One participant said, due to our poor farming practices, the rivers are taking all our fertile soils to the Tana delta, far away from Muranga district for the Pokomos and Ormas to fight over.” ‘Although government officials have tried to stop river bank encroachment, this has proven very successful. The poor people who have no resources to purchase land elsewhere cannot afford to stop cultivating on the river banks.

(e) Forests

Muranga district was generally rich in indigenous trees. However, because of land adjudication and intensive land use, most of the district is devoid of indigenous trees. Most of the indigenous trees were cleared for settlement and agricultural use especially for coffee growing. Over time, there has been scarcity of forest products and the demand especially for timber, firewood and poles, has occasioned many of the inhabitants to plant exotic trees especially Eucalyptus.

TABLE 7⁵ : STATUS OF NATURAL RESOURCES

DISTRICT	Natural resources	Problems	Role of community the resource management	Role of government in the resource management
MERU SOUTH	Forests	Illegal farming Illegal logging Incidental fires	None	Law enforcement
	Rivers	Farming along river bank Pollution due to lack of sewage disposal Interference of river bank covers Pollution by chemicals used in agriculture	Targeted for education	Educate community on conservation and use through departments of agriculture, water and Natural resources
	Land	Lack of space for disposal of wastes Overgrazing causing soil erosion Bare land due to erosion Over cultivation	Land disputes resolution through clan elders	Land registration Enforcement of land laws
	Quarry (building stones)	Land is left bear Care left turn to pools of water that harbors mosquito and pose danger for public	none	None
	Sand	Soil erosion Water pollution Reduce water levels	Community group control	None
	Wildlife	Destruction of crops Cause injury and death to human beings and domestic animals	None	Protection through KWS
BONDO	Fish	None	None	Regulates fishing in the rivers

⁵ Using locally available materials such as sticks, leaves, grass, sand, small stones, beads, participants modeled their own community maps on the ground. On the maps they located natural resources and identified the problems linked to them. They also discussed the role of community, the government and any other institution, in the management of the resources. Summaries of their findings are listed in the table below. Details of their analysis are discussed in the poverty environment nexus section of this report.

	Bees	Harvesting cause forest fires	None	None
	Seasonal rivers	Drying out	None	Not clear
	Sand and 'murrum' next to Got rachier	Over harvesting causing soil erosion	None	Control over harvesting through NEMA
	Land (with fertile land next to Ndati river	Reduced acreage per family due. Reduced production	Settlement of community conflicts surrounding land	Registration
	Indigenous trees (uphobia used for charcoal, firewood)	Diminished in population	None	None
	Beaches	Soil erosion as a result of sand harvesting	None	None
	Lake	Pollution and reduced water levels	None	Control fishing activities at the lake
	Fish	Species reducing in numbers	None	Control fishing
MURANGA	Forest Rivers Kangure & Kiabicho	Non- exploitation Deforestation Termites eating seeds	None	Total control through forest department
	Rivers	Decline in quantity Riverbank cultivations Pollution Abstraction	Community does exploitation	-regulate flow -regulate fishing
	Quarries	Deep holes risky	Regulate use	Closure in case of accidents Cess fee (400/= a lorry)
	Sand	Deep holes which collect water and therefore mosquitoes Collapse of land	Owners control use	Closure of quarries
	Springs and wet lands	Declining Wetland cultivation	Control the use & activities	Prevent grabbing
	Wildlife: hippo, fish, crocodile, monkeys, birds	Crops destruction	None	Control number of animals Prevent their killing
	Land/ soil	Low fertility PH variation Soil erosion	Individual land owners	-education on agriculture in National Programmes

3.0 POVERTY AND ENVIRONMENT CHALLENGES AND CAUSES

3.1 Cross Cutting Districts Challenges

Poor people throughout the communities visited in the three study districts say that their greatest poverty and environment challenges are lack of assets, including savings, indebtedness and seasonal and environmental threats. Participants indicate that over the years, dramatic food insecurity, environmental insecurity, social insecurity and economic insecurity have resulted because of serious environmental degradation.

Quite a number of the communities' activities throughout the year have a bearing on environment degradation and the consequent poverty. Conservation measures appear to be externally borne in all the communities visited. For example, apart from the deterrent efforts by government that ensures environmental degradation is stopped (NEMA stopped sand harvesting at Ludhi beach, Bondo) and limited conservation projects by NGOs, the communities have no voluntary efforts to conserve their own resources. Similarly, apart from isolated income generating activities and cases of peasant farming, poverty reduction strategies by the community still remain a challenge. Community's coping mechanisms for poverty such as sand harvesting, fishing undersize fishes, charcoal burning, hunting wild animals for food in Bondo, farming on wetland in Muranga and unsustainable use of environment such as poor farming methods at the river banks of Nithi, Timsu, deforestation in mount Kenya forest, water pollution/ contamination at Naka and kiruru rivers, and thagira stream as in Meru South are actually conduits for natural resource depletion. These together with activities⁶ mentioned as responsible for poverty escalation seriously portend the current poverty situation in Bondo, Muranga and Meru South.

