

**REPUBLIC OF KENYA**



**Nyeri Dry Area Smallholder and Community Services  
Development Project**

**(Grant No. BG-006-KE)**

**Qualitative Impact Assessment Report  
Volume 1**

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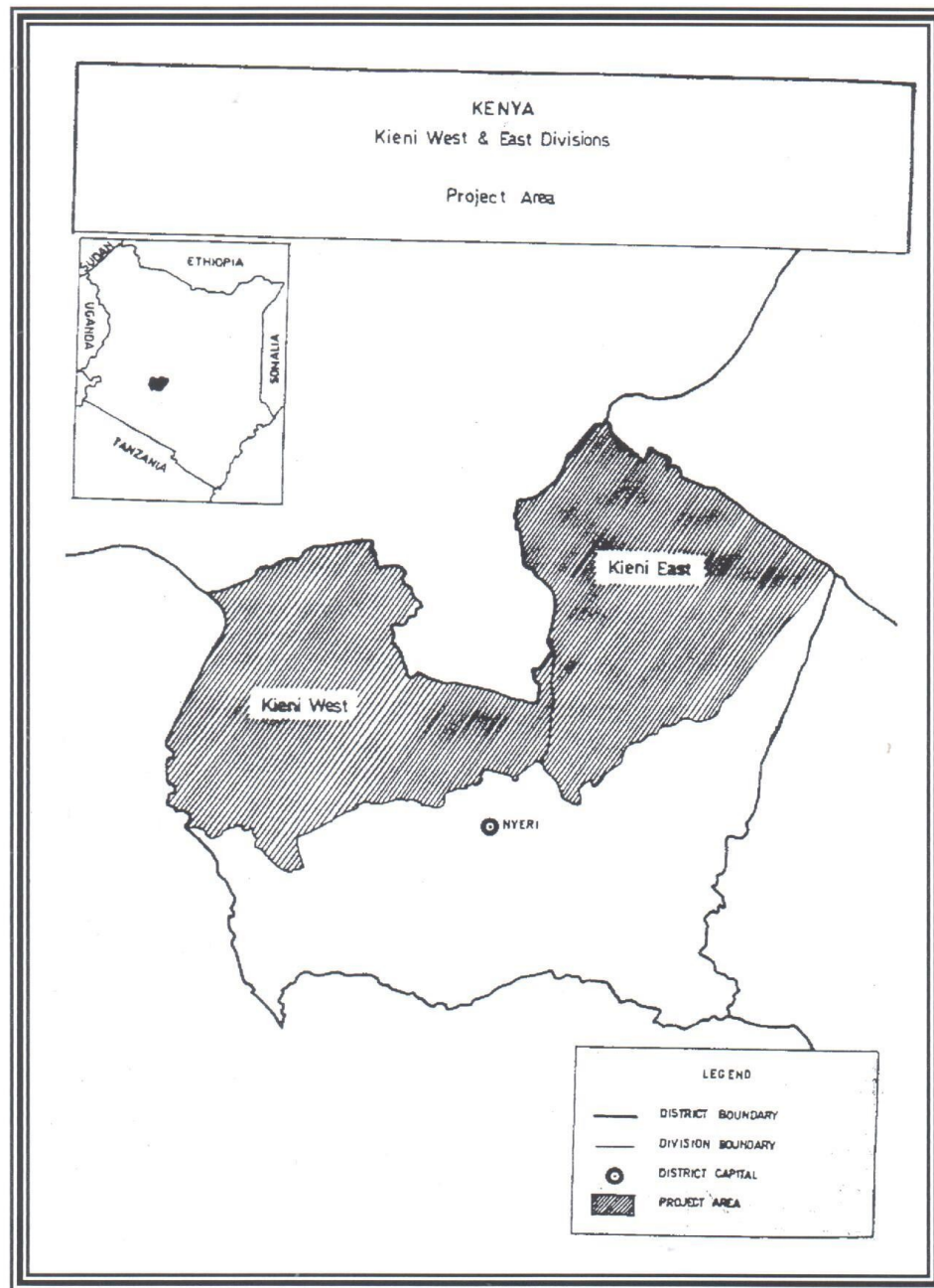
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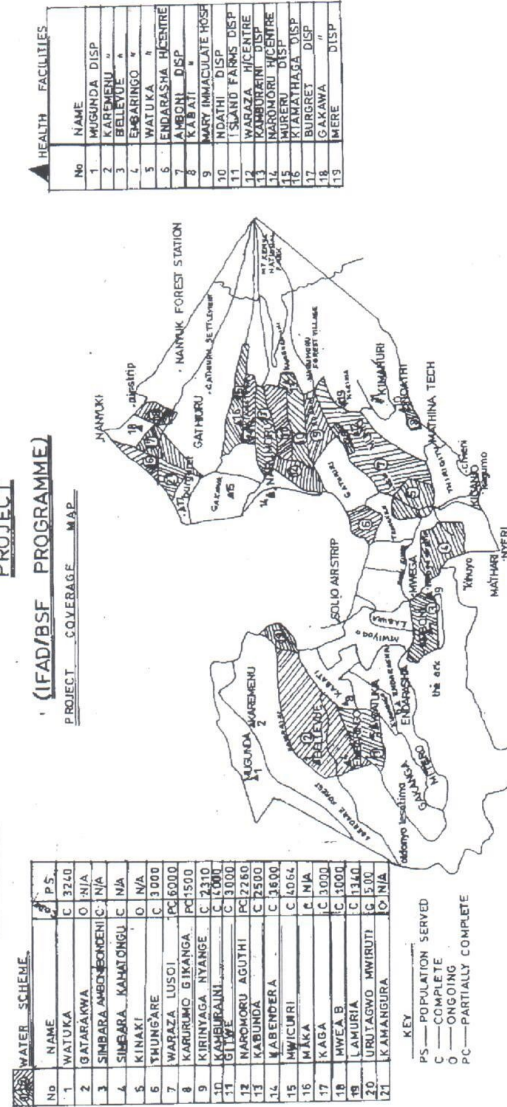
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NYERI DRY AREA SMALLHOLD AND COMMUNITY SERVICES DEVELOPMENT PROJECT  
(IFAD/BSF PROGRAMME)



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**1. PREAMBLE**

This Impact Assessment Report is in two volumes. Volume one presents summary conclusions and the field data including beneficiary participatory workshop conclusions. Volume two follows the PCR outline as required by the TOR.

This Qualitative Impact Assessment (QIA) was done after the completion of the Project Completion Report (PCR), which provides details on overall implementation of the Nyeri Dry Area Project (NDAP). The project officers who had implemented the project prepared the PCR.

The QIA objectives were more limited than the PCR's although the same officers were to be used and the consultant was to supervise the work so as to train the officers in the use of qualitative methods. The methodology was specified in the terms of reference as to use focus groups, key informants and observation as the main source of impact data. The areas of data gathering were specified as 6-10 sites in the TORs. Naturally the consultant was supposed to review the past documents before onset of work.

The QIA Objectives were:

- ❖ To assess the perceptions of project participants on effects and impact of project activities on the targeted beneficiaries and project area.
- ❖ To provide data /information for preparation of a comprehensive Project Completion Report.
- ❖ To strengthen capacity in Government in carrying out qualitative studies.

The consultant reviewed past reports and identified key missing data even in the PCR. As a result the units responsible for the project components, institutional, agriculture/livestock, health, water and group formation were required to update data on project outputs to enable more systematic conceptualisation of researching impact. This data was supposed to be available before the onset of fieldwork. Unfortunately it dribbled in bits and pieces right through fieldwork.

When the previous implementers at both district and national level were assembled in Nyeri, they were organised into five teams. The focus group methodology was covered in an inception workshop and an interview tool on project impacts developed by the group and the consultant. It consisted of working out key questions and probe questions on impact categories drawn up by the consultant are shown in Annex 1. A formal questionnaire was avoided for it would lead to set responses. Some officers chose to stay in their narrow fields and to defend what they had reported in the PCR.

Interview sites were defined as sublocations, the lowest organised level of government and therefore District Focus for Rural Development. The consultant and the previous head of the project identified ten sublocations, before the assembling of the other GOK officers, to represent project activity coverage or non-coverage, variation in ecology and perception of district staff on divisional and district staff on needs from specific sublocations. The list of participating GoK officers, or more accurately GOK beneficiaries, is found in Annex 2.

When the past implementing and national officers assembled, it was decided in meeting to select existing groups as focus groups rather than create focus groups de novo. The later would not have been possible within the consultancy time limits and, perhaps more significant, would have not captured the history of totally people driven organising for welfare as well as development activities at the base communities.

Two arguments are important. First people have always organised their development. At the onset of the project, past groups sidled on it and became project groups. The project also created new groups. The different government ministries had worked in the field with a variety of groups –not necessarily those specifically formed for purposes of implementing the project. The impact assessment team took a lot of time in selecting specific groups. Ultimately, 100 groups were identified. Since the project had more activities in Kieni East, 60 groups were to be interviewed in Kieni East and 40 in Kieni West. This weighting is also roughly representative of the population as shown in Annex 3. Filed interviews were conducted on 90% of the identified groups.

To ensure that contact was made with groups and that field interviews generated systematic data each team interviewed only two groups a day. They made a report on each group. These are found in the third portion of this



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volume. They are a very useful database not only for this effort but also for analysing other IFAD concerns. It is highly recommended that IFAD find ways and means of further analysing this database.

On the completion of fieldwork a one-day workshop was held with all the officers to identify major impact conclusions from the fieldwork. These are part and parcel of volume one of this report and follow the summary. This workshop again saw some officers still defending their specialisations. This not only limited creativity but also led to a product, which is not satisfactory.

A two-day workshop, with community and GOK beneficiaries was held. A list of these participants is found in **Annex 2**. The purpose was not only to fulfil the objective of involving community beneficiaries directly but there was a further need to anchor GOK officers capacities for interpreting cross component qualitative data within the beneficiaries' world views and preferences. It was also to test some of the conclusions of the previous days conclusions of the GOK beneficiaries. Further, it also sought to test some of the data from the focus groups interviewed in the field. The expectation was that at the end of the two days there would be harmonisation of the major impacts by processing the four individual groups products. This was not achieved for a variety of reasons. First, some of the GOK employed beneficiaries' tendency to defend components continued. Two, some key informants brought up controversies on credit. They wanted some persons associated with training on the same sanctioned. This was with regard to credit. Finally, there was little rapport between some of the community leaders and some of the officers which bogged down specific groups and thus limiting the generation of group products. More time than was planned was given to generation of group products than was envisaged initially. Consequently, by the time group products were presented in plenary, it was clear that beneficiaries wanted to go. The group conclusions are part and parcel of this report and are presented below in this volume.

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## **2. SUMMARY OF PROJECT IMPACTS**

### **2.1. Executive Summary**

The PCR stated, ... "NDAP's overall goal was to introduce measures that would reduce mortality, morbidity and improve the general well being of the rural poor in Kiambu East and West Divisions. ...The focus of the project was to improve nutritional standards and food security by activating micro-economic factors that stimulate sustainable food production and productivity. The project was to promote policies, which offered the local communities the opportunities to take charge of their own development initiatives by adopting a participatory project cycle management to enhance project sustainability"

Data from the QIA differs substantively from these very positive conclusions. Mortality was low at project initiation and it is not clear whether there are new directions other than the fact that HIV/AIDS is driving both adult and children mortalities. How much of each, there is no systematic quantitative or qualitative data. Field interviews could not elucidate on numbers for the issue is still *sub rosa* culturally.

Morbidity was high at project inception; it reduced and is climbing again, perhaps because of new production systems, which also impact positively on nutritional standards.

Although food security appears to have been improved in the short term, it is not sustainable in the long term for the supplementary irrigation systems are not viable in that time frame for the mountains ecologies have deteriorated to the extent of many rivers drying up. Few on farm production related water and soil conservation technologies were introduced and extended.

The introduced gravity fed supplementary irrigation is contributing to non-sustainable and health threatening use of fertilisers, pesticides and herbicides. It has led to resource use conflicts.

There is no evidence that the assorted communities took part in a participatory project cycle management to enhance the sustainability of the projects in any systematically planned way.

Water was the key intervention for it made labour available for production and other activities including social time. It also contributed to improved health.

The focus groups in general were not involved in project identification and, perhaps most controversial, they were not systematically visited by either agriculturists to teach them new production technologies or to improve their productivity. Neither were they systematically taught group processes related to the project activities or to their own longevity.

### **2.2. GoK Officers' Summary Of Impacts Ranked**

This rank order was the output of the GoK Officers workshop called at the end of fieldwork and facilitated by the consultant. It is produced as it was at the end of day. The quality could have been better if some component-implementing officers would have stopped defending their components and accepted the conclusions of the fieldwork that some were not particularly relevant. Note that the four components are represented in the top four. Note also that many are not impacts. The consultant recommends that IFAD trains the GOK officers it works with on group processes, specifically on how to work on cross disciplinary groups to generate shared products.

- I. Improved access to domestic water
- II. Increased availability of water for supplementary irrigation
- III. Improved nutrition
- IV. Improved access to health facilities and service
- V. Improved incomes
- VI. Enhanced community decision making
- VII. More agricultural land opened for commercial Irrigation
- VIII. Increased on and off farm employment
- IX. Increased women group internal capacities and income generating activities
- X. Conflict over access to water

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XI. Increased exploitation of farm groups by produce brokers and credit providers

**2. 3. Joint Participatory Workshop: Community And GOK Beneficiaries.**

The joint workshop was organized into four teams. The team members were balanced between GOK officers and community leaders. Community leaders acted as secretaries to the groups. Teams were facilitated by two four GOK officers who had been identified during fieldwork. The instructions are found in **Annex 2**. They call for detailed analysis of the project and its impacts. As can be seen below the product varied between the four groups. However, there is potential. The recommendation is that IFAD should investigate ways of undertaking this kind of analysis with both community and GOK beneficiaries in all its projects.

**GROUP ONE**

**1. DETERMINANTS**

**A. WATER**

1.
  - A. Unity of the group
  - B. Water permit
  - C. Easement
  - D. Registration
  - E. Land
  - F. Management committee
  - F. Reliable water source
2. Technical advice
  - A. Feasibility study
3. Timely community contribution and participation
  - A. Labour
  - B. Local materials for construction
4. Group constitution and by laws
  - A. Equal distribution of water
5. Training
  - A. Record keeping
  - B. Water resource use/management

**B. HEALTH**

1. Community unity and participation
  - A. Health facility management committee
2. Land availability
  - A. Location/sitting health facility
3. Construction of facility
4. Technical staff
  - A. Supply of drugs and equipment
5. Reliable water supply
6. Efficient communication
  - A. Motor transport
  - B. Telephone
  - C. Road
7. Training and volunteers
  - A. CHWs
  - B. TBAs
  - C. VHCs
  - D. Record keeping

**C. FOOD SECURITY**

1. Availability of land
  - A. Arable land
2. Training

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	A.	Farmers
	B.	Technical staff
3.		Farm inputs
	A.	Fertilizers, pesticides, certified seeds, equipment, capital
	B.	Proper breeds, acaricides, de-wormers, equipment, capital
	C.	Available labour
	D.	Farm inputs store
4.		Irrigation water available
	A.	Reliable rainfall
	B.	Equal distribution of water management
5.		Food stores
	A.	Granaries
	B.	Food preservation
	C.	Produce marketing
<b>D.</b>	<b>CREDIT</b>	
1.		Leadership
2.		Bookkeeping
3.		Loan management
	A.	Borrowing and payment
	B.	Budgeting
4.		Income generating activities

**2. IMPACTS**

1. Self employment increased
2. Improved agricultural yields
3. Time and energy saved
4. Improved health awareness
5. Improved nutrition
6. Strengthening the capacity of formed groups
7. Exploitation of formed groups by NGOs
8. Increased settlement
9. Increased water disputes

**GROUP TWO**

**1. DETERMINANTS**

1. Felt needs
2. Community commitment/support
3. Organized groups
4. Funds
5. Community action plans
6. Land/site
7. Consultation with relevant sectors
8. Training
9. Infrastructure

**2. IMPACTS**

1. Improved incomes
2. Increased employment opportunities
3. Diversified food production
4. Improved nutrition
5. Improved health
6. Improved lifestyles
7. Improved women groups activities
8. Improved school enrolment

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9. Emerging Leadership struggle in groups
10. Rising social and family conflicts
11. Escalating land prices.
12. Emerging disruptive and exploitative credit activities
13. Increased influx of new immigrants

**GROUP III**

**1. DETERMINANTS**

1. Community organization
2. Good management
3. Availability of land
4. Adequate water source
5. Training in new technologies
6. Adequate funds
7. Water catchments protection
8. Proper seeds varieties for the area
9. Existing farming techniques.

**2. IMPACTS**

1. Increased production in both commercial and food production
2. Improved nutrition
3. Improved income
4. Reduced morbidity
5. Evolution of merry go round into self loaning
6. Improved standards of living
7. Destruction of catchments areas
8. Increased employment opportunities
9. Poor management in water distribution
10. Destabilization of groups
11. Possible increased water borne diseases
12. Soil deterioration due to irrigation water

**GROUP FOUR**

**DETERMINANTS**

**WATER SUPPLY**

1. Reliable source identification
2. Organized groups
3. Felt needs
4. Training of beneficiaries and staff
5. Timely availability of funds
6. Effective by-laws
7. Assessment of water resources
8. Water demand projections

**HEALTH SERVICES**

1. Accessible facilities with good infrastructure
2. Affordable services
3. Availability of drugs and personnel
4. Availability of volunteers services (CHW, VHC)



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**FOOD SECURITY**

1. Availability of arable land
2. Availability of irrigation water.
3. Drought escaping crops
4. Food preservation and storage
5. Availability of extension services and research liaison.
6. Introduction and improvement of livestock
7. Affordability
8. Availability of credit

**MANAGING PARTICIPATORY PLANNING**

2. Involving community in identification, planning, implementation, monitoring and
3. Training the community

**IMPACTS**

**Positive**

1. Improved nutrition,
2. Increased income.
3. Increased conflicts over access to water.
4. Increased women groups' internal capacities and income generating activities.
5. Emergence of diseases e.g. malaria, Arthritis.
6. Over reliance of one source of water (rivers)
7. Attraction of opportunistic credit organization and exploitation by brokers
8. Improved community hygiene.
9. Enhanced decision making within the community
10. Incomplete water projects
11. Unsustainable PHC volunteer services

**Negative**

1. Increased conflicts over access to water.
2. Emergence of diseases i.e. Malaria, Arthritis.
3. Attraction of opportunistic credit organization and exploitation by brokers.
4. Unsustainable P.H.C volunteers services.
5. Over reliance on one source of water.
6. Incomplete water projects.
7. Mobilization created over-expectation of donor support.

**IMPACTS RANKING**

1. Improved nutrition
2. Increased income.
3. Increased conflicts over access to water.
4. Increased women groups' internal capacity and income generating activities.
5. Emergence of diseases i.e. Malaria, Arthritis.
6. Over reliance on one source of water.
7. Attraction of opportunistic credit organizations and exploitation by brokers.
8. Improved community hygiene.
9. Enhanced decision making within the community.
10. Incomplete water projects.
11. Unsustainable P.H.C. volunteers services.

**RECOMMENDATIONS**

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1. Water resource assessment and demand projections should be done before project implementation.
2. Timely release of sufficient project funds.
3. Involvement of beneficiaries in project identification, planning, implementation, monitoring and evaluation.
4. Design sustainable training programmes for projects.
5. Design viable credit and marketing organizations.

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**3. FOCUS GROUPS' CASE STUDIES DATA**

**A. KARIGUINI GROUP DATA**

**1. ENDARASHA HEALTH CENTRE MANAGEMENT COMMITTEE**

**History/Planning**

Endarasha health centre started in 1979 as a government facility. The facility offered poor services, as there was no proper facility management in place. There was no toilet and drugs were rarely available and members of the community therefore preferred going to private clinics. They walked distances of up to 20Km and paid a lot of money in search of treatment. In 1990, members of the community felt that their health needs were not being addressed properly. Some members approached the chief to call a Baraza in order to have all community members sensitised. In 1994 Members elected their own committee of 13 people with the responsibility to oversee the management of the facility. The committee met regularly (monthly) to lay down modalities on management strategies. In 1995, the committee came up with the idea of cost sharing and tabled it to the community in a baraza whereby it was agreed that every patient was to pay Kshs. 10 for treatment. The idea empowered the committee to function more effectively. By 1997, the facility was generating about Kshs. 100,000 per month through cost sharing. This enabled the committee to embark on intensive rehabilitation of the facility which included – Repair of falling roof, putting a perimeter fence, construction of a water storage tank, repair of residential premises and painting works. The community also conducted a harambee that raised money (Kshs. 220,000) and this brought about tremendous improvement in the facility management. The following were reported to be the major accomplishments: -Procurement of building materials i.e. sand & ballast at a cost of Kshs. 160,000, A garage was constructed at a cost of Ksh. 10,000. Others are toilets at Kshs. 30,000, fencing at Kshs. 28,000, Gate rehabilitation at Kshs. 45,000. The facility was connected to water supply at a cost of Kshs.50, 000. The facility vehicle was properly maintained and fuelled, The motorcycle could also be properly maintain. Drugs were always available. However, following the new government policy of shifting the management of health centres back the Ministry of Health in year 2002, the management committee could no longer handle any financial affairs and all revenue collected in the facility has to be surrendered to the District Hospital. The policy required that drugs be purchased centrally and supplied to the facility. The Facility Management Committee is required to make a budget and list down all their requirements to the Ministry of Health for funding. The committee has found the system to be very bureaucratic and most members gave up their management positions. The entire community got de-motivated as they felt their own investment was being channelled to benefit other places. The services of the facility started deteriorating again and there is a reduction in the number of patients as they sought treatment in private clinics. Outpatient attendance has dropped from 2000 monthly in 2001 to less than 700 in year 2002. CHWs & VHC reported to have received intensive training in the following areas through IFAD intervention: -First aid skills, Management of AIDS patients through home based care and support, Care of mentally ill, Growth monitoring for children, Water treatment, Improved nutrition through consumption of green vegetables, Sanitation improvement, Bookkeeping, Financial management

**Training Impacts**

Through training, CHWs offers such services as: -HIV/AIDS awareness campaigns in the village, Care and support of AIDS patients, Growth monitoring for children in the villages, Primary health care awareness campaigns, Started community pharmacies in the villages, Social cohesion has improved, Trained the community on water treatment, Trained the community on improved nutrition. The nutritional status of the children and diet in general was reported to have improved.

**Health**

Major diseases reported were Malaria; Pneumonia (URTI), intestinal worms, Amebiosis, rampant dental problems, skin diseases, malaria and STI related infections. Gonorrhoea registers an average of 1 patient per day.

The group gave the following as the main causes of these diseases are: -

Disease	cause
-Pneumonia	cold weather
-Malaria	Bushes for breeding mosquitoes
-Typhoid and Amebiosis	untreated water

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**Training and establishment of PHC**

No. of CHWs trained	65	Active	30
No. of VHCs trained	13	Active	3
Bamako initiatives	2	functional	0

On PHC, members have been trained through IFAD interventions on the following areas: -Consumption of green vegetables e.g. kales and stinging nettle, Rabbit meat consumption that has high protein content, Boiling of water for drinking, Consumption of green peas and spinach, Milk consumption and eating of eggs that were previously for sale. Improved sanitation. Major causes of child morbidity: -Measles, Pneumonia - the major cause of death for children less than 5 years. Ringworm, Diarrhoea, Malnutrition, Malaria, Amebiasis.

**Nutritional status of infant/children**

Children were reported to be receiving adequate and balanced food but there were small pockets of food deficiency particularly in the squatter village where the following cases were reported: -

Disease	No of cases in the last 2 years
Kwashiorkor	4
Marasmus	18
Obesity	1
Underweight	299

**Water**

Water was reported to be available through Endarasha self help water project comprising of 1,800 members with 1,557 households connected. This water is gravity fed and is not treated. It is however not adequate and is used for domestic purposes only and there is no water for irrigation. For drinking purposes the water has to be boiled. Farmers are able to irrigate 1/8 of their farms and hence increased productivity.

**Food Production**

Main types of food crops are maize, beans, wheat, kales, cabbages, potatoes, carrots and onions. Crops recently introduced include bananas, sweet potatoes, pigeon peas, Njahi and sorghum.

**Productivity**

Crop	Acreage	Production (Bags/acre)	Value (Kshs/bag)
Maize 614		10	1,400
Beans		8	2,000
Wheat		12	1,200
Potatoes		50	500
Carrots		100	1,200
Onions		4,000 Kgs/acre	20/Kg

New varieties of potatoes i.e. Tigon I and Asante, which has extremely high yields, have recently been introduced in the area and they are resistant to potato bright disease.

**Livestock**

Main livestock in this area include cattle, sheep, rabbits and chicken. Average livestock grazing area was reported to be between 3-5 acres. The average milk production is 5 – 10 litres per day per cow. This is plenty and is sold to KCC and other independent buyers. Over 90 % of the members have milk cows. Rabbits were reported to have been introduced in the area and are mainly for home consumption.

**Environmental protection initiatives**

Members reported that they have made a tremendous move to reforest the area the area. They have formed tree planting nursery groups e.g. Kinyati Mwiteithia tree nursery group through the Green Belt movement intervention. Tree seedlings distribution is done free of cost. Terracing and planting of Napier grass strips and tree planting on



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steep slopes was reported to be another measure to soil conservation. On safe use of chemicals, it was reported that farmers improvise protective attire as the correct attire one is very expensive and only a few can afford. The chemicals are kept in safe custody out of children's reach. The product sprayed with chemicals can only be consumed after 14 days after spraying. But farmers do sell such crops before expiry of the dates if they get buyers. On Agro vet stockists, it was established that some supplied sub-standard chemicals and only a few have knowledge on the use of those chemicals. There are 6 Agrovets.

**New technologies introduced: -**

Food warmers (Baskets), Energy saving Jikos, Tea cosy. These were seen to be time saving & Energy saving technologies. Women save 6 hrs weekly as a result of use of such technology.

**Farm Income**

It was reported that the income from the sale of products enabled farmers to Pay school fees, Access good health facilities, and provide clothing for the family. Farmers are able to employ casual workers and pay them @ Kshs 20 per hour in horticultural farms. The daily payments are Kshs. 120 per day and Kshs. 1,500 per month for permanent employees. Most families employ either casual or permanent employees (80%). In this area, farming was reported to be a thriving business as it generates income through sale of farm products, sale poultry products and sale of land and it offers full time employment for the farmer.

**Income Generating Activities (Using Local Resources)**

Members of this area use available trees for improved housing (Timber houses). There are also a few quarries available and plenty of hardcore in some areas. Farmers get some income through sales of these products but it was not a significant income source.

**Empowerment**

The poorest of the poor include squatters. The area has several villages whereby squatters live. Their family sizes have increased over a time and this has led to the sprawling of the villages. Female headed household's account for about 30% in this area. The squatters earn their living through sale of labour to local farmers, with some renting land for farming.

**Basic Services For the Poor**

The main services provided by this community to the poor include: CHW Services, Village welfare organisations that cater for medical bills and burial expenses, Exemption from community contribution, Frequent visits to the poor and old and provide food, Free water from the connected neighbours.

**Average Production Levels**

Enterprise	Acreage	Yields (Bags/Acre)
Maize	1/2	12
Beans	1/2	2
Irish potatoes	1	35
Carrot	1/4	4 Tonnes/acre
Onions	1/4	6 Tonnes/acre
Tomatoes	1/4	6 Tonnes/acre
Cabbages	1	16 Tonnes/acre
Wheat	1 in upper zone 5 – 10 in lower zone	7
Milk	2 cows	6 Kgs/Cow/day

**Others**

Total area: 42 KM<sup>2</sup>  
Available land: 456 KM<sup>2</sup>  
Average farm size: 5 acres  
Rainfall – Bimodal of 800 mm p.a.  
AEZ – LH<sub>5</sub> – UH<sub>1</sub>

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**2. LAMURIA WATER ASSOCIATION SELF HELP WATER**

The community settled in the area in 1979 through a land buying company. The inhabitants found the place very dry and they came up with an idea of a water project in 1982. There was an existing furrow used by the white settler for watering livestock and a river but the water was inadequate especially for irrigation purposes.

In 1982 3 members met and came up with an idea of forming a group through which they could implement an irrigation project. They called a Baraza to sensitise the other members of the community and a group was formed under the chairmanship of Lee Muthoga. The group was formed in 1982 with a membership of 50 and registered under the companies' act as Rurichu Irrigation Project. Later in 1993 the group was registered with the Social Services department and issued with a new registration certificate as Lamuria Irrigation Water Association in order to cater for increased members of 250.

**Main Interventions**

Community sought assistance from the government in 1990 and received assistance from SIDA through the Ministry of Agriculture to the tune of Kshs. 180,000 for Construction of intake, distribution boxes and lining part of the canal. The community contribution in form of labour amounted to Kshs. 50,000.

**IFAD Interventions**

In 1993 the project got assistance from IFAD to the tune of Kshs. 1.2M for Construction of water conveyors bridge, lining of the canal, purchase of pipes. The community's cash contribution was Kshs. 2, 500 per member. 100 members contributed. Thus total beneficiary contribution was Kshs. 250,000. Only 30 members were accessing water. In 1996/97 more assistance was received through IFAD of Kshs. 9M and was used for lining of the canal, pipe laying, construction of distribution boxes and culverts construction. Despite this intervention, only 45 members could access water. In year 2000 a further support from IFAD through the ministry of water of Kshs. 2M was released for pipes and fittings. The beneficiaries contributed Shs.10, 000 per member and active membership had risen to 150. Total contribution was Kshs. 1.5M.

**Implementation bottlenecks**

Poor workmanship of the canal work and bridge: The contractor did not fulfil part of the contract requirements. Some pipes laid were of small size (8" than those specified in the contract. There was Poor design of the project resulting in uneven flow of water. Contracting work did not use beneficiaries to do the work. Designs changed from irrigation to water. This reduced irrigation land per member from ½ to ¼. Weak gradient for effective gravity flow. There was Poor co-ordination of project implementers i.e. technical staff and beneficiary management committee. There also was Poor beneficiary leadership.

**Proposed solutions**

Construction of a reservoir to increase water storage. Reviewing the design of the project

**Health**

There is no health facility in the vicinity and members to walk for a distance of 12 Kms to the nearest facility. Major causes of morbidity are Typhoid, Malaria, URTI, and bilharzia. The high incidence of diseases is as a result of stagnant water, consumption of polluted water and insufficient follow-up by PHC personnel. The community members were trained in PHC areas but the training was not adequate and there was no follow-up by MOH.

Cause of child mortality Pneumonia and Malaria

Nutritional status: Children are generally healthy, there is normal growth in children and there is adequate food.

Water Provision. Domestic water is available for 150 households with minor irrigation using basin irrigation method.

**Food Production**

Major crops: tomatoes, onions, French beans, sweet pepper, garlic and sunflower. These crops are mainly for commercial purposes but maize, beans, bananas; sugarcane and wheat are for home consumption.

**Production/Productivity**

Crop	Acreage planted	Production per acre	Gross margins	for
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			planted acreage in Kshs
Tomatoes	1/4		25,000
Cabbages	1		60,000
Onions	1/2		50,000
French beans	1/4		50,000
Sweet pepper	1/4		20,000 – 30,000
Garlic	1/8		13,000
Sunflower	1/4		12,000
Maize	1/2		7,200
Beans	1/2		36,000
Wheat	1/2		12,000

*No production data was provided because the group did not want to disclose their high earning. Most of these crops are grown 2 times annually.*

**Agricultural incomes (captured in productivity)**

**Livestock**

Cattle, sheep, chicken; dairy goats and rabbits were identified as mainly reared in this area. The average milk production is 4 litres per cow per day. The milk is sold to KCC to Kshs. 12 per litre. A few dairy goats are reared to provide milk for home consumption. Rabbits and chicken are mainly for home consumption. Most families have 3 – 5 cows.

**Environmental protection techniques**

Levelling of farming ground. Basin irrigation instead of sprinkler irrigation. Tree planting to reduce wind and soil erosion. Terracing. Napier grass strips.

Chemical protection: Members improvise their own attire, as the actual ones are too expensive. They use the ordinary pressure pumps to spray the crops & animals against pests. Agro vets are available about 6Km away and farmers procure most of the pesticides from them. Members however complained that the agro vets are supplying sub-standard chemicals & seeds and have no knowledge on their use.

**Improvement in income**

Casual employment was reported to be high in this area due to intensive farming activities. Casual employees earn Kshs. 100 per day while semi-permanent employees earn Kshs. 2,000. Farming is a thriving business in this area especially in the area of horticultural products. Many young people are actively involved in the marketing, brokerage and farming.

**Use of local resources**

Tourism was identified as an exploited resource with potential due to the presence of forest next to the community and also wildlife. A few quarries were also identified that have not been fully exploited.

**Empowerment**

The area is characterised by many immigrants from Somali, Luo land & Luhya land and Maasai who come in search of casual employment. These people are empowered through being employed as casuals in the farms or get salaries at the end of the month as permanent employees. There are no squatters in this area.

**Main Problems experienced.**

Poor quality of farm inputs e.g. sand mixed with fertilizer. Wrong seeds supplied by agro vets. Rampant dependence of middlemen and brokers for marketing of farm produce as there are no other organised channels. Wrong application of chemicals due to lack of adequate training.

**Recommendations**

Government should take charge of farm inputs supplies to ensure supply of quality seeds and right chemicals. Government to revive farmers' institutions e.g. KFA to ensure supply of certified farm inputs. Provision of AI



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services to ensure cross breeding of indigenous cattle. Farmers should get more training on water harvesting to alleviate the water problem

### **3. MAMA WEMA WOMEN GROUPS**

#### **History/Group formation**

The group came together with the idea of income generation and home improvement in 1982 with initial membership of 56 members and was registered with the community development office. Each member was bought 2 chickens and 1 sheep as an income generating investment. They also started a merry go round where each member contributed Kshs. 25 per month, which was given to one member monthly. In 1985, the group bought 10 group hives but production was insecure as crooks harvested most of the honey. The group therefore decided to divest the hives from group ownership and distributed the hives to individual members and bought more hives for all members. Currently there is on average of 2 hives per member.

#### **Technical and Financial Assistance**

The group received some Kshs. 9,000 from the Women's Bureau, which was used to buy more sheep for the group. They also received 10 hives from the agricultural office in Nyeri.

#### **Training and capacity building**

The group reported to have received the following training from the various sectors implementing the NDAP project.

Area of training	Source
Tree nursery planting	Ministry of Agriculture
Kitchen garden	Ministry of Agriculture
Cookery	Ministry of Agriculture
Crop production	Ministry of Agriculture
Honey Production	Ministry of Agriculture
Sheep rearing and management	Ministry of Agriculture
Improved jikos	Ministry of Agriculture
Record Keeping	Social services
Financial management	Through KIREFU

#### **Training Impact**

The group enumerated the following as the impact of the various training received: -

Improved environment through trees planting each household received about 50 seedlings per member that were planted on individual farms and most of these trees were reported to have survived.

All group households reported that they had Fuel saving jikos that enables them to save on fuel wood and saves time (up to 4 hours per week)

Most members had improved nutrition because they had been trained on use balance diet e.g. in baking techniques, potato cakes, use of local vegetables and establishment of a kitchen garden as a source of greens. Most of the households have easy access to proteins through consumption of eggs and rabbit meat particularly for the children.

Each household is able to de-worm and manage their small stock e.g. goats, rabbits, chicken

Most members earn an extra income through selling of goats (offspring), sale of chicken and eggs. It was argued that most households have currently over 20 chickens, which produce enough chicken for home consumption and sale.

The goats produce 2 offspring annually and are fast maturing and can be sold after a period of 8 months to earn extra income.

#### **Livestock Training (Impact)**

Honey harvesting. This is done 2 or 3 times per year with a production of honey ranging from 5 Kg per harvest to 20 Kgs.

Goat rearing. It was reported that they give birth twice annually and most members have over 10 goats.

Rabbit rearing. This is a source of high protein for domestic consumption. They were reported to be breeding monthly. Children got their protein mainly from this source.



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Record keeping. The members have been trained on bookkeeping by the CDA and the knowledge is very useful in their group loaning system. The members have a revolving fund of Kshs. 100,000 with each member entitled to an emergency loan of Kshs. 20,000 at an interest rate of 10% per month and normal loan payable in 10 months at an interest rate of 1% per month. There are no defaulters.

**Health**

There is one Health facility (Wendiga Dispensary), which is less than one kilometre away that was constructed through IFAD support and was reported to be accessible, and drugs are available

Major morbidity caused by Amebiosis, Malaria, Typhoid, URTI, and Tonsillitis. The main child morbidity causes were reported to be due to Diarrhoea and URTI. The group reported that use of unsafe water and the many bushes in the areas were the major causes of morbidity in their community.

ON establishment of PHC, The group reported that there were active Community Health Workers whose main impact in the area was on improved sanitation (95% of HH have serviceable latrines), improved kitchen hygiene and health in general. Members present said that they had been trained to treat drinking water through boiling. Pregnant mothers also get enlightened at the antenatal clinics at the health facility.

**Provision of water**

In 1985 the group bought water tanks for every member through a harambee and currently all members have tanks. The members indicated that they take 4 hours to the water source i.e. river Honi and they have to boil the water for drinking purposes. They also depend on rainwater. The other source of water was from dams. The group has currently started a harambee to help their members replace the old tanks that were bought in 1985. 5 members were reported to have received new water tanks.

**Food production**

The area has fertile soils and the main food crops are Maize, beans, Potatoes, onions, and wheat  
Production Levels

Crop	Acreage planted	Average production per acre	Value in Kshs
Maize	1	20 bags	1,200 per bag
Beans	½	5 bags	2,000 per bag
Potatoes	1	30 bags	600 per bag
Onions	1/8		8/Kg
Wheat	1	3 – 13 bags	1,300 per bag

**Livestock Production**

Milk production is however limited due to water shortage. Average production is 5 – 10 litres per day per cow with a value of Kshs 12 per litre. Most households have 2 – 3 milk cows. Goat rearing is considered an enterprise because they do well in the area because of the climate. Each member has over 10 goats, 2 beehives with production levels of between 6 and 40 Kgs annually per hive.

**Employment**

Farmers employ casual labourers @ Kshs 120 per day while permanent employment earns Kshs. 1,500 per month. Farming is not a thriving business because of inadequate rainfall and lack of irrigation water. Most households prefer casual labourers.

**Poor households**

There are no squatters and female-headed households comprise 30% - 40 % of the community. The community preferred to give portion of their poor household opportunities to work in their farm rather than provide them with free gifts.

New technologies are minimal except for improved energy saving Jikos and tea cosy.

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**4. SIMBARA AMBONI WATER PROJECT.**

**History/Planning**

The project started in way back in 1972 as greater Gatarakwa water project, which was covering 3 Locations. The initial cost for the project was about Kshs. 63M. The community realised later that the project was too large and was not likely to attract a donor. So, in 1992, the community decided to start a small project, which was manageable. Members contributed Kshs 50 for registration and registered Simbara Amboni Water project in 1993. The members started by rehabilitating and utilising an existing furrow from the ARK hotel. The community decided to focus on the infant Simbara Amboni Water project that had a membership of 326 but with 250 active members. They approached the ministry of water to assist them in establishing the feasibility of their project in 1994. The community members decided through a public baraza to contribute Kshs 100 per member for the survey. The survey report of 1995 indicated that there was enough water and the community was advised to make a proposal seeking for donor support. Due to financial constraints, the community was unable to finance the project from their own resources and prepared a proposal through the District Development Committees for financial and technical assistance from the government. The project was finally co-funded by IFAD, GOK and beneficiaries in 1998. IFAD provided pipes worth about Kshs. 3M and beneficiaries contributed labour and cash worth Kshs. 500,000. Beneficiary contribution went to construction of an intake that is 85% complete and with a cost of Kshs. 400,000. Monthly reports are submitted to District Water office and the community is given feedback. Initially, in 1996, the project had contacted KWAHO for funding but it did not meet the conditionalities, which were required by KWAHO.