Although there are sectoral effort to address poverty and environmental challenges in all the districts visited, the major cross cutting challenges is the involvement of communities in decision making as regards the district poverty environments planning process. The following are summaries of the major challenges in addressing the poverty environment problems as identified by the participants of the three districts of Meru south, Muranga and Bondo. some of the challenges were discussed in the previous section on poverty environment nexus

Table 8: Poverty environment challenges

DISTRICT	POVERTY ENVIRONMENT CHALLENGES
MERU SOUTH	<ul style="list-style-type: none">○ lack of sustainable livelihood means○ Deforestation from Illegal loggers, fire incidences○ Abandoned quarries○ Non inclusive environmental management

⁶ The activities are contained in table 4 of the annex of this report

- lack of financial empowerment
- lack of water for irrigation
- ignorance on environmental issues
- communication problems
- expensive water permits for fish farming
- pollution to aquatic life with coffee factory effluent
- maintaining biodiversity of indigenous trees used for herbs in the lower region
- severe poverty at kamaindo – Kambangombe division with dry, stony soil, landlocked, poor road network and communication
- poor landscape made of deep ridges and valleys making access to rivers difficult and dangerous

MURANGA

- Famine
- Human/Wildlife conflict
- Soil erosion
- Landslides during rains
- Land shortage
- Unemployment
- Destruction of forests – illegal logging, charcoal burning, factories
- Lack of capital
- Improving soil fertility through construction of gabions
- Infrastructure
- Lack of rural electrification
- Failures of government institutions
- How to control privately owned land

BONDO

- Poor Linkages with government departments and other technical people
- Lack of skills in organic farming
- Unsustainable use of natural resources
- Lack of capital
- Inability to access government funds for community development

Some of the participants in Bondo districts shared information on their own real life challenges with poverty; one participant told of her child having passed examinations but was unable to take him to secondary school. Another one narrated of how she lives in squalid conditions and cannot feed herself, while another told of prevalent hunger in her situation that cannot allow her to initiate any income generating activity. Another said she has children but cannot take them to school because of lack of income. A women said, “I don’t have means of survival. My husband died and left nothing behind. Not even a sheep. I am a widow, sick and has no way of bringing up my children, and don’t want to be inherited”. A man said of his situation, “I have problem in getting farming implements and has to use a hoe. Also, inadequate rainfall is the cause of my misery”

The following Poverty - Environment challenges cut across the three districts.

(a) Ever increasing population and diminishing resources

Several communities in the study are faced with a decreasing availability of land, which they attribute in part to early marriages and large families. A young man from Meru South comments, “my sister failed [to advance to secondary school] just because of school fees. As I am talking, she is married because she had nothing to do.” Poor women throughout the study mention frequently that they married and began having children at a very young age. At Minya village in Bondo district, for instance, a female participant mentioned having dropped out of school after grade three because the family could not afford school uniform and food. She recounts, “soon after reaching puberty, I got married to a man from my village. We had eight children, but four of them died.” her husband has since died and she is now a widow. In all instances, poor men and women identify their communities’

rapidly growing populations as a key cause of food insecurity as a result of over cultivation. There is simply less land for crops to go around. The average size of landholdings among poor people is about half a hectare. Increased population has also been blamed in diminished sizes of indigenous trees than populations depend on for construction and fuel.

Among the poor people, single and widows are particularly vulnerable to exclusion and insecurity. For example, more than one third of Bondo's poor people live in households headed by women, an unusually high proportion. Women across many communities depend on their husbands to be the main breadwinner. If divorce or death of the husband should befall the household, women, who have fewer livelihood opportunities, are left with the responsibility of caring for children. Women from Bondo indicate that this is why most female-headed households belong to the lower wellbeing classes:

(b) Seasonal and Environmental Stresses

The poor people in the three districts study area are highly vulnerable to both seasonal and environmental stresses, notably flooding, landslides, physical erosion and depleted soils and problems with water and sanitation as a result of deforestation and poor land use practices. Poor people emphasize that the more well-to-do groups have been able to shield themselves from increasing pressures on natural resources, while they have become more exposed and insecure in the face of environmental and seasonal changes.

Each year the rainy season and drought brings greatly reduced work opportunities, along with hunger and illness. All the discussion groups reported that natural disasters such as long periods of drought and flooding are significant problems because they increase susceptibility to illness and hunger, and destroy crops and shelters. Environmental and seasonal hardships also touch the urban poor. Many urban and peri-urban communities sit in low-lying areas with little drainage and inadequate or nonexistent sanitation. Drainage is a perennial problem, where rainwater stagnates for days in stinking puddles and presents a health threat. All urban communities in the study area report a shortage and deteriorating sanitation conditions. Thus, the poor people report that many resources are being bought up, polluted or overexploited by those who are better off. For example, Chuka town in Meru south district is increasingly being threatened by pollution arising from already huge and growing compost heap where companies and banks deposit their waste materials at the roadside dumping site which is also next to the river bank.

(c) Coping with hunger and other poverty manifestations

Many people especially the elderly and children in all the three districts, go hungry on a daily basis. Hunger, according to the community consultation groups, appears to be present in the urban communities as well although more felt in the rural areas. Frequent hunger brings weakness and illness, which can be catastrophic for those who rely on their physical strength to work and who already live perilously close to destitution. Poor agricultural workers describe a vicious cycle in which environmental degradation leads to less and less food production. Inadequate food leads to weakness, reduced energy to work and illness, which in turn reduces income. Reduced income forces people to turn to environmental assets for survival and the spiral continues.

As a way of helping communities cope with hunger, the government and international organizations provide relief food to the affected communities especially in Bondo and Meru South. However, the beneficiaries are subjected to long queues and wait for long

hours before they can be served at the food distribution centers. In some cases, the relief food is given in exchange of menial work. Such arrangement tends to favor only the stronger and healthy members of the community. Communities are also faced with many other manifestations of poverty to cope with. The following table shows poverty manifestation and coping mechanisms among children, youth, women, elderly and differently abled persons of the three districts of Meru South, Bondo and Muranga. It also shows government direct interventions on poverty as seen by the participants.

Table 9: Coping with hunger and poverty manifestations: communities experience

District	Category of persons	Poverty manifestation in each category of persons	Coping mechanisms by each category of persons	Current government interventions if any
MERU SOUTH	Children	School dropouts Poor clothing hunger	Relief food from faith based organizations	Relief food Free primary education
	Youth	Unemployment Early marriages for girls Involvement in crime	Casual employment Dowry paid used for supporting siblings	HIV/AIDS awareness and sensitization
	Women	Poor shelter Marriage breakages Poor clothing	Rely on well wishers and borrowing	Provisions of emergency relief food
	Elderly	Poor medical care or none Has poor clothing Lack of shelter Going hungry	Assistance from neighbors	Provision of emergency relief food
	Differently abled persons	Poor medical care or none Has poor clothing Lack of shelter	Parental care	Relief food Learning programs
	Poverty coping mechanisms for Community in general	They engage in food for work; replacing harvested trees by planting new ones, receive food, cloth donation from Christian faithful. Offer casual employment at farms, fetching firewood, water and selling. They also farm on wetlands.		
BONDO	Children	School going age have dropped from school.	Offer child labour at sand harvesting sites and fishing at lake Victoria	Free primary education only for in school
	Youth	Jobless, available for cheap labour at the beach for sand harvesting and at the lake fishing	Cheap labour at the sand harvesting sites and fishing at the lake	None
	Women	Available for cheap labour and casual sex work at the beaches	Cheap labour at sand harvesting sites, commercial sex and petty trade in fish	HIV/AIDS education
	Elderly	Mainly idle at the homes in villages and beaches	Receive hand outs from family members	None
	Differently abled persons	Mainly idle at the homes in villages	Receive hand outs from family members	None
	Poverty coping mechanisms for Community in general	Fishing, involvement in income generating activities like sand and murrum harvesting, selling fish, peasant farming using manure, payment of high cost of fertilizers and hiring fee for government tractors used in plough		
MURANGA	Children	School drop outs Malnutrition Poor dressing Poor cleanliness	Fund raising Depend on handouts Child Labour for income	Free education Free Medical Services
	Youth	Drugs Dressing poorly Emaciated, sick ling hungry	Casual Labour Counseling	None
	Women	Poor dressing	Self help groups/projects	Fund self help groups

		Poor health Hungry Depression	Casual labour Depend gifts for cloths and food	Counseling/ education
	Elderly	Dirty Unhappy Senile Poor health	Fed, listened to, loved, given clothes and money and get company from relatives	None
	Differently abled persons	Miserable Poor dressing Dirty unhappy	Provide basic living needs Provide technical training Show love Feeding them Provide encouragement	None
	Poverty coping mechanisms for Community in general	General awareness creation on the need to find good markets for agricultural produce(coffee, tea, milk,) and other produce e.g. baskets Seeking advanced formal education in order to secure good paying jobs		

Generally and according to the participants of the consultation in the three districts, poverty manifestations in children of the three districts include dropping out of school, dropping poorly, staying hungry and suffering malnutrition. They cope through getting emergency relief food provided by government and NGOs. Others benefit from charity while others take to child labour for income. The youth suffer joblessness, involve themselves in crime, have poor dressing, stay hungry, have poor health and are emaciated, while girls opt for early marriage. Other youth indulge in drugs. They cope mainly through selling cheap labour for casual work. Poverty manifestations in women were identified to include poor dressing, poor health, hunger, depression, poor shelter, marriage breakages and joblessness. Others indulge in casual sex. Poor women rely on well wishers for cloths and financial assistance to cope with poverty; others initiate self help projects while others offer cheap labour. The elderly and differently abled persons manifest poverty through poor health, poor clothing, poor shelter and staying idle. Others are unhappy, dirty senile and miserable. They mainly cope through receiving care and support from relatives. In addition to joblessness and hunger, the poor people in all of the communities visited lack or have inadequate access to most basic services. Polluted drinking water, substandard housing and poor road infrastructure, lack of electricity and sanitation are widely observed. Poor people are exposed to environmental and seasonal risks in their communities.

(d) Environmental health and diseases

‘...in Meru we never used to know or give attention to water borne diseases such as typhoid, cholera or even malaria....but nowadays these diseases have claimed household names amidst us...’ Study Participant in Meru South.

Poor people in every community visited say they are very vulnerable to illnesses, and they identify numerous health dangers, including, strenuous labour, poor shelters, contaminated water, poor sanitation, promiscuity and unprotected sex. Frequent outbreak of diseases such as cholera, typhoid and malaria were blamed on the predisposing conditions caused by environmental degradation in the communities. Increase in cases of HIV/AIDS is also blamed on casual sex as a means of coping with poverty.

All communities consulted do not have access to potable water. Most communities report that existing wells are either inadequate for their growing populations and nearby streams and rivers are not safe or reliable, especially during the rainy season when floodwaters carry harmful wastes into them. For example, in Bondo a participant remarked “we need

more boreholes because we rely on unsafe water from streams and unprotected wells. It is a critical problem because most of these streams and wells dry out during the dry season. We have to travel long distances in search of water.’

(e) Limited community involvement in the management of natural resources

The existing legal framework is not conducive for community-based natural resource management because it is old fashioned being based on colonial arrangements whereby natural resources were from the local people and placed under the control of the government. For example, most forests in Meru South are gazetted areas and access by community is prohibited. Yet they noted “we were born around the forests, and find ourselves even more conversant with the ecosystem than the civil servants”. During the consultations, community members who live adjacent to the forests expressed interest and commitment to be involved in the management of forests. They would do this on voluntary basis and expect that they be allowed to benefit directly from the forests. This would be through organized and controlled access rights. In any case, they already have existing youth and women groups formed with interests in enhancing the conservation and management of natural resources.

The participants were aware of all the efforts that the government has put into place in the protection of the forests, and yet the forests continue to be degraded. The participants reckoned that the failure to address the problem is because of their limited involvement. As a result, many of them eking for a livelihood have to sneak into the forests for timber, firewood, charcoal or honey. They claim the story would not be the same were they to be involvement in the management of these forests. The illegal logging, forest fires and illegal cultivation in the forest will stop since the livelihood activities by community will be legalized and zoned.