**Implementation Progress**

The intake was reported to be 85% complete. Cash contribution was worth Kshs. 400,000. 4 Km of piping has been done. 17 GI pipes of 6" partly laid down and once completed 25 households will get connected to water. The other beneficiary expenditures were reported as follows: - Kshs. 50,000 used in transportation of materials from the community to the intake which in Aberdare forest. Opening up of road to the intake at the cost of Kshs. 90,000. Security during trenching and pipe laying @Kshs. 2,000 per day for a total of 96 days i.e. Kshs. 192,000. The Kenya Wildlife Services required that the community get their security to be allowed into the forest where their intake is located because the area has very many tourists visiting the ARK and Treetops.

**Implementation problems**

The community identified the following as the main implementation bottlenecks of their project: Working for half day because of security of tourists who get into the forest in the afternoon. A lot of community man-hours were lost this way. Lack of a reliable cash crop in the area making beneficiary contribution towards their project very problematic. The community spends a lot of money in cost sharing. They are required to meet the following expenses: - Meeting lunch and fuel expense for the water personnel who provide them with technical services for those aspects of project call for beneficiary contribution e.g. intake and tank construction, surveying, proposal writing. Giving KWS security personnel money for permission to work the gazetted forest.

Future plans.

Soliciting of funds for water storage tank worth Kshs. 780,000.

**Health Issues.**

The community identified the following as the major causes of morbidity Highland Malaria and Amebiasis.

Child morbidity: Main causes of child morbidity were enumerated as Amebiasis and skin infection.

Cause of morbidity: Major cause was given as that of lack of safe drinking water

Nutritional status – The community is generally in good health but there is protein deficiency due to cultural practices (traditionally, potatoes are high consumed in the area but the community tends to sell beans and eggs that have high protein content). The main source of income was from milk although the dairy society was reported to have collapsed. Some members were said to be selling beans and eggs as an alternative source of income.

**Food production and productivity**

Crop	Average acreage planted	Average production/acre	Value in Kshs
Maize	½	6 bags	1,200/bag
Beans	½	4 bags	2,000/bag
Potatoes	½	10– 20 bags	500/bag



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Other crops that were reported to be grown in the area were; bananas, macadamia nuts and coffee but their production levels were not significant. The average farm holding in acres per individual was reported to be 7 acres.

**Livestock Production**

Milk production per household was given as 5 litres per cow per day with value of Kshs. 12 per litre. Most households reported to keep 2 cows. Most families keep an average of 2 sheep. Production problems were enumerated as follows: Inadequate water for domestic and irrigation use. Inadequate training on improved agricultural techniques. Exorbitant prices of farm inputs Poor feeder roads that hinder accessibility to markets. Lack of proper marketing channels leading to over-exploitation by middlemen and brokers.

**Natural resource endowment**

The area has very good soils for crop production but suffers from inadequate rainfall.

**Empowerment**

The area is characterised by rampant presence of squatters who seek casual employment from the farms. A casual employee earns Kshs. 100 per day or 1,500 per month plus accommodation.

**Female-headed households**

Female headed household account for 60% of total households. The reason given was that there are very many single mothers. Death of heads of men through HIV, and large significant of men who have migrated to urban areas in search of employment.

**Water provision**

There is use hydro ram where water is pumped from the river through piped minor water projects at village level. But it was however reported that the water was not safe for drinking and it required boiling. 25% of People have access to this water.

Basic services given to the poor the area has squatters. Services given to the poor include Material support for food and clothing. Free medical services. Casual employment

**New technology introduced.**

These were reported to include improved fuel saving jikos (liners), Tea cosy, and Basket food warmers.

**Environmental protecting agricultural techniques**

The main agricultural techniques for soil and water conservation used in the area were reported as follows: Planting of napier grass strips in the farms. Terracing. Planting of trees on sloppy grounds

**5. KAHOHERU WOMEN GROUPS**

**Planning**

The group was started in 1978 with the following objectives: Home improvement. This involved improving the roofing, as most of the houses were grass thatched. Raise money for school fees. Address the existing problem of safe drinking water. Initiating a revolving fund for home improvement e.g. buying cups, flasks, plates, mattresses, and blankets for their members. In 1985 the group started buying iron roofing sheets and buying water tanks for the members. They also started renting farming land and cultivating it for commercial purposes. In 1995, they bought a sheep for purposes of reproduction and distributing the offspring to the members. The group distributed 35 sheep to its members where it was reported that each member has 1 – 5 sheep. The merry go round enabled the group to buy utensils for the members. In addition, the group buys in bulk high value seeds as a group for its members. The members reported that they were not aware of the process used to access NDAP funds or other donor funds. They thought that when they receive visitors and highlight their problems and needs, the visitors would automatically fund them. They were ignorant of the DFRD mechanism used by the project in its planning process.

**Training and capacity building**

The members reported to have been trained in the following area: Nutrition improvement, Cookery, Rabbit rearing. Use of improved energy saving jikos, Establishment of Kitchen gardens and drying of vegetables for use during the

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dry season. Most of these training were reported to have taken place in the beginning of NDAP implementation period.

**Training benefits**

When asked to assess the benefits of the training they had received, the members reported to have got the following benefits: Improved Jikos saves wood fuel and time. 1 load of firewood lasts for 5 days while in the past it lasted for 1 day. They argued that they saved 2 hours daily through use of this technology. Similarly, the environment is conserved because of reduced tree cutting as they use less firewood. Their health has improved due to cheap source of proteins (rabbits), and other vegetables from the kitchen gardens. The group approach has enabled them to resolve and meet most of their persistent problems and needs.

**Health**

The major causes of morbidity as listed by the interviewees include Malaria, URTI, Typhoid, HIV/AIDS, and Amebiasis. Unsafe water and cold were cited as reasons for these causes

Pneumonia and malaria on the other hand cause Child mortality

Establishment of PHC There is a health facility in the vicinity with good services because they never lack drugs and it has a maternity wing. The group was able to identify a CHW who have trained them in the following areas: Sanitation and hygiene, Water treatment (boiling and 3 pot filtering system) Nutrition. However, the CHWs have become inactive, as there has been no follow-up on their activities.

Nutrition status

Generally, the children and community in general are health as they have a balanced diet and cases of malnutrition are very rare.

**Water provision**

The community has piped gravity fed water system and they also fetch some water from the river. However the water is not enough for domestic and livestock use. The water from the river was reported to be unsafe for drinking.

**Food production**

The main food crops grown in the area are; maize, beans, potatoes, carrots, cabbages and onions. The average total acreage owned by member is 3 - 4 acres.

Production and productivity

Crop	Acreage under crop	Harvest/Acre in bags	Value in Kshs./bags
Maize	½	8	1,200
Carrots	1/8	40	1,000
Potatoes	¼	60	500
Cabbages	½		20,000 – 30,000
Beans	¼	4	1,600

Livestock Production

Most families rear milk cows and keep a few sheep. The average milk production was given as 5 Litres per cow per day that is sold to their local Co-operative society at Kshs 10/litre. The members reported having existing community managed dips

Production problems identified by group members were supply of substandard seeds, Lack of enough water and poor marketing channels as their main production predicament. If the above problems could be solved, farming can be a thriving business in the area.

**Employment**

There is abundant supply casual labour from the squatter village at Endarasha Township. The casuals are paid Kshs. 120 per day for men and Kshs. 100 for women. The group also uses their members (Ngwataniro) to work in their member's farms

**Environmental friendly farming techniques**

The farmers use the following farming techniques to protect their environment. Tree planting. Use of compost manure. Terracing. Planting grass strips. To protect themselves against the effects of chemicals, the farmers use improvised protective clothing when they are spraying pesticides on their farms and keep the chemicals out of reach of children. Agro vets were reported to be available but supply substandard chemicals and farm inputs

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**Use of Local resources**

The area has fertile soils for agricultural production and abundant reservoir of squatters as a source of labour.

**New technologies**

The group has adopted the following new technologies at their homes: Energy saving Jikos. Tea cosy. Three pots water treatment technique.

**Empowerment**

Female-headed households comprise of 50% of the total households in the area.

Services offered to the very poor. The poorest of the poor in the area are offered material support and are employed as casuals in the farms. The poorest are also exempted from paying cost sharing at the local health centre.

**6. KAMIRURI PHC GROUP**

**Planning**

The group was started in 1992 and registered in 1993 as Kamiruri Primary Health Care group. The idea of forming the PHC group emanated from the social marketing of the NDAP health component in the community. The whole community was sensitised and after which they selected members of their community for training as CHWs, TOTs and TBAs by the Ministry of Health. Initially there were 36 members but this has reduced to the current 10 active members.

**Training.**

The Group was trained in the following areas Sanitation, Kitchen garden, Poultry keeping, Nutrition education, tank construction, treatment of minor illnesses, TBA and safe delivery, Water treatment, Report writing, Energy saving devices and Leaky tins and growth monitoring. The group offers the following services to the community Village pharmacy (Bamako Initiative), Community Health work, Traditional birth attendants, growth monitoring.

**Training benefits**

The members cited the following benefits to their community as a result of the training that they had received. Their diets at family and community level have improved. They save time taken going to hospitals through BI. Improved sanitation in the community. Most households were reported to have serviceable pit latrines. Improved roofing for water harvesting. Many of the grass thatched houses have changed to iron sheet roofing i.e. 526 households. They have improved knowledge on safe use of water. Reduction in minor illnesses. Bamako Initiative started in 1993 with the drugs being supplied by the Ministry of Health but with a seed capital of about Kshs. 7,000 from the community, which was raised through harambee. To date there are 2 operational village pharmacies but are experiencing problems of unpaid debt as a result of community members borrowing drugs from the pharmacy and failing to pay due to lack of money as a result of drought. They also complained that they initially bought a lot which expired before they were bought exposing huge losses. They reported to have written a proposal through their local development committees to the programme officer for financial support to enable them restock the pharmacies. They were still waiting for a reply.

**Health**

The main causes of morbidity in adults as reported in the area include Typhoid, Malaria, Amebiosis, Bronchitis, URTI and HIV/Aids. In children, it was URTI, Diarrhoea and measles.

Causes. The causes of morbidity according to the members were as a result of poor sanitation, Cold weather, Bushes and stagnant water, Consumption of unsafe water.

**Nutritional status**

The group members reported that their families are in good health. Normal growth is observed in children with very few underweight or malnutrition cases.

**Food production and productivity**

The average land ownership in this area is 10 acres per household with maize, potatoes, beans, wheat and vegetables being the main food crops.

**Crop production and productivity**

Crop	Acreage under crop	Harvest/acre in bags	Value per bag in Kshs.
Maize	1	5	1,200



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Potatoes	½	12	500
Beans	1	1- 2	2,400
Wheat	2	8 – 10	1,300

Other crops grown but on small quantities include peas, onions and vegetables

**Livestock production**

On average members said that production is 4 litres per day per cow with a value of Kshs. 8/litre. There are also poultry and sheep rearing. Most members have 2-3 milk cows. They sell their milk through their local co-operative i.e. Gatarakwa farmers' society. The either dip their livestock in a community managed dip or spray them at home.

**Production problems**

The major problems associated with production and productivity in this area is crop failure due to drought, Pests and diseases (potatoes bright and frost). The marketing system is poor, poor preservation and storage of harvested crops. The members reported that they experience a food deficit for 6 months annually and they depend on relief food or purchases from the local market using incomes from the sale of milk, poultry and goats.

Environmental protecting agricultural techniques to protect their environment, the members reported that they make terraces on steep slopes, plant grass strips and trees.

**Employment**

The area is characterised by presence of squatters some of whom said that they get little support from the community. To maintain themselves they have formed self help groups to improve their homes and as an income generating activity. Charcoal burning is an important source income. The poor seek casual employment from the farms and also rent pieces of land for farming.

The proportion of female-headed household in this area is 80% for most men have migrated to urban areas in search of employment.

**Provision of water**

The members get their water from the river Kariguini and Mugachi and from water harvesting tanks. They indicated that the water source is 4 Kms away. There is also Mutitu water project sponsored by the Catholic Church. To be a member of the water project, one had to labour and pay a connection fee of Kshs. 12,000 cash. Most members reported to have failed to raise the connection fee hence fetching from a communal water point 1-Km away.

New technologies the only improved technology reported are the Safe energy saving jikos. The members reported that since adopting the safe jikos, there have been less fire accidents and they save an average of 3 hours per day. There are also un-quantified savings in reduced cutting of trees.

**Services to the poorest of the poor**

The poorest members of the community are provided with free medical services.

**Sustainability**

To sustain themselves the group is enrolled with Kirefu SACCO and started a rotating fund for buying goats for members.

The local resource that reported in this area is fertile soils.

**7. LOWER LAMURIA WATER ASSOCIATION**

The farmers settled in the area in 1979 through a land buying company. Upon settling, they were faced with the problem of lack of enough rainfall. The members came up with the idea of rehabilitating a furrow that was left behind by white settlers. 7 – 10 members came together and started this in 1982. In 1983 they went ahead and formed a group with a membership of 25 with the name Rurichu Water Association. After registration they got a permit from the Ministry of water to use the water. In 1984 the furrow was surveyed from the intake downwards. The community contributed by accommodating the officers who came to survey. The initial members then gave the contributions, which was not recorded.

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**Health**

The major adult diseases are Amoeba, Malaria, common cold, Pneumonia AIDS and URTI while morbidity for fewer than 5 is caused by URTI, diarrhoea, and ringworm and eye problems. The diseases are as a result of cold weather, polluted water and chemical from spraying of wheat at Ol Pajeta.

Establishment of PHC

In 1992 CHWs were trained and issued with drugs and bicycles through IFAD interventions. Currently there are no activities. The nearest health facility is around 6 Km away

Nutrition status the under 5 are healthy with improved diet.

**Production and productivity**

Crop	Acreage under crop	Harvest	Value
Beans	½	3 – 4 bags	
Maize	½	6 bags	
Tomatoes	½	100boxesx 60	6,000
Onions	¼	1,500 Kg x 10	15,000
Cabbages	½	3,000 x 6	18,000
Carrots	¼	1,200 KG	48,000
Milk		5 kg/cow/day	

Production problems are Poor seed quality, Marketing problems, Destruction by wildlife, Unsafe handling of chemicals, Pesticides and diseases.

**New technology introduced in the area.**

The new technologies introduced in the area include: Flood irrigation, Basin irrigation, Overhead, gravillea trees

**Water**

Sources of water: The community gets its water from river Ngaringiro. The water is also used for irrigation although it is not enough.

Water problems are Poor design, Lack of cohesiveness; Project not implemented according to design, Illegal connections, and Poor management of the project. The project has no functioning by-laws.

Solution is Group training required for the whole community

Benefits are: adequate food, socialisation, education on leadership, increased income, better housing, improved nutrition and improved education.

**Empowerment**

The poorest of the poor are in the project but provide casual labour @100/= per day plus food.

The members have been empowered financially and socially. 20% of the households are female headed.

**8. MWEIGA FARMER'S CO-OPERATIVE SOCIETY**

**Planning/History**

The farmers settled in this area in 1962 under the settlement board. The farm holding is currently about 1 acre but was initially 7 acres. The farmers were given grade animals and that was a settlement board, which was charged with responsibility of taking care of the property that was left behind by the white settlers. The farmers formed a co-operative society, for selling their farm produce (milk). The farmers had prior information about KCC and therefore decided to form a co-operative. In 1965 the co-operative was registered with a membership of 400 members. To date there are about 1,000 members. The co-operative has a management committee of nine members, which is elected by the members, and it is renewed after every 3 years. The committee members have been trained, at the Co-operative College, on management and bookkeeping. The co-op members were able to sell their produce mainly milk, coffee, macadamia. They have been able to acquire vehicles for transporting their milk. They have managed to come together. They have a water project for the members – about 250 connections.

Problems

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The co-operative was faced with several problems namely: -The co-operative manager who never involved the committee in the running of the co-operative society. The manager had been seconded by the Nyeri farmers union and therefore was not answerable to the committee members. Members complained that there was no transparency in the management. But this was solved when members called a special general meeting, to employ a manager answerable to the committee.

**Health**

Major diseases in the area include Pneumonia, common cold, typhoid, Malaria, amoeba, intestinal worms, URTI and AIDS. Infant morbidity is by URTI and malaria. The causes of these diseases are cold weather and untreated water.

**Training of PHC**

Over 1992 – 1993 there was formation and training of PHC members – about 40 CHWs. The CHWs didn't go far because they were not recognised by the administration and they were not allowed to hold any meetings. They had been promised medicine, weighing balances, bicycles that were never provided. They met once a month and carry out some activities like garbage disposal, sanitary hygiene and educating mothers on importance of vaccination. They also inspect the river and educate the community of dangers of polluting the waters and finally, they advice on nutrition of the children.

**Benefits**

They are educated and informed people. There is improved health both for adults and children although 2-5% pocket of malnutrition was reported.

**Water**

Ruhotia furrow is the main source of water. A hydro ram pumps the water to an elevated tank. It is then gravitated to the consumers. The water is used mainly for domestic and livestock although there is minor irrigation along the furrows. 25% of the households are connected to the water with the average person walks for ½ Km to fetch water

**Food Production**

Originally the farmers settled on 7-acre plot but currently the average size is 1 acre.

**Production/Productivity**

CROP	Area under acreage	Harvest	Value
Maize	1	5 bags/acre	1,200/bag
Beans	1	2bags/acre	2,000/bag
Potatoes	1	5-10 bags/acre	600/bag

Milk production is about 5-7 kg per cow and most of the farmers reported of owning 2 cows per farm.

**Production Problems**

The group identified the following as the major production problems: Very many middlemen and brokers who exploit the farmer. Prices of inputs are very expensive. Yields are below average because of poor quality seed, chemicals etc. The society reported that they were unable to grow French beans due to ignorance of market outlets. The farmers also are ignorant on protecting themselves while handling chemicals.

**Environmental Conservation**

The major techniques used in conservation included planting of Napier grass, terracing and planting of trees. The tree seedlings for planting are got from within the community particularly from women groups.

**New Technologies**

Farmers had introduced the growing of French beans but this failed to take off because of lack of market outlets. The other new crop introduced in the area includes the growing of cut flowers, sorghum and njahi.

**Improvement in Incomes**

The farmers employ casuals and pay them Kshs. 100 per day plus lunch. Permanent labourers earn a salary of Kshs1, 500 – 2,000. Most farmers consider farming as a business despite marketing being a major problem more so exploitation from brokers.

**Natural Resources**

The major natural resources in the community were reported to be water, soils and some murrum.



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**Empowerment**

In this community, female-headed households constituted about 60% of the households. It was reported that most men have died.

The poor of the poor in the community live in villages and there were no organised ways of assisting them. Most of the poor earn their livelihood by selling labour to the farms or rent shambas where they produce agricultural output for food and for sale. There has been no IFAD intervention.

Farmers have also been empowered economically. The women on the other hand have been empowered by being allowed to have joint accounts and sell farm produce.

**9. GAKAWA DISPENSARY HEALTH FACILITY MANAGEMENT COMMITTEE**

**History/Planning**

The facility was formerly located in Kahurura forest as a government facility. Following the government policy of evicting people from forests in 1989, the semi permanent structure was relocated to the current 2-acre public site. The members of Kahurura locality facilitated the relocation. They offered both financial and material contributions. In 1990, the community selected a committee of 9 members with a representative from every village to oversee the construction and solicit for funds to construct and equip the permanent facility. Members of the community contributed 200/= each to open a bank account where future contributions and donations could be deposited. In 1992 following the coming of IFAD programme in Nyeri district, Gakawa area was prioritised for a health facility by the office of the MOH. Through IFAD assistance, a fully-fledged dispensary was constructed on the same site the community had already identified. The community contributed 30% of the total cost of the facility, as this was a prerequisite to IFAD assistance. It was made of labour and materials. All the necessary equipment and materials and drugs were supplied and the facility started operations in 1999 and the same committee was charged with the responsibility of managing the facility. At this time cost sharing policy was in place and members paid 10/= for every prescription. Currently the committee is able to collect about 60,000/= per month and this is used to buy drugs and maintenance of facility. The committee is not happy with the new –January 2003-government policy of exempting the under 5 from any payment noting that they comprise the majority of patients. This according to them may cripple them financially.

The following were some of the problems that they incurred during the construction of the facility: -Members of the community was not involved in the award of the contract Members did not have the authority to supervise construction of the facility. They complained that construction materials were substandard and would deteriorate soon.

**Health**

The major causes of morbidity in this area were reported to be: -

Disease	Cause
Malaria	plenty of breeding places for mosquitoes
URTI	cold weather and chilly nights
Typhoid	contaminated water
Amebiasis	contaminated water
AIDS and STI	Inadequate sensitisation, unsafe sex

The major causes of child morbidity were reported to be Pneumonia and malaria with pneumonia being a major cause of mortality.

**Establishment of PHC**

A group of 10 PHC members were trained through the IFAD programme on the following: -Establishment of village pharmacies (Bamako Initiatives), Growth monitoring techniques, De-worming in schools and villages, Minor treatments e.g. burns and bleeding, Proper sanitation and waste disposal. Members reported the following benefit due to the training: Improved hygiene, Establishment of kitchen gardens, Treating of drinking water through boiling, Improved nutrition due to consumption of nutritional foods. It was also noted that with the introduction of PHC most members have constructed latrines instead of the earlier habit of relieving themselves in the bush. There are also no cases of marasmus as a result of good diet.

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**Provision Of Water**

Members reported that the area has water connection from the RDF project of Huku water project. However a few families that comprise 10% are not connected and fetch water from Nanyuki and Wastuga Rivers. The water is reported to be inadequate for irrigation and most members irrigate only ¼ of an acre. It is also requires to be treated for human consumption.

**Crop Production and Productivity**

Crop	Acreage under crop	Average yields	Value/unit in Kshs.
Potatoes	1	6 bags	600
Beans	½	2 bags	1,200
Carrots	¼	3 bags	1,500
Snow peas	¼	50Kgs	20 – 30 /Kg
Cabbages	¼	1,000 heads	2

The average farm holding per farmer was reported to be 3 acres. Maize is also grown in small quantities. Tomatoes do not d well due to frost. Members reported that the supplement the above quantities by cultivating forest land.

**Livestock Production**

The average number of livestock per household was reported to be 2 cows, 2 goats and 2 sheep. Milk production is 5 litres/cow/day with a value of 6 – 8/= per litre. The sheep and goats are mainly for sale. The major production problems in this area are poor roads to the production areas. Exploitation by brokers and middlemen due to lack of organised marketing channels. Pests and diseases Substandard seed the impeded high yields. Privatisation of AI services making them unaffordable to most farmers. Looses due to constant destruction of crops by wild animals. Flooding due to flat terrain.

**New Technologies**

Members reported that new were introduced through extension services by the Ministry of Agriculture and includes Overhead irrigation, 'Tumbukiza' method of planting napier grass for higher yields, Fodder preservation, New variety of potatoes (Tigoni and Asante) that are resistant to frost, New fodder variety namely Lucena and sesbania. In home economics, member reported that they had learned how use improved jikos technology that helps save fuel and the use of basket food warmers.

**Environmental protection**

Members reported that most families had embarked on tree planting on bare land that is not used for farming. Due to excessive flooding, members dig up trenches to drain the water to protect their crops. It was however reported that members do not use protective clothing when spraying their farms due to the cost involved.

**Employment**

Farmers of this area reported that they do not engage casual workers in farming, as it is not considered a thriving business. Casual employees are however engaged in grazing of animal in the forests. These casual earn 80/= per day or 1,500/=month

**Local Resources**

The following were identified as fertile soils, forest, water and solar energy used in some homes

**Services to the poor**

The area is characterised by high number of squatters due to eviction from forests. They occupy 2 squatter villages and most of them earn a living by cultivating the forest. They are provided with such services as casual employment, exemption from cost sharing, government food relief and World Food Programme where children are fed in schools. In this are female-headed households comprise of 30% of all households.

**Empowerment**

Members reported that through the IFAD programme, they had been empowered in the following areas: -Intensive training in agriculture leading to high yield, Access to a health facility whereas earlier they walked for 6 Kms to Nanyuki town. Ability to pay school fees as incomes have increased, Social cohesion – working in groups, Knowledge of primary health care and hence reduced incidences of diseases.



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**10. KAAGA WATER PROJECT**

The inhabitants of this area settled in 1983 through Ragati cooperative society. Initially they were 245 families and the project engulfed Ragati, Gathiuru and Ichuga sub-locations. Later in 1995 the group split to form Kaga water project the incorporated Kahurura and Gakawa thus the name Kaga and it was registered as Kaga water project. The members felt the need for water both for domestic and livestock purposes as the area receives irregular rainfall. The nearest water source (Nanyuki River) was very far away. Since all the members of the community had identified the water problem as their priority, they met and constituted a committee of 9 members and charged them with the responsibility of overseeing the take off of the project and solicit for funds. The members also identified Nanyuki River as their source of water. The community started raising funds where every member contributed Kshs. 100 as registration fees and 20,000/= for project membership. A total number of 321 members have been able to raise this amount. In 1998 the project attracted IFAD funding and work was started. The total project costs was Kshs. 10M where the community was required to raise 30% as a prerequisite for IFAD assistance. Through the technical assistance of the Ministry of Water personnel, survey and design of the project was done and construction of the intake started at a cost of Kshs.450, 000. The community also constructed a storage tank at a cost of 800,000/= and pipe laying works in form of labour. IFAD project supplied 2,813 PVC and 69 GI pipes but this was not adequate. At the moment only 46 members are connected and there are 8 communal watering points. The members emphasised that they were fully involved in planning implementation of the work. They reported that their future plans such as looking for more donors and raising more money from community contribution in order to have more members connected.

**Health**

The following were reported as the major causes of morbidity and their causes.

Disease	cause
Pneumonia (URTI)	cold weather
Arthritis	extreme cold
Malaria	breeding ground for mosquitoes
Typhoid	Untreated water
HIV/AIDS	incidence of poverty

The main causes of child morbidity were reported as URTI (Pneumonia), Malaria and measles with Pneumonia being the major cause.

Establishment of PHC Members reported that through the IFAD programme, a group of PHC members were intensively trained in year 2000 on the following areas: -General hygiene, Family planning, Community pharmacy services, Child growth monitoring, Nutrition, Waste disposal, Construction of latrines, Treating of drinking water, Establishment of kitchen gardens. Members however reported that PHC activities have stalled because of lack of follow-up, lack of proper facilitation and incentives. It was also noted that the community preferred engaging in other activities that earn them income rather than PHC activities. It was also reported that the community has identified a dispensary site but lacked finances for construction.

**Provision Of Water**

A small percentage of the community is served by the IFAD sponsored Kaga water project. Only 46 homesteads are connected to piped water and there are 8 communal water points. Other members draw water from Wastuga and Nanyuki Rivers. The water is however not safe for drinking as it is not treated and hence requires boiling before drinking. It is also not adequate for irrigation thus members only irrigate a small portion of land. The Average Land Holding Was Reported To Be 2 Acres Per Family. The Production Per Harvest Is As Follows: -

**Crop Production and Productivity**

Crop	Acreage Under Crop	Yield	Value In Kshs Per Unit
Maize	½	5 Bags	1,200/Bag
Beans	½	½ Bag	1,600/Bag
Potatoes	½	3 Bags	700/Bag
Cabbages	½	6000 Pieces	2/Piece
Carrots	¼	5 Bags	900/Bag
Tomatoes	¼	4,500 Kg	30/Kg

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**Livestock Production**

The Average Livestock Ownership Per Family Was Reported To Be 2 Cows And Others Keep Sheep For Domestic Purposes Only. It Was Reported That Average Milk Production Is 4 Litres Per Cow Per Day With A Value Of 8/= Per Litre. Farming However Is Not A Thriving Business Due To The Following Production Problems: -Erratic Rainfall Patterns With Long Drought Period, Improper Marketing Channels Thus Exploitation By Brokers And Middlemen. Exorbitant Prices Of Inputs. Fake Seeds And Fertilisers, Poor Roads To Production Areas. Inadequate Water. Invasion By Wild Animals, Unaffordable AI Services Denying Improvement Of Traditional Breeds, Rampant Livestock Theft.

Members Reported That They Don't Use Protective Attire While Spraying Their Animals And Crops. The Only Precaution That They Take Is To Ensure That They Spray Along The Direction Of Wind.

**Local Resources**

It Was Reported That The Only Local And Natural Resources Present In The Area Is Water And Fertile Soils.

**New Technologies**

Members Explained That A New Variety Of Potatoes Namely Asante Was Introduced In This Area. They Also Reported That They Don't Receive Agricultural Extension Services And There Are No Extension Officers In This Area.

**Services To The Poor**

A Small Squatter Population Due To Forest Eviction Characterises The Area. The Squatters Get Assistance From Other Members Of The Community Through Casual Employment Where They Are Paid 100/= Per Day Or 1,500/= Per Month. These Members Are Also Supplied With Government Relief Food When Available. Some Of The Squatters Earn Their Living From Cultivating In The Forest And Selling The Produce While Others Rent Land From The Community.

The Percentage Of Female Headed Household Accounts For 40% Of Total Households.

**Benefits Of IFAD Project Interventions**

The Members Cited The Following Benefits As A Result Of IFAD Programme Interventions. Provision Of Water, Construction Of Gakawa Health Facility That Is Only 1 Km Away, Empowered Financially Through Sale Of Farm Produce, Ability To Raise School Fees Through Improved Incomes, Enlightenment Through Education And Farm Tours, A Lot Of Person -Hours Are Saved Due To Availability Of Water.

**Problems**

Lack Of AI Services Limits Breed Improvements And Lack Of Extension Services Hampers Progress In The Area, As Reported By The Members. Inadequate Water. There Are No Schools In The Area And Children Walk For 6Kms To The Nearest School. The Water Project Was Only Reported To Be 25% Complete This Has Necessitated Farmers To Prioritised Rehabilitation Of Existing Boreholes In Their Future Plans.

**11. KAMBURAINI WILDLIFE COMMUNITY GROUP**

This Group Was Started In 1998 And Adopted The Idea From Kenya Wildlife Who Wanted To Assist Community Project As Compensation For Destruction Of Crops By Wild Animals. However The KWS Gave The Group A Condition That 1/3 Of Its Members Must Be Women. The Group Was Registered 1998 With 150 Members. Earlier On The Group Had Started A Poultry-Keeping Project, Which Became Non Viable. Therefore The Group Embarked On The Idea Of A Beekeeping Project. The Group Selected A Committee Of 9 Members Of Whom 4 Were Women. And Labour.

They Rented A Plot For Kshs. 2,500 Per Year And Fenced It Out. The KWS Held 1 Training On How To Befriend The Wild Animals And Treat Them As Beneficial. 3 Other Members Were Trained But The KWS Programme Never Continued. They Instead Advised The Community To Keep Checking With Them.

In 2001/2002, The Group Requested Assistance From The Agricultural Office. They Were Given 4 KTBH Beehives And Advised To Buy Harvesting Uniform Which They Bought For 3,000/= Although It Was Not Complete With The Gloves And Smoker Missing And Thus The Group Has Not Harvested Honey. In Year 2001 They Approached The Self-Help Centre NGO And Took Their Proposals. They Were Assisted With Kshs. 5,000 And Fruit Tree



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Seedlings And Each Member Contributed 250/= Which Amounted To 12,500/=. With This Amount They Bought Materials And Constructed 11 KTBH Making Them Have A Total Of 15 Hives. In Addition They Had Identified UNDP COMPACT Global Fund As A Source Of Fund But They Didn't Qualify For Funding.

**Health**

The Major Causes Of Morbidity In Adults Was Identified As Asthma, Pneumonia, Malaria, Diabetes, Arthritis, Hypertension And AIDS While In Children Pneumonia, Ringworm And Malaria Cause It. These Diseases Are As A Result Of Cold Weather, Breeding Ground For Mosquitoes, Poor Eating Habits And Chemicals Sprayed Of Food.

Establishment Of PHC

PHC Was Established In 1994 And 2 Members Were Trained. 1 Was A Girl Who Was Later Married And Left The Area While The Other Was A Woman Who Divorced And Also Left The Area. Due To This No PHC Activities Are Going On In This Area.

Nutrition Status Malnutrition Is Rare Although There Are A Few Cases. People Are Not Aware Of Proper Nutrition For Children E.G. Children Are Fed On Milk And Eggs Especially When They Have Pneumonia.

**Provision Of Water**

The Members Get Their Water Through A Piped Project From Rivers Tigithi And Nairobi Where 60% (500 Members) And 1,500 People Have Irrigation Water. In 1972 – 1977, This Area Had Domestic Water Project (Naromoru). In 1984 They Decided To Start A Furrow Water Project For Irrigation And This Was After The Drought Period. However, In 1986 The Furrow Project Was Changed To Piped Water System. Later The Project Approached IFAD And Were Advised To Construct An Intake And They Be Provided With Pipes. The Water Project Reached The Farmers In 2001.

**Food Production And Productivity**

Crop	Acreage Under Crop	Yield	Value In Kshs Per Unit
Potatoes	1	10 Bags	600
Cabbages	¼	3,000 Pieces	5
Snow Peas	1/8	300 Kgs	20
Snap-Peas	1/8	600 Kgs	20
Maize	For Domestic Use		

The Average Ownership Of Cows Is 1 Per Member With Milk Production Is 3Kgs Of Milk Per Cow With Value Of 7/= Per Kg.

Environmental Conservation The Farmers Reported That They Dig Trenches For Draining Water; They Also Have A Tree Nursery Manned By The Forest Department Where They Get Seedling For Planting.

**New Technology**

The Members Reported That They Received The Following New Technology In The Area. Snow Peas, Bee Keeping, Kitchen Gardening, And Merry – Go – Round, HCDA Marketing And Facilitated Training On Safe Handling Of Chemicals. They Are Not Good In Marketing And Take 3-4 Weeks To Pay Farmers And This Makes The Farmers Use Brokers Who Are Highly Exploitative.

**Employment**

The Average Farm Holding Is 5 Acres Per Household. Here The Community Employ Casuals At 100/= Per Day Plus Lunch Or Monthly Payment Of 1,200 – 1500/= Per Month.

**Business**

Farming Is Considered A Business Although There Are Marketing Problems With Brokers Exploiting The Farmers, Poor Farm Inputs And Poor Roads.

**Empowerment**

The Community Is Empowered In That They Are Self-Employed And There Is Food Security. The Community Has Been Motivated To Go And Look For Water In The Forests And As A Result They Are Determined To Build A Reservoir. There Is Also Group Cohesion

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**12. MURERU DISPENSARY PHC (GITHIMA PHC GROUP)**

The group was started in 1992 in Gakawa location with the first group of less than 30 people being trained the same year. In 2002 due to the fact that the first group had relaxed and was not active, the assistant chief proposed that a second group be trained and thus 42 people were trained. The members who are trained work purely on voluntary basis. The TOTs were trained by IFAD on the malnutrition, growth monitoring, and first aid, AIDS, de-worming, sanitation and water treatment. Through the training, they give such services as toilet construction, home sanitation, rabbit and poultry keeping, cookery and growth monitoring. A community pharmacy was also started and stocked through community contribution. They also have a tree nursery.

**Health**

The major diseases in the area are URTI, Pneumonia, Typhoid and diarrhoea for adult while in children the major diseases are URTI, Malaria and worms. Pneumonia and HIV/AIDS cause mortality in children. The members cited the following benefits from the PHC activities, there is a health facility near them, they have been educated, The PHC has seedling for sale to improve the environment, and there is reduced morbidity. Nutritional status the malnutrition cases as reported by the members is 4%.

**Provision of water**

Sources of water the members reported that they get their water from Muriru Burguret water project with connection ratio of 20% and River Tigithi and Muriru stream. However the water is not treated. The members also use the water for irrigation with irrigation area being ¼ acre.

**Food Production/Productivity**

Crop	Acreage under crop	Yield	Value in Unit/unit
Beans	1	1 bag	
Maize	1	Uncertain	
Potatoes	½	3 – 4 bags	
Snow peas	1/8	50Kgs	20/Kg

Each family has 1 cow with milk production being 4Kgs/day with a value of Kshs 8 –10 Unit per Kg.

**Production problems**

It was reported that the following problems hinder production in this area. Marketing problems mainly exploitation from brokers, substandard seed and other inputs, inadequate rainfall, Destruction of crops by wild animals

**Environmental protection**

To conserve the environment the farmers plant trees such as blue gum, casuarinas, passion fruit etc, practice water harvesting through making of dams. New technologies in the area include safe jikos, construction of water tanks, food basket warmers and double digging for kitchen gardens.

Business the members do not consider farming as a business. However there is casual employment in the farms with payment ranging from Kshs. 80 – 100 per day plus lunch and monthly workers are paid between Kshs. 1,200 – 1,500 per month plus accommodation.

Natural resources are water, forest and fertile soils.

**IFAD project intervention benefits**

The members reported that through IFAD project: They have received education thus reduced disease incidence. Nutrition has improved. There is food security due to proper farming. They are able to form groups. Their homes have improved.

**Empowerment**

The poor of the poor are employed as casuals in the farms. They also rent shambas for production. Female headed households account for 70 – 80 % of total households.

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**13. HUHONI WOMEN GROUP MEMBERS**

The group was started in 1993 with a membership of 12, which increased, to 31 in 1994. The main aim of starting the group was for home improvement. Thus, they started by buying cups, bed-sheets, blankets, mattresses, rubber shoes and 100 litre plastic tanks. The group members were contributing 50/= each monthly which enabled them to achieve the above. The group was trained by Ministry of Agriculture and social services on home improvement activities, general hygiene, proper nutrition, cooking etc. In 1999 the group started a shamba but they experienced a crop failure. Future Plans include buying of bigger plastic tanks of about 2,000 litres for each of their members. The women identified their needs after being sensitised by Agriculture and social services staff.

**Health**

Major Diseases in the area are Common cold, Malaria, Typhoid, Amoeba, and HIV/Aids. For the under fives they are URTI, Diarrhoea and ringworm. The causes of the above diseases cold weather, beliefs mangoes sold in the market has malaria, typhoid caused by polluted water, AIDS caused by immorality. Children are primarily fed beans, potatoes, vegetables, Ugali, Maize, Milk and Eggs.

**Source of Water**

The main sources of water are Nairobi and Mere Rivers. Tap water from Warazo Lusoi water project is inadequate due to drying up of river Nairobi. Causes of drying up of river are felling of trees along the riverbanks, forest destruction (catchment area), unreliable rainfall, and cutting of indigenous trees. Solutions of the water shortage are planting of trees both at home and the forests, Construction of a big reservoir to store enough water for the dry season.

**Agriculture**

**Food Production**

Maize	1 acre	0 – 15 bags
Beans	1 acre	1 bag
Peas	1 acre	2 debes
Potatoes	¼ acre	0 – 5 bags
Cabbage	¼ acre	1,000 heads
Carrots	For home consumption	
Sorghum	For home consumption	
Sweet potatoes	For home consumption	

**Livestock Production**

There are two cows per household where they produce 4 – 5 litres at 8/= per litre.