In Muranga, it was interesting to listen to a narration of an old man on how the Agikuyu community protected trees and their holy shrine *mukuru wa nyagathanja*. He says “You see this tree”, he points at the huge *mugumo* tree in the compound and adds, “It is never cut down because it symbolizes medicine and life in the Kikuyu traditions. It can treat up to 40 different diseases including malaria”. For this reason, people endeavor to plant it. Among the Luo in Bondo, traditions forbid fishing patterns that interfere with the breeding areas of fishes. Their culture also prohibit cutting down of *Olwa* tree species. The tree is believed to be associated with rain making. “If cut it screams and bleeds, which brings bad omen to the community!” said one Luo elder at the consultation. Coincidentally the trees that the communities protect are also classified as endangered species by researchers.

(f) Theft and Other Crime

In every community visited, poor men and women report theft, robbery, burglary, murders and other criminal acts that pose physical threats to people’s lives. In all the three districts, participants say crime is increasing, and police services are lax and ineffective. Several villagers in Bondo and Muranga say “we grow our food crops such as maize which we have to share with thieves.” In one of the discussion groups, a story of a woman who was caught stealing maize from a garden was mentioned; the people emphasize that women are rarely associated with theft, and view the incident as a sign of worse things yet to come.

Many participants are critical of the police and blame them in part for the increase in crime. One participant remarked “They are of course not entirely to blame. They do not

have adequate resources at their disposal, but still the problem is that they are corrupt. They fall prey to bribes; and as a result, they do not arrest the offenders.”

(g) Governance and Corruption

Corruption resulting from poor governance is a major issue that emerges in poor people’s explanations of their poverty condition as a cause of environmental degradation. One participant from Muranga comments, “We are too poor to do anything to help ourselves, and yet there is money in the country, enough to make life worth living. Corruption does not allow us to share in the national wealth.”

Discussion groups across the three districts consistently reported that, with the exception of a few very local entities, public, private and civic institutions are corrupt and exclude or abandon poor people. When reflecting on the role of state institutions in improving the state of their environment, the youth in Bondo remarked that their village is more or less cut off from the government. Poor people are also weary of ineffective public agencies and misappropriation of funds by local leaders and public officials at the local level. Local authorities are rated low in matters pertaining to poverty reduction and environmental conservation.

In Meru South, a participant referred to corruption in their district as a *monster*, “it is a monster because it has defeated the government to handle in Meru South and indeed in the whole country”, he added. He blamed corruption in the public sector as being the reason behind failed government conservation programs in the district. Participants gave the example of unscrupulous businesses persons colluding with public servants to carry out illegal logging in the forest and then escape prosecution by bribing their way out. They also mentioned the growing of bhang in the same forest with full knowledge of security officers in charge of the forest. Bondo participants said it is the poor who cannot bribe their way out that are arrested for fishing using nets that are not recommended by the fisheries department. The rich bribe their way and goes Scot free as they engage in fishing using motorized boats. In Muranga sand harvesting in the semi arid part of the district has resulted in gaping gully that have become a health and security risk for children, yet the activity is done in the presence of County Council officials who collect cess money from the sand traders. Corruption therefore remains a real challenge to poverty reduction and environmental conservation in the three districts.

When reflecting on the various government institutions at the grassroots level that interact with the communities, the participants consider them important but often ineffective. Many discussion groups expressed appreciation of decentralized entities such as districts, divisions, locations and sub-locations. Participants rarely described any role for poor people in influencing decisions by these local administrative institutions. Furthermore, the participants said, these institutions have problems of bad governance and weak accountability.

Participants have strong support for decentralized decision making at the grassroots level and the inclusion of women and youth in leadership roles. However, they reckon that unless poor men and women can strengthen their capacity to participate effectively in this framework, the decentralized entities decisions will not be representative. If capacity is built, poor people can acquire more influential roles in setting government priorities, defending their rights and obtaining better public services. In this way, poor people will have more control in the environmental plans and poverty reduction strategies.

(h) Little Trust in Public institutions

Poor people consider government institutions as important they frequently stress that most government initiatives aimed at reducing poverty fail to do so because poor people lack any capacity to influence them or to hold those responsible accountable. Although poor people are often asked to attend village meetings, their participation has little effect on the decisions made. Thus, said a female participant at the Muranga consultation, “although many institutions can be influenced by the community, not all levels of the community can influence them. Only people of high social status, the elite or the rich, tend to make decisions on behalf of, rather than in consultation with, the poorer majority can.” Poor women have virtually no influence or voice even in community institutions. Women’s influence is limited to women’s institutions within their own communities. Even then, women who have a voice are from economically well-off families or are the wives of important people such as politicians. The poorest women have little voice. Recent efforts to decentralize government responsibilities such as through district environment committees (DECs), constituency development fund committees (CDFCs) and local authority transfer fund (LATF) are intended to cause changes in local governance structures; however, the hierarchical legacy and lack of accountability of government institutions persist.

(i) Informal Survival Networks

In the absence of effective public services, poor men and women rely heavily on local leaders and groups. With the support provided by the government, the private sector and civic groups, poor people across the study communities say they feel closest to and rely most heavily on mutual support and self-help groups that they form themselves. The most popular local institutions are the “merry-go-round groups” or “rotating savings and credit groups” which exist in all the consulted communities.

Members of these merry-go-round groups are usually of the same gender and share a common ethnic origin, neighborhood cluster or even occupational category. Members of a merry-go-round group meet regularly and contribute small sums to a common savings pool, which is given to all members each at a time and on a rotational basis. This is the most accessible source of interest free credit available to poor people, and it is vital means of saving for those who find it difficult to set aside money without regularly pulling some out to cover daily needs. Merry-go-round groups are very popular among women and youth, especially those involved in petty trade, who use it for their capital needs. One woman participant from Bondo says that her merry-go-round group has made it possible for her to build a house.

4.0 SOLUTIONS TO CHALLENGES IN POVERTY ENVIRONMENT

The starting point to address poverty-environment challenges, as outlined herein above, is to start from the grassroots at the village level with the poor people themselves. They are willing to be involved, both individually and collectively. They are hard - working, and are prepared to struggle to stay afloat and to get ahead. They have a very realistic idea about their condition and do not hold mystical acceptance of their fate. They are also ready to govern themselves responsibly, ensuring that any help that they receive is used for the benefit of the group rather than pocketed by powerful individuals. But they are too poor to solve their problems on their own. What is required is a strategy and a system of governance that empowers the poor while holding them accountable. The following are suggested solutions to poverty environment problems in Bondo, Muranga and Meru south districts.

(a) Improving governance

One key aspect of reform taking place in Kenya is the trend toward greater decentralization. Planning and management of natural resources is now to be undertaken at the district and local levels. The participation of poor and marginalized groups in decentralized planning and decision making is the surest way of ensuring that key poverty/environment issues are adequately addressed. This calls for strengthening of local community institutions to be able to participate effectively in planning and decision making processes at the district level. The district environment action plans (DEAPs) must be generated through community-based planning and action. Such approach will enable the local communities especially the poor to identify and prioritize poverty/environment opportunities to address their most important livelihood issues and problems. It is imperative that informal local institutions that govern local environmental activities and shape behavior patterns that affect the environment are identified. For the Luo elders and Meru elders were said play an important role in land conflict resolution. This informal role needs to be institutionalized.

Flow of information on environmental conservation in the three districts is currently a top down affair with no feedback mechanisms at the community level. Participants expressed the need to enhance district and village level interaction. Small forums based on local institutions at village level could be established and supported to serve as focal points for information sharing and public sensitization on poverty and environment-related matters.

(b) Building of partnerships

Collaboration and partnerships is a vital key in enabling the poor people to effectively participate in the planning and decision making processes. Enhanced cooperation between grassroots and decentralized entities such as the District Environment Committees, private sector and civil society is crucial for empowering communities in decision making processes. Strengthening existing platforms in the field of environment or establishing new ones for integrated environmental management giving particular attention to the representation of local communities may achieve this. Partnerships between community and government are critical in forging collaborative management in the management and control over the natural resources. For example, Beach Management Units (BMU) is a collaborative institution that brings together the fishermen, private sector and the government in the management of the Lake Victoria fishery resources. BMU therefore is a decentralized entity with devolved authority to control and manage fisheries resources. This experience confirms that, under the right enabling environment, this can increase stakeholder participation (including the poor and marginalized groups such as women and youth), accountability, efficiency and equity.

Box 1: Institutional Analysis: Muranga district: A community perspective

Institutional Analysis: Muranga district: A community perspective			
Institution/Organization	Location in relation to the district	Collaboration at village level	Decision making level
GOK- Agriculture, Water, Forest Dept, livestock, NEMA, KWS, Fishery and health	Muranga	None	District level
Green Belt Movement	Nairobi	Women Groups	National Level
Kenya Institute of Organic Farming (KIOF)	Juja, Maragua	Agriculture and women Group at a fee	National Level
ICIPE (BIOP)	Nairobi	Farmers, SHGs, Churches	National
Catholic Diocese	Muranga	SHGs, General community	Diocese
ACK (CCS)	Muranga	None	Diocese
Baraka	Muranga	None	Muranga
CDF	Muranga	None	Constituency committee level
CAF	Muranga	Churches, Community, SHGs	Individual groups proposals, District Committee Level
CRF	Muranga	None	District
LATF	Muranga	None	Council level
CBF	Muranga	PTAs	Committee
KENWA	Muranga	Churches, Community, SHGs, youth	National

Source: Participants of Muranga community consultation meeting, Mukurwe wa nyagathanga, 17th March 2006

(c) Supporting coping strategies of vulnerable groups

Vulnerable groups in the districts especially the poor widows, elderly and orphans get assistance of mainly food from their neighbors and relatives. Some of this people are also targeted by religious organizations to receive help through donations of food and clothing from well wishers within and outside the districts. The number of poor people requiring this kind of assistance is on the increase with the dwindling incomes. There are no regular social transfer schemes in the districts. Food relief from the government is both irregular and inadequate. Cushioning and empowerment of the most vulnerable groups is something to be seriously considered. Communities could create a kitty at village level to which community members give contributions on regular basis.

(d) Improving ecosystems

Poor farming methods that affect the ecosystem were identified by participants in the three districts as contributing to environment degradation. Participants in Meru south complained of use of chemicals along the river banks as cause of pollution to river water. Bondo participants complained of lack of adequate working implements and farm input that should help conserve the soil, while Muranga district participants identified their problems as being linked to poor farming methods along the steep slopes. Nearly every natural ecosystem in these districts is under stress, yet the majority of the poor people directly depend on these resources for food, water and employment. This calls for a paradigm shift where investment is redirected toward rejuvenating the environmental and natural ecosystems so that they are able to provide the goods and services. This may include such activities as rehabilitation of catchments areas and restoration of environmentally degraded areas etc. These activities will not only contribute to the improvement of the ecosystem, but also will serve as a source of income for the poor people. Such are environmental investment, which requires sufficient long term funding, and could be pegged on the implementation of DEAP.