**Agricultural Production Problems**

These were listed as inadequate tap water inadequate rainfall; Lack of finances to buy inputs, which are quite expensive. Poor seed quality especially maize seed problem of head smut, Pests, Bad marketing where lack of buyers leading to brokers controlling the price, Bacteria wilt for potatoes.

**Farm Size**

Originally it was 35 acres but now it 1 – 5 acres. They settled there in 1964.

**Livestock**

There are two cows per family. There are also sheep and poultry.

**Livestock production problems**

New Castle disease occasionally wipes out poultry.

**Environmental Protection (Conservation)**

These include among others Terraces when ploughing by tractor, Napier grass planting, Tree planting,

**New Technology**

People have been taught about improved jiko, Tea cosy, basket food warmer, Sweet potatoes, sugar cane and bananas as new crops. Casual labour is available at 100/= per day plus lunch. Permanent labour is negligible.

**Female Headed Household**



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The female-headed households are estimated to be 70% of households. Groups assist the poorest of the poor in taking them to hospital when sick, food, and clothing. The poorest of the poor and the poor provide casual labour.

**Local Resources**

These are good soils, quarry and forest reserve.

**14. LOWER THUNGARI WATER PROJECT**

The area has two boreholes. It is an area with inadequate rainfall. The boreholes cover only 25% of the members. The borehole water to the beneficiaries was metered and was paid according to the amount consumed. There was a problem with management that the power running the borehole was disconnected. IFAD has assisted with pipes for distribution, and the community contributed labour. The project has poor management committee, thus poor relationship between them and the members. The project distribution network was poorly implemented 1- no air valves and washouts thus the water does not flow freely in the pipes and thus not reaching all the members connected. The chairman does not consult the member when making major decisions in the project. He also discriminates while providing services to the community. The poor are not catered for. The average distance to Rongai stream is 1 – 1 ½ kms walk.

**Health**

The nearest health facility is 10 kms away. This is Naromoru health centre. However the community has a plot for a dispensary. Major adult diseases are common colds; URTI basically caused by cold weather and dust. Amebi0sis and typhoid are - caused by polluted water from the rivers. The under fives suffer from Pneumonia and diarrhoea.

**Food Production**

Maize	1 acre	4 bags
Beans	1 acre	3 bags

Cabbages also are grown.

This community has food sufficient for a month if the rains are adequate. Famine relief food is provided when available.

**Milk Production**

There are 3 cows per homestead where each one produces 3 litres selling at 7/= per litre. They also keep poultry and sheep. Sometimes droughts are so bad that they loose almost all the animals. The community settled here in 1973 through a settlement scheme. Average farm holding 7 ½ acres.

**Employment**

Casual labour is available at 100/= per day plus lunch. Permanent employees also available but cause a lot of insecurity since no one knows where they come from. No domestic product, money usually comes from outside.

**Food Production Problems**

The soils have not been tested thus they don't know the recommended seeds for the area. This requires KARI intervention. Intervention Inputs are also expensive. Rainfall is highly unreliable.

**Future Plans**

The group wants to select a new committee for the borehole and to construct a dam to save more water during rainy season.

**Soil Conservation**

Planting of tree, which they have tried, is to be expanded. Terraces have been constructed. Digging trenches in the garden to catch floodwater.

Female-headed households are 30% of the total in the community.



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**15. MITERO HOME ECONOMIC WOMEN GROUP**

**Planning:**

The group started in 1991. Their main aim being home improvement. The group was registered in 1991. At the beginning, the group had 40 members all of them being men. Currently, the group has 30 members out of which 4 are men. The idea of the group emanated from a home economics officer who also motivated the members to start off by educating them on home economy. She also helped the group elect committee members through secret ballot. The group started with a contribution of 5/= per week for each member.

**Activities of the group**

These have been Buying utensils, Buying horse pipes for each member (contribution was 100/= per month), Buying sheep (one) for each member, Buying of sofa set for each member, Knitting blankets using old wool for members, Knitting blankets with new wool for sale

**Training**

Members were trained on the following areas: Baking cakes, Weaving food baskets, Improved jikos (six members so far have the improved jikos), Kitchen garden, Construction of water tanks. Each member has a tank. The cost of one tank is 70,000/=. Each member contributed 2,000/= + labour which amounted to 40% of the cost. Donor whose name could not be remembered met the rest of the cost. In 1998, IFAD trained the group on savings and credit facility through KIREFU.

**Health**

Major causes of morbidity are Malaria, Pneumonia, Amebiosis, HIV/AIDS, and Hypertension

In under fives they are pneumonia, diarrhoea, Ringworm, Worms. The cause of mortality in children is Pneumonia. In 1997, about 10 people were trained on PHC. People trained went round homes educating people on proper sanitation, environmental and personal hygiene but after about 5 months they stopped as a result of lack of motivation since there was no follow-up from the ministry. They were also promised drugs to treat minor ailment, which never came. Under fives are generally well for their normal diet is Potatoes and rice, Vegetable, Carrots, Eggs, Milk, and Beans. The main diet for adults is bean, maize and greens.

**Water Provision**

Water is from a Furrow from Mitero water project or from river Thegu, about 1Km away. There is no irrigation done because water is inadequate.

**Food Production**

CROPS	ACRE	PRODUCE	VALUE
Maize	¼ acre	2 bags	Not sold
Potatoes	1 acre	20 bags	500/= per bag
Beans	¼ acre	0-4 bags	-
Cabbages	½ acre	4000 heads	8/= per head

**Environmental Protecting Techniques**

Pesticides and herbicides are used. Safe clothing use is not done as only nose masks are used. Planting of tress and Napier grass exists. There is limited terracing.

**New Technologies**

These include Soil conservation knowledge, tree planting and safe use of chemicals.

**Livestock**

Each household has an average of 3 cows and 3 goats. Average milk production of is 6 litres per day per cow. The cost of milk is 6/= per litre.

**Farming Holding:** On average households have ½ an acre.

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**Improvement in Income**

Casual labourers are normally employed on daily and monthly basis. Daily casuals earn 100/= plus lunch. Farming is a business but not promising.

**Farming Problems:**

Key problems are Poor seeds, Marketing i.e. Brokers and low prices, Fake fertilizer and chemicals, inadequate water and, Pests, blight and frost.

**16 KARURUMO GIKANGA WATER PROJECT**

**Planning:**

The project started in 1992 and was registered the same year. The main reason for starting the project was to look for water since water was really a problem. Members were 252 and they were contributing 20/= to meet initial costs. In 1993, survey was done (on River Sagana). IFAD was consulted and surveyed the furrow but no funding was availed. In 1997 Fr. Birio of Catholic Church was approached and he built an intake and a tank for the project. In 1998, IFAD was approached again and donated 529 pipes. Members' contribution was 14,000/= each but later was reduced to 7,600/=. Water was completed in 2002 and started being used. IFAD also gave 6" G.I. Pipes and fittings. Members who are connected are 154 i.e. 61.1%. The rest are not connected because they have not made their contribution. Contribution made will be used to connect those who are not connected and to construct a dam.

**Health**

Major causes of morbidity are HIV/AIDS, Malaria, URTI, Typhoid, and Ulcers. Major causes of morbidity are, Pneumonia, Ringworm, and Otitis media. Idleness, poverty, unsafe water, and stagnant water cause the key diseases. PHC was started when a group was trained in 1998. No activities followed thereafter because the items promised (drugs and weighing scales) to start off were not provided and again there was no follow-up by the trainers. Normal growth in children has been observed with very few cases of malnutrition seen (Less than 1%)

**Food Production**

Average farm holding is 2½ acres

CROP	ACRE	PRODUCE	VALUE
Maize	1 acre	1 bag	-
Beans	¼ acre	1 bag	-
Potatoes	¼ acre	5 bags	-
Carrots	¼ acre	4 bags	500/= per bag
Cabbages	¼ acre	2000 heads	4/= per head
Sweet potatoes	¼ acre	100Kg	15/= per Kg

**Livestock Production**

Average holding per household is 1 cow and 2 goats. Milk Production averages 4 - 6 litres per cow. Price is 5-10/= per litre.

**Environmental Protecting Techniques**

Tree planting, Terraces, Planting of napier grass are new environment protecting technologies. New farm technology is terracing.

**17. MWIHOKO NJOGUINI SELF HELP GROUP**

**History/Planning**

Members of this community settled in this area in 1979 having acquired the land through "Mwihuri farmers" land buying company. The idea of forming a group originated from a retired officer who worked with the department of social services who happens to be the founder member of the group. After having mobilised and sensitised a few members of the community, they came together and formed "Mwihoko Njogu-ini self help group" in 1990 and had it registered in 1991. Initially, the group comprised of 25 members and had the following objectives: -Home

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Improvement: - Buying of utensils, mattresses and other households necessities Merry-go-round: - Revolving fund to assist in buying farm inputs, Communal farming activities. Currently, the group has attracted 35 members, with the following activities: Have bought utensils e.g. plates, cups, spoons for every member, Have bought high density mattresses worth Kshs. 1,700 each for every member, Have already opened an account with post bank. The group has already accumulated a total of Kshs. 450,000 in form of revolving funds broken down as follows: -

Cash – Kshs. 45,000

Short term loans – Kshs. 185,000

Long term loans – Kshs. 223,896

The repayment rate for short-term loan is at 10% interest while the long-term loan is repayable in 2 years with a 7% interest. On borrowing this money the members are able to pay school fees, buy farm inputs, Individual commitments, Promote farming activities. In 1993-94, the group attracted IFAD assistance where they benefited mainly through capacity building upon being trained on the following areas, Agricultural improvement techniques, Public health care activities, Financial management and book keeping, Group sustainability. The group was also supplied with an ox-cart for transporting farm produce to the nearest market centre. In the year 2000, the group identified and contracted Songa Mbele Women Organisation for guidance in financial management. The group also identified (KACE) Kenya Agricultural Commodity Exchange and got some basic training on marketing strategies. The group also reported that they had the following as their future plans: Buy a commercial plot, Establish a village polytechnic and equip it with sewing machines to cater for school drop out.

**Health**

The major causes of morbidity in this area were reported to be: -

Disease	Cause
Malaria	Stagnant water & hence mosquitoes
Pneumonia	Cold conditions
Arthritis	Extreme cold conditions
Amebiosis	Untreated water
Typhoid	Contaminated water

The nearest health facility was reported to be Kiamathaga dispensary that was constructed through IFAD assistance and about 1½ Km away. The facility however lacks a maternity wing and also a laboratory thereby forcing members to travel a distance of 25Km in search of those essential services in Nanyuki. Main causes of child morbidity and mortality were reported to be: -

URTI due to cold conditions and also typhoid with bronchial pneumonia featuring out the main causes of child mortality. The nutritional status in this area was reported to be good with the availability of potatoes, beans, eggs, milk, green vegetable and carrots in abundance. On PHC, it was reported that some 8 members were trained in the areas of: - General hygiene, Sanitation improvement, Treatment of minor ailments, Counselling of Aids patients and Traditional birth attendant (TBA) services. Members lamented that there was no proper follow up and the project stalled as farmers preferred engaging in other income generating activities especially in the farm.

**Crop Production and Productivity**

The average farm holding in this area was reported to be 2 acres for an individual farmer.

CROP	AVERAGE PLANTING AREA	AVERAGE YIELD	EARNINGS
Potatoes	1 acre	60 bags	500/= per bag
Carrots	½ acre	10 bags	500/= per bag
Cabbages	½ acre	10,000 heads	3-5/= per head
Snow peas	¼acre	1250Kgs	12/= per Kg

Garlic and, leeks were reported to be growing only in small quantities. Others like maize and beans are also grown in insignificant quantities for subsistence purposes. Farmers also reported that they supplement crop production by cultivating in the forest areas. Members reported that the following problems are mainly experienced in this area: - Lack of marketing knowledge, Exploitation by brokers and middleman, inadequate water for irrigation and Erratic rainfall patterns. Others are, Expensive farm inputs, Fake farm inputs including pesticides and herbicides, Financial constraints, Invasion of crops by wild life animal hence causing immense destruction, Inaccessible feeder roads to



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the production areas during wet seasons. It was also reported that agro-vet stockist were available although with little knowledge if any on the chemical application. Members gave the following recommendations that would reduce most of the problems, Provision of farm input seasonal credit, Vocation course on improved agricultural techniques, Construction of reservoir (dam) that would help supply adequate water, Re-afforestation – mainly tree planting to replenish areas of catchment destruction.

**Livestock Production**

It was reported that the average livestock holding is 1-2 cows per household. The animals mostly graze freely in the forest. The average milk production was reported to be 10 litres per cow per day. Milk market was reported to have degenerated following the collapse of "Mukiria Co-op Society". The milk now sells for 5/= pr litre to brokers. Lack of AI services and also dipping services in this area it has greatly hampered livestock production. Members also reported that they stock sheep with an average of 10 per household.

**Water Provision**

The area is well served by Jogu-ini Gitero water project, a RDF project with 80% of the total population connected. The water serves Gitero and Kabati areas and has been drawn from Burguret River. It was however reported that this water was inadequate following increase in population and the immense destruction of catchment areas. Members recommended that re-afforestation should be intensified construction of a reservoir dam in the forest and strengthening of available water supplied through construction of storage tanks would reduce water problems.

**Improvement in Income**

It was reported that some members of the community seek casual employment in the farms or grazing of livestock in the forest where they earn Kshs. 100 per day and 1500 for permanent employees. Farming was reported to be a business whose prosperity had been hindered by the above listed production problems.

**Local Resources**

The following were reported to be the main local natural resources that earn some income to the community. It was reported that members of this area used to benefit previously from forest resources through felling of trees for timber and burning of charcoal. However, the move had been hampered by the recent ban on forest destruction. Fertile soils, water and quarries were reported in this area.

**Services To the Poor**

The area is characterised by presence of squatter villages due to eviction from forest areas. There are also migrants from other traditional division in search of casual employment in the productive farms. The main services that are given to the poor in this area include Casual employment and Cultivation in the forest. The free education policy had also empowered them.

**18. MWICHUIRI WATER PROJECT**

**History/Planning**

The project started in 1984 and registered in 1985 with the department of social services. The formation of the group was necessitated by the acute water shortage that the community experienced upon settling in this area in 1979. By this time the nearest water source was Tigithi River that was about 5Km away. Other sources were seasonal streams and wells that harvested water during rainy seasons and dried up during the dry season. In 1990, the community identified SISDO for funding the water project. However the donor conditions set were too tough for this particular community as every member was required to pay Kshs. 120,000 as community contribution. Since the donor conditions were not met, SISDO left the area in 1996. In 1997, the community identified IFAD for funding the project and channelled the ideal through the divisional development committee and the community got the DDC blessings for funding. The total donor contribution was supposed to be Kshs. 7 million worth the pipes. The community was required to contribute 30% of this cost. The community had already raised Kshs. 1.5million through Harambee and members contributions. IFAD, therefore, released the first tranche of Kshs. 2.5 million worth of pipes that managed to connect a total of 428 people out of the 450 active members. The project engulfs Kimbo, Makamba, and Gachoguini localities that comprise 3000 households. The water has been supplied from North Tigithi River. The community reported that they had already have Kshs. 3 million in the project account and have contributed Kshs. 2 million in form of labour awaiting the release of a second tranche by the IFAD. The members

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reported that their future plans were to construct a huge dam to harvest enough water for irrigation, embark on roof catchment techniques, to strengthen water storage by constructing more tanks.

**Health**

The major causes of morbidity were reported with their causes as follows: -

<u>Disease</u>	<u>Cause</u>
Amebiasis	untreated water
Typhoid	untreated water
Malaria	stagnant water
Pneumonia	cold conditions
Scabies	poor hygiene practices

The main causes of child morbidity were reported to be diarrhoea, bronchitis and malaria with bronchitis being the major cause of child mortality. The nutrition status in this area was reported to be good as vegetables, beans, potatoes and passion fruits are locally produced and consumed in this area while the surplus goes to the market. The nearest health facility was reported to be Kiamathaga dispensary; constructed through IFAD assistance and only ½ Km away. However, the dispensary lacks the following facilities: - Toilets, Maternity, Laboratory and Staff housing. The lack of these facilities force the members of the community to travel to Nanyuki town which is about 37Km away in search of these essential services. It was reported the PHC programme was not established in this area.

**Crop Production and Productivity**

Members reported that a variety of crops are grown in this area namely: - Potatoes, maize, beans, tomatoes, wheat, carrots, cabbages, peas and fruits. The average farm holding for this area was reported to be 1 acre.

CROP	ACRE PLANTED	YIELD	COST
Potatoes	1 acre	20 bags	500/= per bag
Cabbages	¼ acre	3000 heads	3/= per head
Carrots	¼ acre	13 bags	500/= per bag
Peas	¼acre	50 cartons	40/= per carton

Other food crops grown in this area include maize, beans, tomatoes and wheat that are not grown in significant quantities and are mainly for home consumption.

**Livestock Production**

The average livestock holding was reported to be one cow per household with an average milk production of 12 litres per day. The milk market was reported to have diminished following the collapse of "Mukiria Cooperative Society" and the consequent proliferation of brokers and middleman. The milk now sells at Kshs 8 per litre to brokers.

**Production Problems**

The following were reported to be the main production problems faced in this area. Marketing: - No organised marketing channels and hence exploitation by brokers. Fake farm inputs i.e. seeds, fertilisers and pesticides sold to farmers. Inaccessible feeder roads and hence the use of ox-carts.

Invasion of farms by rogue wild animal, which destroy crops.

**Improvements in Income**

It was reported that the less fortunate members of the society were employed as casual labourers in the farms. The earnings were reported to be Kshs. 100 per day and Kshs. 1,500 per month for permanent employment. At this juncture farming was reported to be a non-thriving business in this area due to the above listed problems.

The female-headed households were reported to be 30% of the total households.

**19. FOOD ASSISTED CHILD SURVIVAL COMMUNITY HEALTH WORKERS.**

**Planning**

The idea came from an NGO through Catholic Church in 1996. An Assistant Chief called them to a Baraza where the idea was passed to them. Some community members volunteered themselves per sub-location and we trained

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in the same year. The following are the areas which were trained: -Nutrition, Breast feeding, General hygiene, Growth monitoring, Malaria control, Prevention of community diseases i.e. Malaria, HIV/AIDS, STD and TB. The current activities are, giving health education on: Sanitation, Antenatal care and good nutrition, Assisting the very needy cases with food, clothing and medical fee. They also do growth monitoring every month. CARITAS and Nyeri Archdiocese were also giving supplemental food to children with malnutrition e.g. Unga, (enriched with Soya) and oil also beans were given. Future plans are to start IGAs e.g. Merry-go-round, Establish kitchen gardens, Start rabbit and poultry keeping.

**Health**

The rate of malnutrition is about 10%.

**Water Provision**

Source is mainly is from the rivers Honi, Nairobi and Thegu. There is no piped water. There is no irrigation done. There is a water project called Ngonde but is not functional. They walk 5Km to fetch water.

**Food Production**

Farm holding is an average of ¼ acre.

**Environmental Protective Techniques**

Tree seedlings are from nurseries manned by Mathina Women Group.

**New Technologies**

They have been trained on Food warmer basket and Improved jikos. But, the community has not adopted the technologies.

Casuals are employed daily at a fee of 100/= without lunch.

**Local Resources:**

These are a Quarry, Soils and Forest, which is not accessible.

Female heads of households are- 80% of all households.

**IFAD Intervention**

Trained the group on the following-

Accounting and bookkeeping

Savings and credit

**Problems:**

Water is their major problem

The nearest health facility is 5Km away

Lack of proper seeds from the area

Squatters from tribal clash areas

Poverty i.e. low income

**B. KANYARIRI RIVER GROUP REPORT**

**1. INORERO LAMURIA SELF HELP GROUP**

**Background information**

This group, located in Lamuria sublocation, is a splinter registered in 2000 with a current membership of 15, 4 men and 11 women. Its objective was to empower them in agriculture.

**Institutional strengthening**

It is aware of the DPO/IFAD – Nyeri office but doesn't understand the process of farmer representation in the District and Divisional PMCs. Its capacity to improve agricultural production was strengthened through workshops, residential training and tours to other districts. Three members went on a tour of Nakuru district. Out of these efforts the group is now: 1. Harvesting of road run-off for increasing effective



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**farmland moisture.2. Using dry land farming techniques to grow subsistence crops as well as bananas.**

Members who have been trained and /or gone on tours have in turn trained all the others. Consequently any technology learned by one member, is transferred to all others. The group has a three-phase M& E system. First, they all meet once a month to review knowledge and activities and deliberate on future plans. Second, committee members visit each member to ensure that activities are properly done and to assist those facing problems implementing new activities. Third the group itself undertakes self-evaluation to assist them make more cost-effective decisions. For example, in the dairy goat project, the DGAK staff comes to train them on animal husbandry practices including registration on monthly basis for a fee of Kshs. 300 per visit. When they don't need the service they reschedule him.

**Health**

Adult diseases in order of prevalence are Malaria, Pneumonia, HIV/AIDS, Skin diseases, Flu, and Typhoid. Infant/child morbidity in order of prevalence is Pneumonia, Diarrhoea, Ringworm, and Marasmus. Adult mortality top killers are HIV/AIDS, Malaria. Infant/child mortality top killer is Pneumonia. The group was not aware of IFAD PHC programme but they had national PHC posters, which they collected from their travels. Within the group there is 10% malnutrition whilst the rest of the community has a malnutrition rate of 70%. The staple food is Githeri (Mixture of maize and beans and potatoes). Small children diet is mainly ugali and vegetables, milk or beans. Potatoes and beans are sometimes fed to children.

**Water Provision**

Kamarigi stream is the main source of water for members. The furthest member is 4Km from it whilst the nearest is 2 Km from it. Kabendera water project (Gataragwa Mugunda) piped water is available only every second week and is therefore totally unreliable. In this group's community out of 100 households, it is only 14 who are connected. Rainwater is unsystematically collected for most members do not have water tanks. Water is used for domestic purposes. Animals are taken to the river. There is no irrigation for there is not enough water in the rivers. The people upstream have taken all the water for irrigation. Available water in the streams is not only dirty but also salty. It stains utensils when boiled. Drinking water is boiled.

**Agriculture**

**E. Crop Productivity**

Crop	Acreage	Production	Value Kshs.
Beans	$\frac{3}{4}$	3.5 (90Kg bag)	1,200/bag
Maize	$\frac{1}{4}$	56 Kgs	No sales
Onions	$\frac{1}{2}$	500 Kgs	8/Kg
Wheat	1	10 bags	1000/bag
Potatoes	For subsistence		

**Livestock Production**

Animal	Production	Price (Kshs)
Cattle	4Kg/cow/day	9/Kg
Goats	Sale as meat goat	1,000/goat
Sheep	Sale of meat sheep	1,500/sheep
Poultry	Sale of eggs	4/egg
Pigs	Sale of pigs	6,000/pig

**Environmental Protection**

These farmers use pesticides, acaricides, and herbicides. These are stored in the main house. Since the public dips collapsed herbal acaricides are also sprayed. Although they are aware of the dangers of chemicals, they do not adequately protect themselves. This group has nurseries for trees and fodder crops. There is a bit of terracing but most significant is run-off water harvesting.

**New Technologies**

- i. Silanga method of runoff harvesting

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- ii. Kitchen gardens
- iii. Food warmers – adoption rate 3 out of 15
- iv. Jiko liners – 12 out of 15
- v. Hay bailing being practised using grass and farm BI-products.

**Agriculture Income Streams**

- i. Tree Tomatoes ongoing
- ii. Passion on going
- iii. Beans (Including climbing beings) being introduced
- iv. Cereals (wheat)
- v. Goats – population 700 for 100hh
- vi. Sheep – 15 per HH
- vii. Cattle – 3 per HH
- viii. Poultry – 10 per HH

**Incomes**

- Farm incomes – perceived as improved
- Casual employment – none
- Permanent employment – none
- Business – livestock rearing and farming
- IGA – Using local resources-- Through tree nurseries and horticultural crops. 600 bottle brush trees, 300 tree tomatoes and passion

Poorest of the poor comprise 10% of total households.

30 % of households are female headed.

2 out of 25 children have no access to education.

**2 MUTARAKWA WOMEN GROUP**

**Institutional Strengthening**

The group was formed in 1998 in Kamariki sublocation and current membership is 14 women. The members know the location of IFAD – Nyeri office but have not visited it. The members were not aware of the PMC at Divisional levels. Beneficiary participation in implementation was through their by-laws, planning of their activities e.g. merry go round, farming and food preparation. The beneficiaries are also members of the Gataragwa-Mugunda Water User Association where each contributed Kshs. 10,000 and labour (unskilled like excavation at a cost of Kshs 100 per person day. They are also connected to the Kabendera Water project meant for a secondary school in the area, where they pay monthly user fees of Kshs. 70. The water committee members participate in implementation planning of the Gataragwa – Mugunda WUA and report back to members during their meetings. Members are trained on Agricultural practices through residential courses and tours at all levels. There has been adoption as a result of the training and the tours mainly in the area of drylands farming (Bananas and kitchen gardening, fodder establishment (Napier) and drought tolerant traditional foods (Pumpkins, sugarcane, and sweet potatoes). Beneficiaries M&E is only members' monitoring of the progress of their activities through monthly meetings.

**Health**

The most prevalent diseases in descending order are Pneumonia, Malaria, URTI, Diarrhoea, Skin diseases, Arthritis, Snake bites, TB, HIV/AIDS, Diabetes. Infant/child Morbidity Diseases, again in descending order are Pneumonia and Skin disease. 2 children died over the last 6 months. HIV/AIDS and TB are the main adult killers. The nearest government health facility is at Bellevue, which is 15 Kms from the area. Others are 1 private dispensary and 1 clinic, which are within 2 Kms. One member of the group was trained in PHC, through IFAD in 1993, but there is no VHC. However 3 other members have adopted VIP latrines and leaky tins. 7 out of 10 children are malnourished and have related diseases. The staple adult diet includes maize, beans, potatoes and wheat. For children, the staples are pumpkins, beans, and potatoes.

**Water Sources**

The main source is River Kamariki, which is 4 Kms away. A self-help water project provides 400 litres of piped water on ration basis, due to inadequate supply, to 200 members, who are 80% of households in the community. This water is for household use only. Livestock are taken to the river. There is limited roof harvesting with the water being stored in drums. Irrigation is done near the riverbanks and affects the quantity downstream.

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**Agriculture**

**Crop Production.**

Crop	Acreage	Quantity harvest (bags/acre)	Value in Kshs. per bag
Beans	1 (mixed)	1	800 – 1,200
Potatoes		5 – 6	400 – 500
Maize	1 (mixed)	0 – 15	
Wheat		8 – 10	1,000 – 1,200

**Livestock Production**

Animal	Ownership/HH	Yield	Value in Kshs
Cattle (dairy)	3	6 Kg/cow/day (milk)	8/Kg
Sheep	10	Sold live	1,500/sheep
Goats	2	Sold live	1,000/goat
Poultry	5	Eggs	4/egg
Beef cattle		Sold live	12,000 – 18,000/cow

**Environmental Protection: -**

Chemicals used include Acaricides, Pesticides, herbicides and fertilisers. Chemicals are available from a local agro-vet at Kiawara. Storage is in the main house. Disposal is throwing in toilets; bush, away from children reach. There is a private vet. The services offered and costs are: Kshs 500 for de-worming, Kshs. 700 for ECF

**New Technologies**

Food warmers, adoption – 3 out of 14 members  
Cake making – adoption 4 out of 14  
Jam making  
Tea cosy, adoption 4 out of 14  
Fuel saving jikos – adoption 100%  
Banana and pumpkin breads

**Improvement in Income**

Before interventions 15 sheep gave 9 offspring per year, in which 5 died. After interventions 15 sheep gave 9 offspring in which 2 died. After interventions yearly loss of cattle, per household, was reduced to 1-2. Death is caused by ECF mainly.

**Empowerment**

11 out of 25 Households are recent settlers and 6 out of 10 Households are female headed. Participation in development activities is low.

**VISIT TO A FARM –**

She is a member of the Mutarakwa Group. The farm was occupied in 1996 by moving from Othaya. It is 16 acres. Crops planted are Sweet potatoes, potatoes, maize, pumpkins, kitchen garden (Onions), sukuma (Kales), carrots and bananas. Livestock on the farm are 4 cattle, 10 sheep, and 15 poultry in free range. She was trying to introduce gravillea. She is a follow-up farmer copying from the chair lady who visited Nakuru to learn dry farming (Bananas)

**AGRO-VET VISITED (KIAWARA)**

By profession she is an Animal health Assistant. She deals with provision of drugs for cattle treatment and attends clinical when necessary. Most agricultural drugs- Herbicides, pesticides, fungicides, de wormers, acaricides, minerals, supplements, animal feeds and fertilisers are found in the store. Dithane M45 was found in stock. The Pest Control Board visits her annually and advises her.



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**3 WENDIGA DISPENSARY**

**Background**

This facility was opened by IFAD President Sultan on 2/11 1994. The committee met is the second since inception, in 1994, and was elected on 19 September, 2001 by the Community. The facility has 2 nurses currently, 1 grounds man, 1 secretary and 1 watchman. The three subordinates are paid through cost sharing fund. The facility handles 15 – 20 patients per day. Generally drugs cost Ksh. 50/= per visit. Patients also pay a maintenance fee of Kshs 20/= per person per visit. The government pays to the facility rent of Kshs 600/= per month. Income is used to, pay the wages for the three subordinate staff, buy drugs, equipment and furniture, give sitting allowance to committee when they meet and the balance is banked for renovations and other uses in the future.

**Committee Functions**

To oversee day to day functions of the facility

Institutional development

Financial management

Maintenance of the facility

Institutional Strengthening

Community has been involved at all stages of planning. The facility was initially the community's own initiative. The project was presented to the sub-DDCs and ultimately the Nyeri DDC through which they got a donor (IFAD). They were represented in all PMCs.

**Beneficiary Contribution**

The community donated 2 acres of land worth Kshs 60,000/= in 1991. It also contributed unskilled labour for non-construction works then valued at Kshs 70/= per person day. During implementation, only committee members were involved. The construction of the health facility was contracted. However, the foundation for most of the blocks is substandard to the extent that one of the buildings is condemned due to the sinking floor. The M&E function is essentially a monthly meeting to check on progress. Various sub-committees were formed to oversee various activities that afterwards report back to main committee. A general meeting for all members was never held to give feedback to the community.

**Health**

Adult morbidity in descending order is clinical malaria, U.R.T.I, Intestinal worms, STI, HIV/AIDS and Cut wounds. Malaria, URTI, Worms and GII Gastro Intestinal Infections drive Infant/child morbidity. Child malnutrition is 10% but it rises to 40% during droughts. The adult diet is normally maize, beans, potatoes and wheat. Children get uji, milk, potatoes and beans

**Water.**

The main source is a river 4-Km away but there is a protected spring/dam three kilometres away. River water is clean and tasty but the spring water is salty. A few people collect rainwater. Water is used for households and for livestock. The group belongs to Muyogo water project yet to be commissioned. Members contribute Kshs 500/= to accumulate the membership target of Kshs 10,000/=.

**Agriculture**

**Food Production/Productivity/Quantities**

CROP	ACREAGE	YIELD	PRICE (KSHS)
Maize 614/625	2	Consumed green	2000/90 Kg bag
Beans	1	7 – 8 bags	500/= per bag
Potatoes	1	20 bags	1300/= per bag
Wheat	5	65 bags	
<b>LIVESTOCK</b>			
Dairy cattle	3 per household	8 Kg per day	8-13 per Kg
Sheep	10 per household	1500/= on sales	
Goats	2 per household	1200/= on sales	
Poultry	3 per household	5/= per egg	

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**Environmental Protection**

People spray cattle without proper disposal mechanism. Drugs are bought from Mweiga and Endarasha Agro-vets. Manufacturers organise field days on safe use.

**New Technologies**

People are aware of new maize variety C.G 4141. It is yet to be adopted.

**Income Generating Activities**

Sale of murrum.

**Empowerment**

Female-headed households are 30% of all households. Landless some found in U. Nyiro village

Basic services to the poor

Health care except to very poor

Condition for contribution flexible

**4. URUMWE WOMEN GROUP**

**Institutional/Planning**

The community occupied that area in 1963 under the Settlement Board where each household had seven (7) acres of land, which have since been subdivided, to small farms of up to an acre.

The group, in Bondeni sublocation, started in 1998 with 21 members. The membership is stilling the same in February 2003. Their objective is to empower themselves in welfare and income generating activities. They heard of IFAD through KIREFU. They had training from KIREFU on income generating activities e.g. Yoghurt making which they are planning to do on commercial basis. They are aware of IFAD contribution towards Wendiga dispensary. Also they are aware of IFAD contribution towards Bondeni water project of which they are members. They have an elected water committee which liases with district water office and gives feedback on IFAD support of the project. They have participated in the water project Simbara/Amboni water project by contributing Kshs.5, 000 per member and labour. They benefit from this Simbara/Amboni water project and health service at Wendiga, which are comparatively cheaper and drugs available than the nearer Amboni heath facility.

**Agriculture**

**Food Production/Productivity**

CROP	ACREAGE	YIELD	PRICE (KSHS)
Maize	1 acre. Average	½ Bag	500/= per bag
Beans	¼ ac. Average	1½ Bags	2000/= per bag
Potatoes	½ ac. average	15 bags	300/= per bag

**Livestock**

Species/community	Yield	Price
Cattle Milk production	8 – 10 Kg of milk per day/cow	10/- per Kg
Cattle	2 per household	20,000/= each
Sheep – 2 per household		1,500/=
Goats 1 per households		1,000/=
Poultry 10 per household		100/=
Eggs		5/= per egg
Rabbits 2 per household		40/=

**Health**

Adult morbidity is caused by the following in descending order Malaria, Pneumonia, Typhoid, URTI, T.B, AIDS. The following cause Child morbidity Pneumonia, Malaria, Ringworm (Periodical outbreak)

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**Establishment of PHC**

They get the advice from the clinics at health facilities.

**Adult diet**

Staple food is Githeri (Maize and Beans, Potatoes, cabbages, sweet potatoes and milk.

**Children diet**

Sweet potatoes milk, greens and potatoes.

**Nutritional status**

Children are well fed as reported and observed.

**Water**

The main sources are Ruhotie and Honi rivers, which are 2Km away. The piped water has just reached the area but currently it is blocked (mainline). Water is for domestic use as animals are taken to the rivers.

**Environmental Protecting Agricultural Practices**

Acaricides, Fungicides, Insecticides are used. The method of application ranges from washing with pieces of cloth to back pack spray pumps. People do not use proper protective clothing. There is no special storage space although chemical is kept where easily accessible to children. For disposal they use toilet and burying. Agro-vets are located in Mweiga and are main sources of the chemicals.

**Soil and Water Conservation**

The main one is grass strips with a smattering of terracing. It is claimed they are conserving the wild species and are planting gravillea.

**New Technologies**

Yoghurt making

Income generating activities

Cake making is planned and on their time table

Yoghurt making on commercial basis planned.

**A Member's Farm**

The farm is 2 acres. The Maize occupies half an acre. So do beans and potatoes. There is a quarter acre left for grazing. The last quarter acre is the home compound.

**5. KINYAITI WOMEN GROUP –**

**History and Planning**

The group was started in 1983 with 40 members. In 1998, the group split so that some members who came from far away formed their own group. This left the group with 26 members. As of the date of their visit, the group has still 26 members but 2 members participate without attending the scheduled meetings due to sickness but they take part in contributions as other 24 members are doing. The group was formed with the objectives of: 1. Buying food for each other in times of famine when drought occurs in the area. Main foods bought are maize, floor and wheat. 2. Buying water tanks for each other for water storage. This is continuous. 3 Buying cattle for each other. 4 Buying roofing iron sheet for each other. 5. Buying fencing wires.

**Institutional Strengthening**

We learnt from the 14 members present that they received training through community development assistants between 1998 and 2000. They know about IFAD project and have joined KIREFU SACCO by contribution Kshs. 700. However, the group claims to have lost contact with KIREFU and in their understanding they feel that they have lost the money too. They have also contributed Kshs. 500 towards the big harambee for the Division, which was conducted to raise money for the provision of water in the Kieni Divisions. They feel they have not been kept informed of the progress of this potentially useful programme. The group has a planning meeting once a month. During this meeting they contribute Kshs. 200 per member until they make Kshs. 8,000. Then they give the Kshs 8,000 to a member who uses it to buy and install a water tank. The member given the money adds whatever is necessary if the tank costs more. Two recently installed tanks were shown to the group.



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**Health**

Common adult diseases in order of prevalence are malaria, Typhoid, Amoeba, Arthritis, Diabetes, AIDS and pneumonia. Malaria, pneumonia and AIDS cause adult mortality. For children, common diseases in order of prevalence are Pneumonia, URTI, skin diseases and ringworm. Child Mortality causes in order of prevalence are Pneumonia and URTI. There are 4 VIP latrines in various members' houses. The Catholic Mission did training on PHC before year 2000. There are no health workers that have done interventions from the MOH. But, the Catholic Mission did the interventions in collaboration with Wendiga dispensary. Community Health Workers used to do follow-ups of the implementation of the lessons learnt but they are inactive. This clinic was provided through mobile. We gathered information from the 14 members present that only 1 child under 5 years that died of Pneumonia in year 2002. The nearest health services are provided at Wendiga dispensary, which is 5 Kms away. Commonly available adult food is maize, beans, potatoes, milk, cabbages and wheat. Children under 5 years are given porridge, sorghum and milk. There are no kitchen gardens in the area for green vegetables.

**Water**

Water is fetched from Kinyaiti River about 4 Kms away for most members, although there is a spring used by a few members 3Km away. The Kinyaiti river water is good but the spring is salty. There was a hydro ram water pump at Kinyaiti for the community but it broke down and all parts were stolen. The members indicated willingness to visit the water office, Nyeri for more advice on how to revive that water project. The members remember contributing Kshs. 500 each towards the main harambee for financing water source construction for all the people in the community. Water is drawn for domestic use and cattle are taken to the sources. There is not enough water for irrigation.

**Agriculture**

Farms are 3 to 4 acres on average but majority has ownership of around 10 acres, which is still being sub divided into smaller pieces for their sons.

**Production and Productivity**

**Crop**

Crop	Acre planted	Production/acre	Price/unit
Maize	1	Frequently no harvest	
Beans	1	1 bag	Not sold
Potatoes	1/4	3 bags	400/bag
Cabbages		For domestic use only	
Wheat	1	6 – 7 bags	1,200/bag

**Livestock**

Animal	No. per household	Value in Kshs.
Cattle	3	15,000/ cow
Milk	8 Kgs/cow/day	9/kg
Sheep	5 – 10	1,500/sheep
Goats	1	1,200/goat
Chicken	5	5/ egg

**Environmental Protection**

Chemicals used are herbicides, fungicides and acaricides. Cattle dips are not working. No protective clothing used in using them but the knowledge about the hazards is available with them. Empty chemical containers are disposed all over the place. The drugs are kept in the same houses with people. People said they have been trained on safe use of chemicals.

**Agricultural Techniques**

Soil conservation is planting of Napier grass strips, terracing, and tree planting. From observation the trees planted are not many.

**New Technologies Introduced**

Cake making is practised. Ministry of agriculture trained people on safe jikos. They are to use them. One member knows how to make a small dam. She explained how to go about perfectly to the group.