(e) Promoting sustainable agriculture

Reducing health risks from agriculture calls for a shift to a more environmentally benign form of agriculture, one that uses fewer agricultural chemicals that minimizes ecological disruption and reduces agriculture's heavy demand for water. In addition, poor farming practices remain greater challenge to communities especially in terms of farming on steep slopes, draining of wetland areas and riverbanks. In consultation with the ministry of agriculture, the communities should adopt best farming practices for their respective districts. Such practices need to enhance sustainable agriculture by incorporating both indigenous knowledge on appropriate crops as well as transfer of technologies. The result of this should be improved food security and therefore reduction in the number of people who depend on relief food in the respective districts. To this effect, participants had varying suggestions for their respective districts. Meru participants preferred to encourage communities to plant trees and natural food crops like cassava/yams, potatoes as well as provision of clean water at household level to control diseases. In Bondo the participants suggested that the government should avail a tractor for villages towards cultivation including and avail farm input too. In Muranga the participants recommended the construction of dams to trap water from the many rivers that flow into the Indian ocean,

prevention of soil erosion through terracing and research on crops that can be grown on different zones

(f) Mobilizing resources for poverty – environment initiatives.

At the moment there are a number of resources from the public treasury that are meant to be disbursed at the decentralized entities and local levels. Such funds include Constituency Development Fund (CDF), Local Authority Transfer Fund (LATF), Constituency HIV/AIDS Fund, the Constituency Bursary Fund and the Roads Levy. In addition, there are other similar funds such as the National Environment Trust Fund, National Environment Restoration Fund, Water Trust Fund and proposed Forest Management and Conservation Fund that target the same poverty/environment issues. It would be appropriate if all the districts through the DEAP would develop a strategic plan that will enhance the delivery of those funds to poverty/environment issues. Currently very little of those funds is invested in poverty/environment issues.

(g) Harmonization funding opportunities

A number of organizations have demonstrated a lot of interest in environmental initiatives that can help reduce poverty. However, most of them do so in isolation with little or no regard to the activities of the others. In effect they end up in duplication and misapplication of resources. Harmonization and complementarities of such funding opportunities by development partners such the EU Community Environment Fund, NGOs and private sector through a clear planning framework such as DEAP will ensure that their interventions address issues which are considered as priorities by the poor people.

(h) Peace, Security and Conflict Transformation

Tensions between diverse interest groups over natural resources contribute to conflicts in the districts. Such conflicts were identified as are on the increase the three districts and are being resolved in the community by elders although law does not back them. Legally conflicts are expected to be resolved in courts, which have specific recommendations on how claims to resources might best be resolved. From this perspective, peace and security is accepted as the absence of open violence. In many cases conflicts addressed in courts are not resolved and escalates. Conflict transformation on the other hand will ensure non court dispute resolution mechanism trusted by all parties in conflict and mediated by local elders that are respected and endowed with conflict handling skills. In line with various approaches to conflict resolutions accepted by various stakeholders of natural resources. There is need to establish Institutional framework for cooperative management and conflict resolution that recognizes and includes community participation. The framework should follow the principles of priority for conservation and public interests.


The table below shows solutions to poverty and environment challenges specific to each district.

Table 10: Suggested solutions to poverty and environment challenges

DISTRICT	SUGESTED SOLUTIONS TO POVERTY AND ENVIRONMENT CHALLENGES
MERU SOUTH	<ul style="list-style-type: none"> • Involvement of all stakeholders in the planning process and implantation of programs right from the grassroots level. For example, involvement of community in Forest management through elder’s councils. • Encourage communities to plant trees and natural food crops like cassava/yams, potatoes • Formation of poor community interest groups to identify development projects relevant to their situation for funding • Begin district development planning at village level upwards and involving all stakeholders • Disease control through provision of clean water at household level

- Education to the people on the importance of conserving/protecting environment
 - Community should identify the most affected people amidst them and prevail on government to intervene in their situation
 - Councils can plan responsible sand harvesting with communities
 - Availing credit facilities to the community
 - Government should avail a tractor for villages towards cultivation including farm input
 - We should have village development committee that links the community members direct to the district institutions
 - Chief should advocate for solution of our problems
 - Government should be present at village level
 - Government should support individual by giving farm input and lower hire fee of tractor
 - Government should visit and asses community problems
 - clear linkages from village to provincial level
 - Form community voice to link up with government
 - Chief to link community with government
- BONDO
- Recycling of waste products
 - Increase community level participation in decision-making
 - Construction of dams to trap water from the many rivers that flow into the Indian ocean
 - Soil erosion through terracing
 - Control wildlife from private farms
 - Government and private sector to access loans for the poor
 - Research on crops that can be grown on different zones
 - Education
 - Strengthening existing laws and legislation on environmental conservation
 - Improve on marketing of food crops, cash crops and livestock products and infrastructure
 - Community mobilization to respond to their own situation
 - Funds allocation to factor in implantation and monitoring by the community beneficiaries too
 - Soft loan credit schemes
- MURANGA

5.0 RECOMMENDATIONS FOR INTEGRATING POVERTY AND ENVIRONMENT INTO THE DISTRICT PLANNING PROCESSES



The reasons for the increasing incidence of poverty that are reminiscent to degradation of environmental assets in the three districts are complex and inter-related. They relate to the lack of opportunities of the poor to improve their livelihoods through sustainable use of natural resources, with special emphasis on the unequal distribution of opportunities to poor. They also relate to the lack of participation and empowerment in decisions that affect poor people's lives in the districts poverty and environment planning processes. Finally, they relate to the absence of grassroots institutions that mobilise communities to specifically address poverty environmental challenges.