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**VISIT TO A NURSERY SCHOOL**

There is a nursery school serving this women group. It was reported and observed that the children are under 5 years of age. Only 5 children are absent in any month due to cold related sicknesses. From the time the teacher started working there, 10 years ago, she has not lost a child through death. Of the current 22 pupils, 3 come from single headed families where mothers are; 1 is a divorcee, 1 is not married and the last one is a widow.

**6. BELLEVUE WATER PROJECT.**

**Institutional Strengthening**

The project started in 1983 with 180 members but now they are 270. It has a committee of 13 one of them being female. The main objective of this group, right from the beginning, was to look for ways of bringing water to their households. The group has worked closely with the water office and started with the construction of the water intake. They did this through self-help where all members were involved. The beneficiary contribution has been through labour and cash contribution of Kshs. 10,000 per each member. They charge the poorest Kshs 2,500/= 00/= Tuesdays and Thursdays are the project community working days. Defaulters are fined Kshs. 100 per day. The beneficiaries, through the water office, have surveyed the water line and have involved the community in digging up of the trenches. The project committee meets 2 times a month and each member is allocated an area of supervision of the project. In 1995, IFAD as a donor agreed to finance 70% of the project. The support was mainly provision of pipes. The members have received 12 inches and 10 inches pipes and 5 Km are already laid down while more pipes are still there and not laid down. The 5-Km distance is considered to be only 1/3 of the total project when complete. The committee submits monthly reports to the water office. They have worked in liaison with other offices such as forest, wildlife, and provincial administration and have been represented in PMCs. They hold annual general meetings for briefing the members about the project progress.

**Health**

Common adult diseases are typhoid, amoeba, malaria, URTI, pneumonia, arthritis and AIDS. HIV/AIDS, Pneumonia, Malaria and Typhoid cause morbidity in adults in order of prevalence while in children it is by Pneumonia, Diarrhoea and URTI. Pneumonia and Diarrhoea cause Child/infant mortality. Children growth monitoring took place every Monday when there were CHWs sponsored by IFAD. There are no PHC activities now. 20 % of children are malnourished. Adults consume potatoes, beans, wheat, milk, maize and onion, mostly cooked in a mixture of Maize, beans and potatoes Children diet, on the other hand, include beans, potatoes, milk and green vegetables.

**Agriculture**

**Food Production**

Crop	Acreage under crop	Yields	Value/unit
Maize	3	Doesn't do well	
Potatoes	¼	5 bags	400
Wheat	2½	40 bags	1,200
Onions	¼	1 bag	400
Beans	¼	½ bag	40 – 50/Kg
Peas	Mixed with other crops and is mainly for domestic consumption		
Pyrethrum	½	60 Kgs	50 – 70/Kg

**Livestock Production**

	No. per HH	Price
Dairy cattle	3	15,000/cow
Milk	10Kg/cow/day	8/= /Kg
Sheep	5	1,500/= each
Goat	1	800/=
Poultry	10	100/=each
Eggs		5/= egg



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**Water**

The key sources of water are Rivers Ewaso Nyiro and Kamariki both are between 1 and 3 kilometres from most beneficiaries' homes. There are three seasonal dams within this community. A few people harvest water from roofs. Few people boil water. Water is drawn for home use and livestock are driven to the rivers or dams. There is not any irrigation.

**Environmental Protection**

Chemicals used are acaricides, fungicides and herbicides. They are applied using spray pumps and stored in the houses. The empty chemical containers are disposed in latrines or burnt. There are 3 Agrovets in Bellevue Township where drugs and chemical are obtained. Advice on how to use them is also given on purchase. There were few reported cases of faulty chemicals.

**New Technologies**

Soil conservation is done through grass strips of Napier grass. And tree planting. The group has a nursery for raising seedlings. They buy them at Kshs 5/= each. Farmers are using modern varieties of potatoes like Meru, Kamanda and Pinto. They are also keeping bees. They harvest 7 debes of honey from local hives and selling each debe at Kshs. 3,000.

Of the registered project members female-headed households constitute 30%.

**7. NEW CITY WATER PROJECT GROUP**

There is a borehole at the centre of the town equipped with a hand pump, which is not operational, as it has broken down for some time. The wellhead looks abandoned/neglected. The group is in Karemeno sub location of Nairutia location in Kiini West division. The inhabitants bought the land through a land buying company (Kiini East Farmers company) and started settling in 1980's. On settling, a market centre was established at an old borehole site that was left by the white settlers. The borehole was not in use until 1991/1992 when a local politician provided a hand pump and asked the community to organise themselves and elect a management committee to oversee the operation and maintenance of the pump. The community had expressed their need for rehabilitating the borehole and had approached ASAL programme, which had similar activities in Laikipia district. This community is at the border of the two districts and is arguably in one of the driest parts of the Kiinis. Wangala borehole (in Laikipia district?), which is about 2 Kms away with, has a Kijito windmill pump. The committee has 7 members all men but currently is not very active and meets only when need arises. It was reported that after rehabilitation, the borehole operated for some time then broke down and even though one of the members bought spare parts, the repair work is yet to be done. One of the reasons for not repairing the pump is that Mutitu water project (piped scheme) is already supplying water to the area where plot owners buy a 20 litre jerrican for 5/=.

**IFAD Intervention in Area**

The IFAD intervention in the area was through PHC. That intervention constructed Ferro cement water tanks through a women group.

**Health**

The nearest health facility is a dispensary operated in a rehabilitated former settlers house on self-help basis. Staff is from MOH and the New City community participates through cost sharing. Currently the community is building a maternity wing. The nearest maternity facility is in Mweiga, over 30Kms away. Common diseases in adults in order of prevalence are Malaria, Pneumonia, Typhoid, cuts, URTI, amoeba and AIDS. AIDS, Pneumonia and Cancers cause adult mortality. In children/infant the common diseases in order of prevalence are Pneumonia, Measles, Diarrhoea, URTI and malaria while mortality is caused by Pneumonia. The common local food is githeri irio i.e. mixture of maize, beans, potatoes and vegetables. Vegetables vary from season to season depending on availability. Wheat is also consumed in form of chapati. Milk is also available. The infants are fed on the same diet but prepared specifically for them and with more vegetables are added. It is estimated that the under fives have a malnutrition rate of 2 – 5%, depending on the season.

**Water**

The members get their water from either Karemenu stream, 2 boreholes some 2 Kms away, 2 unprotected springs, a dam recently rehabilitated by the government or piped water from Mutitu water project. Karemenu stream dries up



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during dry seasons due to illegal irrigation upstream and has been a serious source of conflict between the community and upstream people. There also is a water project funded by Catholic mission, Mutitu Water project. Membership is granted on paying Kshs. 5,500 plus 100 person days. If one is a member, they are entitled to purchase water from a communal water kiosk. The cost is Kshs. 3 for 20 litres. If one is not a member, the cost is Kshs. 5 for 20 litres. If one wants an individual connection, one pays an extra Kshs. 12,000 and the pays for the pipes and labour for the connection. The water is then metered and costs Kshs. 3 for a cubic meter. Only 4 people have been individually connected. The majority cannot afford.

**Agriculture**

**Food Production and Productivity**

Crop	Acreage under crop	Yield	Value in Kshs per unit
Maize	1/2		
Beans	1/2	2 bags/acre	1,500/bag
Potatoes	4	5 bags/acre	400per bag
Cabbages			
Wheat	1	6 bags	1,200/bag
Onions			
Fruits			
Tomatoes			

**Livestock production**

	No per household	Yield	Value in Kshs per unit
Milk		4Kg /cow/day	5 – 10
Cattle	3		15,000
Sheep	20		1,500
Goats	3		1,500
Chicken	10		150

**Environmental protecting agricultural techniques**

Tree planting, Napier grass strips and Terracing are found. Chemicals used by the farmers include herbicides, fungicides (Dithane) and acaricides. The method of application is spraying with Knapsack sprayers. There are no means of protection during spraying. Burning, burying or throwing in latrines disposes the used containers. Knowledge on hazards is there but it is not being used. These chemicals are purchased from local Agro vets.

**New technologies**

The community does not know of any the extension staff in the area.

**IGA using local resources**

Charcoal burning although it has been banned is the only IGA

**Empowerment**

The female-headed households are 40% of the community households.

The community feels that training of management committee would empower then carry out their development projects. The community cannot afford the water charges even after contributing many person days of work due to poverty levels

20% of all children do not attend school because of poverty.

**8. DEMU SELF HELP TANKS GROUP**

**Background**

The group started in 1992 with 50 members. It split in 1993. The 17 members who split are still together. There are 10 men and 7 women. The group was formed with the main objective of constructing a water tank for each member. It has a committee of 7 members, 4 are women, and 3 men. It constructs tanks that are 6ft. wide and 6 ft. high. After

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contributions reach Kshs 10,000/= the hold a secret ballot among the fully paid member to determine whose turn it is to get the money for the tank. Monthly individual contributions started with Kshs 50/=, were raised to Kshs 100/= each and are currently Kshs 150/= .By 1998, they had constructed 22 tanks of which three cracked and could not hold water. The trouble in the group started in 1998 before 5 members had their tanks build. These 5 members had not contributed full amount to warrant a tank. These 5 members are men. Skills to construct water tanks were taught by MOH.

**Assistance**

Agricultural staff of the area has been training the group if and when it requested training. Ministry of health staff has trained it on water and nutrition. Through DSS the group was introduced to IFAD (DPO) Nyeri for assistance to transport sand. They fuelled a lorry provided. This cost them Kshs. 3,000 rather than the usual Ksh. 12,000.

**Health**

Common diseases affecting adults in order of prevalence are URTI, Malaria, Pneumonia and HIV/Aids. The main killer of adults is HIV/AIDS. Common diseases for children in order of prevalence are Pneumonia, malaria and URTI. Children mortality is caused by Pneumonia. The group was trained in PHC. Training included nutrition and hygiene. However, there is little impact. No VIP latrines or leaky tins were seen. IFAD provided a shop at Nairutia where they can buy drugs from a PHC trained person. Initial drugs were provided to the shop, and later sustained by community itself. CHWs were there in the community but are not active nowadays. The community relies on the community pharmacy, Nairutia Catholic dispensary or another dispensary 4km away dispensary where payments are 20/= for every drug and 20/= maintenance fee. Adults eat potatoes, maize, beans, greens and milk. Children under 5 years are given porridge, greens and milk. Malnutrition in children is reported as 50%.

**Water Provision**

The main sources of water are Karemno River 3 km away and Karinguini River 2 km away. There are a few dams and some community people harvest rainwater. The community members are also members of Mutitu Water Project. This water has not reached the beneficiaries. To register as a member one has to pay Kshs 5,500/= and work for 100 days. New members who have not contributed the labour pay Kshs 8,500/=. This contribution only entitles one to get water at a communal point at the price of Ksh. 2 for 20 litres. Non-members pay Kshs 5 for the same. If one at this point wants an individual connection, they have to pay a further Kshs. 12,000, pay for the piping and labour. There is no irrigation.

**Environmental Protection**

Chemicals used are De wormers, Acaricides, and Herbicides, Insecticides and, fertilisers. Drugs are stored in a safe place in the house. No training about safety use has been given to the group about uses of the chemicals. There are 4 Agroverts in Nairutia Town. The near dip has been rehabilitated and has functioned over the past 2 months.

**New Technologies**

Safe use of jikos are known but not used due to coldness in the houses when few sticks are used to warm the houses. Grass strips are used in soil conservation. 10 out of 27 farmers have Napier grass strips. Tree planting is evident with gravillea being the tree of choice. There are at least 10 trees in each farm based on the 27 farms visited.

**9. RAGATI II WITEITHIE WOMEN GROUP**

**Background**

The group was started in 1983 with 35 members. The group reorganised again forming a new group bearing the above name in year 2000 and the membership number has risen to 66. It was formed with the objective of carrying out welfare activities where members assist each other by bailing them out of problems, conducting merry go round, buying mattresses and buying crockery. They contribute KShs15/= per member towards welfare.

**Institutional Strengthening**

The group is in the process of applying for a registration certificate. The disciplinary committee maintains order. Lateness is punished by a charge of Kshs 20/=. Chaos charge is Kshs 10/= per member. They have yet to open an account. In practising of merry go round, they do secret balloting to know whose turn. This groups members are also members of Kaaga Water Project where registration is 100/= and contribution is KShs20, 000/= each member.

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This can be paid in 3 instalments. They participate in community labour for Kaaga Water Project where defaulters are fined Ksh. 300 per day. They are aware that IFAD assisted the project with pipes. Within their activities, tanks construction for provision of water has been a priority, which they have done to most of their members. We saw one constructed in 1983 and still in good use of Chairman's home.

**Health**

Most common adult diseases in order of prevalence are Pneumonia, Malaria, Hypertension, Arthritis, Typhoid, Diabetes and HIV/AIDS. For children under 5 years, the most common diseases are Malaria, Pneumonia and Tonsils. Mortality diseases, in order of occurrence are Pneumonia and Malaria. The PHC programme trained community health workers. They were nine including 3 men. The men have and some women quit. Only three women, members of this group, went on visiting homes and advising although they are also not as active. They used to go round weighing children, administering de wormers and advising on family cleanliness at homes. No VIP latrines or leaky tins were implemented. The women claim that malnutrition has been reduced from 40% to nil. Clinical services are obtained at Gakawa dispensary. To go there and return costs Kshs120/= per person. For adults, the diet is potatoes, beans, maize, wheat, greens and milk. For infants, the diet is from potatoes, greens and milk.

**Water Provision**

Water sources are Wathituga River, which is 3-km away, Water springs, IFAD project water and Roof catchments. The lower zone of Kaaga Water Project doesn't have sufficient water.

**Food Production**

**Production/Productivity**

Maize - 1 Acre - 5 bags per acre - price - 1,600/= per bag  
Beans - 1 Acre - 5 bags per acre - price - 400/= - 700/= per bag  
Potatoes - 1 Acre - 6 bags per acre - price - 1,00/= per bag

**Livestock**

Cattle - 4 cows per household - price 15000/= - 20,000/= per cow  
Milk production - 5 kg per cow per day - price 12/= per kg  
Sheep - 5 sheep per household - price 1,200/= per sheep  
Goats - 2 goats per household - price 1,500/= per goat  
Hens - 5 hens per household - price 5/= per egg

**Environmental Protection**

Chemicals used are, Acaricides, De wormers, Fungicides, (Dithane M45), and Herbicide.

**New technologies**

None

**10. KAMANGURA WATER PROJECT**

**Background Information**

The project is located in Gathiuru sub-location, Gakawa sub location of Kieni East division. The community settled in 1996 after buying a farm through nine- (9) land buying companies! 5 people muted the initial idea of water project. They were directors of the land buying company in 1997 when they registered the project with the DSS. Originally, they approached Laikipia District water office for technical assistance as the farm spans across Nyeri and Laikipia districts. Later they approached the central provincial water officer who facilitated the first survey and design of the water project. In 1999/200 the group involved the District water office in Nyeri to solicit funds and redesign the project. The project has 150 registered members out of a potential of 1,500 plot owners. The registration fee is 500/= and share contribution of 10,000/= and labour contribution per member. They have elected a committee of 9 people of whom 3 are women. The area is broken into 3 representation zones each electing 3-committee members. The community through assistance of one of the beneficiaries, Mr. Gitonga, have constructed the intake, 225M<sup>3</sup> capacity storage tank and laid the gravity line. Water flow has been tested and currently it is benefiting only Mr. Gitonga who is practising commercial irrigation with it. 3 distribution lines have been partially completed where beneficiaries expect to be drawing water through CWP but have not yet started due to a pipe burst after Mr. Gitonga's, farm near the airstrip. It is not clear why it was not being attended to even when skills and



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spares are available! This is causing anxiety in the project and this might be a serious source of conflict between Mr. Gitonga, the committee and the community. The contribution of Mr. Gitonga was originally well intentioned. He sought to hasten completion of project and support the community contribution. It may now be viewed negatively as he is the only one benefiting. IFAD contributed Kshs 4.6 million worth of pipes and fittings. The community contributed labour and cash. No records were available on the total community contribution but it was gathered that it is documented!

**Institutional Strengthening**

The District Water office linked the committee to IFAD. They involved the District water office, the DSDO and IFAD office during implementation. The committee meets once per month and general meetings are held in 3 – 4 months. The project entered into a formal agreement between IFAD Coordinator/DWO to meet 30% of project (intake, tank and labour) and donor to meet 70% in form of pipes. The community has constructed the intake and tank worth Kshs 2.4 M. Supervision is done by DWO and 1 supervisor is attached to the project and the community meets subsistence and accommodation allowances @900/= per day for the days in the field.

Through the IFAD project interventions, the group has received pipes of various sizes ranging from 225mm diameter to 110mm worth Kshs. 4.6M. The community had expected Kshs. 7.6M with the original estimated cost of the project being 12M. The IFAD funding was revised downwards as per the available funds.

**Health**

Major causes of morbidity among adults in order of prevalence are Typhoid, URTI, Malaria, AIDS/STIs, Pneumonia and Amoeba. Morality is as a result of AIDS and Typhoid. In children/infants Pneumonia, Malaria, URTI, AIDS and stomach problems cause morbidity. AIDS and Pneumonia cause Child mortality. Children are fed on beans, potatoes, maize, wheat, vegetables, milk, eggs and greens. The level of nutrition is moderate.

**Agriculture**

**Food Production and Productivity**

Crop	Acreage under crop	Yield	Value in Kshs/unit
Maize	1	5 bags	900/bag
Beans	1	4 bags	1,200/bag
Sweet potatoes	Home consumption		
Potatoes	1	10bags	700/small bag
Wheat	1	8 – 10 bags	1,400/bag
Cabbages			
Pigeon peas			
Onions	Where there is irrigation water.		
Sukuma			
Tomatoes			
Spinach			

The food produced is no enough to last through out the year and currently they are buying maize at 15/= per Kg.

**Livestock production**

Type	No/household	Yield	F.	Value in Kshs
Milk production		8Kg milk/cow/day	12/Kg	
Cattle	4			16,000
Sheep	10			1,500
Goats	1			1,500
Chicken	10			150
Eggs		10		5/egg

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**Water**

These are Wastuga stream where people have to fetch water very early before animals pollute it. A dam, which dries up at times. It requires rehabilitation. A well in a private farm filling with a Kijito windmill. Drawn water is for domestic uses since livestock is taken to the stream. Water quality is of low quality especially during the dry season due to contamination. Illegal diversion from stream for irrigation along the riverbanks using pumps causes depletion of water downstream. A few able farmers who grow vegetables are practising this type of farming. One commercial farmer Mr. Gitonga is irrigating 20 acres with overhead sprinklers. A water users association recently formed is trying to control irrigation to ensure continuous flow during the dry season.

**Environmental Protecting Agricultural Techniques**

The tree nurseries have been started at a primary school through assistance from an NGO. The trees are meant to reforest the neighbouring forestland in exchange of Shambas for farming. The members use such chemical as Acaricides, de wormers and fungicides. They apply these chemicals using sprayers and they have no means of protection. There is no special place for storing the chemicals and disposal of containers is through burning, burying or throwing in latrines. The community does not know the extension staffs at the area and private entrepreneurs offer veterinary services.

**New Technologies**

Some new varieties of maize e.g. pioneer and cowpeas have been introduced as drought resistant crops. Hay bailing is new in the area.

**Empowerment**

Female headed household account for 12% of the community. There are squatters who have settled in the area from Government forest and after Molo tribal crashes. There are no special considerations for these groups but they access water for domestic use through connection from a neighbour or through a community water point.

**11. MWIRERI KIRINYAGA WOMEN GROUP**

**Background**

The group was started as a Self – Help group in 1982 with 25 members. Now they are 40 members: 36 women and 4 men.

**Institutional Strengthening**

They have been trained in Agriculture. They have joined KIREFU and have contributed up to Kshs 11,000/= where each member bought shares by contributing 140/=. As a group they were paying 55/= a month to KIREFU. They claim that KIREFU would give them a loan once they banked Kshs 10,000 in multiples of three. They have lost contact with the KIREFU. So they have stopped paying any more money to KIREFU. They continue with their Merry Go Round. IFAD organised for them to get a posho mill from Belgium assistance. They are making an average of Ksh. 200 per day from the posho mill. They have bought their own quarter plot where they are shifting to soon with their posho mill as they are now operating it on borrowed plot belonging to one of their members. They have by-laws, which are followed. They meet monthly.

**Health**

The common diseases of adults are malaria and URTI. The most common in mortality cases are HIV/AIDS, Diabetes and Malaria. The most common diseases of children are Malaria and Pneumonia. Recently, there was also an outbreak of hepatitis, and only one child is claimed to have died in the past 6 months. There is a claim that malnutrition affects 70% of the children, but this observation by members may include school children beyond 5 years of age. PHC was introduced. The community is using Warazo health centre. Three years ago, 5 CHWs were trained, 2 coming from their group. One of the five is a traditional birth attendant (TBA). The two CHWs in their group are not currently going round. They used to go round once a month.

**Water Provision**

Sources of water are Piped Water, River Rongai, which is seasonal, 1 km away. River Nairobi, which is permanent, 2 km away. Water drawn or piped is for domestic use only. Animals are mostly taken to the rivers. The piped water

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is good. There is minor irrigation on rotation basis. During the dry period, there is little water coming from upstream, so rationing takes place such that a zone is given water every other day.

**Agriculture**

**Food**

**Crops**

	<b>Acre</b>	<b>Productivity</b>	<b>Price/Unit</b>	<b>Production</b>
Cabbages	1/2	2,000 cabbages	3/= each	
Potatoes	1/4	5 bags	500/= per bag	
Carrot	1/4	4 bags	300/=	
Snow peas	1/8	250 kgs	15/= per kg	
Beans	For food only		1600/= per bag	
Green peas	mixed in farm		10/= per kg	
Maize	1	Always never grow to harvest		
Wheat	1	6 bags	1,200/= per bag	
Passion fruits	for food			
Onions	for food			
Sweet potatoes	for food			
Tomatoes	not a lot		35/=	per kg

**Livestock**

**Cattle**

Milk production	3 cows per homestead	15,000/= per cow
Sheep	8 kg per cow per day	7/= -8/= per kg
Goats	5 per homestead	1,500/= each
Hens	not common here	
	10 per homestead	150/=each



#### **Environmental Protection**

Chemicals used are Fungicides, Pesticides, Herbicides, and Acaricides. The communal dip is operational too. It costs 15/= per week per cow to dip. This is a fee paid per animal to the dip committee. Good protection is applied here. Drugs storage and disposal of empties are well done.

#### **New Technologies**

These were reported Fertilizer application, Snow peas growing/farming, Rabbit cooking, Kitchen gardens, Soap making, Soya beans processing, Fireless cookers, 60% adoption, Cake making, Blankets recycling (making) the old ones and Energy saving jikos over 50% adoption rates.

#### **Local Resources**

This community takes advantage of farming potatoes in the forest and also wildlife industry is next to them.

#### **Empowerment**

9% of the community are female-headed households.

### **12. . WARAZO LUSOI WATER PROJECT (LOWER ZONE)**

#### **Background**

Warazo Lusoi – Jet water project covers 3 sub locations of Munyu (Warazo), Lusoi and Jet. The project was started in 1984 after experiencing the famous drought that affected the whole country. Originally there were 2 independent groups forming their water i.e. Warazo in the upper zone with their proposed source being Nairobi River and Lusoi in the lower zone with their proposed source being Warazo River. By then both upper and lower zones were within Munyu sub-location administrative boundaries. Munyu sub-location was within Kabaru sub-location as was Jet (Kirima) sub-location. Being under one chief, he advised the Lower (Lusoi) and Upper (Warazo) to join and form one project which would tap its water from a common intake, i.e. Nairobi, as phase I and then later tap water from Warazo river as an augmentation in phase II. By this time, each group had its own autonomous committee. A central committee was elected that comprised of 3 semi-autonomous groups i.e. Warazo, Lusoi and Jet and hence the name Warazo Lusoi Jet waters project. However, Jet zone had its independent intake in Thegu River. Between 1984 and 1993, the community with the assistance of GOK and EEC had managed to construct 2 intakes, one in Nairobi river and the other in Warazo river and also laid the gravity mainline from Nairobi river to the first storage tank at 6Kms. They also constructed the first storage tank of 225M<sup>3</sup>.

The community approached IFAD for funding in 1993 through the District water office. Before IFAD could commit any funds, there was a need to redesign the project since the then current design was already overtaken by time and also there was a need to incorporate some areas which otherwise had not been settled during the original design (Githungo area). DWO Nyeri prepared the design and bill of quantities. The project is ¾ way complete in terms of pipe coverage of which the upper zone is almost 100% covered except in Kamahiuria. In the lower zone, the major distribution line is intended to serve Githungo area, on the extreme end of the project and with very high population density, and, part of Lusoi. They are yet to receive pipes. [Lusoi can be divided into 3 distinctive zones; the upper that borders Warazo and makes about 60% of population with plots being 7.5 acres. This zone has relatively well drained soils, many trees and is close to water source. The middle zone, with a population of 30% and land sizes of less than 1 acre per HH. This zone has many springs within large privately owned land where water is harvested for irrigation and livestock. The lower (Guthungo) which is very dry with no trees or springs and the only water source is that from the upper zone which is depleted by irrigation activities upstream.]

The community has also constructed 2 break pressure tanks at a cost of Kshs. 450,000 as part of their contribution. On its part, IFAD bought pipe and fittings worth 650,000/=. The beneficiaries have also contributed all unskilled labour valued at 500 person days @ Ksh. 100/= per member. The project has a potential of 800HH but currently only 285 are connected out of a registered number of 625HH. Of the connected, 268 are in the upper zone while only 27 are in the Lusoi zone. The community has been participating in all stages of implementation where the supervision is done by DWO and at times the community meets allowances for subsistence and accommodation for the officers when attached to their project. The community has built a permanent office and has employed a clerk and 2 pipe fitters on a

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permanent basis. The committee comprises of 25 members elected annually at an AGM. To become a member of the project one pays a registration fee of 200/=, share contribution of 10,000/= and an equivalent of 50,000/= in man-days.

**Institutional Strengthening**

The groups management committee is well aware of IFAD programme and was linked to it by the DWO who prepared the design report and the BQs. The committee regularly attends seminars/workshops arranged by IFAD/DWO. The group has also been registered by the DSDO and has received training in management. The group is involved in implementation and fully participates in the activities. They hold regular committee meetings and AGMs. The community is aware of IFAD contribution and shortcomings including failure of project completion due to no contribution on their part. Management of the project is by elected committee, an employed clerk who receives and receipts all monies and also updates members' register. General maintenance is by 2 linesmen and pipe fitters.

**Health**

In adults the major causes of morbidity in order of prevalent are AIDS, Typhoid, Malaria, Amoeba, Pneumonia and URTI with major causes of mortality being AIDS, Malaria, Typhoid and Pneumonia. URTI, Diarrhoea, Amoeba, and Ringworm on the other hand cause Child/infant morbidity. Diarrhoea, Pneumonia and Malaria cause mortality. The infant/child mortality is very low – none in the last 6 months. Community Health Workers were trained, and although they are not very active, they have gone round in the area training residents house to house in the areas of VIPs/improving of existing latrines, treating water through boiling, cleaning of compound etc. They also de-worm children and weigh the infants. Cases of malnutrition are very few with about 80% of the children accessing good diet. The common food eaten in the area is maize, beans, potatoes, vegetables, milk, ugali and eggs. Infants eat the same food with adults but it is specially prepared for them.

**Agriculture**

**Food Production and Productivity**

Crop	Acreage under crop	G.	Yield	Value in Kshs
Maize	1	3 – 4 bags		Home use
Beans	1	2 bags		2,000/bag
Potatoes	¼	4 bags		Home use
Peas	1/8			
Cabbages	¼	1,500 heads		4 – 5 /head
Tomatoes	Mainly for home consumption			
Carrots				10/kg
Onions				10/Kg
Snow peas	1/8	480Kg		40/Kg

**Livestock**

	No. per HH	Yield	Value in Ksh
Milk production		8Kg milk	10/Kg
Cattle	2		15,000
Sheep	2		1,500
Goats	Negligible		
Chicken	5		150
Eggs			5/= per egg
Pigs	2 commercial farmers		



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**Provision of water**

**Sources.** There are 27 water points from the piped system on the upper side of Lusoi. Those who cannot access this water get their water from Kanduna, Lusoi and Nairobi rivers that either originates from springs or a seasonal. The average distance to water source is 1.5Kms. The quality is suspicious and requires to be treated. Currently the only method being used by some people is boiling. There is also a possible contamination through farming activities in the springs. There are about 38 farmers using portable pumps along Kanduna, Lusoi springs and valley

**Environmental Protecting Agricultural Techniques**

Chemical used are acaricides at cattle dips which charges 15/= per animal but some spray at home, fungicides, herbicides and insecticides. The method of application is spraying using knapsack sprayers. The farmers do not use any means of protecting even after advice. Disposal of used containers is by throwing them in the latrines, burning or burying. Storage of chemicals is just away from children but no special places. Planting Napier grass strips on sloppy grounds and tree planting are also evident particularly on the upper Lusoi but in the large farms there is less.

**New Technologies**

Snow peas farming when irrigation is being practised

**Empowerment**

Out of the 225 registered households in the water project 40% are headed by women. There are not many cases of squatters but there are some in the neighbouring forest that sometimes supply labour where irrigation is being practised. The water project management committee is making arrangements to allow the poor to pay their contributions in instalments.

**Basic services to the poor**

There are proposals to revise the project by-laws to allow the very poor easier terms and conditions of accessing water e.g. through CWP Kiosks, when the very elderly and poor can get free water for domestic uses. The membership fee will be revised and can be paid in instalments as one enjoys the benefits.

**13. NDERITI AGUTHI WATER PROJECT**

**Background Struggles in Aguthi Domestic Irrigation Water Project**

The group was formed in 2001 having split from the larger Narumoru Aguthi irrigation water project. The later group had, in 1976, inherited a canal, which had been dug by White Settlers in. At this time only one furrow had been dug which meant that only the community from the lower region would benefit. The group then decided on developing sub-schemes so as to benefit the entire community. In 1989 RDF gave assistance of Ksh. 800,000 for intake construction and canal lining of 300metres. After this was accomplished it was realised that there was too much water loss due to seepage through the canal. The beneficiaries decided to pipe 8Km through the ministry of agriculture- IFAD was identified. IFAD agreed to line 450 meters and construct divisional boxes. It also gave 350 pipes of 8 inches. When the group decided on piping the entire system the upstream people refused for two reasons. 1. It was going to be costly to construct a new intake. 2. They learnt they might lose the benefits already in place. The group split up, forming two water projects. 1. Narumoru scheme irrigation water project, which comprised of the upstream users. 2. NDERITI Aguthi water project comprising of the down stream users. NDERITI Aguthi water project went ahead to construct a new intake under the supervision of the ministry of water. They further contributed and constructed divisional boxes and a distribution tank. The Catholic Mission supported the three tanks. In 2001 IFAD bought 604 pipes of 4" diameter, G.I. pipes of 12" diameter dug the trenches and installed. Fitting adapters, gate valves 4 of 4" and 4 of 2". Additional 32 pipes were bought to enable the scheme reach the main road.

**The Organisation**

The group has 15 committee members out of which one is a lady. Membership criteria consist of the following: -

- Must be a plot owner
- Must agree to contribute and abide by by-laws



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The project was split up in three phases

Phase I member contribution Kshs. 2660, plus labour

Phase II member contribution Kshs. 2700 plus labour

Phase III member contribution Kshs. 3000 plus labour

Registration fee is Kshs. 500

700 members are registered. Of these, 200 have partly paid.

The group target households are only 200 acre partly paid up. Registered members add up to 700.

**By-laws**

- If a member is unable to pay Phase I - he or she is fined 300/=
- If a member is unable to pay phase II - he or she is fined 150/=
- Now labour attendance is 200/= person day
- If a member has not paid water it is disconnected
- Late payments are fined additional of 500/=
- All contribute 50/= for maintenance waterman and regulator (linesman) per month.

Divisional waterman who is given something small for his lunch gives technical advice.

**Institutional Strengthening**

The committee attends PMC meetings at IFAD office. It also ensures smooth running of project internal monitoring.

**14. NDATHI MBIRIRI WATER PROJECT**

**Background**

The project is located in Mbiriri sub-location of Kabaru Location Kieni East Division. The area is a fairly new settlement scheme (1992) and is occupied by people from various parts of Nyeri District. They were settled on a GOK programme for the landless. Each plot is 1 Ha with a number of households. There are 533 plots. The project started in 1992 by the new settlers on a self-help basis and through some assistance from the Catholic mission. The area was carved off Mt. Kenya forest and the community had to pass 3Km through the forest on either side to draw water for domestic use in Thegu River or Sagana River. On the upper side is the high potential island farms which had abundant water for irrigation and hence a source of employment and food. The objective of the project was to bring enough water for domestic and irrigation in order to compete for market/income with their upstream neighbours. Currently the project has 465 registered members with 8 households being connected to the water. The water is not enough for both domestic and irrigation due to uncontrolled usage in the upper zone and low flow in the river. The community is rehabilitating the distribution system where they have bought pipes worth 327,000 and having another 154,000/= to clear a debt from a supplier where they were given materials on credit. Membership is through contribution of share @ 8,018/= and labour equivalent of 50,000/= per member. Each member has accumulated 450 man-days since the project started. The committee has 9 members all men (women shied away due to the difficult conditions in the forest. There has been a high turnover of committees due to leadership squabbles, mismanagement and apparently due to fights of supremacy as residents came from different areas and identified themselves with their areas of origin. The project has not received any form of funding from IFAD as far as water project is concerned.

**Institutional Strengthening**

- Project registered with DSDO
- The design of the project was done by the DWO.
- The management is by an elected committee of 9 members, which meets every Wednesday of the week. AGM planned annually but general meeting are held as need arises.
- The chairman has approached IFAD for assistance and a first meeting is already planned with the FSO.

**Health**

In adults the major cause of morbidity in order of prevalence are Typhoid, Malaria, Pneumonia, Diabetes, and Amoeba, AIDS and eye infections. AIDS, Typhoid, Malaria and Hypertension are the major causes of mortality. In Infant/children on the other hand morbidity is caused by URTI and Pneumonia in that order of

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prevalence while mortality is as a result of Pneumonia. The nearest health facilities are at Island farm GOK dispensary and a Catholic mission dispensary at the parish centre. PHC training has been offered at the health facilities. Services offered by the mission centre are not mentioned although it is known that such services are being offered. The most common foods are maize, beans, potatoes, greens, carrots, milk, ugali and cabbages. Cases of malnutrition have not been reported.

**Water.**

**Sources.** People access piped water at HH or from neighbour's water points. Water is for domestic, Livestock and irrigation use. There are members who are also benefiting from another water project within the area. This has caused some conflict and management problem. The other water project also taps water from the same source as the main project. The effect being that some members benefits twice as much and their contribution to the major project is reduced. The water is safe for human consumption.

**Irrigation**

About 312 members access water for irrigation of ¼ acre or kitchen garden. Irrigation water requirement is high during the dry season and one cannot be satisfied by the project until flood conservation or efficient methods of irrigation are employed.

**Agriculture**

**Food Production and Productivity**

Crop	Acreage under crop	Yield	Value in Kshs.
Maize	Undefined for home consumption		
Potatoes	¼	5 bags	400/Kg
Beans	¼		
Cabbages	¼	3,200 heads	5/head
Wheat	¼	64Kg	
Passion fruits			

**Livestock**

	No/ per HH	Yield	Value in Kshs.
Milk		10Kg	10/kg
Cattle	2		15,000
Sheep	2		1,500
Goats	1		
Chicken	5		150
Eggs			4/egg

**Environmental Protecting Agricultural Techniques**

Chemical used in farms includes Acaricides, Insecticides, Herbicides and Wormicides. These chemicals are got from local agro vets and veterinary officers. There are not protective measures during application

**Soil and Water Conservation**

Farmers are aware of the need to curb soil erosion. They plant Napier grass strips on sloppy area. They also plant trees such as gravillea, Cypress, Fruit trees etc. They have no knowledge of water conservation in the farms but rather drain it away into road reserves. They know there is an agricultural extension officer who stays in Kimahuri but does not visit their farms.

**Improvement in incomes**

The only form of employment is casual labour at the rate of 100/= per day plus food. Few people employ farm workers on a permanent basis at 1,500/= per month plus food and shelter. The only form of business is farming and Kirefu is not known.

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**Empowerment**

In the community, female headed household's account for about 20%. There are cases of very poor members who have been given water for free. 50% of schools going age children were not going to school. The school enrolment rose from 500 to 1,000 pupils after free education was offered.

**15. ISLAND FARM HEALTH FACILITY MANAGEMENT COMMITTEE**

**Background**

The dispensary occupies a former settler's house. It was started in 1963 after the settler moved out. The Government supported it with staff and drugs. It operated this way until the time of structural adjustment when it was placed under cost share programme. The committee started overseeing the operations of the dispensary in 1983. Cost sharing started in 1996. The facility has 2 nurses, paid by the Government. The Government pays two public health technicians. One subordinate staff paid by the Government. The community pays one clerk and one watchman.

**Institutional Strengthening**

Under cost share programme the community:

- Maintains the facility.
- The community has renovated the building by partitioning the rooms to increase them for various activities.
- The community provides drug.
- Under cost share programme adult patients are charged 30/= per most drugs including antibiotics. Other minor drugs such as panadol are paid 10/= per visit. Visits are also charged separately at 20/=.
- Money raised from visits and drugs is used for paying the clerk and watchman and for purchase of more drugs.
- In average 20 patients including children are received per day.

The committee has pursued the title deed for the plot. It has also completed fencing of the plot (all the compound).

**IFAD Assistance**

- In 1994 IFAD through the MOH started giving bicycles for use by the public health workers.
- Public health workers were trained.
- Committee members were trained on management. Four men were trained.
- To decide on the cost share issues, the committee calls for public meeting with the community leaders to decide. The facility serves 5,000 inhabitants.
- The committee meets once a month and the key four members of the committee meet at every end of the month to pay the workers on the community payroll.
- The committee writes quarterly reports to the MOH.
- In 1998 a maternity building was started on self-help basis. The maternity was started in liaison with the MOH and Ministry of Public Works. The building now stands on a concrete floor and is built up to the needed wall height. Only roofing, windows, doors, water and electricity connections and painting and equipping remain. The committee does not know the total cost for the GOK officers never showed them the BQ.

The information obtained is that the project was to be assisted through IFAD with Ksh. 2.5 million and the committee has been following the issue.

**Health**

Common adult diseases in order of priority: URTI, Malaria, Amoeba, Worms, Minor cuts, Pneumonia, Skin diseases, Aids. The common cause of mortality is Aids. For Children under 5 years, the common diseases in order of prevalence are URTI, Malaria, and Pneumonia. Mortality most common in occurrence is Pneumonia. Nutrition of Children is reported as 100% good. PHC was started in 1994 through Nyeri Dry Area Programme. 48 VHC were trained. Again in 1998, 25 CHWs were trained. About 20 of these were active in the course the year 2002, but due to the fact that these CHWs are not supported with any payment they have relaxed, and are not actively going round. Some of the activities the VHCs and CHWs carried



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out were to educate on feeding programmes, general compound cleanliness and renovation of existing latrines (30 – 40 latrines). There is no traditional birth attendant.

**Improved Diet**

For adults include, maize, beans cabbages, carrots, milk and greens. For children under five years, they include beans, cabbages, milk, carrots and greens.

**Water Provision**

Main source of water is water furrow and tap water. Those near river Thegu go there for water just 1 km for most inhabitants. Some families have roof catchments water tanks. Not many because there is furrow water flow all over.

**Agriculture**

**Food Production**

Crop	Area	Productivity	Price/Unit
Cabbages	¼	1,000 heads	5/= each
Carrots	¼	4 bags	400/=
Tomatoes	Small portion for use as food		
Maize	Small size for use as food		
Snow peas	¼	1000 kgs	70/= per 2.5 kg
Peas	Small size for use as food.		
Passion fruits	Small size for use as food		
Oranges	For home consumption		
Onions	For home consumption		
Beans	For own consumption		
Pyrethrum	Under introduction		
Potatoes	¼ acre	4 bags	400/=

**Livestock**

Cattle	1 per homestead	3,000/= per weaner
Milk	5 kg per day per cow	11/= per kg
Sheep	2 per homestead	1,500/= per sheep
Goats	Community wants to introduce dairy goats	
Hens	5 per homestead	100 per hen and 5/= per egg

**Environmental Protecting Agriculture**

Fungicides, insecticides, acaricides are in use but no thorough protective measures are taken although the community has been trained on safe use. Dip is not operational.

**New Technologies**

There are 111 safe use jikos in the whole sublocation.

Soil conservation is through napier grass, strips, terracing. Trees planted include gravillea, cedar, blue gum trees, and cypress.

**Natural Resources:** None

**Empowerment**

Female-headed houses are 20%.

**16. MWOROTO WOMEN GROUP**

**Background**

This group is basically self-help group that is just 2 years since it was formed. It has 21 members of whom 2 are men

**Institutional strengthening**

The group is not registered with social services. It has joined the Songa Mbele women organisation based in Nyeri, it paid 2,000/= for membership and is awaiting membership certificate from the Organization.

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Some organisation visits the group when they are meeting for contributions to assist them in record keeping and they are paid 1% of money collected that day. The agricultural staff of the area has constantly assisted the group through training on new technologies (energy saving jikos, laying out grass strips etc). Material son fireless cooker are not easily available. The women are carrying self-help programmes such as: -Merry – go – round, Buying planting seeds, Sheep rearing. They have 6 sheep bought through member's contribution. They intend to start cattle buying, buy a plot and buy a posho mill. They are learning new technologies together e.g. improved jikos, processing soya beans, planting peas and snow peas. Early planting, pest controls, vegetable preservation. civil education (constitution reform). They have a sire where they are planning to begin raising seedlings.

**Problems**

They claim to have too little money to start some of the big capital projects. When they meet a month they contribute 100/= each for shares. One is loaned according to the number of shares one bought in total. Loans are classified as short – term amounting to double the number of individual shares bought and paid in a month with 5% interest, long-term loans amounting to 3 times the number of individual shares payable in a year on monthly instalments at 12% interest.

IFAD is known through assistance of community dispensary and Kabendera water project.

**Health**

Common adult diseases in order of prevalence are Malaria, URTI, Typhoid/Amoeba, Arthritis, Diabetes, AIDS and Asthma. Mainly AIDS and Asthma cause mortality in adults. The area is termed as extremely cold and swampy when it rains. It is located on slopes of Mt. Kenya. The dispensary does not take care of delivery causes and an extension to include maternity is a major need for the community. There are no TBAs or CHWs. In children the common diseases are Pneumonia, Ringworm and eye infections. Mortality is caused mainly by Pneumonia. PHC Services are available at the dispensary only. Children under 5 years are reported malnourished (80%). They are mainly fed on Potatoes, Cabbages, Carrots and milk. Adult diet includes Potatoes, Cabbages, Carrots Maize and Milk.

**Provision Of Water**

Source of water is piped from Mt. Kenya through Kabendera water project. Water for irrigation is only restricted when the river flow is little. Drinking water is always available. Livestock accesses water from holdings or are taken to the nearby river. Water rationing started in 1990 and it is believed to be due to deforestation in the catchment area.

**Food Production and Productivity**

Crop	Acreage under crop	Yield	Value in Kshs per unit
Potatoes	½	5 bags	400/bag
Cabbages	½	3,000 heads	2 each
Snow-peas	¼	100 Kgs	25 – 30 /Kg
Carrots	¼	5 bags	300/bag
Maize	For home consumption		
Beans	For home consumption		
wheat	For home consumption		

**Livestock**

	No per HH	Yield	Value in Kshs
Milk production		4Kg/cow/day	10 /Kg
Dairy cattle	3		10,000 each
Sheep	6		1,500 each
Goats	2		700 each
Chicken indigenous	3		150 each
Eggs			5 each

Cockerels' exchange took place in the area. Rabbits are kept by school children.

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**Environmental Protection**

Chemicals used are fungicides and acaricides (no dips). Handling of the chemicals is without due protection. Disposal of the empties is well done.

**Soil Conservation.**

With the help of the agricultural staff, grass strips have been made, bench terraces, tree are planted e.g. cypress, gravillea and blue gum.

**New Technology**

5 people to of 21 with energy saving Jikos.

**Natural resources- None**

**Empowerment**

Female-headed households are about 30%.

Community helps poor of the poor by giving food and harambee donation

**18. KABUNDA WATER PROJECT**

**Background**

The project was started in 1992. Before that the inhabitants here had sought co-operation with Mwachiri water project where they found that they were not going to get enough water and left. Went ahead joining up with Kiburuguti water project, still were not satisfied there and left, joined Kabendara water project, finally left and formed an idea of forming their own independent water group.

**Institutional Strengthening**

Kabunda water project was formed in 1992, and started with registration of members, and then they began their work with identification of the intake. When they identified the intake they started diverting water from the river by blocking the flow using earth materials and directing the water into a canal that was not aligned. Then to cross any depression, they used pipes for the water to flow across. In 1996, a proper intake was constructed using members' contribution and office of water department for the technical assistance. They bought pipes of 10" and 9". In 1996, IFAD came in to assist and gave the project pipes of 8", 6" and 4". IFAD assistance was Kshs 1.2 million. In 1998, the group built a water tank of 15,000 litres. However, 4" pipes are being used to bring the water into the tank and it is decided that in collaboration with water office 4" will have to be changed with 6" pipes. The water is not enough due to the 4" pipes used to deliver water into the tank. We are rationing the water. Total members are 210, but the potential members are over 350. Currently, water points are connected for 152 members. The community contributions are work, worth a total of Kshs. 40,050 per member arising from 150/= charges per day for defaulters. The membership fee/registration is Kshs.1, 000 per member and 20,000/= shares per member. The community contributes in digging of the trench, provision of fittings, construction of water and intake. The committee comprises 11 members. There are by-laws governing the activities of the project. They keep registers for recording all the members' transactions. Each member has a card for entries of person days worked. There is a provision to give credit to members so that the minimum down contribution is Kshs. 25,000 for water to be connected, then Kshs. 500 connection charge. Then the members continue paying the rest. Total payment is based on shares, and contributions through labour.

**Health**

Health of children is reported to b good. There is, no PHC, No CHWS, no VHCs and no TBAs. The community goes to Kiamathaga dispensary for treatment

**Water Provision**

Water is piped and available for domestic purposes. It is not enough for irrigation and that is why they want to change 4" pipes with 6" pipes leading to the tank. They are irrigating ¼ acres in average; but now the river has no enough water. They want to build a 90 days water storage dam up the project source. They have identified and surveyed the site (4.5 Ha.) and a rent covering 2 years has been paid to the ministry of Natural Resources and Environment. The department of water has done survey of the site and



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has yet to release the results. The members without water are getting water from neighbours with connections. Drinking water is from the pipes and is good water. Some of the members boil it.

**Food Production and Productivity**

CROP	ACREAGE	YIELD/AREA	PRICE/UNIT
Potatoes	½ acre	10 bags	500/=
Maize	½ acre	2 bags	For food only
Beans	½ acre	1 bag	For food & sale 2000/=
Cabbages	¼ acre	2000 heads	1/=
Kales	Small portions	-	-
Spinach	Small portions	-	-
Carrots	Small portions	-	-
Snow peas	¼ acre	250Kgs	40/= per 2.5kg
Onions	Small portions	-	-
Tomatoes	Small portions	-	-
Passion fruits	-	-	-
Sweet potatoes	-	-	-

**Livestock**

ANIMAL	PRODUCTION	PRICE/UNIT
Cow	3 per household	15,000/=
Milk production	7kg/cow/day	8/= per kg
Sheep	Too few	2000 per sheep
Goats	5 per household	
Poultry	5 per household	150-200/= @

**Environmental Protection**

Chemicals used are Acaricides, insecticides and pesticides. No proper protection is applied in handling. Storage is in houses and disposal of empties are burnt or thrown into the latrines.

**Soil Conservation**

They practise grass strips, and more so in their own way. Trees are gravillea, cypress and Blue gum.

**New Technologies**

Introduction of modern bee keeping, sheep breeding, energy savings jikos and food preparation had been made, but this group could not give statistical information and data.

**Natural Resources:**

- None

**Empowerment**

Female-headed households are in the proportion of 5/30, which is 15%.

**Poor Of the Poor Services:**

The very poor and poor are allowed free access to the water from those with connections. The project is considering in future installing community points so that the poor and the people without farms and staying within the community can draw water for domestic purposes from these points.

**19. KABENDERA WATER PROJECT**

**Background**

The community initiated the project in 1985 after the effects of the famous drought of 1984 that caused huge losses in livestock and a severe famine. The project was started as a furrow 14.2Km with the technical assistance coming from DWO Nyeri and the community providing all the unskilled labour. There

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were 300 households by then and through harambee the community bought pipes to pipe the furrows, which were losing a lot of water through perforation. The water was also prone to contamination as the open furrow was flowing through settled areas. By 1998 when IFAD came in the project had been piped through the harambee funds and assistance from GoK. By this time water shortage was being experienced particularly in the lower zones, as the pipes were too narrow to carry enough water for irrigation.

The project required rehabilitation and through the DWO a design was done and the cost was estimated at Kshs. 4.2million. The project was recommended for funding by IFAD in 1998/99 through the DWO's office. The community entered into an agreement with IFAD where they were to raise Kshs. 700,000 and provide all unskilled labour. The money was to meet cost of fitting and part of pipes.

**Institutional strengthening**

Before funding the community held a series of meetings with IFAD office and DWO where they agreed on the participation arrangements. Committee members attended various workshops and seminar organised by IFAD/DWO. There were meetings where they were informed of available funds and at the same time the originally promised funding was scaled down. Finally the project received 600 pipes of 160mm and associated fittings. The group reported that water flow improved and there is no serious conflict between upstream and downstream consumers. They are 250 connected households each irrigating over ½ an acre. The registration fee per member is Kshs. 225 and then a share contribution of Kshs. 10,000 plus 650 man-days equivalent of labour. The project has employed linesmen and inspects the pipelines on daily basis. The future plan is to build a conservation reservoir and have already acquired a site in the forest. Members meet on quarterly basis and hold an AGM where they elect new office bearers.

**C. GATHORONGAI GROUP REPORT**

**1. WATUKA WATER PROJECT**

Started as a community initiative in 1973 and registered the same year with department of social services. The main objective was to make water available for domestic use and for irrigation. Project has a total membership of 500 of which 400 have been connected. Initially the members had raised Kshs. 186,000, which was used to buy pipes, which covered a 4Km distance within the distribution network, and to fund the construction of a distribution tank of 135m³ capacity.

In 1987 RDF assisted the project with Kshs. 700,000, which was used to complete the distribution tank, and for purchase of pipes, which covered another 4Km of the distribution network. Between 1991 and 2001, IFAD assisted the project with Kshs. 6,289,579. The money was used to lay 60Km of pipe network.

**Impacts**

The project was implemented under the district focus strategy for rural development strategy with the Ministry of Planning and National Development DDO undertaking the co-ordinating role. The Ministry of water development undertakes the technical role besides other ministries. Both the district technical officers and the beneficiaries were involved in project planning through seminars and workshops.

The beneficiaries employed artisans who maintain the piping network. Project members also contribute Kshs. 100 per month for operation and maintenance as well as contributing 1-2 man-days per week.

Non-providing members within the project area are catered for through communal water kiosks where water is sold at Kshs. 2 per 20-litre jerrican while the poorest of the poor are given water free. The community development assistants during registration of the group trained beneficiaries on group dynamics.

**Health**

The common diseases in the project areas include malaria. The major causes of morbidity in the project area are Pneumonia, Malaria, Upper respiratory track infections (URTIs), Amoeba, Typhoid, and AIDS.

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PHC activities started in 1996 by the MOH focusing on training of CHW. CHWs went round homesteads teaching the community on personal hygiene, constitution and use of pit latrines, constructing refuse pits, dish tacks, introduction of leaky tins.

The major infections affecting children and infants include Bronchial Pneumonia, Malaria, URTIs, Measles and Ringworm. Infants/child mortality is of insignificant given good feeding, variety of foods and particularly vegetable and fruits, which are related to the project water.

**Water Provision**

Water is used for domestic and irrigation. However, the water is not adequate for irrigation. On the average each beneficiary is irrigating a ¼ acre while the range is 0-1 acre. Overhead irrigation method is used. Due to the inadequate irrigation water, a Phase II of the project has started with a membership of 800.

The project water is at a shorter distance from the initial 3Kms to 1Km. This led to time saving, which is then used in other productive and reproduction activities. It has also improved hygiene and general health of the people. The project has also increased casual employment at the farm level and general business has improved in the neighbourhood. Some beneficiaries allege that they boil water for drinking.

**Food Production**

The average farm holding is 3 acres, but ranges from 0 to 10 acres. The community practices mixed farming where they grow the following crops:

- |                  |             |                                  |
|------------------|-------------|----------------------------------|
| - Maize          | - Onions    | - Cabbage                        |
| - Irish Potatoes | - Carrots   | - Kales & other local vegetables |
| - Beans          | - Pyrethrum |                                  |
| - Wheat          | - Snow peas |                                  |

Yields for these crops per acre are:

- |                |                |
|----------------|----------------|
| Maize          | - 10 bags      |
| Irish potatoes | - 25 bags      |
| Beans          | - 5 days       |
| Carrots        | - 100 bags     |
| Onions         | - 10,000 Kgs   |
| Snow peas      | - 3,200 Kgs    |
| Cabbages       | - 15,000 heads |
| Wheat          | - 5 bags       |

Earlier yields used to be high but decreased due to lack of machinery, lack of fertilisers and use of un- certified seeds.

Livestock reared include cattle, sheep, and poultry. Average milk production per cow is 5Kgs per day. Sheep reproduce 2 times a year. Most beneficiaries keep between 5 – 10 chicken mainly for domestic consumption.

Pesticides used for control of pests and diseases include among others Ridomil, Ambush, Karate, Brigade, Foliar feed, and Benlate. Safe use of chemicals is not practised. People do not use proper clothing, while spraying.

With increased farm produce, income has increased. This has resulted in

- Improved houses (from mud walled houses to timber walled and stones)
- High enrolments in schools coupled with an increase in boarding schools
- One boarding secondary school, 3 primary schools and one village polytechnic.
- There are 3 cattle dips, 6 churches, one dispensary and one co-operative society.
- Animal tick borne diseases have reduced as a result of adequate water for dips.
- Ability to purchase radios, Television sets, Mobile phones have enabled the community to have access to information
- Increased social interaction has resulted to more cohesion.



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- Improved relation with the Kenya Wildlife Services hence better forest management.
- Reduced youth idleness

**Natural resources** within the community include:

-Forest: the community benefits by obtaining timber products, fuel wood, water catchment protection, increased rainfall, and community education tours by KWS.

Most of the income for the community comes from horticulture mainly – cabbages, onions, carrots and snow peas. Other sources of income are permanent employment and casual labour.

Women due to several reasons among which are deaths of husbands, immigration of husbands in search of jobs, single motherhood and separation, head 40% of households.

The community defines the poor as those who do not have water and are helped to get it free. Those who have no land and those unable to pay school fees for their children get free water. They constitute about 15% of the community.

## **2. WATUKA HORTICULTURAL GREEN GROWERS**

The group was started in 2002 and registered with Department of Social Services the same year. It has a total membership of 35 – 32 men and 3 women. The objective was to grow snow peas and have reliable market. At the time of registration, the group did not have an Agricultural Officer. However, one has been posted to the sub-location as from January 2003.

The snow pea growing was started in 1996 where farmers lost Kshs. 800,000 to brokers. This demoralised the community and they stopped growing peas. The group has entered collaboration with INDUFARM, an exporter who supplies the seed and collects products at farm level. However, no formal contract has been entered between the group and the buyer. Each member is growing snow peas in an area less than a ¼ acre.

Their main problem is grading where the group has employed a grader at farm level who do not accompany the produce to final grading at Nairobi where it is carried out. This leads to high percentage of rejects, which makes farmers suspicious. A second group of 40 members has been formed to grow the same crop. Currently, 100 people are growing the crop in Watuka.

### **Institutional strengthening**

Initially the extension officer was not available and the Department of Agriculture has posted one who will be assisting farmers in the group. The formation of the group has assisted in marketing.

### **Health**

The most prevalent diseases are Pneumonia, Malaria, Amoeba, Typhoid, AIDS, Allergies and URTIs. Primary Health Care activities were started in 1992 and CHW were trained and have been involved in deworming, simple medication with pain killers e.g. Paracetamol, Panadol, Anti-Malaria, Hygiene, citing of pit latrines, Refuse pits and Promoting kitchen gardening.

Pneumonia, Malaria, and measles mostly affect children. Malnutrition is non-existent which the community attributed to balanced diet, awareness, and ample food of various varieties. The infant mortality is non-existent. Beneficiaries cited that the dispensary is ill equipped, as it has no laboratory equipment to assist in diagnosing. Malaria is said to be on the increase due to availability of piped water.

### **Water**

The Watuka water project is being used for domestic and irrigation purposes. Other water sources included Uaso Nyiro, and surface run off. The overhead irrigation method is used. Water for drinking is hardly boiled.

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**Food Production**

The Group practices mixed farming. The following crops are grown:

<u>Crops grown</u>	<u>Average Production Per Acre</u>
Beans	8 Bags
Onions	3000 – 4000 Kgs
Cabbages	8000 heads
Carrots	20 – 40 Bags
Potatoes	10 – 30 bags
Maize	15 bags
Pyrethrum	
Snow peas	3200 Kgs

<u>Type of Animal</u>	<u>Average No. Per Household</u>	<u>Average production</u>
Cows	2	5-9 Kgs per day
Sheep	3	2 kidding per year
Chicken	5	
Beekeeping is practised		

**Environmental protection**

Contour farming and grass strips are practised. Tree planting is very low. The common pesticides used include Benlate, Brigade, Ridomil, Milraz, Thiovit, Daconil, Karate, and Ambush. Safe use of chemicals is not practised.

Due to increased income there is improved housing, increase in school enrolment, cleanliness, local business improved, availability of labour – pickers, graders and transporters. The only natural resources within the community are forest and rivers, which assists in timber products, fuel wood, charcoal, water for livestock, domestic and irrigation needs.

**3. AMBONI KUGA NA GWIKA WOMEN GROUP**

The group was formed in 1989 and was registered by CDA who gave them partial training on group formation. It has a membership of 30. The main objective was home improvement through Merry-go-round. The group has worked with several micro-finance organisations like Partnership for Productivity and others. In the year 2002 the Caritas Nyeri trained 14 members in tree nursery and assisted with seeds.

**Institutional strengthening**

Having worked with several micro-finance organisations the group has been trained on financial management. The group is working close with the Department of Agriculture and CDA and Caritas Nyeri who have supplied four types of drought resistance seeds for demonstration purposes. The group has by-laws, which guides the group to carry out their work effectively.

**Health**

The common disease includes Typhoid, Pneumonia, malaria, Common fever, AIDS and tooth problems. PHC programme was active between 1987 and 1989 but was corrupted by some members. They were usually given de-wormers and simple medication. A group, which was left behind, formed Amboni B1 health group and is primarily involved merry-go-round activities.

Infants/child diseases include Pneumonia, Malaria, Common Cold, Worms, Ringworm, Dysentery, Chicken Pox and Measles. Pneumonia and Malaria are the main causes of death. Children diseases had reduced due to good feeding, increase in literacy level and improved hygiene – Malnutrition is not experienced.

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**Water**

There exist several sources of water i.e. Roof harvesting, Mweiga farms, Kangiri water project and Honi, Ruhotie and Kamuiga rivers. The water is used for livestock and domestic purposes. Only Kangiri water project is used for kitchen gardening – Eimba Amboni water project is not complete. Some beneficiaries do not boil water before drinking. The longest walking distance in search of water is 2Km. The water from the existing projects is used for watering tree nurseries, which are used for environmental protection and income generating by selling seedlings.

**Food Production**

The group practices mixed type of farming. The following crops and their yields are as shown below.

Type of Crop	Yield per Acre
Maize	5 bags
Beans	1 bag
Potatoes	6 bags

Others include cabbages, onions, carrots, and various fruits e.g. Avocados, Oranges, Lemons and Pawpaws.

Livestock include the following

Type of Animal	No. Per Household	Production
Cows	2	10Kgs per day
Sheep	3	2 kidding per year
Poultry	3	2 kidding per year
Pigs	5	

A few members practise beekeeping both indigenous and KTB hives. The main constraint is marketing.

The pesticides used for control of pests and diseases include Ridomil, Milraz, Thrivit, Daconil, Karate, Ambush, Benlate and Brigade. Safe use of chemicals is not practised. They also use method of pest control, which includes tobacco, pepper, Mexican marigold, soap, onions and pyrethrum. Kenya Institute of Organic Farming introduced this.

The natural resources include forests and rivers. These helps in environmental conservation and protection of water catchment areas. The forest provides timber products, fuel wood. The forest animals destroy crops hence constant human /wildlife conflicts.

The main source of income is milk, farm produce and self-employment.

**Benefits of Group activities**

Some members have been enabled to purchase land through revolving funds, payment of school fees, purchases of livestock, and cleanliness. The group has created a forum of extension in education. The group has promoted business in the neighbourhood.

There are 40% female-headed households.

**4. BONDENI WATER PROJECT (LOWER ZONE)**

The group was started in 1972 and was registered by CDA. They got assistance from Care International in form of water pump, purchase of pipes and construction of storage tank, which was completed in 1978. The source of water is Honi River.

Since this was a pumping system it was too expensive to maintain. In 1995 a gravity system was identified on Ruhotie River. The group organised themselves and had a membership of 300 members. Presently, the membership has risen to over 700 members. IFAD under Nyeri Dry Area Programme started to assist the project in 1998.



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**Institutional strengthening**

The beneficiaries have not been trained hence lack of group cohesion and lack of management skills. The project has been seeking technical assistance from department of water development from initiation of the project.

**Health**

They are served by Amboni and Wendiga dispensaries, which are 5Km away. The main diseases are Typhoid, Malaria, Amoeba, pneumonia, AIDS and Arthritis. PHC activities were started in 1978 and 45 CHW were trained. 10 village health committee members were also trained (2 were CHWs). The activities carried out were pegging and citing of pit latrines, hygiene education and covering of tanks to avoid mosquito breeding.

Malaria, pneumonia, worms and dysentery mostly affect children. Malnutrition is not common in the area. This can be attributed to nutrition education, enough food production and various food crops.

**Water.**

Sources of water are Karuiria dam, Ruhotie and Honi Rivers. No irrigation is practised and some members boil dam water before drinking. The group has not benefited from Bondeni water project although most of the pipes have been purchased and laid.

**Food Production**

Type of Crop	Yield per Acre.
--------------	-----------------

Maize	3 bags
Beans	1½ bags
Irish potatoes	6 bags

Other crops include bananas, cassava, cabbages, carrots, and green vegetables.

**Type of Livestock**

Average number	Average production
Per household	

Cattle	2	10Kg per day
Sheep	3	2 kidding per year
Poultry	5	these are kept for house Consumption.

**Environment Conservation**

This involves mainly grass strips and agro-forestry. Pesticides used include Ridomil, Milraz, and Green copper, DITHANE M45, Karate, Triatix and Diazinon. No safe use of method is practised. They are kept away from reach of children. The main source of income is milk and other farm produce.

The natural resources include trees and rivers. These help the project members by providing timber products, fuel wood and water for domestic and livestock consumption.

The female headed household form 40% of all households. This is due to deaths of husbands, single mothers and divorces. The permanently employed form about 10% of the population.

**5. KAREMENO HEALTH MANAGEMENT COMMITTEE**

The project started in 1984 at the settlers' house and registered with department of social services in 1985. It has an established management committee of 9 members. The project objective is preventive immunisation and treatment of minor illness.

In early 1990 the need for maternity and laboratory was identified and a Harambee for the facility was held in 1997. Members are peasant farmers who have been hit by severe drought for the last five years. The facility is half-complete.

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#### **Institutional Capacity Building**

The department of social services carried out group management training. At community level, the ministry of health has trained 200 CHWs, 9 VHCs, 25 TBAs and establishment of kitchen gardens. The project members are peasant farmers and pastoralist who contribute for the facility upkeep and drugs through cost sharing.

#### **Health**

Primary health care started in 1992. Common diseases include malaria, TB, Fever, HIV/AIDS, Typhoid, Amoeba, Dysentery, and Pneumonia. It is noted that during the spraying of wheat by large-scale white farmers, there is general increase in fever.

Major infection affecting children are Pneumonia, sore throat, skin diseases, fever, measles, dysentery, and amoeba. The main killer disease is Pneumonia. Malnutrition is common due to poor feeding habits caused by seasonal drought (May-October). Most infections are however attributed to lack of water hence leading to food shortage, low milk production and reliance on relief food hence high infant mortality and morbidity rate.

#### **Water provision**

Being in the driest part of the district water scarcity has severely affected the entire community. They get water from rooftops, seasonal rivers and shallow wells about 4.5Km away. However, large-scale farmers who spray wheat always pollute the water. Water is used only for domestic use and irrigation is not practised. Water is not boiled before drinking.

#### **Agriculture**

The average land size ranges from 1-2 acres with only ¼ being under cultivation. Mixed farming is practised.

FOOD GROWN	AVERAGE PER ACRE
Beans	1-2 bags
Potatoes	10 bags
Wheat	10 bags
Cabbages	8 bags
Carrots	5 bags

#### **Livestock**

LIVESTOCK	NO. PER HOUSEHOLD
Cow	5
Goats	5
Sheep	5
Chicken	10

Soil conservation is practised through terracing, tree planting and use of napier grass. These practices are important since there is no agricultural extension officer. There is also the construction of small earth dams to control the running water. Both local and modern methods are used for pest control including fast tack, sibil, dimuthit, marathion, karate, pepper, tobacco, soap, triatix and tickfix. Protective clothing is not used despite the community have been trained by the extension officer from Catholic Archdiocese on chemical safe use. No irrigation is practised due to lack of water. Tree nursery has also been established.

#### **Incomes**

Community highest incomes are from livestock followed with milk production and food being last. However, poor rainfall affects all these activities.

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**Natural resources**

The community uses forest where they get timber, fuel wood, and charcoal. Rainfall has decreased due to forest destruction. Female-headed households are 50% due to immigration, death, single mothers and separation.

**6. NGANO-INI ADULT CLASS TANK WOMEN GROUP.**

The group was started and registered in 1992 with 30 members. The main objectives of starting the group were to improve the homes and have a water tank constructed for each member. Through merry-go-round, the group has bought each member various household utensils and bedding.

The group has also been involved in growing of horticultural crops such as onions and wheat, which has given them income for the tanks construction. They have also been involved in raising tree seedlings. So far only 6 water tanks have been constructed. There has been slow progress in putting up the tanks due to lack of finances. The 6 tanks constructed have also proven to be of no use as workmanship and materials were poor and so any collected water is lost.

**Institutional strengthening**

The group has received training from various offices including agriculture. Health was also assisting in water tank construction.

The group has been in close contact with IFAD office in Nyeri and has been very aggressive in following their activities with the office.

**Health**

Common diseases in the area include pneumonia, malaria, URTI, diarrhoea, typhoid and AIDS. PHC started in 2000 where 2 of the group members have been trained on general hygiene, kitchen garden promotion, cleaning tins or containers from home compound and refuse disposal. They were also trained as TBAs. The training went on for about 4 months after which the programme died slowly before the drugs could be received. Those trained have been doing work pertaining to the training, particularly helping in child delivery.

Infant/children diseases include pneumonia, malaria, URTI, measles, ringworm, chicken pox and diarrhoea.

Infant/child nutrition – the children are well fed on porridge made from mixture of sorghum, millet, maize flour and milk, they are also fed on various indigenous varieties like pumpkins leaves, stinging nettle, nuhika, kanyuria etc.

There is no malnutrition in the area. Adults and children diet is from same source – maize, beans, potatoes and wheat.

Child mortality is negligible due to: -

- Community is more enlightened on nutrition and diseases (good nutrition)
- Better medical care
- Cleanliness and better care of children

**Water**

Main sources of water are river Uaso Nyiro, dams (each farmer has a small dam in his/her farm and Bondo spring). The area is covered by the Gatarakwa – Mugunda water project (Embaringo line) where each member is supposed to contribute Kshs 10,000. This water has not reached the area but has reached the upper zones where pipes, which have been left open, are pouring out water. This water is flowing along the sides of the road. The longest distance to the water source is 3Kms on rough terrain and very steep slopes. There is no irrigation except for farmers who are bordering Uaso Nyiro River who sometimes divert water to their farms and then use it to grow horticulture crop.



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**Food production**

The area was settled in 1964 and farm sizes are relatively big ranging from 7 – 30 acres. The farms are however not so productive and therefore only a small area of farm is cultivated. A big portion of farms are rocky and very steep and only suitable for livestock particularly sheep and goats. Mixed farming is practised.

**Crops grown**

Type of crop	Average production per acre	
Maize	5	
Beans	1	
Irish potatoes	20	
Wheat	10	
Peas	Sold green	
Tomatoes	1,200 Kg	Grown by a few farmers along Uaso Nyiro river
Cabbages	3,000 heads	

**Livestock**

Type of livestock	Average No. Per HH.	Average production
Dairy cows	2	7 Kg/day
Sheep/goats	3	Kidding twice per year
Poultry	5	3 eggs/week/hen
Rabbit	2	24 per year

Soil conservation and conservation – terracing, grass strips, and planting of trees are the main methods used

Pesticides commonly used include karate, dithane, Diazinon, Milraz etc. Chemical protection methods are hardly used. Organic methods are also practised when tobacco and pepper are used as pesticides.

Safe use of pesticides is not practised. No protective clothing is available. There is poor storage of chemicals and safety periods are not observed after spraying crops before eating or marketing them.

The main sources of income in the area are milk wheat and other agricultural produce and permanent employment in that order.

The main natural resources in the area are forests, from which firewood and tree products are obtained and rivers Uaso Nyiro and Kaarage.

About 50% of the households are female headed.

**Benefits achieved by being in a group.**

- Homes have been improved through purchase of various domestic necessities.
- IFAD district office assisted the group with transport to carry sand for their water tanks.
- Groups has offered a forum for training by various government officers

**7. AMBONI HEALTH CENTRE MANAGEMENT COMMITTEE**

**Institutional Strengthening**

Amboni area is part of the Mweiga settlement scheme. It was started in 1962 for the landless from Kiambu, Nyeri, Murang'a and squatters from white settlers in farms. Amboni dispensary is in ex-Hopkins house. It was registered in 1972. The community has maintained the facility since then. The facility has 9 committee members composed of 4 women, 5 men and 6 ex-officers. The government provides the facility health workers. Other staff like watchmen, support staff and clerks are employed by the community and paid through cost sharing. The Ministry of Health through IFAD and cost sharing funds trained the committee. However the former management committee had been trained by DSS on group management. The last

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election was held in 1997 although in the constitution elections are to take place after every 3 years. The certificate has not been reviewed since 1998.

**Health**

Morbidity The main diseases are Malaria, Amoeba, Pneumonia, Skin diseases and Aids. Main infant diseases are URTI, Pneumonia, Malaria and Worms. Mortality is mainly caused by Pneumonia. Malnutrition is not common because the climate is favourable to all types of crops like bananas, potatoes, maize, beans carrots, pumpkins, stinging nettle, mabaki, terere, muhika, cabbages and all kinds of fruits like passions, oranges, tangerines, mangoes, avocado, etc. PHC activities were started in 1995. Activities carried out are protection of water point, construction of public toilets at matatu stage, establishing of kitchen gardens and refuse disposal. The village health committee operation is overseeing health matters in the village. Impact of Dispensary: The dispensary serves school children from the community. Saves people from going long distances like Mweiga and Nyeri. It serves as training centre for CHWs. Handles all emergency cases. It is an educational centre for family planning and Aids awareness. Immunisation and vaccination centre for children.

**Water Provision**

The water sources are rivers (Kawega, Rulutic, Honi), dams and rainwater harvesting. The farthest distance to water points is 1.5 km. However, most homesteads have standpipes, which get water from hydro ram systems. There are 40 hydro ram systems owned by individuals, groups and zonal areas. The Mweiga society has one pumping system, which services the community. Those getting water from the society pay Ksh. 100 per month which is used for paying line patroller and operational and maintenance. Water is used for domestic use and kitchen gardening. However, Simbara water project funded by IFAD, which is under implementation, will provide water for irrigation and domestic use.

**Food Production**

Originally, land acreage per shareholder was 7 acres, which has now been subdivided for average size of 1 acre per person. Types of foods are potatoes, maize, beans, cabbages, tomatoes and onions. Other crops are coffee, pyrethrum and macadamia nuts.

**Environmental Conservation**

Methods used in environmental conservation include tree planting, contour planting, and paddocking, napier grass).

**Pesticides**

Types of pesticides used included Karate, Dithane, Miloz, Ridonil, and Triatix. They are applied without protective clothing. There is no safe storage.

**Source of Income**

Main source of income includes milk, followed by potatoes.

**Natural Resources**

Aberdare forest is the main natural resource, which is the catchment for the water source. It also attracts rainfall.

Female-headed households are 60% of households. Poorest of the poor e.g. landless and squatter are attended to at the dispensary but pay very little.

**8. URUMWE WATER TANK SELF HELP GROUP**

The group started in 1992 and was registered with 25 members. At present only 17 members are active. The objective was to construct water tanks for roof catchments for its members, due to persistent drought, rough terrain and poor quality of water in the rivers. The group is composed of only women.

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**Institutional Strengthening**

Initially the public health and agricultural departments trained the group. Members were trained in general hygiene, kitchen gardening, rabbit keeping, soil conservation and fruit farming. The group has set a low contribution of 3,000/= per member. At present the group constructed 6 2,000-gallon tanks. 7 members who had grass thatched shelter have been given 20 iron sheets of 2 ½ m. length each equivalent to the cost of a tank ranging from Ksh 4000 – Ksh 5000. The group members were providing manual labour during the construction of tanks.

**Health**

The main diseases are Malaria, Typhoid, URTIs, Worms, Pneumonia, HIV/Aids and wounds.

Morbidity for children is mainly Pneumonia, URTIs and wounds.

Mortality is rare but Pneumonia is the main cause.

Primary health activities were started in 1997 where two group members were trained as CHWs. They treat minor ailments. Underweight cases are present but rare. However, malnutrition is rare but slightly present during dry spells. However, the community is aware of balanced diet and purchases food from markets to supplement their diet. Fruits are not grown in the area. Children food includes enriched porridge, potatoes and vegetables.

**Food Production**

The original land sizes were between 7 – 15 acres. Due to subdivision, the present land size is one acre. Only ¼ of the land is under cultivation with ¾ left for pasture and bush especially the rocky parts of the land.

**Environmental Conservation**

Methods used include napier grass and contour farming. Tree planting is not common because the ground is rocky. Only 2% of trees planted survive the harsh climatic conditions.

Pesticides used are Danadin and ash. Triatix is used for livestock with bare hands and piece of clothing. Other safe use methods are not practised.

**Water Provision**

The main source of water is Mugachi stream, which has seasonal shallow wells and grantee scheme (Mutitu water project). To become a member of Mutitu project there is a share contribution of 5,500/= and one hundred person days of work. Majority of the members gets water from a communal point at Ksh 2 for 20 litres for a member and Ksh 3.50 for 20 litres for non- members. To get connected to Mutitu Water project one pays Ksh 12,000. The water project was co-financed by Mugunda Catholic Parish. Treatment of water is rare. Water is used for domestic and livestock use, with drinking water being drawn from communal points. While water for other domestic requirements is drawn from the stream infected with flukes. The farthest distance to water points and streams is 4 kms.

Female-headed households are 20%. Majority of men is idle spending time at market centres and taking of local liquors. There is gender imbalance with woman taking charge of all social-economic activities. Women engage in casual employment while men shy away.

**Natural Resource**

This is a forest, which according to group members is of no direct benefit as it is fenced off with electric wire to protect animals.

**Income**

Source of income is casual labour, which contributes 20%. They, however, rely on wheat production, which is not much as the place is very low and rocky. Permanent employment from outside contributes to 20%.

**9. MWEA BEE KEEPER SELF HELP GROUP**

The group was started in 1994 with memberships of 70 with 18 men and 58 women. It registered with DSS in 1995. Currently there are twenty-three active members.



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The group objective was bee keeping so as to earn some income by utilising of Mt. Kenya forest, which is in the neighbourhood.

The community settled in the area in 1978 originating from Kirinyaga District and Kwa Mbuzi village of Nanyuki Municipality. Initially one's share was equivalent to one acre and after subdivision the average farm size is ½ an acre. Due to small size and nearness to Mt Kenya forest most members cultivate in the forest for supplement food and income production.

**Institutional Strengthening**

Department of Agriculture and DSS have trained group members. Ministry of Agriculture assisted them with one Kenya top bar hive for demonstration. Currently, the group has 6 top bars and ten traditional hives. The group has lost nine hives, which have either been destroyed or stolen by people working in the forest. Other problems facing the activities include pests like honey badgers, ants and bee eating birds. Clearing of forests for cultivation has greatly affected the group. Unrefined honey is sold at 100/= per kg while refined honey is sold at 500/= per kg. at local markets. The local market is not attractive. Due to above problem, the members have decided to shift the hives from forests for individual plots. However, the group used a bank account with Kenya Commercial Bank – Nanyuki with every member contributing 100/= of which 30/= was for purchasing hives, 50/= for merry-go-round and 20/= saved in the account. The account has since closed due to failure to service it. The group has diversified to goat keeping with total membership of 45. It re-registered with DSS as Amathi Mwea Self Help Group in the 1999 with a new bank account at KCB Nanyuki. The group so far saved 15,000/=. The group has saved 45,000/= with Kirefu Sacco for the purpose of loaning. So far, the group has not benefited from Kirefu Sacco and the committee has failed to honour three meetings to discuss modalities of the loan issue. Ministry of Agriculture has trained the new Amathi group.

**Food Production**

Land size ranges from ¼ to 1 acre with an average of ½ acre.

CROP TYPE	YIELDS PER ACRE
Cabbages	8,000 heads
Tomatoes	3,000 KGS
Snow peas	1,600 kgs
Carrots	32 bags
Beans	½ bag
Potatoes	½ bag
Maize	Totally eaten green

LIVESTOCK TYPE	AVERAGE NO PER HOUSEHOLD	AVERAGE PRODUCTION
Cow	1	2 kg per day
Sheep/Goats	3	One kidding per year and sold as need arise
Chicken	5	3 eggs per day and used for home consumption
Rabbits	2	3 times kidding per year. 12 offspring per rabbit

**Health**

Common diseases are Amoeba, Typhoid, Asthma, Aids, Malaria, Rheumatism, Skin diseases and Pneumonia. Children/infant diseases include Measles, Pneumonia, Chicken Pox, and URTIs. Mortalities are mainly due to Pneumonia and measles but rare. Malnutrition is low due to presence of water project, which has increased the availability of water, which has brought food production in good quantities and varieties. Health education has also improved status of the community. Children are mainly fed on enriched porridge and a variety of greens and fruits.