This was well demonstrated by the outcome of the analysis exercise undertaken by each of the three community consultation groups of poor villagers in Bondo and Muranga districts and the mainly members of DEC in Meru south district. Using various analysis tools, the groups generated information on environmental degradation and poverty manifestation that were closely related. They pointed to similarities in the underlying causes of different poverty environment challenges. While poverty was seen as the critical issue, environmental degradation was seen as root cause of poverty. The integration of poverty and environment into the district planning process calls for action on linking local communities to district development planning and DEAP processes as recommended below;

(a) Securing empowerment and guarantying inclusively

This consultation realized that local communities in the sampled areas in Bondo, Meru South and Muranga districts continue to live in an increasingly degraded environment, often turning to the already depleted environment assets in order to cope with poverty. This coping mechanism is fast eroding and driving poor households into more severe poverty and thereby necessitating a need to urgently adopt development planning and environmental management strategies that move beyond emphasis on economic growth through the donor driven Poverty Reduction Strategies to a process that addresses the inequality, discrimination and exploitation as maintainers of poverty - environment challenges. This report presents key findings on poverty and environmental challenges that should lay foundation for subsequent community based planning approach (and policy advocacy) which ensures that district development plans and district environmental action plans take community empowerment seriously and beyond cosy rhetoric of participatory approaches and decentralization of governance institutions. Such approach should address the difficult political processes of challenging the layers of discrimination that keep local communities trapped in poverty and remain active spectators of decision making on their own environmental assets and related livelihood security. Emphasis must be laid on identifying and strengthening or establishing the informal local institutions that govern local Poor's activities and shape their behaviour patterns that affect environment

(b) Improving capability

During the analysis it was found that poverty and environment are intimately related. With the ongoing unsustainable exploitation of natural resources, communities are not engaging in development activities that improve their livelihood and enable them to reduce poverty through environmental conservation. What came out is that the people lack capabilities (such as education, health, shelter) to enable them to value and conserve environmental assets as granaries of their wealth, they have remained vulnerable to poverty,

discrimination and exclusion and evidently turn to unsustainable use of environmental assets for survival. District level planning processes need to streamline poverty environment issues in education and development activities.

(c) Securing local decentralized funds

Funds for poverty reduction related projects available at constituency level comprise; the Constituency Development Fund, the Local Authorities Transfer Fund (LATF), the Constituency Bursary Fund, the Constituency HIV/AIDS Fund and the Constituency Roads levy. A major concern by the communities is that these funds are not in all cases directly attributable to the poverty - environment initiatives. Neither are the beneficiaries of the projects funded involved in deciding on the projects. As a policy initiative, these funds should be reviewed to ensure that as a minimum, the funds are attributable to poverty environment concerns. In all the three districts concerns were that the funds are vulnerable to local political manipulation. Initiatives such as the Constituency Development Fund (CDF) can improve environmental management and poverty reduction by way of using village level participatory consultation forums to identify projects for implementation

Box 2: Opportunities for addressing poverty environment challenges

Opportunities for addressing poverty environment challenges in Bondo district

- Use of modern farming techniques available in the district like use of Ox-plough, use of tractors
- Organic farming techniques
- Enforcement of government policies on soil, riverbanks, forests, fish species and wild animals conservation
- Community owned initiatives to address natural resources (wetlands, rivers, dams,trees,fish, sand, wild animals) conservation, food security, income generation and provision of health and education services
- Family planning
- Positive attitude to farming
- Irrigation
- Strengthening local community institutions to be involved in natural resources use planning and management
- Livestock farming
- Soil conservation
- Preservation of wetlands and rivers
- Develop linkages with agricultural extension officers
- Access to health facilities within reach of community
- Reduced school fees
- Provide equal opportunities for both boys and girls
- Access to Locally available funds like CDF
- Education
- Drinking after work

- Source: Participants of community consultation meeting, Bondo district, Amoyo, 3rd March 2006.

- (i) Identify community informal institutions based on particular natural resource use concerns and build their capacity to respond to contemporary poverty and environment management planning and related processes.
- (ii) Support each of the community based local institution (identified above) to established their current environmental management and poverty reduction resource diary complete with envisaged short term and long term poverty - environments initiatives, also made available to poverty environment partners

- (iii) Harmonize the operations of stakeholders whose activities relate to poverty - environment issues at constituencies and districts and develop mechanisms through which their planning processes are informed by the local communities' environment management and poverty reduction resource dairies in (ii)
- (iv) There are many stakeholders at community level with initiatives that address poverty environment related issues. At district level are various departmental funds. At constituency level are constituency aids committee funds, Constituency Development funds, Constituency Roads levy, Constituency Bursary Fund. Others are Local Authority Transfer Fund (LATF), NGOs, CBOs, FBOs and Private sector. Local people do not have any forum in which they are consulted or are involved in deciding on what project to be supported by these funds. Create a community based poverty and environment forum that will establish planning linkages with these funds.

APPENDIX 1: METHODOLOGY AND CONSULTATION PROCESS

The objective of this community consultative study was to identify poverty and environmental challenges, causes and solutions that would inform the development and environmental planning processes in the three districts of Bondo, Muranga and Meru South. Methodology for study was designed in such a manner that it engaged community people in an elaborate discussion and analysis of poverty and environment issues that affect them. As a result the communities suggested ways of being involved in their own district development and environmental planning processes. The method was participatory

and allowed exploration of issues and shared learning among the local people and facilitators. Thus, information in respect of grassroots people as partners in poverty – environment problem identification and analysis was shared, giving the community a voice.

The Consultative Process

Community representatives were selected to reflect the environment and natural resource base in each district. Their selections were based on socio – economic information, particularities of vulnerability in the villages and specific concerns on natural resources linked to poverty in the village. Meru South participants included members of the District Environment Committee.

Initial contact meetings with District Environment Officers (DEOs) provided useful information as to various actors and individuals who were invited to the community consultation workshops. These initial consultations took a total of two days for each district during which there were reconnaissance and meetings with the respective DEOs and key leaders in the respective districts. Arising from the reconnaissance visit, a list of participants was drawn and a suitable venue also identified.

Two-day participatory and community - based consultation workshops were conducted with invited participants for each of the three districts. Each workshop involved two parts. The first part where residents generated information about local poverty-environment conditions, challenges and causes. The second where they suggested solutions to their problems. Quick reconnaissance visits were also made to sites within each community to verify information generated on the linkages of poverty and environment.

Participatory tools and process applied in undertaking the study

<i>Task</i>	<i>Objective</i>	<i>Expected Outcome</i>	<i>Participatory tool</i>
Stakeholder analysis	Locate and describe main actors in the area	An account of the stakeholders with interest in environmental issues	Ground modeling
Historical profiles and time trends	Identify various environmental resources	Understand important events or changes between years and to focus on the future in terms of resource use and climate change	Timelines
Seasonal constraints and opportunities	Determine the seasonal constraints to and opportunities for various actions or		Seasonality Calendar

	assessments		
Community perception and attitudes towards poverty environment issues.	Determine local attitudes to and perceptions to poverty environment issues	Clear understanding of communities' attitudes to and perceptions to poverty environment linkages.	Ranking and matrix scoring
Poverty environment challenges	Identify poverty environment challenges and their causes	Clear understanding of causes underpinning poverty environment challenges	Group Discussion
Interactive visits (optional)	Ascertain poverty environment linkages trends	Clear understanding of poverty environment issues/concerns	Transect walk
Institutional Analysis	Identify and assess community institutions and relationships amongst stakeholders	Assess the extent to which the existing enabling environment (formal and/or informal) is supportive for public participation	Chapati diagramming
	Identify general and institutional conditions for public participation and linkages with community	An understanding of factors underpinning poverty environment issues/concerns	Human sculpting of structural relationships and impact on environmental management
	Determine the capacity level of communities to participate in decision making	Levels of local capacities for participation in decision-making affecting the environment; document gaps	Group discussion
Consensus building on appropriate response to the identified poverty environment challenges	Community vision and suggestions of solutions to address the identified poverty environment challenges	Coping mechanisms identified and opportunities to support the implementation of suggested solutions and community visions would be identified.	Chief Mazingira or Samoan Circle
Lessons learned	Identify good stories from community initiatives that contribute to sound environmental management and poverty alleviation	Community's own success stories identified and celebrated	Role play

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ANNEX 2: PARTICIPANTS LISTS

DISTRICT: MURANGA

DATE: 16TH – 17TH MARCH 2006

VENUE: MUKURWE WA NYAGATHANGA

PARTICIPANTS

1. DANIEL KANGETHE MWANGI – GAITEGA VILLAGE
2. WILSON KAREHU MUSA – CHORONGI VILLAGE
3. MARGARET WAITHERA – GIIKONI VILLAGE
4. GRACE WAMBUI – KARURI VILLAGE
5. JANE MWIHAKI – KAHINGA – VILLAGE
6. MICHAEL MATATHI – GITHUURI VILLAGE
7. JOSEPH MWANGI – YAMUGWE VILLAGE

8. HELEN NJERI KAMERI – IREWA VILLAGE
9. STEPHEN MUGO MWANGI – GAITEGA VILLAGE
10. DAVID MUIRU NGEKENYA – GITURI VILLAGE

DISTRICT: BONDO

DATE: 2ND – 3RD MARCH 2006

VENUE: AMOYO CHIEF'S CAMP

PARTICIPANTS

NAME	VILLAGE
1. DANIEL OTITIO OSOPE	MINYA
2. PETER OGOLO	MINYA
3. JOHN AKEDA OLUOCH	MINYA
4. TOBIAS KISIENYA	NYINYO
5. SAMUEL ODIDA	NYINYO
6. MARGARET MAKENE	NYINYO
7. AGNES AUMA ADEMBA	NYINYO
8. TUSFOA ROSE OMOLO	NYAGUDA
9. NORA AYAKO	NYINYO
10. CATHERINE OYAYA	NYINYO

11. FLORENCE ODERAA NJOMO	MINYA
12. JANET ANYANGO OGUTU	MINYA
13. ROSEMARY ATIENO OTIENO	MINYA
14. MARGARET ABONYO	MINYA
15. ANJELINE MADARA	MINYA
16. JULIANA ADEMBA	NYINYO

DISTRICT: MERU SOUTH DISTRICT

DATE: 9TH – 10TH MARCH 2006

VENUE: DISTRICT COMMISSIONERS'S BOARDROOM

PARTICIPANTS

1. GEORGE MWONGERA - MINISTRY OF WATER AND IRRIGATION
2. HENRY MIGUE BURURIA - MERU SOUTH DISTRICT AGRICULTURAL STAKEHOLDERS FORUM, M.S.D.A.S.F(FARMERS) - 0724866523
BOX 102 CHUKA - 064 630320
3. CYRUS MIGAA NJAGI - SECRETARY, CHAMBER OF COMMERCE(0721656782)
BOX 569 CHUKA - 064 630485
4. GILLIAN KARIMI NYAGA - CHAMBER OF COMMERCE, MERU SOUTH
BOX 210 CHUKA
5. GEORGE WARA - DISTRICT FOREST OFFICER
6. JOTHAM M. IMWARA - REP. DDO MERU SOUTH
BOX 348 CHUKA
7. JOSEPH MURUNGI - DAO'S OFFICE, MERU SOUTH
8. JOSERPH MUTIRIA - MUTINO FRIENDS (CBO)
BOX 554 CHUKA
9. ANNEJOY KAGENI - MERU SOUTH COUNTY COUNCIL,
PRIVATE BAG CHUKA

10. ISIAH KABUI - DISTRICT PUBLIC HEALTH,
BOX 8 CHUKA

11. STEPHEN NJOKA - DISTRICT ENVIRONMENT OFFICER, MERU SOUTH