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PHC was started in 1994 and the trained CHWs remained active for one year during which the activities included Growth monitoring, hygiene, education and homestead sanitation. They have since returned the weighing scales to the dispensary and are totally inactive.

**Water**

Water sources include Nanyuki Water River and roof harvesting. There are gravity systems known as Mwea B and Huku Water Projects. Longest walking distance in search of water is 200m. Water is abundant and is used for livestock, domestic use, and irrigation on kitchen gardens. When water is plenty, they can irrigate on ¼ acre. The method of irrigation used is overhead and open headed. Water is not treated but a few farmers boil the water before consumption.

**Environmental Conservation**

Methods include tree planting, Napier grass, trees planted for windbreak and for timber products.

**Pesticides**

Community used Alton, Ambush, Miltaz, Dromplocate, Fidomi, Karate, and Triatix. No protective method is observed despite the training undertaken.

**Natural Resources**

Forest used for firewood, water source, grazing, cultivation and timber products.  
Female-headed household is 30%

**Sources of Income**

Farms produce especially potatoes. The relationship between KWS and community is cordial. Elephants are a major problem source as they destroy all the cultivated crops and yet they never compensated. 50% of the community members are permanently outside the community.

**10. WARAZO HEALTH FACILITY MANAGEMENT COMMITTEE**

**Background**

The area was settled between 1963 through settlement schemes (Warazo and Lusoi Schemes) and 1974 for land buying companies. The original land size ranged from 2.5 to 30 acres. The facility was started in 1975 through funds donated by Norway and Denmark through the Government. Currently, the management has a membership of 11. The building later started cracking due to uneven settlement as there were not beams to transfer the loads evenly. The Public Works Department advised the walling, constructed of blocks, be replaced by timber to reduce weight. However, even after replacing the blocks with timber the settlement did not stop and hence the building block in no longer in use. In 1998, the group approached IFAD for assistance in provision of water to the facility and through advice from Water Department the management committee was advised to join the on-going Urutagwo Mwiruti Water Project.

**Institutional Strengthening**

Public health officers, social services, agriculture and water department trained the previous management committee. Subject matters included management of the facility and other related amenities. The current management committee was elected in the year 2001. Elections are held after every 3 years. Initially, Ministry of Health ran the facility. With introduction of cost sharing the management committees started running the facility. The catchment area includes Kirima, Munyu, Gaturiri and Rongai Sub locations. IFAD assisted by fencing off part of the facility while the management committee through cost sharing finished fencing off and painting of the facility buildings. Treatment is offered for those who are unable to pay the cost sharing if assistant chiefs and committee members identify them.

**Health**

Primary health care was started in 1994 where community health workers were trained. The work of CHWs included home visits to advice on kitchen gardening, sanitation with the home, construction of dish rack, pit latrine, and refuse pit and rearing of rabbits. Initially, CHWs used to get some subsistence during training from the facility management. However, after the subsistence allowance was stopped the group became inactive.

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The common diseases includes Malaria, Amoeba, URTIs, Arthritis, Home accidents, e.g. burns, worms, skin infections, eye infections, STDs, HIV/AIDS, Pneumonia, Asthma and Diabetes. Infants/Children diseases include URTIs, Pneumonia, Amoeba, Worms and Malaria. The common children mortality causes include Pneumonia, combined with malaria.

However, the rate is not high as only two cases have been reported for the last one-year.

Malnutrition is moderate in some places due to lack of proper care although awareness and enlightenment is there. There is enough and varied foods including milk. Children are fed on porridge made from soya, sorghum, millet and milk and all green and potatoes.

**Water**

The main source of water are Nairobi River, Warazo and Kandune Springs, and various gravity water schemes including Urutagwo Mwiruti, Warazo Lusoi, Kirinyaga Nyage, Gatuamba, Karicheni and others includes, dams and roof catchments. "Urutagwo Mwiruti" Water Project was started in 1994. The health centre through the assistance of IFAD (Ksh 374,000) got water in 1999. The management committee spent Ksh 10,000 for trench excavation and backfilling after pipe laying to the health centre. This water is used for domestic and livestock consumption and for minor irrigation. Overhead method of irrigation is used, as drip irrigation is expensive. The area under irrigation is approximately quarter acre per member. During low flows in the river water shortage is experienced and hence the necessity of storage facilities. No pre-treatment is one done. Water for drinking is boiled before use by some members.

**Food Production**

Type Of Crops	Yield Per Acre
Maize	10 bags (in every 5 years)
Beans	5 bags
Cabbages	15,000 heads
Snow peas	10,000 kgs (marketing through brokers)
Tomatoes	9,000 kgs
Carrots	30 bags
Potatoes	20 bags
Wheat	8 – 15 bags (cost of production is high and poor marketing)
Onions	20 bags.

Type of Livestock	Average per Household	Yield
Cows	3	8 kgs of milk per day
Sheep/Goat	10	Sold ten per year and also for home consumption
Chicken	10	For home consumption and sells eggs as need arises
Rabbits	5 - 10	Kept by boys.

Bee- keeping is practised by a few farmers have been trained and 5 Top-Bar hives given by the department of Agriculture and ICIPE. Fish farming is practised and each member has one pond. Fisheries Department has undertaken the training. Soil conservation measures include bench terracing, planting of grass, including napier grass and tree planting.

Chemicals, pesticides and fungicides used include Karate, Miraz, Autracol, Theophite, dimethoate, dithane, Ridomil Ambush, Farmron, Triatix, Tacktic and Tickfix. There are three cattle dips in use (2 at Lusoi and 1 at Kandune). No protective measures undertaken although the knowledge is there. They are stored in some constructed stores, top of doorframes and in bedrooms away from children. Safe chemical use information is only information found on labels. It is not generally followed.

New farming technologies in the area includes organic farming which is very effective mixing of blackjack, soap and pepper is used as pesticides as well as fungicides. KIOF is training farmers for experimental purposes. Fruits grown include oranges, tree tomatoes etc.



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The high-income earner is milk, horticulture, livestock sales and casual labour.  
The permanently employed from outside the region are only 10% while female headed households are 30%.

**Natural Resources**

Natural resources in the area include river forests, quarries, wetlands and natural vegetation. These help as water sources, rainfall attraction, construction materials, fishing activities, grazing, fuel wood and tourism activities. Wild animals destroy crops and kills livestock whenever they break loose. These wild animals include elephants, buffaloes, wild pigs and leopards.

**11. GAKAWA DISPENSARY PHC GROUP**

The group is situated in Ragati area of Gakawa location. It has a membership of 11 who meet once a week. The members were trained in 2001 by the ministry of health. Activities being carried out include deworming, growth monitoring, kitchen gardening and general hygiene at home.

**Institutional strengthening**

The group generally purchases dewormers at 170/= and sell to patients at 200 – 600/= of which the balance is used for merry – go – round and purchase of sheep. So far 3 members have benefited with sheep worth Kshs. 1,500. The group intends to construct a pharmacy near their area. Since the members have been trained in PHC activities they are training other community members at home.

**Health**

Common diseases here include malaria, typhoid, diarrhoea, pneumonia and AIDs as the highest killer. Malnutrition is not highly noticed due to balanced diet; with availability of enough various food crops like potatoes, vegetables, beans and milk.

**Water provision.**

The community used to go to the nearest streams several kilometres away. But the Kaga water project, funded by community and IFAD, has connected 30 members out of a potential of 300 members. There are communal water points at an average distance of 4Kms. Water is used for domestic and livestock with 1/8 of kitchen gardening.

**Food production and productivity**

The average farm holdings are 3 acres since the area is a settlement scheme.

Crop	Production per acre
Maize	1 – 1½ bags
Beans	½ bag
Potatoes	3 bags

The crops are grown twice a year through inter-cropping

Livestock type	No. per household	Yields
Cows	2	3 Kg of milk per cow/day
Sheep	5	3 Kg
Chicken	5	

Livestock are used for consumption and sale purposes.

**Pesticides**

The community uses Dithane, karate and Pultrion. These are kept in house but away from the reach of children.

**Income**

Beans and potatoes are the main income earners.

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**Natural resources**

There is Mt. Kenya forest, which the community utilises for grazing, wood fuel, timber products, cultivation, and water source and rainfall catchment.

Female headed households in the area account for 10%.

**12. KAMWEGA MWITIRITHIA SELF HELP GROUP**

The group was started in year 2000 with 25 members but currently they are 22. The group was registered with department of social services in 2001. The main objectives of starting the group was to solve their needs including: Welfare, Income generating projects such as goat/sheep rearing, fruit tree/tree nurseries, farming by irrigation, embroidery, tie & dye etc and Merry – go – round.

**Institutional strengthening**

In year 2002, the group was appointed a farmer's field school by the ministry of agriculture and with the help of FAO, the group hired ¼ acre plot for demonstration purposes at a rate of Kshs 4,000 per year. The plot has adequate water for irrigation.

The first demonstration crop they grew was snow peas, which they have already harvested. The cost of production on ¼ acre plot was 20,600 and the profit made was Kshs. 20,000. The second crop, which is currently growing, is garlic. The group has helped other farmers by training on the agro-economic practices of the crops they are growing. Problems encountered by the group include membership drop out (3 members) and shortage of irrigation water during the dry spell. In addition to the ¼ acre plot the owner of the farm has given the group a small plot for raising seedlings and they are currently Kei apple, Cypress, gravillea, Croton, jacaranda and cape chestnut. Other technologies that the group would like to be taught are cake baking and icing, tie & dye and construction of food warmers and other energy saving devices. The group has been trained by an NGO (ACAG Biodiversity group on how to raise tree seedlings. The NGO is also selling tree seeds to the group at subsidised prices. The group's future plans include construction of water tanks for the members and diversifying their farm produce. Currently brokers who are exploiting them buy their produce.

**Health**

Common diseases reported in the area include Malaria, Pneumonia, Asthma, Boils, URTI, Stress, Hypertension, Stroke, Typhoid, Amoeba and AIDS. Diseases affecting infants and under 5 children are Mumps, Malaria, Pneumonia, URTI, Ringworm, Amoeba and Measles to some extent. Child mortality is extremely low but when it occurs it is due to Pneumonia or AIDS related illnesses.

**Establishment of PHC:** No people have been trained as CHWs from this area. Some people had been recruited but the training never took place.

**Nutrition status:** Malnutrition is non-existent due to the following: High awareness on importance of balance diet. Growing of variety of crops particularly vegetables due to availability of water. Food given to infants and children under 5 are mashed potatoes, enriched porridge, fruits, milk and a variety of local greens – Pumpkins, *muhika*, *kanyuria*, and stinging nettle. The community visits Naromoru Health Centre, Kamburaini HC or Munyu HC for medical purposes.

**Water Provision**

**Water Source.** The only source of water in the area is Gitwe water project that draws water from Tigithi River. Almost every home is connected. Gitwe water project was initiated in 1972 where each member was contributing 1,200/= and maintenance fee of Kshs 10 per month. This was the phase I of the project. The project is said to have 5 phases in which members who wanted to join in later phases were required to pay more. The children of those who were original members later paid 4,000/= and currently are paying 15,000/= to be connected to the water. Outsiders who buy land in the area pay more to have water connected and the fee currently stands at Kshs. 40,000. The project has 3 water tanks 2 of which the members constructed and 1 was through assistance from Donors. IFAD had assisted by providing pipes of various sizes ranging from 1½" to 8". Water is accessible to all in a homestead – even those not connected

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can fetch from their parents or neighbours. Water is used for domestic use, livestock and farming. Most residents irrigate ¼ to ½ acre using bucket, overhead or open-ended irrigation methods.

**Food production**

At the time of settling in the area, most people got land ranging from 12 – 20 and even 50 acres but today the average land holding ranges from ½ - 1 acre.

Crop	Average yield per acre	Value in Kshs.
Maize	8 bags	1,200/bag
Beans	1½ - 2 bags	2,800/bag
Potatoes	20 – 30 bags	600/bag
Carrots	30 bags of 90-100Kgs	10/Kg
Onions	For local consumption	
Snow peas	1,400Kg	44/Kg
Cabbages	4, 000 heads	4/head
Wheat	10 bags	1,200/bag
Tomatoes	Grown in small quantities	10/Kg
Golden peas	Grown in small quantities	10/Kg

**Livestock production**

Livestock	Average per HH	Average yields	Value (Kshs)
Cows	1	9 Kgs of milk per day	6-11/Kg
Sheep/goats	5	Kids twice per year. Sells 6 per year	1,000 – 1,300 each
Poultry	10	Eggs. Chicken for family consumption	5 per egg
Rabbits	10	48 young ones/year	For domestic consumption

**Environmental Conservation**

Methods mainly used include tree planting (with main trees being gravillea, Croton, Cypress, Jacaranda, Bottlebrush and Eucalyptus) and grass strips (Napier grass).

Chemicals used in control of pests and diseases include - Dithane, Ridomil, Nilraz, Antacol, Thiovit, Dimethoate, Karate, Gaucrion and others. Safety precautions in handling and spraying with these chemicals are practised to a large extent.

**New technologies:** The group has been introduced and trained on use of Effective Micro organism (ME) and members are already doing trials on their plots.

**Incomes:** Main source of income in the area is farming particularly snow peas and cabbages. Permanent employment brings about 5% of income in the area.

50% of the households are female headed.

**Natural Resources:** the main natural resources in the area include Mt. Kenya forest, which is a source of firewood, timber, posts and it is a water catchment area. Rivers – Main River is Tigithi from where they draw their water.

**13. MURERU HEALTH FACILITY MANAGEMENT COMMITTEE**

Mureru health facility was started in 1989 on self-help basis. The facility is now housed in an old white man's house and equipment and staff transferred from Gathiuru forest dispensary where it was located after the government's directive of evicting people from forests. The house was rehabilitated in 1990 when the



[illegible]

[illegible]

Station	Time	Latitude	Longitude	Altitude	Temperature	Humidity	Wind	Clouds	Remarks
1	0000	10 10	10 10	100	10	10	10	10	10
2	0005	10 15	10 15	100	10	10	10	10	10
3	0010	10 20	10 20	100	10	10	10	10	10
4	0015	10 25	10 25	100	10	10	10	10	10
5	0020	10 30	10 30	100	10	10	10	10	10
6	0025	10 35	10 35	100	10	10	10	10	10
7	0030	10 40	10 40	100	10	10	10	10	10
8	0035	10 45	10 45	100	10	10	10	10	10
9	0040	10 50	10 50	100	10	10	10	10	10
10	0045	10 55	10 55	100	10	10	10	10	10
11	0050	11 00	11 00	100	10	10	10	10	10
12	0055	11 05	11 05	100	10	10	10	10	10
13	0100	11 10	11 10	100	10	10	10	10	10
14	0105	11 15	11 15	100	10	10	10	10	10
15	0110	11 20	11 20	100	10	10	10	10	10
16	0115	11 25	11 25	100	10	10	10	10	10
17	0120	11 30	11 30	100	10	10	10	10	10
18	0125	11 35	11 35	100	10	10	10	10	10
19	0130	11 40	11 40	100	10	10	10	10	10
20	0135	11 45	11 45	100	10	10	10	10	10
21	0140	11 50	11 50	100	10	10	10	10	10
22	0145	11 55	11 55	100	10	10	10	10	10
23	0150	12 00	12 00	100	10	10	10	10	10
24	0155	12 05	12 05	100	10	10	10	10	10
25	0200	12 10	12 10	100	10	10	10	10	10
26	0205	12 15	12 15	100	10	10	10	10	10
27	0210	12 20	12 20	100	10	10	10	10	10
28	0215	12 25	12 25	100	10	10	10	10	10
29	0220	12 30	12 30	100	10	10	10	10	10
30	0225	12 35	12 35	100	10	10	10	10	10
31	0230	12 40	12 40	100	10	10	10	10	10
32	0235	12 45	12 45	100	10	10	10	10	10
33	0240	12 50	12 50	100	10	10	10	10	10
34	0245	12 55	12 55	100	10	10	10	10	10
35	0250	13 00	13 00	100	10	10	10	10	10
36	0255	13 05	13 05	100	10	10	10	10	10
37	0300	13 10	13 10	100	10	10	10	10	10
38	0305	13 15	13 15	100	10	10	10	10	10
39	0310	13 20	13 20	100	10	10	10	10	10
40	0315	13 25	13 25	100	10	10	10	10	10
41	0320	13 30	13 30	100	10	10	10	10	10
42	0325	13 35	13 35	100	10	10	10	10	10
43	0330	13 40	13 40	100	10	10	10	10	10
44	0335	13 45	13 45	100	10	10	10	10	10
45	0340	13 50	13 50	100	10	10	10	10	10
46	0345	13 55	13 55	100	10	10	10	10	10
47	0350	14 00	14 00	100	10	10	10	10	10
48	0355	14 05	14 05	100	10	10	10	10	10
49	0400	14 10	14 10	100	10	10	10	10	10
50	0405	14 15	14 15	100	10	10	10	10	10
51	0410	14 20	14 20	100	10	10	10	10	10
52	0415	14 25	14 25	100	10	10	10	10	10
53	0420	14 30	14 30	100	10	10	10	10	10
54	0425	14 35	14 35	100	10	10	10	10	10
55	0430	14 40	14 40	100	10	10	10	10	10
56	0435	14 45	14 45	100	10	10	10	10	10
57	0440	14 50	14 50	100	10	10	10	10	10
58	0445	14 55	14 55	100	10	10	10	10	10
59	0450	15 00	15 00	100	10	10	10	10	10
60	0455	15 05	15 05	100	10	10	10	10	10
61	0500	15 10	15 10	100	10	10	10	10	10
62	0505	15 15	15 15	100	10	10	10	10	10
63	0510	15 20	15 20	100	10	10	10	10	10
64	0515	15 25	15 25	100	10	10	10	10	10
65	0520	15 30	15 30	100	10	10	10	10	10
66	0525	15 35	15 35	100	10	10	10	10	10
67	0530	15 40	15 40	100	10	10	10	10	10
68	0535	15 45	15 45	100	10	10	10	10	10
69	0540	15 50	15 50	100	10	10	10	10	10
70	0545	15 55	15 55	100	10	10	10	10	10
71	0550	16 00	16 00	100	10	10	10	10	10
72	0555	16 05	16 05	100	10	10	10	10	10
73	0600	16 10	16 10	100	10	10	10	10	10
74	0605	16 15	16 15	100	10	10	10	10	10
75	0610	16 20	16 20	100	10	10	10	10	10
76	0615	16 25	16 25	100	10	10	10	10	10
77	0620	16 30	16 30	100	10	10	10	10	10
78	0625	16 35	16 35	100	10	10	10	10	10
79	0630	16 40	16 40	100	10	10	10	10	10
80	0635	16 45	16 45	100	10	10	10	10	10
81	0640	16 50	16 50	100	10	10	10	10	10
82	0645	16 55	16 55	100	10	10	10	10	10
83	0650	17 00	17 00	100	10	10	10	10	10
84	0655	17 05	17 05	100	10	10	10	10	10
85	0700	17 10	17 10	100	10	10	10	10	10
86	0705	17 15	17 15	100	10	10	10	10	10
87	0710	17 20	17 20	100	10	10	10	10	10
88	0715	17 25	17 25	100	10	10	10	10	10
89	0720	17 30	17 30	100	10	10	10	10	10
90	0725	17 35	17 35	100	10	10	10	10	10
91	0730	17 40	17 40	100	10	10	10	10	10
92	0735	17 45	17 45	100	10	10	10	10	10
93	0740	17 50	17 50	100	10	10	10	10	10
94	0745	17 55	17 55	100	10	10	10	10	10
95	0750	18 00	18 00	100	10	10	10	10	10
96	0755	18 05	18 05	100	10	10	10	10	10
97	0800	18 10	18 10	100	10	10	10	10	10
98	0805	18 15	18 15	100	10	10	10	10	10
99	0810	18 20	18 20	100	10	10	10	10	10
100	0815	18 25	18 25	100	10	10	10	10	10



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first committee was elected. It was registered with the department of social services in 1989. The facility is run by a management committee which is re-elected every 3 years or as need arises according to the by-laws. The last elections were held in January 2002.

**Institutional strengthening**

The management committee has been trained, by department of social services, on the maintenance of facility and by ministry of health, on buying and distribution of drugs through cost sharing. The facility has 11 community management committee members plus 3 ex – officials.

The benefits the group perceives include keeping the facility going, employment for watchmen, cleaners and clerk. The facility has benefited the community by reducing the long distances they used to walk in search of treatment to Narumoru and Nanyuki. The time saved is used in a more productive manner including income-generating activities. It has also improved business activities. The catchment areas include Mureu and Burguret farms.

**Health**

In 1995, through IFAD programme, the facility benefited from training of TOTs who then undertook training of PHCs and CHWs and the management committees. The training benefited 41PHCs. TBAs have not been trained.

Their main activities of CHWs included home visiting to advice on best method of kitchen gardening, general sanitation, growth monitoring, de-worming in schools and villages, training organised groups, soil conservation measure and cleanliness within homesteads. They were also selling drugs like painkillers, anti-malaria tablets, and treatment of minor ailments, creating awareness of HIV/AIDS. However the group was not paid according to their expectations and hence became inactive. The common diseases in the area include URTI, Malaria, Worms, Skin diseases, Rheumatism, Eye infections, Pneumonia, Amoeba and HIV/AIDS. AIDS was attributed to people coming from other areas or working outside the area. However this group of people does not report or seek treatment from this health facility. Malnutrition is not common although during the dry spell there are isolated cases due to decrease in food and milk production. The reason for rare or isolated cases of malnutrition is due to lack of awareness about balanced diet, availability of water, which would increase availability of food. The common children diseases are Pneumonia, URTI and home emergencies including burns. The mortality rate in children/infant for the past 1 year is 3 deaths due to AIDS related illnesses.

**Food production**

The average land size in the project area ranges from ¼ - 1 acre due to subdivision. The area under irrigation per member ranges from ¼ - ½ acre. This is due to inadequate irrigation water due to increased population and low flows in the river during the dry spells.

Crop	Yield per acre
Maize	No confirmed yield, consumed when green
Potatoes	10 bags
Beans	2 – 3 bags
Tomatoes	800Kgs
Snow peas	750 Kgs
Oranges	1 bag/tree/year
Cabbages	3,000 heads

**Livestock production**

Livestock	No per household	Yield
Cows	2	2 – 4 Kgs of milk/cow/day
Sheep/goats	5	For home consumption and other sold as need arises. They kid twice a year
Chicken	5 – 10	Sold as need arises. Eggs for home consumption or sell each @ 6/=
Rabbits	4	Kept by boys.

**Water.**

The water sources include Mureru and Burguret water projects, Tigithi and Burguret rivers, Gitwe springs, 4 dams and roof catchments. The water is mainly used for domestic purposes, livestock and kitchen gardening. However during the dry spell water is not enough for irrigation. All members do not treat drinking water. Health personnel have trained the group on safe methods of treating water before it is used. Burguret and Mureru water projects do not have enough water although the design population has not been reached. This is due to low flows in the rivers.

**Soil conservation**

The main methods used for soil conservation are tree planting (gravillea, gum trees) and planting Napier grass, Star grass, Kikuyu grass and Rhodes. However the area is generally flat and flooding is a major problem during rainy seasons.

The common chemicals used in farming include Miraz, Karate, Dithane, Dimethoate, Foliar feed, CAN, DAN, Ambush, Triatix and Tacktic. Safe keeping methods are observed and chemical are kept away from children. Protective clothing is not worn while handling chemicals. However the safe harvesting period is observed only by reading the instruction on the labels but some sell before the safe period due to lack of ready market.

**Natural resources**

These include rivers, springs, dams, quarries and forest. The major benefits include timber, wood fuel, posts, and water source and building stones, which is a source of income. The forest also helps the rain to converge.

There are 70% female headed households within the area due to various reasons among them being husbands working away from homes, deaths and single mothers.

Farming is the main source of income followed by livestock keeping. The income from permanently employed person from outside ranges about 30%.

**14. THUNGARI WOMEN GROUP**

The group was started in 1981 and registered with 20 members. The objective of forming the group was to replace the members' grass thatched houses with iron sheets and purchase water tanks for each member through merry – go – round. The group was able to purchase 30 iron sheets for each member and also managed to purchase a 1,500 gallons water tank for all members. The group then followed this by purchasing a sheep for each member.

The group then started poultry rearing where each member was to raise at least 10 chicken and those who could afford would also raise turkeys. The chickens were indigenous and each member was to contribute Kshs. 1,000 towards the group projects from the sale of the eggs. The group was able to raise enough money to start a group poultry project with 300 layers. These unfortunately died due to lack of knowledge on proper management.

**Institutional strengthening**

Before IFAD came in, the group received training from Ministry of Agriculture on poultry rearing and the group was put into the cockerel exchange programme where each member exchanged a local hen of cock with exotic hen. In total, the group received 27 hens and 3 exotic cocks. After this, the group became dormant for sometime. When IFAD started, the group renewed itself and added other members to become 35 in total. The group received a lot of agricultural training from agriculture staff that was posted to the area after staff reorganisation to cope with the new project (IFAD). The group was trained on kitchen garden, energy saving devices (jikos, tea cosy and fireless cooker), chicken rearing, rabbit rearing, sheep rearing and bee keeping.



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The group then received a Dorper ram and ewe at a cost of 6,000/= each from the ministry of agriculture to improve their indigenous stock. Individual group members on rotation basis reared the female sheep and the male. Members could take them for grazing in the neighbouring forest where unfortunately the female with a kid was eaten by wild animals. The group also received 5 KTBH from Ministry of Agriculture for demonstration purposes.

The group then received a tender for supplying rabbit meat from a white lady by name of Sarah. The group was to supply 90 – 120 kgs of rabbit meat twice a month to Nanyuki town where it was resold to Mt. Kenya Safari Club. The group found this business very lucrative as each Kg was selling at 90/= Each rabbit weighed 2 – 2½ Kgs. Initially the group reared indigenous but later were brought exotic rabbits for breeding that yielded more meat. The supply tender lasted for 3 years of which each individual member tried to rear as many rabbits as possible. The group then suddenly lost the tender to an influential person and this made the group loose morale.

In 1996 Sarah introduced the group to another white person from the British Council. She introduced to the group an income-generating project of making wood blocks for firewood using sawdust and gum arabica. The gum was bought from Isiolo at a cost of 12.50/= per Kg and sawdust was obtained from local sawmills. The British Council official then promised to give the group a machine for making the blocks and put up a small house to act as the production centre. The condition of receiving this assistance was to have a site that had a title deed for the group. One group member donated ¼ acre of which the structure was put and the group then received the machine. The donor also helped the group with transport to Isiolo to buy the gum. She also assisted them in making the block.

When the donor pulled out, the group was unable to market the blocks thus they stopped production. In 1997, and NGO (Help Self Help) introduced growing of seedlings to the group and received seeds. Those seedlings raised were distributed to members and then planted in their individual farms. The same NGO introduced sericulture to the group and the group received planting materials for mulberry and was then supplied with young silkworms to rear. At the same time, a few members were receiving training at ICIPE on rearing.

Food shortage for worms and poor marketing system for the cocoons made them operate at a loss. The group abandoned the project but is currently thinking of reviving the project. The group had received training from social services department in the initial or formative stage of the group.

Currently the group is only dealing with loaning to its members who are now 34 and meet once a month. They do their loaning in partnership with a micro-finance body called Songa-Mbele. The group has also contributed a substantial amount to Kirefu that they would like refunded.

#### **Health**

The nearest health facilities are Narumoru, Nyeri and Munyu.

Common diseases in the area include Typhoid, Amoeba, Pneumonia, AIDS, Tuberculosis, Asthma and URTIs. Common infant/child diseases are Malaria, Measles, Pneumonia, Chicken pox, Eye diseases, Ringworm, Intestinal worms and URTI.

**Child mortality** Pneumonia is the main cause and 1 death has been reported in the last 1 year. Malnutrition is common in the area due to inadequate food and poverty. The area is extremely dry. Children are fed on anything that is available for eating.

**Establishment of PHC** was introduced by the Catholic Archdiocese of Nyeri in 1995. 25 CHWs and 7 TBAs were trained. The trained members are involved in the following activities: Hygiene – refuse disposal, dish racks, sitting of the latrines and use of leaky tins. De-worming particularly in schools. Growth monitoring – children were also given some supplementary food consisting of enriched flour and oil. The Catholic Archdiocese also started a latrine construction project for those who required them. The individual was to contribute Kshs. 1,500 while the rest was to be provided by the sponsor. 3 people registered for the project and the sponsor brought sand and quarry dust for the 3 latrines. However the



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sponsor has ceased to visit and follow-up on those activities. Latrine construction never started and the PHC programme are no longer active. Weighing machines for the growth monitoring is still within the group but no children are being weighed and no supplementary feed is available.

**Water Provision.**

The main source of water is the Rongai River through the Thung'ari water project. Other people fetch directly from the river. Other sources are roof catchments for a few people as majority has no water tanks and a borehole currently operating. Thung'ari water project has a membership of 350 but with only 86 connections. In 1999 IFAD assisted the group with pipes covering a distance of 9Kms. Each member of the project contributes Kshs. 8,000. The water is used for domestic and livestock purposes. When water is plenty, a few farmers irrigate kitchen gardens. The water is not treated and a very small percentage of people boil before consumption.

**Food Provision.**

The average land ownership at the time of settlement in 1973 was 7 acres but due to subdivision it has now reduced to 1 acre.

Crop	Average production
Maize	5 bags/acre (after 5 – 7 years period)
Beans	1 bag (after 5 – 7 years period)
Irish potatoes	5 bags (after 5 – 7 years period)

Other crops grown in small quantities include garden peas, cabbage, tomatoes and various types of greens

**Livestock**

	No. per HH	Average production
Cows	3	3Kg of milk/cow/day.
Sheep	5	Kidding twice a year, 5 sold per year
Poultry	4	6 eggs per week mainly for home consumption

**Environmental conservation**

Methods used for soil conservation include grass strips, tree planting and terracing. Chemicals used include Sharper, Dithane, Foliar feed, Karate, Ambush, Triatix and ticktax. Safety precautions in handling these pesticides are not observed.

Main source of income in the area is milk and livestock sale. Permanent employment outside brings about 5% of income in the area. Female-headed household is about 30%.

**Natural resources** include river (Rongai) and forest where firewood is obtained and grazing is practised. Building materials are also obtained. However there is a serious human-wildlife conflict.

**Benefits of being in the group**

- Members are able to improve their homes
- Educating their children
- Group creates forums for training
- Improvement of environment through group and individual tree nurseries
- Cohesion in the community
- Interaction with outsiders through receiving of a lot of visitors
- Group brings fame to the community.

**Constraint of being in the group**

- Members contributed shares to Kirefu, which they do not know how to recover.
- Group members strongly feel that they are being exploited by an organisation called Songa Mbele, which undertook training of the group in loan management. The organisation is charging them Kshs. 1,200 per visit (monthly)

#### 15. MWITEITHIA TANK WOMEN GROUP

The group was started in 1992 and was registered the same year with 25 members. The membership currently stands at 30. The objectives of forming the group were to build water tanks for its members through merry-go-round. When this was achieved, the group continued improving their homes. Members were each bought sweaters, blankets, bed-cum-seat and other furniture and utensils in the homes. After this was accomplished the group decided to rear poultry and sheep. Later each member got a goat. Currently the group meets monthly and contributes Kshs. 50 monthly towards their activities.

##### **Institutional Strengthening**

Group officials have been trained on group management in 1999 and 2002 by the department of social services. They also have been trained for a long time by the Ministry of Agriculture which has enabled the group to keep poultry, sheep and goats, establish kitchen gardens, install fuel saving jikos, carrying out cookery demonstrations and other agricultural related skills. The ministry of health and Archdiocese of Nyeri has also trained the group.

##### **Health**

The common diseases in the area are URTI, Malaria, Amoeba, Pneumonia, Typhoid, AIDS and Asthma. Common diseases for children are Pneumonia, Malaria, Skin diseases and ringworm. Mortality is mainly due to Pneumonia. There was PHC training of all group committees for 3 days in 1996 by the Ministry of Health but there were no follow-ups. In 1999 the Catholic Archdiocese trained 106 CHWs and 9 TBAs from 4 villages. Each of the trainees was given each 10 homes to be training on several areas including Importance of latrines and their siting. 80 improved latrines were constructed with assistance from Caritas. Each person was paying Kshs. 1,500 to have a latrine constructed. Hygiene in homes Water tanks was constructed also with assistance of the Archdiocese. In total, 10 tanks were constructed of which 5 were large (15,000 litres) and 5 were small (7,000 litres). For the large tank a beneficiary was to contribute 16,500/= while for the small one it was 9,500/=. Growth Monitoring: The CHWs were given a weighing machine. Currently the PHC programme is not so active but there is an existing village committee. Malnutrition in the area is not common mainly due to high level of awareness on balanced diet. Children are fed on various greens such as Pumpkins, stinging nettle, spinach and kales. These are mashed with potatoes and carrots or beans. Enriched porridge is also provided. Some of the foods are bought from the market because they cannot grow due to harsh weather conditions. Main diet for all people include maize, beans, Irish potatoes and peas.

##### **Food Provision.**

The area was settled in 1983 when members bought shares. Each share was equivalent to 2 acres. The people had come from the other traditional divisions of Nyeri district and squatters on the settler's farms. Majorities were those from other divisions. Due to land sub – divisions, the area residents' claim that the current land size stands at ¼ acre, which didn't appear realistic.

Crop	Average yield per acre
Maize	Never harvested – very low yields eaten green
Beans	1 bag
Irish potatoes	8 bags
Peas	Eaten while still on the farm

##### **Livestock production**

	No. per household	Average production
Cows	1	4 Kgs per day per cow
Goats/sheep	2 – 3	Sold once per year
Poultry	5	Eggs mainly eaten
Rabbits	2	Mainly eaten by boys

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**Water Provision**

Main sources of water are Nairobi River, Thigu River and a borehole recently constructed by Ministry of water. Water from the borehole is sold at 3/= per 20-litre jerry can and is mainly used for drinking. The rivers are far – it takes 4 hours. Animals are taken to the rivers once or twice a day. The area has a water project which started in 1986 – Gonde/Gatei water project. It has a targeted membership of 500 but so far only 355 members are registered. Each member contributes Kshs. 5,000 and the group has constructed an intake and a water tank that is 40% complete. About 50 people who live near a furrow that belonged to a white settler are doing some irrigation. They are irrigating about ¼ to ½ acre.

**Environmental conservation**

Methods used for soil conservation are terracing and tree planting. Pest and disease control chemicals include Diazinon, Dimethoate and Triatix. Chemicals are not so commonly used, as there is little horticulture. Improvised protective clothing is used when spraying and the chemicals are stored in the stores.

**Sources of income**

Income is low in the area and comes from milk, sale of livestock and beans. A small percentage of children are able to join secondary schools. Other sources of income include casual labour in quarries and some charcoal burning before restrictions were put in forest. Permanent employment brings about 30% of incomes and female-headed households account for 70%.

**Natural resources**

Nairobi quarries. Building stones and quarry dust are obtained. They offer casual employment. Gonde forest – source of wood fuel, timber, charcoal and grazing.

**Benefits of being in the group:** Has created a forum for education, Members have improved their homes and standards of living.

**16. KUGA NA GWIKA SELF HELP GROUP – GROUP 1**

The group was formed and registered in 1983 with a total of 20 members. The objective was to assist one another by contributing a set monthly payment of Kshs. 200. Other group activities include income improvement, merry-go-round for purchase of sheep and cows. However, with the growing of snow peas the group has been able to purchase two plots at Chaka trading centre at a total cost of Kshs. 52,000. The plots are to be used for commercial and residential use.

**Institution Strengthening**

The group has been trained by the community social development officer on group dynamics and by health officer. The agricultural extension officer has trained members in slaughtering of rabbits, cake preparation, shelter for sheep and poultry and making of composts and organic farming. Due to shortage of water, the group does not actively involve in income generating activities. The members settled in the area in 1963 that were landless and came from other areas of Nyeri district. The group rehabilitated and extended furrows used during the colonial period. Original farmers used these for furrow irrigation.

**Water Provision**

The community gets water from Thegu, Gitegu, Sagana and Kimahuri rivers with average walking distance of 2Km. Water is used for domestic and livestock consumption with minor irrigation. No treatment is done on the water. Other sources of water include roof catchment.

**Diseases**

Common diseases here include Arthritis, Malaria, pneumonia, URTI Amoeba, hypertension, ulcers, cancer and HIV/AIDS. Common children diseases are Pneumonia, Malaria and URTI. Mortality rate is caused by Pneumonia, malaria whereby in the last 2 months 6 children/infant with the infection have died. Primary Health care was started in 2000 where CHWs and TBAs were trained in first aid, minor illness treatment, general hygiene, boiling water for drinking etc. Children diet includes Greens, peas, carrots, Managu,



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Kanyuria, Passion, tomatoes etc. Malnutrition is not common due to adequate food production, balanced diet awareness and training.

**Food Production**

CROP TYPE	PRODUCTION
Maize	20 bags
Beans	2 bags
Potatoes	20 bags
Cabbages	3000 heads
Carrots	60 bags
Snow peas	1200Kgs
Pepper (capsicum)	72 bags
Sweet potatoes	For consumption

**Livestock**

LIVESTOCK TYPE	AVERAGE NO. PER H/H	PRODUCTION
Cows	2	10Kgs per milking
Sheep	5	2 Kids per year
Chicken	10	For consumption
Rabbit	2	

The average land per household is 3 acres.

**Soil Conservation**

Methods used include napier grass, Kikuyu grass, Croton, gravillea and contour farming.

**Pesticides/Chemicals**

Commonly used are Mivaz, Ridomil, Karate, Dithane, Weed killer, Triatix and Alumetix. No protective methods are used though training has been undertaken due to ignorance.

**Natural Resources**

Farming in the Kenya forest, which is about 3Km away. This is where cultivation is done, there is grazing, fuel wood, timber production, rivers etc. However, there are large numbers of elephants that destroy crops.

**Income**

The most income comes in milk then snow peas. Female-headed households are 50%. Permanent employment is 5%. Casual labour is easily available due to high agricultural activities and also due to increased number of squatters.

**17. NAROMORU NDIRITI WATER PROJECT**

**Background**

The project was started in 1972 after Naromoru settlement scheme had rehabilitated the furrow from colonial times. The upper part of the area, settled in 1963, was under the Settlement Board. The furrow used to serve only the Naromoru settlement scheme residents. Aguthi - a land buying company- bought the lower land in 1973. Between 1973 and 1976 the father in charge Naromoru Catholic Parish was giving the Aguthi group piped water, which was being pumped, from Tigithi River. However, as the population increased due to settlement this water (1" pipe) was not enough. The father in charge, on behalf of the Aguthi group, approached the old settlement scheme group to give them water. After consultations, the Naromoru scheme group agreed and formed an association known as Naromoru Aguthi Water Project. Under Naromoru Aguthi water project the groups had agreed on water sharing formula as well as a management formula whereby each group had to have equal number of committee members. However, in 1978 the Aguthi group hijacked the management committee and removed the settlement scheme group

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members claiming that their land buying company settlers were more than the settlement scheme members and thus should be represented.

Between 1978 and 1986, the project was running smoothly and the water was adequate for irrigation needs. As the population increased the water demand was high and the need for rationing programme was put in place. It was from then those problems within Narumoru Aguthi water project started.

Under the department of agriculture, through IFAD programme under NDAP between 1992 and 1996 Narumoru Aguthi water project benefited by design of canals, lining and division boxes and implementation of the same at a cost of KShs. 3.6 million. However, these were contracted works.

In 1997, the water component was transferred from the department of agriculture to water department. The design of a piped water system was undertaken scaling down the irrigation component from irrigating  $\frac{1}{2}$  acre to irrigate  $\frac{1}{16}$ <sup>th</sup> of an acre (Kitchen gardening). This was done because the water for irrigation is taken from conservation of flood flows as required by water apportionment board. The original design off take by ministry of agriculture was 254 l/s. This was reduced to 50 l/s by water department.

As the disagreement by management continued, after series of meetings, between the scheme group, Aguthi group, department of social services and water department it was agreed that the two groups to be separated and have independent management committees and supply limits. The two groups were registered as Narumoru scheme irrigation water project and Ndiriti Aguthi water project. A memorandum of understanding was drawn and each group was to retain assets within the project boundaries.

**Narumoru Scheme Irrigation Water Project**

This project was started late 2000 when they broke away from Narumoru Aguthi water project. The project has an independent intake (the old intake) and the design for gravity main and distribution system done. They are currently receiving water from the furrow but intend to pipe the system as per the design. It has a membership of 349.

**Ndiriti Aguthi Water Project**

The project has been designed as Narumoru Aguthi water project. It has a membership of 1200 members. The project has an independent intake on northern Narumoru River upstream of the old intake, which is below the confluence of the two rivers. It has also an independent management committee. The management consists of 11 officials elected as:-

Rongai zone-2 members, Central-2, Munia-2, Kabendera -2, Kahuho-2, Lenana-2.

Co-opted member 1

When the project was under construction the furrow water currently used by Narumoru scheme irrigation project was not adequate to serve both project. However, Lenana zone was receiving water with an agreement that when Ndiriti Aguthi water project will have its water and Lenana zone will be disconnected. This arrangement did not go well with downstream consumers and when the project was opened (three weeks before the team did fieldwork) the Lenana zone was disconnected from Narumoru scheme irrigation water supply. After a fact-finding mission the following was the feelings of the beneficiaries per zone.

**Narumoru Scheme Irrigation Water Project**

This group feels not bound by any arrangement to Ndiriti Aguthi water project. They are ready to solicit for their own funding. They would not like to be joined or attached to Ndiriti – Narumoru water project even if it is for flood conservation study.

**Lenana Zone**

The beneficiaries felt being let down by both Narumoru scheme irrigation water project and Ndiriti Aguthi water project although they are bonafide members. Their argument is that when they were given water by Narumoru scheme, the central and lower zone felt they were interfering with the management committee efforts. They feel they are paying for the period they had been using water. Arrangements were to have a connection from the mainline to Lenana zone distribution tank site. They will have to wait and agree on the way forward by the management.

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**Central Zone**

This group is enjoying the water currently. However, on 8% of the population is doing so. This is because of low flows in the river and seepage and high evaporating rate. The group feels Lenana group had enjoyed water for a longer period and are well off than the rest of the members. They feel the Lenana group should not complain.

**Lower Zone**

This group of persons does not have any water. They feel no group should have water before all pipes have been laid and water tested to reach tail end consumers.

It was established that, the project has a lot of problems ranging from management and misunderstanding to social problems. It is therefore necessary to harmonise the zones' by training them on group management skills. It is said that the zones have never agreed to work as one group. Five management teams have been put in office over the past two years. Current chairman and his committee were elected on November 2002. An urgent meeting has been called for March 2003 where it is expected his committee will be forced out.

There is a very high potential of ground water, which has not been exploited. The had dug shallow wells are up to 3m deep with enough water which is currently being used to irrigate some crops (small scale) using water cans and hand pumps. This potential if exploited can augment the diminishing flows of the forest originating rivers. All actors within the water sector should assist the groups from disintegration. Urgent meetings should be convened.

**18. MATHINA YOUNG WOMEN GROUP I**

**Background**

A few members started the group in 1996. Their main activities are tree nursery planting, pullover sewing and rabbit keeping. The group was registered in 1997 by the department of social services. The membership for tree nursery increased from 4 to 18. Due to lack of water the group approached the forester to be given a site within Ngonde forest adjacent to Nairobi River for easy access of water. By 1998 the group membership had increased to 30 members.

The group objectives as earlier stated had many projects including, tree nursery, loaning, merry-go-round, rabbit keeping, pullover sewing, sheep and goat rearing and poultry keeping. Due to harsh climatic conditions of the area, the dominant activity became the tree nursery. The seedlings are planted on individual plots and sales are also individually oriented. The group has set monthly contribution of Kshs. 50. Currently, (February 2003) the group has a membership of 45.

**Institutional Strengthening**

The group has had training on group dynamics by social services department. An NGO known as Help Self-help trained them in on environment conservation in 1999. The group undertakes loaning activities whereby a member is loaned Kshs. 4000 which is payable in three months with an interest rate of 1%. Due to persistent drought experienced in the area, a member who is unable to pay is asked to pay interest rate only and the period extended for another three months. The money raised from the interest rates are shared by members to buy food for home consumption since no harvest has been forthcoming due to drought and wild animals destroying the crops. There are 17 types of seedlings grown by individual members and are sold at rate ranging from Kshs 50 to Kshs 70. The set contribution after seedling sales is Kshs. 50. Other seedlings are planted in individual farms. The sales take place in April and December when the rains set in. The group works 2 days a week tending the seedlings (Monday and Friday). During these two days they contribute Kshs. 10, each which is used as merry-go-round by buying each member 2kg-cooking fat. Agriculture department has carried out intensive training.



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**Water**

The main water sources include Mathia furrow, Nairobi River, roof harvesting, boreholes and individual water pans. The main use of water is for domestic purposes and minor (kitchen garden) irrigation. The water from the borehole is sold at 2/= per 20 litres. The longest walking distance in search of water takes 4 hours. No treatment is undertaken. Only boiling is practised for drinking water. Other member says they use alum solution, 2 drops of jiko per 20 litres. Another water project under implementation is Thegu Gatei water project. The project was started in 1986. Currently intake has been constructed and a tank is under construction. The project was proposed to be funded by World Bank to the tune of Kshs. 6 million. However, it was frozen before being used. However, it is being considered for funding under CKDAP.

**Food Production**

The original land size was 2 acres. After sub-division the land size stands at ¼ acre. The main type of crops grown and their yields are as show in the table below:

TYPE OF CROP	YIELD PER ACRE
Beans	40kg (1:5 yeas)
Maize	3 bags (1:5 years)
Potatoes	32 bags

Other crops include Cabbages, peas, sugarcanes, bananas, irish potatoes, yams, and carrots. The Asante and Tigoni type of potatoes are of high yield although they have not been adopted to a large scale. Wild animals, mostly elephants, destroy most of the crops.

**Livestock**

TYPE OF LIVESTOCK	AVERAGE PER HOUSEHOLD	AVERAGE PRODUCTION
Cows	1	6Kg milk per day (sold to KCC at 10/= per kg. Sell 1 calf after 2 years
Sheep/goat	2	2 Kidding per year Sell 1 per year or as need arises
Chicken	5	Lays 2 eggs per day during and after harvest. Sell eggs at 5/= each Others for home consumption
Rabbits	1	Kept by boys for home consumption

**Soil Conservation**

Methods used include Grass strips, gravillea and napier grass.

**Environment**

Chemicals, pesticides and fungicides used include karate, Diazinon, miraz, furadan and triatix. No safe methods are practised as some uses piece of cloth to wash the livestock. Storage methods include Stores; top of door flames, lockable locks, safe harvesting period is observed as most of them read instructions from the label.

**Natural Resources**

The major natural resources include quarries, forests and rivers. These helps in provision of fuel wood, grazing, tree nursery, building materials, building stones, ballast, and water sources. Wild animals, although they are a tourism attraction, destroy most of the crops and kill livestock. There are 60% female-headed households.

**Incomes**

The main income earner is milk and general business at Chaka. Permanent employment brings 30% of the income.

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**Health**

Common diseases include Pneumonia, URTI, typhoid, amoeba, diarrhoea, malaria, HIV/AIDS, and Meningitis. Infant and children diseases include Pneumonia, typhoid, malaria, URTI, worms, measles and ringworm's. The main cause of mortality is pneumonia combined with malaria. No recent case has been reported. The Catholic Archdiocese of Nyeri started primary Health Care activities in 1996. They trained 18 community health workers and 14 TBAs. The main activities include Ant-natal monitoring, methods of protecting minor ailments, health education, kitchen gardening, growth monitoring, construction of pit latrines, dish rack and general hygiene.

Children food includes various greens, potatoes, milk, bananas and various fruits. Most of these are bought from nearby Chaka market. Malnutrition is rare. This is due to high literacy level, awareness from previous training. The group assists others.

The benefits include General home cleanliness, Improved health, Record keeping, Cohesion through group development

**D. WASTUGA RIVER GROUP REPORT**

**1 WATUKA WATER PROJECT (LOWER ZONE)**

The project started in 1973 with two pumps left by the white man who used to own farm. The pumps soon broke down due to lack of spare parts and vandalism by some members of the community. The community later joined Enderasha water project from where they expected to water for domestic purposes but as soon as they completed laying their pipes to the storage tank they were denied permission to connect the water and had to uproot their pipes. They then joined Mweiga Joint Water Project, which they later abandoned after doing a lot of work and contributing some money. All the above work was done in liaison with the Ministry of Water Development. In 1984 the community again approached the ministry of water development and requested that they be allowed to get water from an independent source, which was surveyed on Uaso-Nyiro River. They had by this time laid the distribution network and built a storage tank with their own contributions and a donation of Kshs. 700,000 from Rural Development Fund. They were the first project to benefit from IFAD funding from 1991 and got materials for intake construction and pipes for the Gravity mainline. They also got some pipes completion of the distribution network. The community provided all the unskilled and bought fitting while the GoK provided the skilled labour. They were trained on maintenance and sustainability.

**Water.**

In the area under review i.e. the lower area of the project, the members used to travel between 4 to 6 Km to the few rivers in the area for their domestic water supplies. Sometimes they used to fetch water from dams, which were also used by their animals making the water unsafe for drinking. The project was completed in 1994 and they use the water for both domestic and minor irrigation. During the dry spells they ration the water in either 24 hours or 12 hours period depending on the severity of the drought.

**Food Production.**

With water available, though not enough in quantities, the agricultural production of the area rose from uncertainty of harvest to hope of harvesting. The crops grown in the area are: - Maize, Beans, Pyrethrum, Wheat, Potatoes, Cabbages, Kales, Snow peas and Onions. Maize, beans, kales are used for home consumption and the rest for income to the families. For the crops grown for sale and food the quantities are given as follows: -

Pyrethrum (1 acre)	- 50 – 60Kgs per year
Maize (½ acre)	- 3 bags per year
Beans (Planted with maize)	- ¾ bag per year
Potatoes (acre)	- 6 bags per acre (12 bags per year)
Wheat (2 acres)	- 6 bags per acre

The community also rears cows for milk production and sheep for sale and consumption.

**Farm gate sale prices are-**

Pyrethrum	Approx. Kshs. 50 per Kg
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Wheat                    Approx. Kshs. 1,200 per 90Kg bag  
Potatoes Approx. Kshs. 500 per bag  
Snow peas            Approx. Kshs. 50 per Kg.  
They plant grass strips as a measure for soil conservation.

**Health**

The common diseases in the area are - Pneumonia, Malaria, URTI, Amoeba, Diarrhoea, Worms (Especially in children), and HIV/AIDS. The diseases, which mostly affect children under 5 years, are Pneumonia, Diarrhoea, Malaria and Worms. The diseases that mostly kill those in this age group are pneumonia-2%, Diarrhoea-1%, and Malaria-1%. The community had a trained PHC which was trained by the ministry of health using IFAD funds on: -, First Aid, Hygiene, TBA, HIV/AIDS counselling, Bookkeeping, Growth Monitoring. The group trained is no longer functional for lack of working tools.

**Improvement In Income**

The completion on the water project had a positive effect on the general living standards of the community in such areas as the farms becoming more productive, creation of casual employment Approx. 30%, permanent employment Approx. 10% and Business, which occupies about 10% of the community.

**Empowerment**

About 30% of the households are female headed. The poor in the community are taken care of by small organisation where members visit the elderly and the sick.

**2. BONDENI WATER PROJECT (UPPER)**

**Background**

It is situated in Bondeni sub-location. It was started with a lister water pump, diesel operated and donated by a donor. However, the community decided to construct a gravity water system, in 1995, after a landslide destroyed the pump. The scheme purpose was water for domestic use and minor irrigation (¼ acre) The committee joined Mweiga joint water project and later they split. In 1995, former M.P Hon. Munene Kairu initiated Amboni – Bondeni water project. He introduced them to Nyeri Water Office and survey started. The projects were named Bondeni A and Amboni B and subsequent committees formed in 1997 with a joint account. Bondeni targeted 300 members and decided to contribute 5300/= per member. Members contributed and managed to collect 435,000/=. They registered in 1997 and actual project started by bringing methods. Implementation Started in October 1999 by digging of trenches. KWS helped by providing a bulldozer to clear the mud to the intake. Construction of intake started in year 2000 and completed in May 2001. The community contribution to the intake was 480,000/= and the target population to benefit was 228 members. IFAD provided pipes in year 2002. The distance from the intake to the tank is 5.279Km and 1.5Km from tank to tank. The separated after 600m with Amboni and the project now became individual. After 1.5Km there was fault and the trenches had to be dug again. Pipes were put until September 2002. The testing was done in September and water actually reached the community on 10/9/2002 and was consumed until January 2003 when it was closed. Fittings were done by the community with the help of the Ministry of water employees.

**Major causes of Morbidity**

These are Bronchitis, Pneumonia, malaria, Typhoid, Amebiosis, HIV/AIDS, Ulcers, Eye infections, Worms. PHC – introduced at Amboni but never took off due to lack of working tools. Pneumonia and Malaria cause Infant/Child morbidity. Infant/Child Mortality is low 0.1% and is caused by Pneumonia and Malaria. The causes of morbidity are poverty, cold, dirty water from shallow well and dams.

**Nutritional Status.** Most common foods in the area are Bananas, Greens, Potatoes, Fruits and Milk.

**Food Production**

Potatoes – 10 bags per acre @ 500/= per bag  
Maize – 2 bags per acre for consumption  
Beans – 1 bag per acre @ 1600/= per bag

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Environment protecting agricultural techniques are Napier grass and Tree Planting. IFAD has not intervened.

**Improvement in Income**

Farm	80%
Casual Employment	10%
Permanent Employment	5%
Business	5%

**Agricultural Income Streams**

Horticultural crops – are Onions, Cabbages, Potatoes, and Fruits.

Legumes – Beans, Peas.

Cereals – Wheat, Maize

Small stock – hens

Dairy – Cows, Sheep, Goats, Pigs and donkey

**Empowerment**

Poorest of the poor get casual employment, harambee, M.G.R., counselling and milk.

Female heads of households – 30%

**Constraints**

This is a very expensive project because KWS charges about 3000/= to enter to the intake. Elephant destroys air valves. Storage tanks were from the donor. Distribution pipes were not enough. The community might be forced to go to a bigger river for more water. Water office is very expensive charging 1,200/= per visit per day.

**3. ENDARASHA PHC GROUP**

**Background Information**

The group interviewed composed of 15 members, 7 women and 8 men all from Mitero sub-location. They were both community health worker (CHW) and the village health committee (VHC). The PHC started in 1993 when the chief and the ministry of health staff called a baraza where they were told of the importance of primary health care (PHC) activities. They were positive and elections were held the same day where 30 people were elected i.e. from each ridge for the 3 ridges. The officials were also elected i.e. chairman, secretary, and Treasurer. They were aware that the training they underwent was funded by IFAD but were never involved in PMCs. They were trained by the MOH on the following: -Prevention of diseases and general hygiene, Home hygiene, Home delivery (TBA), Counselling on HIV/STI, Proper nutrition, First Aid, Safe water usage, Community pharmacy/B1. However, after training, tools, e.g. gloves, Drugs, Bicycles. Promised were not provided. This has really reduced their moral thus affecting their service delivery.

**Health**

Common diseases among adults are Amebiasis, Diabetes, High blood pressure, Worms, Asthma, and STI. Children five years and below suffer the following. Pneumonia, Common cold, HIV, Malaria, Diarrhoea, Worms, Eye infection

Major causes of morbidity

Malaria, Amoeba, Worms, Diarrhoea, Eye- sickness, Pneumonia, Common cold are the main causes.

INFANT/CHILD MORTALITY

Mortality rate is 2% per year with the teething problems, chest problems and HIV as the leading causes.

**Nutrition**

Most common foods are Vegetables- Spinach, Kales, Carrots, Peas, Maize, Beans, Wheat, Potatoes, Milk and Eggs. 90% of households have a dairy cow. They sell all the milk in the morning and consume all that is milked in the after noon. They have kitchen gardens where they grow some vegetables. Children foods are Potatoes, beans, porridge, milk and vegetables. About 35% get sick due to nutrition related issues.

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**Water**

The sources are Pipes water from Endarasha water project, Water from Kanyariri and Mwiyo streams, communal or individual small dams. The community is on the lower parts of Endarasha thus only half of them benefit from the projects' water through a rationing of ten days. Walking to the river is an average distance of between 2 to 3 Kms. They have 3 communal dams. Water from the dams is used for washing, livestock and a bit of irrigation. Endarasha self-help water project was started in year 1992. The community expects to get water in the 3<sup>rd</sup> Phase of the project. Pipes have been laid except 2Km. They expect to have enough water for domestic, livestock and irrigate ¼ of an acre. The CHWs during their training acquired the knowledge, of water treatment to make it safe for drinking, they boil, use the sand filtering method, commented jars. About 75% of the community have adopted these methods.

**Agriculture**

Food Production – Common Crops: - Potatoes, Maize, Beans, Wheat, Soya beans, Vegetables – spinach, kales, cabbages, Common livestock, Cattle, Sheep, Chicken, Rabbits.

**Production quantities (when there is rain)**

Potatoes	10 bags per acre at Kshs. 500 5000 x 2 seasons per year = Kshs. 10,000
Maize	2 bags per acre – grown once per year for home consumption
Beans	2 bags per acreage 2 x 4 – twice per year at 1600 per bag. Use 2 bags for home consumption. Sells 2 x 1600 = Kshs.32, 000
Vegetables	usually grown for consumption in kitchen gardens
Cows	1 cow produces 10 bottles – sell 3 bottles. Consumes 2. Sells at 10/= per bottle x 3 = 30/=, 3 x 30 days x 12 months=10,8000/=
Sheep	Average per home is 3 give births twice per year. Sells 3 at 1500/= per sheep = Kshs.4,500/=
Chicken	Average 5 chicken per home – gets about 50 eggs per month. Sells 30 x 5/= x 12 months = Kshs. 1,800
Rabbits	Home consumption

**Environmental Protection**

Planting napier grass and few gravellia trees about 1%.

**New Technologies:** - Not captured.

Income generating activities using local resources not captured.

**Improvements in Income**

There is not much difference in income; what there is improved nutrition status and hygiene since the training of CHWS. Those who depend on:

Farming	- 75%
Casual Employment	- 15%
Permanent employment	- 2%
Business	- 3%

Income generating activities using local resources – There are no local resources.

**Agricultural income streams**

- Horticultural crops – no water
- Legumes – beans

Female heads of households

This is about 20%.



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Basic services to the very poor and poor

These ones are assisted by social organisations like women groups and churches. They are given food, cloths and the above bodied are counselled and advised to look for casual labour.

#### **4. WENDIGA PHC GROUP**

##### **Introduction**

The group was formed in 1994. Five chief's Barazas were called where the PHC concept was introduced. The community welcomed the idea and election of officials conducted. 22 people represented each ridge.

##### **Training:**

The community was trained between 1994- 1995 by IFAD at Mweiga and Nyeri. Three groups were trained – village health committee, community health workers (CHW) and traditional birth attendants (TBA). The committee was also involved in PMC at divisional and district level. They were trained on general hygiene, home deliver, diseases prevention, HIV/AIDS counselling, net treatment, health facility maintenance, record keeping growth monitoring V.I.P latrines and Ferro cement tank construction. An NGO, Child Survival, from Archdiocese of Nyeri (AND) further trained the PHC group and was involved in the distribution of food, vitamins, soya, fat de wormers and clothes in the year 1998 – 2000.

##### **Activities**

The PHC activities did not take off smoothly due to lack of working tools. The community were promised drug kits and bicycles, which were never, supplied hence disaffection with the PHC activities.

##### **Health**

The major causes of morbidity are highland malaria, Skin diseases, diarrhoea, URTI, STI/HIV Amebiosis, worms infestation, pneumonia and malnutrition.

Infant/child morbidity causes are pneumonia, diarrhoea, malaria and URTIs. Malaria, Diarrhoea, and Pneumonia cause Infant/child mortality in this area. Nutritional status: Food mainly consumed is Onions, Maize, Carrots, Cabbage, Potatoes, Sukuma wiki, Beans and Peas.

##### **Water Provision**

The Average water source is 4Km. The main sources are spring weirs, seasonal dams and furrows that are used by both human and animals. Design and survey for a water installation project for Wendiga Dispensary was done but never got off.

##### **Irrigation**

Only a small percentage 0.5to 1.0% irrigates.

##### **Food Production**

The main crops are Beans, potatoes, maize, carrots, spinach, sukuma, wheat, cabbages and onions. Production quantities are very small.

##### **Environmental protection agricultural techniques**

These are Planting Napier grass and planting trees.

##### **New Technologies - None**

##### **Improvements in income**

Farm – 80-90%

Casual employment – 10%

Permanent employment – 5%

Business – 1%

##### **Agricultural income streams**

Horticulture - Onions, potatoes, cabbages

Legumes - Beans, peas

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Cereals	- Wheat, maize
Small stock	- Chicken, rabbit
Dairy	- Cattle, sheep, goat, pig, donkeys

**Empowerment**

Poorest of the poor – Casual employment

Female heads of households – 60%

**5. EMBARINGO WATER PROJECT**

**Introduction**

The community interviewed included committee and members of Embaringo water project. The project started in 1989 with very few members. Initially it was a joint group – Mugunda, Gataragwa and Embaringo but later separated after the construction of the intake.

**Institutional**

- The water committee contacted the district water office and were assisted with the surveyor
- They also opened an account with the district treasury with about Kshs. 50,000 which they had got from the members
- Other stakeholders who worked with the project was KWS (Kenya Wildlife Services)
- The committee attended the PMC meetings at divisional and districts once in every 3 months
- The committee and members were trained in management of the project and their roles within the project (Capacity building)
- Beneficiary participation – mostly contributed on labour which in this case dug trenches from the intake to the first tank (6Km)
- Tank labour contribution – 5400md x 100
- Each member to contribute 10,000 as cash
- During connection each member to pay Kshs. 500 as connection fee

**IFAD Contributions**

- Materials for the tank – 140,310/=
- Pipes 510 No.
- G.I. 10
- Plastic pipes 142 + 5 G.I.
- District and divisional officers visit the project when need arises. The committee goes for them and then visits the project and is advised accordingly.
- Beneficiaries continue to contribute for the project since about 15Km distance is remaining to be piped.
- Only 4 members who have connected water to their farms. Others are getting water from the main tap
- They also collect funds by selling the water 2/= per jerrican and can sell one hundred jerrican per day thus giving them 100 x 2 = 200/= per day
- Estimated cost for the tank – 35,000/= - 500,000/= and up to date has cost – Kshs. 395,000
- Initial promise by IFAD was Ksh. 3 million. It has provided – Ksh. 1.9 million.

**Health**

**Prevalence major diseases**

Pneumonia

Malaria

Common cold

Amoeba

HIV/AIDS

**Infant child diseases**

Pneumonia

Diarrhoea

common cold

Ringworm

tonsillitis

Pneumonia is the most prevalence and the HIV/AIDS as the major death cause. PHC is known in the area since the members were involved. The PHC failed due to lack of tools, which they were promised after their training. These included – bicycles, medicine kit, etc. At the moment nothing is going on with PHC. Infant child mortality is about 1%, which is mainly due to Pneumonia and children born by mothers

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infected with HIV/AIDS. Nutritional status of infant/children is average. Most of the foodstuffs are available except may be in very severe months of drought i.e. January and September in some years. There is about 1% of malnutrition cases in the community. Observation also showed that foodstuffs may be available but knowledge on combination to make a balanced diet could be missing. E.g. Potatoes + green peas alone could not be seen as improved diet.

**Water Provision**

Community walked about 3Km to look for water and spent about 5 hours per day looking for water alone. Animals also go along distance for water and feed/graze in the forest  
This water is used to Water animals, Home consumption, and few farmers who have to irrigate about ¼ of an acre.

**FOOD PRODUCTION – (Acreage 3 – 4 Acres)**

The households in this project area are about 600 and grow various types of crops, which are mainly rainfed and also keep some livestock.

CROPS	LIVESTOCK
Pyrethrum	Cows
Maize	Rabbits
Onions	Sheep
Wheat	Goats
Potatoes	Pigs
Peas (green)	Donkeys
	Turkeys
	pigs

CROP	ACREAGE	YIELDS/ACRE	UNIT	COST/UNIT
Maize	1½	1 bag		Home consumption
Beans	¼	4 tins		-
Potatoes	½	8 bags		400/= per bag
Wheat	1	5 bags		1200/= per bag
Vegetables(exotic local vegetables)	-	-		Consumed locally
Pyrethrum	1	60-70Kg/year		-

**LIVESTOCK/PRODUCTS**

Milk – 1 cow – 5 litres per day at 12/= per litre

Goats/sheep – mature one costs – 1,500/=

The community derives its income from Small animals' – poultry, sheep and goats- products i.e. Milk and eggs and also skins. Other sources are Wheat, Pyrethrum. Other agricultural products are for home consumption.

**Environmental Protecting Agricultural Techniques**

Very few trees are found in homesteads gravillea- 1%, Cypress – 2%, Bluegum – 5%. Farmers practise planting lines of napier along the farms, which are later, used to feed livestock.

**New Technologies** did not come out clearly from the group.

**Improvement Income**

Most of the community members get their income from the farm.

Farm	80%
Casual	50% little impact from IFAD since water has not been used fully.
Permanent	2%
Business	3%

**Income Generating Activities Using Natural Resources:** This has little or no impact on the community.



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**Agricultural income streams**

Community derived their income mainly from milk and small livestock (Sheep, goats, and poultry). Crops are mainly for food production and little for sale. Horticulture – None. Legume (peas) – 1%. Average income from the farm did not come out clearly in this section.

**Empowerment**

Poorest of the poor – These included squatters, orphans, widows/widowers, single parents etc. These groups are empowered through

1. Working as casuals in the farms
2. Hiring farms for farming
3. Helped by the community and local organizations (Churches women groups etc)

Female-headed households are about – 30%. Basic services to the very poor and poor include Clothing, food and shelter, which are met as listed above.

**6. KAARAGE WOMEN GROUP**

The group is in Embaringo sub-location. It was started in 1982 but was registered in 1984 in the department of social services. Their main purpose of coming together was to bring their meagre resources together to improve their homes. The community development officer in the location assisted them to start the group. They were 21 and started by contributing Kshs. 26 per member and bought household items like cups, plates, beds and beddings to members. Later they started buying goats for members as a form of income generating project. They also had other activities intended to improve their incomes e.g. Embroidery, basketry, farming etc. In this, the agricultural extension officer assisted them. They first opened their bank account in Barclays and later changed to KCB when they joined KIREFU SACCO that came out of the IFAD credit-training programme to help groups save and access credit. The group did not benefit but instead lost their 1200/= to KIREFU. No one explained what went wrong. In 1995 the group joined Gathegethe women group from the same area and they were given a plot (50 by 100) by the county council. Gathegethe has same activity like Kaarage, goat buying. Both groups have a common project of putting up a rental building in their plot. They contribute 100/= per member i.e. 50/= for merry-go-round, 50/= buys goats for the members. The goat is given to the group members. When it gives birth 3 times the member is given one, the members sell the others and the money is taken to the construction of their building. The estimate cost of the building is about Kshs. 3,500, their labour not counted. Four rooms are complete and rented at Kshs. 500/= money that is going to the construction.

**Health.**

Prevalent diseases are Pneumonia, Malaria, Common cold, Amebiosis, and HIV/AIDS. Diarrhoea, Common cold, Ringworm, Pneumonia, Tonsillitis, Malnutrition, and Asthma drive Infant/child morbidity.

Some members of the group were trained as CHWs and TBAs, training funded by IFAD programme. They were not given kits as promised, but the women group members contributed money to facilitate their trained members to implement what they learnt. They also contributed towards a (B1) Bamako Initiative, community pharmacy at Embaringo Health Centre. They were trained on general prevention of diseases, first Aid.

**Nutritional status of Infant/child**

Children are fed on potatoes and vegetable (traditional Kanyora, Managu), and spinach, peas, milk, eggs and porridge.

**Water Provision**

The area has a water project that started in 1989 Embaringo water project. This is a joint project between Embaringo, Gataragwa and Bellevue sub-locations. The project was initially started as Gataragwa, Mugunda joint water project. There is a common intake at Ngari Ngiro River. After the completion of the intake each sub-location was to cater for its mainline. All members of Kaarage women group are also members of the water project. According to them the mainline is complete water flowing and waiting for distribution lines. Every member is supposed to contribute Kshs. 10,000 but not all of them have contributed. They participated in clearing the road to the intake, construction of the intake and digging of the trenches. They are aware that pipes for the mainline were donated by IFAD and they have been seeing people from water department since the inception of the project. They are aware that their management

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committees apart from the current one have been attending trainings. The project water is for both domestic and irrigation. They plan to irrigate ¼ an acre each.

**Agriculture**

The farming depends on the amount of rainfall they get.

**Acreage**

Initial acreage was about 20 acres.

**Production Quantities**

Maize	1 acre	1 bag
Beans	¼ acre	1 debe
Potatoes	½ acre	2-3 bags
Wheat	1 acre	5 bags
Pyrethrum	1 acre	60-70Kg per year

Milk – 5 Kgs per day per cow.

Average per home – 3 cows.

Milk goat - 1½ litres per day

1 cow calves once per year

1 sheep lambs twice per year

1 chicken lays 20 eggs per month

**Environment.**

Community insisted they grow gravillea but we could not trace it in any shamba. They grow napier grass for soil conservation and for their livestock. They Dig trenches for soil conservation and plant Kikuyu grass. There are no new technologies

**Improvement In Income**

They think when they distribute water to their home; their incomes will increase since they will irrigate ¼ of an acre of their land. More people will get casual employment. Current income sources in the community are Farm – 80%, Casual employment – 15%, Permanent employment – 2%, Business – 3.

**Income Generating Activities – Local Resources**

Apart from the two streams that draw water from they have no other local resources. Those along the streams practise a bit of bucket irrigation farming – grow some tomatoes, carrots, and cabbages during the dry season. They also view the squatters as resource because they provide labour.

**Agricultural Income Streams**

Horticultural crops – Kitchen gardens grown for consumption.

Cereals – Maize-1 bag per acre – home consumption

Wheat – 5 bags per acre – sells 4 bags at 1200/= per bag = 4,800/=

Dairy milk – 5Kgs milk per day per cow

Sheep average 8 per household Cost is 1200/= per sheep

Chicken – 1 egg – 5/= each

1 chicken – 150/=

Female heads of households constitutes about – 30%.

**7 NGINYII MWIRERI SELF HELP GROUP**

**Background/institution**

Ngunyii – Mwireri self-help group is situated in Ruirie sub-location, Mugunda location of Kieni West Division of Nyeri District. It was started in 1997 with the aim of farming and registered with Archdiocese of Nyeri but not with the social services. The archdiocese called a meeting and introduced the idea of self-help and about primary health care (PHC). The group was then formed with a membership of 15 members but currently they are 13. They started contributing Kshs. 100 per month and in February 1998; the group bought each member 3 chickens worth Kshs.100 each. They then started buying a sheep for each member at a cost of Kshs. 1,500 per sheep per month. They then opened an account with the archdiocese in 1999

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with Kshs. 5,000 from farming activities. In September 1999 they conducted a harambee and collected Kshs. 12,000 of which 8,000/= was deposited in the account. The balance of 4,000/= was invested and they got a profit of 800/=. The committee met and decided to construct a tank for each member at a cost of 28,000/= but the sponsors, the Archdiocese withdrew before they could implement this. The groups' activities came to a halt due to severe draught but they intend to revive it in March 2003.

**Health**

**Major causes of morbidity** in order of prevalence are malaria, Diarrhoea, typhoid, eye infections and URTI.

**Infant/child morbidity** is due to URTI, diarrhoea and tonsillitis.

**Establishment of PHC**

15 community members were trained through IFAD and also given working tools like bicycles, weighing balances and drug kits. The members were trained in Disease prevention, General hygiene, Safe home deliveries (TBAs) and TOTs. Archdiocese of Nyeri also trained CHWs and TBAs and provided them with tools to work hand in hand with those trained through IFAD.

**Infant/child mortality** is 0.01% and is caused by URTI and Diarrhoea.

**Nutritional status of children** The children are fed on Beans, potatoes, spinach, *kanyuria*, maize, rabbit meat and porridge. However the feeding is limited due to draught.

**Water**

The community sources of water are Karemeno stream which is 4Km away, Rain water – 20% of households have home tanks, Dams – 30% of homes have small farm dams, Mutitu water project which is yet to reach the community. The members contribute 8,600/= and provide labour. European Union, Rotary Club of Nakuru and Community Development Trust Fund (CDTF), also supports the project. The mainline for this sub-location is complete but the sub-mains have not been laid. There is a water kiosk which is still far from most members and the cost is prohibitive i.e. 5/= per 20 litre jar. Dam water is used for livestock, kitchen gardens, laundry and tree nurseries. Livestock is also taken to the river 2 times per day.

**Food production.** The main food crops grown in the area include potatoes, maize, beans, wheat, fruits (Citrus), and sorghum, pumpkins, pigeon peas, onions, njahi and soya beans.

Livestock reared in this area include cattle, goats, sheep, rabbits, chicken and dairy goats.

**Production and productivity**

The average land ownership is 1 acre down from the previous 4 acres. Farmers practice mixed farming and production is as follows: -

-	Potatoes	8 bags/acre
-	Beans	2 debes/acre
-	Maize	1 bag per acre (uncertain)
-	Wheat	for domestic consumption.

Most of the farm produce is for local consumption but at times they are forced to sell to buy other products and pay school fees or meet medical costs

**Livestock production**

Each farmer owns and average of 2-3 milk cows with production of 4Kg of milk/day/cow. The cows calve once a year. On average each farmer owns 10 goats and sells 5 per year @1,200/=. They also rear at least 10 chickens per farmer with the price of an egg being 4/=.

**Environmental protecting agricultural techniques** To conserve the environment the environment the farmers: -Plant trees, Napier grass strips-80%, Harvest road water-30%, Make terraces-20%, Have trash lines-2%.

**New technologies introduced.**

All the 13 members on this group have adopted this technique. Soya beans usage has adoption rate of 1%.

**Improvement in income**

Not in place for there is irrigation water.

**Income generation using local resources** Members reported none

There are also no horticultural crops. However there is beans and wheat for domestic consumption.



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**Empowerment**

Poorest of the poor: There are no squatters in this area. The female headed household's account for 40% of total household.

There is no impact of IFAD apart from PHC and Agriculture.

**8. MUTITU WATER PROJECT**

**Background**

The community thought of the project in the early 1980 and joined Giant Gataragwa water project and used to contribute through their dairy co-operative society. They withdrew after they realised their contribution was being misappropriated by the management. They joined Kiriogo joint water where their money was also misappropriated. In 1996 Fr. Romano who had first been posted to Mugunda Catholic Parish, came with an idea of a borehole to provide the parish with water. However, the community approached him and asked for assistance to be included in the project and the Fr. Came up with the idea of gravity water to help more people. About 100 members registered with the project with contribution of Kshs. 500 and each member was to pay 5,000/= and 50 communal days. Members formed a committee in 1996 from different churches and registered with the social services and started consulting ministry of water who assisted them with the survey and all the groundwork. In 1998, trenches were dug and storage tank constructed – capacity of 225m³ at a cost of about 1 million. The water was meant for domestic and minor irrigation- (½acre) use. The water technicians from the ministry turned out to be very expensive for the project, hence the community dropped them and the devices provided a technician though continued consulting the ministry staff. The money to construct the gravity main and the tank came from Fr. Romano and his friends and community contributions and the distance from the intake to the storage tank is 4-5Km. The intake was constructed in 1998 and cost over 500,000/=. The community provided Labour. For a new member, the membership contribution is 8,600/= and 100 communal days in terms of money and 12,000/= for connection but water is metered. Three main distribution lines are complete and another 5 sub-mains also completed in 1999. 8 distribution tanks are complete and 11 Break Pressure tanks (BPT.). Water kiosks have been set up. Non-members and partial members pay 5/= per 20 litres while members who have completed membership pays 2/=. Members who have individual meters are 90 and 12 institutions – schools, churches and health institutions. Charges are -standing charges – 90/= and 30/= per cm³ after the 3<sup>rd</sup> cm³. There are a total of 31 water kiosks. Earlier, the community was drawing water from rivers and dams.

**Health**

Prevalence of major causes of morbidity are; Typhoid, Malaria, U.R.T.I, HIV/AIDS, Pneumonia, Diarrhoea, Asthma, Worms, Amebiasis, Contaminated water, Dams, manages, Cold/dust, Slow behaviour change, Cold, Dirty water, Cold, Duty habits, and Water. Infant/child morbidity is by U.R.T.I, Pneumonia, Eye infection and Diarrhoea. Some people trained for 2 weeks on PHC in 1992 on general hygiene and prevention of diseases and T.B.A and have a Bamako pharmacy. U.R.T.I and Pneumonia cause Infant/child mortality. There are Traces of malnutrition due to lack of essential food staffs especially during the dry periods.

**Crop Production**

CROP	ACREAGE	YIELD	COST
Maize	1 acre	3 bags	@ 600/=
Beans	1 acre	2 bags	@800/=
Potatoes	1 acre	10 bags	@400/=
Wheat	¼ acre	3 bags	@ 1300/=
Peas	-	-	-
Onions	1 acre)		@ 10/= per Kg
Cabbages	1 acre) Only those with water		@ 5/=

**Livestock**

ANIMAL	AVERAGE NO. PER FARMER	YIELD	COST
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Cows	1 cow	4Kg	-
Goats	5 goats		@ 1,000/=
Sheep	5 sheep		@ 1,500/=
Chicken	10 chicken	Eggs	@ 100/=
Rabbit	3 rabbits		

**New Technologies:** - Introduction of soybeans.

**Improvements in income**

Farm – 50%

Casual employment – 30%

Permanent Employment – 50%

Business – 10-15%

**Income generating activities**

Charcoal burning – 30%

Selling of posts – 30%

Selling of honey – 3

**Empowerment**

Poorest of the poor – Casual employment

Treated like other for water

**Female heads of households – 40%**

**Basic services to the very poor:**

Provide water kiosks for them

**There is no impact of IFAD unless in PHC activities and agricultural activities.**

**9. BURGURET DISPENSARY**

**Introduction/Institutional**

The facility is situated in Gathiuru sub-location in Gakawa location of Kieni East of Nyeri District. The community's need for a dispensary rose as early as 1992 when the community realized their health problems. These included travel expenses at either Nanyuki district hospital, which was 14Km away, or Narumoru dispensary, which was 10Km away. It is difficult reaching those health facilities during the rainy season due to poor road net. At times they would go to Gitigithi dispensary, which is also 10Kms away. The community's first meeting was held on 16<sup>th</sup> October 1992 and discussed among other things the issue of starting a health facility. Interim committee was elected of 5 members and decided to contribute 100/=. The committee continued to sensitise the community about the need to contribute money for the health facility. The group had already registered with the social service in 1992. Meanwhile the group was consulting the office of the district medical of health. In 1993, a harambee was conducted which raised measuring 2.9 acre worthy Ksh. 300,000/=. The harambee money was used to fence, clear the bushes, and acquire the Title Deed and fares for the committee to the various Government offices. In 1994, another harambee was conducted which collected 101,000/=. The money was used to pay the cost incurred during the harambee preparation and levelling of the ground and the balance banked in the account, which had already been opened. The same was used to buy pipes for installing water from Burguret water project. Meanwhile the MOH was supervising activities of a women group in the area and discussed about the health facility they were planning.

**Planning:**

In 1995, the committee, MOH and the ministry of Public Works were involved in the planning of the dispensary. The donor was IFAD.

**Implementation**

Started in 1997 and were told it was to cost Kshs. 5.2 million. The contractor came and was to construct the dispensary, staff houses, gate, treatment block, 1 toilet (pit), 1 Water tank that was supposed to cost Kshs. 3.4 million. The community was told there was a balance of Kshs. 80,000 of which they (IFAD) were to give materials, which never came. During weekly site meetings, the community chairman was

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often called but his participation was not put to light about the activities of the project. Also during implementation, community participation was low. The community never participated in the PMC in either divisional or the district level. The construction started in April 1997 and completed in August 1997 and also handed over in September 1997. The community however noted that: 2 planned staff houses were never built. There was no septic tank as planned for the single staff house built. The Water reservoir was not built. A pit latrine was not built. A waiting bay was not built. An outer door was not of the frame type. Fittings for windows and water were of poor quality. Staff toilet and treatment block was not completed. Pavement slabs were poorly constructed. Down pipes were of poor quality. Walk path pavement was not put in place

**Furniture provided by IFAD** include 2 table, 3 Stools, 2 arch chairs, 4 chairs, 3 examination couches and 1 big stool

**Equipment provided by IFAD**

Fridge – 1 (Gas)

Weighing machine – 1 adult- 1 child

BP Machine - 1

**Community – bought the following**

1 Meko gas

2 gas cylinder

2 Sufuria

2 buckets

The executive committee visits the facility one a month checking on records, finances and full committee after 3 months.

**Health facility costs:**

1<sup>st</sup> visit is Kshs. 50/=

2<sup>nd</sup> visit is Kshs. 20/= when coming for injection/dressing for adults.

0- 5 years are treated free

Despite the shortcoming, the facility is of great value to the area community. However, the community feels there is need for a maternity and a laboratory and upgrading to the health centre.

**Health**

**Major cause of Morbidity**

URTI, Malaria, Ulcers, Insect bites (ticks), Intestinal worms, amebiosis, Diarrhoea, Eye infection, HIV/AIDS

**Infant/Child morbidity** – causes are URTI, Malaria, Multiple sores and Worms.

Infant/child mortality – 1%

**PHC**

Established in 1994 and trained 21 CHWs and 18 VHC and 4 TBAs. The ToT funded by IFAD trained them at the facility. The PHC have a bank account.

**Activities:**

Home visits for hygiene, school visits and de-worming, under 5 years weighing home deliveries, merry-go-round (MGR). Trained on Bamako pharmacy but has not started

**Nutritional status of infant/child** Children are fed on Milk, Eggs, Greens – all types, Potatoes, Maize, Onions, Dried greens – 2 – 5%, Improved nutritional status effected by PHC activities.

**Water Provision**

Sources are Piped water from Burguret water project, which is not reliable for it is rationed every third day. Significant numbers still get all their water from either Burguret or Tigithi River. A few harvest rain or runoff water or use dams for domestic, livestock and minor irrigation.

**Burguret water project**

The community started to think about the water project in 1984. It was to cater for 3000 households, which has risen to 5000 households and has served only 1000 households. The actual project started in 1987 with construction of the intake and the aid came from World Vision. They constructed water intake and provided pipes for the gravity mains and part of the distribution pipes. One storage tank of 225m<sup>3</sup> was completed but another of 135m<sup>3</sup> was not. The project is only 40% complete.

**Food Production:**



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Households – 5000. Average acreage – 1 acre. Initial average – 3.75 acres

PRODUCTIVITY	ACREAGE	YIELD/QUANTITY
Maize	1 acre	No certain
Beans	1 acre	@ 1600/= - 2 bags
Wheat	1 acre	@ 1400/= - 5 bags
Potatoes	1 acre	@ 600/= - 5 bags
Peas	-	-
Sukuma wiki	-	-

LIVESTOCK	AVERAGE/FARMER	YIELD
Cows	2	7/= per Kg of milk
Sheep	5 (2 per year)	1,500/= @
Goats	2 (2 per year)	1,000/= @
Chicken	5 Eggs 4/= each	100 = 200/= @
Rabbits	2	-

**Environmental protecting agricultural activities**

Mikima – 80%, Eucalyptus – 10%, Migaita –, Terraces – 60%, Napier grass – 40%

**New Technologies**

Potatoes – Tigon/Asante

Beans – Ba (and Cat. 69)

Income generating activities: - Grazing.

**Empowerment**

Committee was trained

Poorest of the poor – Waiver system

Creation of employment – employed a watchman and supportive staff

Female heads of households – 60%

**10. RAGATI WATER TANK GROUP**

**Introduction**

The group is in Kahurura Sub-location of Gakawa location and was started in 1986 as a welfare group whose main activity was merry – go – round (MGR). It started off with 50 members and was registered with the social services in 1986. Their first contribution was 30/= per member per month which was later increased to 60/=. Since the area is very dry, they decided to construct water tanks for the members and contributed 300/= per member and managed to construct tanks for only 2 members. The cost of 1 tank was 15,000/=. Due to the severe draught, they were not able to continue with the project and decided to buy water drums for members at a cost of 500/= and reduced their contributions from 300/= to 200/= per month. The water was to assist them start tree nurseries as well as for domestic use. In 1996, they were trained on beekeeping, poultry and pig keeping by the Ministry of Agriculture and Livestock Development officers. They were also taught on how to plant Napier grass. They adopted all the knowledge and implemented them but had the problem of marketing of pigs and hence they dropped pig rearing. They were also taught on soya beans utilization like cooking ugali and chapatti with soya beans. There was an NGO called Help Self-Help Centre (HSHC), which trained and provided seeds to members and took them for tours. The members are aware of the IFAD programme/interventions for they are members of Kaga water project that has been assisted by the programme. They were also aware of KIREFU and were registered members but withdrew since they felt KIREFU never met their expectations. Part of their money was refunded but some 6,000/= remained with KIREFU. They are also aware that the training that they underwent was funded by IFAD.

**Health**

Prevalence of major causes of morbidity

Disease	Cause
- Typhoid	use of contaminated water
- Malaria	breeding of mosquitoes in dams

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-	Amoeba	use of unsafe water
-	Rheumatism frost	
-	Brucellosis	drinking unsafe or uncooked animal products
-	HIV/AIDs	unsafe sex
-	Pneumonia	cold weather
-	Diarrhoea	drinking unsafe water.
Infant/child morbidity		
	<b>Disease</b>	<b>Cause</b>
-	Pneumonia	cold weather
-	Diarrhoea	teething – dirty eating habits
-	Malaria	Breeding places for mosquitoes (dams)
-	Worms	dirty eating habits.

Infant/child mortality is 2%. Children are fed on potatoes, green vegetables, pumpkins, carrots, beans, peas, milk and porridge. This was established in 1992 with a 2 weeks training of CHWs and VHC by TOTs funded by IFAD. They were trained on general hygiene, disease prevention and growth monitoring.

**Provision Of Water**

The group get it water from the following sources: -River. The main river (Waithaga) Rongai is at an average distance of 4Kms. Dams, this is used for livestock, laundry and minor irrigation. Rain water harvesting. Piped water from Kaga water project. In 1983, Ragati, Gathimu forest and Ichuga came together and contributed 500/= for each member and constructed an intake at Burguret river. In 1984, some members withdrew and started their own project. In 1988 Gathiuru people (Squatters) were evicted from the forest and hence leaving Ragati alone and they were not able to continue with the project alone due the distance of the intake and lack of funds. In 1996, they decided to start their own project and contributed money to construct an intake on Nanyuki River. They later contributed money and constructed a tank. Later IFAD provided pipes and community dug trenches and laid the pipes. About 30 individuals are connected and the rest draw from community water points. Distribution pipes have covered only about 40% of the supply area. When the project is complete, they expect to irrigate a ¼ of an acre each.

**Food Production.**

There are an average of 300 households with average acreage of 3 acres from initial average of 11 acres.

**PRODUCTION AND PRODUCTIVITY**

Production	Acreage under crop	Yield	Value
Maize	1	Uncertain	
Beans	½	2 bags	1,600/bag
Wheat	1	15 bags	1,400/bag
Potatoes	1	10	400/bag

Other crops reported to be grown in the area are sorghum, peas, finger millet, fruits (passion, tomato tree, oranges and lemons) and bananas.

**H. Livestock production**

Livestock	No. per HH	Value
Milk	5 litres/cow/day	
Cows	3	
Sheep	5	2,000
Goats	2	2,500
Chicken	10	150 – 200
Chicken	Eggs	

**Environmental Protecting Agricultural Techniques**

These are Terraces-20%, Sisal planting along the roads (checking road runoff), Napier grass-90%, Mukima-70%, and Kashurina- 5%, Neem tree.

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**New Technologies**

New varieties of potatoes (Tigoni and Asante) have been introduced and 5% of households are planting them while 2% have adopted the climbing bean. However although they were introduced to Maendeleo jiko, it is not adopted because there is plenty of firewood. There is no income generating activity in the area.

**11. NARUMORU AGUTHI WATER PROJECT (LOWER ZONE)**

**Introduction/Institution**

The project is located in Ndiriti Sub-location Narumoru Location of Kieni east division. The community bought the land as a cooperative society, which later changed to a limited company in 1968. The area is very dry and rainfall is inadequate such that some members decided to sell their land while others abandoned it and went back to reserves. Their only source of water is Gathorongai stream and Tigithi River, which are about 8 Kms away. In a neighbouring farm, there was a furrow left that was left by a settler, which they decided (the directors of the settled community) to rehabilitate and extend to Aguthi farm. The Ministry of Agriculture assisted them with the survey and the community dug 8Kms main furrow to their area. Later they dug 5 sub furrows measuring 20 Kms and individuals started having their own connections from the furrows in 1980. They started using water for domestic and livestock and minor irrigation. In 1982, the Rural Development Fund (RDF) assisted them with 800,000/= to construct an intake; canal lining of 400 M and 167 8" pipes. A previous donation of 120,000/= from the government to construct an intake was misappropriated by the management. There was improvement in agriculture due to increased water although it was getting lost through seepage and evaporation. The value of land appreciated and more people bought land and those who had left found themselves coming back. Around 1987, water started decreasing in the lower zone and especially during the dry seasons. This created a lot of hostility between the scheme people and those in the lower zone and also amongst people themselves who would deny others at night by closing their neighbours' connections. They tried to sort out this by employing a watchman to monitor the situation at night. Due to this hostility members thought of piping their water from the intake but were denied access by those at the scheme. In 1989, the community decided to start a piped water project called Tikaro, which later disintegrated due to lack of funds and community support. In 1991, the project proposal was taken to the divisional development committee and recommended for IFAD assistance. And thus in 1994, IFAD provided Kshs. 3.6 M through a contractor to do the following: -

- Lining of 400Meters furrow.
- 3 drop structures
- 4 division boxes
- 1 culvert
- 200 8" PVC pipes.

The community provided all the unskilled labour and promised to be compensated with pipes worth 140,000/= by the contractor that was never provided. In 1996, the government gave a notice of closing the furrows by year 2000 and the community thought of piping their water. The community was denied access by the scheme community and hence they constructed another intake upstream with their own contribution at a cost of 700, 000/= and the community provided labour worth 90,000/=. By this time the implementers had changed from Agriculture to Water and the community had dug trenches with some being up to 15 ft deep especially in rocky areas. The gravity main covers a distance of 36 Kms.

Due to the failure of the past committee, the community elected a new management committee on 9/3/2000. In 2002 IFAD provided 604 10" PVC pipes, 134 6" PVC pipes, 40 4" PVC pipes, 14 10" GI pipes and 7 8" GI pipes. The community was supposed to construct 1 tank of 135 M<sup>3</sup> and another with a capacity of 225M<sup>3</sup>. The community has so far laid 3.7 Km of pipes and constructed the 2 tanks up to blinding level and water is flowing into the pipes and into the existing furrows. The community has already laid part of the distribution line with assistance from American Embassy, Catholic mission and member's contributions.

**Impact.** The project water has only benefited the upper zone community.

**HEALTH**

The major causes of morbidity in adults are: -



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Disease	cause.
- Malaria	Breeding places for mosquitoes
- amebiosis	Contaminated water
- Typhoid	Contaminated water
- HIV/AIDS	Nearness to town
- Pneumonia	cold weather
- URTI/Rheumatism	Cold weather

In children/infants morbidity is by URTI, Amoeba/worms and Pneumonia. Infant mortality is 1%

**Nutritional status of infant/child** Children are fed on diet comprising of beans, cabbages and green vegetables, milk and potatoes.

**Establishment of PHC** is not established in this area.

**Food production/productivity**

Average land holding is 3 acres.

Crop	Acreage	Yield	Value in Kshs/unit
Maize	1	1 bag	For domestic consumption
Beans	1	1 bag	2,000
Potatoes	1/4	4 bags	500
Wheat	1	12 bags	1,300

**Livestock production**

	Average per HH	Yield	Value in Kshs
Dairy cows	2	4 Kg milk/day	8 per Kg
Sheep	3	2 per year	1,500 each
Chicken	10		120 – 150/= per chicken
		10 eggs	4 per egg

**Environmental protecting agricultural techniques**

Napier grass, Potato vines, Trees.

**New technologies** introduced in the area are Beans (Noe), potatoes (Tigoni, Asante, Nyakabete) and pyrethrum.

**Improvement in income:** None because of lack of water/

**Income generating activities** None

**12. HARAKA WOMEN GROUP**

**Introduction/institutional**

The group is located in Rongai Sub-location of Narumoru location Kiini East Division. The group started in 1993 with 22 members, which increased to 30 members and has been registered with department of Social Services. The area is very dry and the women thought that if they brought their meagre resources together and insist their members to raise their living standards. They approached their field extension officers like agriculture and social services to assist them form a group. They formed a committee and opened a bank account at KCB Nyeri. Their first activity was merry – go – round where members contributed 10/= each and loaned members at an interest of 10%. After 3 years, they dropped this activity due to default by members and concentrated on buying of utensils for the members. By this time they had increased their monthly contribution from 100/= to 150/=. Their next activity was purchasing 1” pipes for members (10 pipes per members). After this they bought each member a sheep at a cost of 3,000/= in year 1999/2000. At around 2000, there was a drought and most members were unable to contribute the monthly fee of 150/=. The group tried to grow cabbages for sale but were unsuccessful due to lack of market and poor road network. The group later decided to have a project of growing snow peas and due to lack of water, it was also not successful. Due to the above problems, the members are now contributing 50/= per month and are now banking with the postal bank due to high charges in other banks. Currently the account has 10,700/=

**Health.**

Major causes of morbidity in adults cause

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Malaria	Breeding places for mosquitoes/mangoes and bananas
Amebiosis	untreated water
Typhoid	untreated water
URTI	cold weather
Tonsillitis	cold weather
Hypertension/stress	poverty
Rheumatism	frost
HIV/AIDs	
Pneumonia	cold

In children/infants pneumonia, diarrhoea, malaria and amebiosis cause morbidity. Infant mortality is 1%  
**Establishment of PHC** not established in this area.  
**Nutritional status of infant/children** Children are fed on a diet of Kanyuria, Pumpkins, Soya beans, Ugali, Milk, Porridge and potatoes. Soya beans are used to improve diet and are locally available.

**Water Provision**

**Sources of water** The members get their water from: the seasonal Rongai river, Kirinyaga Nyange water project which does not cover all, Rain water harvesting by a few and Tigithi and Nairobi rivers which are 6 Km away.

**Kirinyaga Nyenge water project**

It was started as members of Narumoru Farmers' Cooperative water project in 1973. The project was completed in 1979 and started providing water for domestic purposes together with 2 other communities namely Kamburaini and Gitwe. In 1984, water became inadequate and the community looked for another source of water – Nairobi River through a constructed furrow but they had pipes for the distribution network. They had heard IFAD was donating pipes and the Canadian High Commission has also provided pipes for the project. However, the water is for domestic use only due to unequal distribution and the area being a lower zone although it was also meant for minor irrigations. The lower community are dissatisfied that despite them not getting water (even for domestic use), the upper zone community are drinking and irrigating with the water.

**Food Production**

The total households in the area are 1,236 with average land holdings of 2 acres.

Crop	Acreage under crop	Yields	Value in Kshs. Per unit
Maize	1	1 bag	Consumption
Potatoes	1	1 bags	Consumption
Beans	1	½ bags	Member
Wheat	1	3 bags	1,300

**Livestock production**

	Average ownership	Yield	Value in Kshs
Cows	3	5Kg of milk/cow	8 per Kg
Sheep	10	2 per year	1,500 each
Chicken	5		100 – 200 each
Rabbits			Consumption.

**New technologies** New technologies introduced in the area are Soybeans, China beans, Cow peas, Broad bean, Climbing beans (lima bean), Potatoes (Asante/Tigoni/Furaha), soap making from potatoes, juice making, jam making, cake baking, vegetable drying, Maendeleo jiko, tea cosy (poor adoption).

**Income generating activities** None

**13. WARAZO-LUSOI WATER PROJECT – UPPER ZONE**

**Institutional/Introduction**

The project is situated in Muungu sub-location in Kabarú location of Kieni East division of Nyeri district. The community settled in the area in 1962 through Government scheme

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and the area happened to be very dry. Life was unbearable due to severe drought, which promoted them to form a cooperative society which they used to search water from minor Mere and Nairobi about 4Km away (1963). Due to the hardships they underwent looking for water for their livestock and for their domestic use, they approached the government through their cooperative and were given water from Mere River for their domestic and livestock purposes. Because the water was serving the while of Warazo scheme, and the population was growing high, the water started becoming scarce. In 1984, the committee approached the ministry of water and gave them their problem and was given water from Nairobi River. The community started contributing 2000/= per member for construction of the intake. They were assisted by the EEC with 4.4 million shillings, which was used to construct the intake, the gravity main and a 225m<sup>3</sup> -storage tank, which was completed in 1992. The government assisted them with 2,226,800 shilling and technical advice. The community provided all the unskilled labour and continued to buy and laid distribution network up to 1996 when IFAD started assisting hem with pipes.

IFAD provided the following: -

- 4.8Km of 225m PVC pipes
- 3.5Km of 160m PVC pipes
- 2.8Km of 110m PVC pipes
- 6.1 Km of 63mm PVC pipes
- 25 pipes (PVC) 63mm

Meanwhile the community has done the following: -

- 1.42Km of 110mm PVC pipes
- 1.23Km of 90mm PVC pipes
- 4.7Km of 90mm PVC pipes
- 40PVC pipes of 50mm
- Constructed 1 135m<sup>3</sup> storage tank which is not roofed worth 500,000/=.
- Another storage tank is under construction and has already cost the community 400,000/=.

The community continues to extend distribution network, as funds become available. According to upper zone community, they used to get a lot of water before it reached the lower zone community and were able to irrigate up to 3 acres and practised horticultural farming.

**Food Production**

Acreage – average of 3 acres

CROPS	ACREAGE	PRODUCTION	COST/UNIT
Potatoes	¼ acre	6 bags	600/=
Snow peas	⅛ acre	480Kgs	480x40= 19,200/=
Cabbages	¼ acre	1500 heads	1500x6 = 9,000/=
Maize	1 acre	4 bags	800/= each
Beans	1 acre	2 bags	1800/= each

**Livestock**

ANIMAL	AVERAGE/PERSON	YIELD/COW	COST
Cows	2	8Kg	8/ per Kg
Sheep	4	2 per year	1500/=

Note: During this time when water was available, food production was increased as above and income improved in 1996 – 1999. Since 1999, water decreased due to high population, depletion of forest cores, and another group (Kambura-ini) tapped water upstream of their intake.



#### 14. KAUKA SELF HELP GROUP

##### Introduction/Institution

Situated in Muungu sub-location of Kabaruru location of Kieni East division of Nyeri district. The group was started in 1995 and registered with the department of social services. The area is quite dry and this prompted the members to come together and form KAUKA self help group. The group started with a membership of 100 drawn from men, women and young people. They thought of tree planting and hence started nurseries but failed and they abandoned the project. They started another project of chicken rearing by contributing 20/= per member per every two (2) weeks for 6 months in the year 1996. They later increased their contribution to 100/=. They started by buying 100 chicks and each member was feeding them for 2 days. The chicks later all died due to negligence and the project also died. At around 1999, they contributed 100/= among the 55 members remaining and started buying each member a sheep worth 1,000/=. This they did. Membership decreased from 55 to 31 and contribution increased from 100/= to 120/= as they started buying members a second sheep worth 1,200/= and so far, they have bought 9 members a sheep each.

##### Planning:

Community is not empowered since relationship with government officers was very low. However, their next move is to start buying dairy goat for every member and start horticultural farming.

##### HEALTH

On PHC, the community trained in 1994. Training included community health workers, TBAs, and VHC but did not take off. Nutritional status of infant/children is bad, as malnutrition is 20%. High rate of malnutrition is due to squatters' presence in the area.

##### Water Provision-Warazo-Lusoi Water Project

The project started in 1984 by Warazo-Lusoi Jet members. Each member was to contribute 10,000/= but initially they contributed 500/= and provide labour. The later decided to connect water to members who had contributed 50,000. Water is used in ration of 2 days each. Initially the water was meant for domestic and irrigation but this was not realised because of the scarcity of water.

The group says IFAD provided pipes but the water committee never involves the group on how much was provided nor involved in the maintenance and evaluation committee. The executive committee wholly runs the project.

##### Food Production

Average acreage – 3 acres

Initial acreage – average – 30 acres

Households – 1,000

CROP	ACREAGE	YIELD	COST
Maize	1 acre	1 bag	Consumption
Beans	1 acre	½ bag	Consumption
Potatoes	¼ acre	2 bags	Consumption
Cabbage	-	-	-
Wheat	-	-	Consumption
Snow peas	¼ acre	Grown during the rainy season	

ANIMAL	AVERAGE PER /FARMER	YIELD	COST
Cows	2	3Kg/cow/day	8/= per Kg
Sheep	5	2	1200/= each
Rabbit	3		For consumption
Chicken	5		150/= each

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**New Technologies:** - Maize variety 4141, 628 and 627  
**Income generating activities:** - None  
**Empowerment** – None.

**15. MERE DISPENSARY**

**Institutional And Planning**

The facility started in Kirima sub-location of Kabaru location of Kieni East division of Nyeri District. In 1973, the community sat down and decided to convert an old house of a former White Settler into a dispensary because they travelled about 10Km to the nearest health facility, either Warazo health centre or Highland farm. The local councillor sought some assistance from the County Council and get iron sheets for roofing. The councillor led members to the office of the MOH to petition for a health worker. The MOH in turn asked the community to renovate and partition the house in the year 1975. They were immediately provided with a nurse and a subordinate staff and some drugs to start the services. The community provided the officers with house accommodation, and personal donations to fence the dispensary area. In 1981, a committee was elected and came up with an idea of constructing a bigger dispensary to offer all services. Each ridge of the 9 ridges elected 5 members making 45 and co-opted the sub-chief and the councillor and the committee had 47 members. The committee decided to contribute 200/= per each family. The community contribution towards the construction of the dispensary was 1.5 million. All this time the committee was liaising with the ministries of Public Works and health during the planning. The dispensary was completed in 1995. The Kenya Power and Lighting Company assisted with the electricity materials, the wiring of both the new and old the old buildings as well as the labour. The community has purchased a microscope, a refrigerator and a generator worth 300,000/=. A working laboratory is now in place. The community plans a harambee to construct a maternity wing. They have bought cellular blanket worth 6,400 shillings. They also plan to bring in electricity and improve on water sources. They have cost sharing in place and payments are as follows.

Under five years – Free

- Registration – 20/=
- ANC – 10/=
- Family planning – 20/=
- Others depend on service and drugs prescribed
- Laboratory charges depends on tested requested
- Waiver charge is in place for the poor
- Referral system – the facility hires vehicles for the patient and the patient pays or depending on ability of the MOH he provides transport from Nyeri

The community has procured a mobile phone for easier communication with other facilities.

**Health**

**Major causes of morbidity**

	Cause
URTI/Pneumonia	Cold/weather
Intestinal infection	Dirty water - dam
Dental problems	Water infection/cold
Rheumatism	Cold
Eye infections	Cold/wind/dust
HIV/STI	Unprotected sex
Injuries	Nature of work
Diarrhoea	Dirty water
<b>Infant/child morbidity</b>	
-	Pneumonia
-	Diarrhoea
-	Worms

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- Skin diseases  
Infant/child mortality – 1%  
Nutritional status of infant/child is good and malnutrition is not pronounced.

PHC was initiated by the MOH through IFAD in 1999. Participants were trained at Warazo on general hygiene, growth monitoring, disease prevention, and kitchen garden, TBAs. The people who were trained and promised bicycles and lunches were sidelined by the administration (Chief) by recruiting new members who were not even trained. The group then naturally died. In 2001, the community took the initiative of establishing their own PHC and trained their own people who are still active in the area.

**Water Provision**

Sources are piped water from Warazo-Co-operative water project from river Mere that was started in 1965, from Little Mere springs and Gathima Ngukura River. Water harvesting and Dams. The distance to the furthest source is ½ Km. Water is used for domestic and irrigation operations. It is not sufficient and the community has plans for building a dam inside the forest.

**FOOD PRODUCTION**

Average acreage – 5 acres

CROPS	ACREAGE	YIELD	COST
Maize	1 acre	2 bags	800/= each
Beans	1 acre	½ bags	1600/= each
Potatoes	½ acre	6 bags	500/= each

LIVESTOCK	AVERAGE/FARMER	YIELD	COST
Cows	2	6Kgs	10/= each
Sheep	3	2 offspring per year	1500/= each
Chicken	5	Eggs – 5/=	150-200/= each

**New Technologies**

Tumbukiza method for planting napier grass has been introduced but few are practising it.  
Income generating activities using local resources: - Trees and timber harvesting.

**Empowerment**

Waiver system in health system to the poor  
Squatters: - Casual employment and renting them farms.  
Female-headed households are 70% of all households. . The squatter village in the area explains this.

**16. KAMBURAINI DISPENSARY**

**Institutional Strengthening**

The facility was initially in a village in Narumoru forest called Nairobi village occupied by squatters in 1989. Previously, residents used to go to Nyeri for health services and also Warazo Dispensary and Narumoru dispensary respectively. Distance to Munyu was 10Kms while to Warazo was 6Kms. A committee was formed in 1988 and the idea of moving the dispensary from the forest to Kamburaini was agreed upon. Since the community was in dire need of a health facility. Some women had put up a small shelter in collaboration with the Red Cross for mobile health services especially for expectant mothers. They used to get medical staff from Nyeri PGH twice a week. DDC Kiini East gave a go ahead that this shelter be rehabilitated and used as dispensary. The community was to contribute for the renovation and each family contributed 80/=. In 1989 the Dispensary became operational with 1 nurse and a subordinate staff. The community also took care of their accommodation by renovating some temporary houses within the compound. In 1991, the committee came up with the idea of putting up permanent 2 bed roomed houses for the staff. RDF with Kshs 460,000 assisted them. The community contributed unskilled labour and paid



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for masons and carpenters. The houses were completed in 1993 but with no septic tanks and water system. In 2002, the committee sold an idea of putting up a permanent building for the Dispensary. The committee was expanded to cater for all the 9 villages, each village to have 6 members plus the original committee of 9 members totalling to 54 for ease of mobilisation. A harambee was organised together with the area Member of Parliament and each family contributed 1,000/= with the total amount collected being about 130,000/=. This amount was used to construct the foundation. According to the members, the contributions from the community is very low due to high poverty levels because they depend on farming and markets are very poor e.g. the cooperative society for their milk has not been operational for a long time.

**Health.**

Prevalence of diseases

Disease	Cause
- URTI (Pneumonia)	Cold
- Malaria	Breeding places for mosquitoes
- Diabetes	Eating habits
- Worms	Untreated water and uncooked food
- Typhoid	Untreated water
- Skin diseases and ringworms	
- AIDS/ STIs	

Pneumonia, worms and Diarrhoeas cause morbidity in children while mortality is 1% and caused mainly by Pneumonia. The members talked of an establishment of PHC in 1997. A chief's Baraza was called and community was briefed on the importance of PHC. Each village elected 2 representatives making a committee of 24, then later added 5 youths from every village to be trained as CHWs. Public Health and Social Services Departments trained them. Introduction of Bamako Initiatives but didn't take off. The PHC group didn't commence work due to rumours that they were supposed to be given some money but it was not given to them. They are aware that the training was sponsored by IFAD. Training sessions were not completed and tools promised were not given.

**Infant nutritional status:** They are mainly fed on porridge, potatoes, milk, greens and ugali. Nutritional status is good.

**Water.**

Sources are Nairobi River and Naromoru River through Kamburaini water project. They also harvest rainwater. When there is severe drought, the furthest distance in search of water is 3Kms. Piped water is used for domestic and minor irrigation.

**Food production**

There are about 800 households with an average land ownership of about 3 acres. The members reported that they practice intercropping.

Crop	Acreage under crop	Yield	Value in Kshs per unit
Maize	1/2	3 bags	800/bag
Beans	1	1 bag	1,200/bag
Potatoes	1/4	3 bags	500/bag
Cabbages	1/8	1,000 heads	2 each
Snow peas	1/16	30 cartons	50/carton

Most of the production is for home consumption.

	No. per HH	Yield	Value in Kshs
Milk production		5 litres/day/cow	7/litre
Cows	1		
Sheep	2		1,200 each
Chicken	3		100 – 150 each
Eggs			5 each

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**New technologies.** None

**Environmental protection**

To protect environment they have planted trees Napier grass and sweet potato vines.

**Improvement In Incomes**

Farm	70%
Casuals	50%
Permanent employment	20%
Business	40%

The improvement was felt during the period water was sufficient. It is not anymore. There has also been a negative impact of liberalisation, which led to the collapse of farmers marketing and supplies sources. This depressed incomes. There was improvement of shelter, health- due to improved diet-, and education - because they could easily pay school fees-.

**Empowerment**

Poor of the poor are given work as casuals; the community feeds the most helpless cases. In schools before free education, their children were given free admission. Social groups like churches and women groups also assist them. Female-headed households are 50% and during the times when farm production was high, they were financially empowered and would comfortably meet their needs.

**17. KAMBURAINI WATER PROJECT**

**Background**

The member settled here in 1963. They detected a water problem especially for domestic use. They used to walk for 12 Kms to fetch water in Nairobi and Tigithi rivers. In 1971 some elders met and came up with the idea of building and intake (dam) at Tigithi River. The members were given a loan of 2,000/= for each member from the Settlement Board for installing water. Provincial Administration and Social Services were having consultations with the community and women were very much involved. Society prepared shares for the members where deductions of 1,300/= were to be made depending on ones milk production. This was primarily for water. CARE Kenya offered to assist the project with a total of Kshs. 4M that was used to construct an intake, buy pipes and build 11 storage tanks ranging from 50M<sup>3</sup> to 225 M<sup>3</sup>. Piping was done for a distance of 35Kms i.e. Gravity main 3Kms and the 32 distribution lines. The project covered the entire Narumoru settlement scheme i.e. Kirinyaga Nyange water project, Gitwe water project and Kamburaini water project. The Ministry of Water did all the survey. Member are 300 and all of them contributed 1,300/=.

**Uses Of Water**

Due to increase in population and some people practicing some irrigation, water became less and Kirinyaga Nyange and Gitwe projects went their way and Kamburaini water project thought of looking for more water to assist in irrigation in 1984. By 1978, the first phase of the scheme was completed. After the 1984 drought, the members in 1985 dug a furrow to get water for irrigation. In 1990 the members got another blow when the government stopped the use of furrows even before the water could flow into the furrows. In 1990 they applied for a permit for piped water. Survey was done and from the intake to forest edge was 6Kms less compared to the furrows. Every member contributed Kshs. 810 plus locally available materials like hardcore and sand. While in the process of intake construction, IFAD came to their assistance in 1992 and assisted them with 3734 pipes – ranging 1½” to 12” and all the fittings. These pipes were for gravity main and distribution. Total man-days are 450 with a value of Kshs. 13M. Water started flowing around February 2000.

Members later contributed a 225 M<sup>3</sup> tank worth about 800,000/=. It is not yet roofed but materials worth about 100,000/= are on site. They would require about another 200,000/= to complete the tank. The members have continued to buy pipes to fill in where IFAD left. For a member to be considered full, they have to contribute Kshs. 10,000 and 250 man-days. A new member contributes Kshs. 50,000.

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**Health**

Prevalent diseases are

Disease	Cause
- Pneumonia	Cold
- Typhoid	Untreated Water
- Worms	Untreated Water
- STIs/AIDS	

Infant/child morbidity is as a result of Pneumonia, Diarrhoea and worms while mortality is 0.1% is as a result of Diarrhoea and Pneumonia.

**Establishment of PHC**

Some members had heard about it. There were some community members elected during a chief's baraza in 1998/99. The ministry of Health trained them. Nothing much was heard about them after that.

**Food production and productivity**

Members practice mixed farming with average land ownership being 3 acres

Crop	Acreage under crop	Yield	Value in Kshs/unit
Maize	1	5 bags	800/bag
Beans	1	½ bags	2,000/bag
Potatoes	½	10 bags	800 per bag
Cabbages	¼	2,000 heads	2 each
Snow peas	1/8	80 cartons	60 per carton

	No. per HH	Yield	Value in Kshs
Milk production		5Kg/cow/day	7/Kg
Sheep	2		2,000 each
Cows	2		
Chicken	10		100 – 150 each
Eggs			5 each
Rabbits	Home consumption		

**Improvement In Incomes**

Farming	70%
Casual workers	25%
Permanent employment	5%
Business	10%

The above improvement has been affected by market and decreased water supplies. Agricultural income streams in order of production are: -

1. Dairy
2. Horticulture
3. Legumes – Peas, Beans
4. Cereals
5. Small stock

**Empowerment**

The project committees attended several workshops where they were trained on leadership skills and management. Poor people have been given work as casuals especially when the flow of water was high. The very poor are even given food by the community and other social institutions like church and women groups. Female-headed households are 50%. Most of these women have formed groups to assist each other



## 18. KIRINYAGA NYANGE WATER PROJECT

### Institutional and Planning

The group is situated in Rongai sub-location of Narumoru Location of Kiari East Division. It was formed in 1970 after people settled in the area and realised the area was very dry. They formed a project called Narumoru Cooperative Water project, which covered Kamburaini Gitwe and Kirinyaga Nyange from Narumoru River. Each member was to contribute 1,200/= which was to be deducted from the cooperative society. The community constructed the water intake and provided the labour and materials (each member dug 540 ft of trench). The unskilled labour provided by the community was worth 250,000/=. The government provided the gravity mains and distribution pipes. For individual connections, the beneficiaries provided their own pipes. At the same time the government provided materials for construction of 8 storage tanks, supervision staff and community provided all the unskilled labour and paid for all skilled labour. The project was completed in 1980. In 1984, water became less due to severe drought, population increases, and the upper zone people started more irrigation. They thought of reviving an old furrow left by a white settler along river Nairobi to water their livestock. The community rehabilitated the furrow and the intake and poured the water into the valley that was close to them. Later as problems continued, they thought of connecting the water to their existing distribution system and disconnected themselves from the older project. They called the new project Kirinyaga Nyange water project.

In 1994/95, the Canadian High Commission with 8" pipes, which covered a distance of 2Km, assisted the community. They subsequently changed their water from the furrow to pipes worth Kshs. 1.2 M. From 1997 to 2000, IFAD has provided the project with 930 PVC pipes of various sizes and fittings. These pipes were used to pipe water from the new intake they had constructed and part of the distribution system. The water is used for domestic, livestock and minor irrigation. 400 members have individual connections. The lower zone people are the worst affected by the water shortage and some of the upper zone people have 2 connections and thus do not experience any water shortages. Serious conflict has arisen on water distribution/ratio between lower zone and upper zone. Rationing of water is not properly done. The lower zone hardly gets even domestic water while the upper zone even irrigates. The community is coming up with a solution of rationing and also of constructing a 90-ft deep dam to substitute water especially during the dry season.

### Health

Major causes of morbidity

**Disease** cause

Rheumatism	old age, cold/frost
Malaria	Breeding places for mosquitoes
Skin diseases	Pesticides
Amoeba	contaminated water, poorly cooked food.
URTI	cold
Diabetes	Heredity/diet
Ulcers	stress
Pneumonia	Cold
HIV/AIDS/STIs	irresponsible sex

Pneumonia, Malaria, Diarrhoea and URTI cause Child/infant morbidity. Infant mortality is 1%

PHC Concept is not well known by the group.

**Nutritional status** the diet mostly consumed is Milk, Eggs, Greens, Potatoes, Pumpkins, Tomatoes, Fruits and Beans. Their general improved nutritional status in the area.

### Food Production

There are 2,000 households in the area with average land ownership of 3 acres.

Crop	Acreage	Yield	Value in Kshs
Potatoes	1/4	8 bags	500 per bag
Maize	1/2	5 bags	800/bag
Beans	1/4	1 bag	1,400
Snow peas	1/8	100 cartons	5,000
Cabbages	1/8	1,000 heads	2,000

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	No. per HH	Yield	Value in Kshs
Milk production		10 Kg	10/Kg
Sheep	3	2 – 3 offspring	1,500
Chicken	5		100 – 150 each
Eggs			5 each
Rabbits		For home consumption	

Environmental protecting agricultural activities

These are tree planting with trees such as Blue gum, cypress, Mikima, Wattle, and grasses like Napier and Rhodes.

**New technologies.**

- Organic farming introduced by an NGO- SACDEP
- Orange/Avocado grafting
- Sericulture
- New varieties of Potatoes (Asante/Tigoni and Furaha)
- Pyrethrum
- Bananas
- New variety of cabbage – Globe
- Soya beans

Improved incomes

There is improved health status, education, population increased due to increased income from farming activities.

Empowerment

Committee members empowered through training on leadership and management. The poorest of the poor are provided with such services as water for free, food and clothes by Church organisations like the Catholic mission

Female headed household's accounts for 40% of the total households.

#### E. TIGITHI GROUP REPORT

##### 1. WATUKA DISPENSARY HEALTH MANAGEMENT COMMITTEE

The idea of putting up a dispensary in Watuka was conceived in 1972 and the community was able to put up the dispensary from 1973 to 1992 when it started giving services to community members without any external assistance. The catchment population served by the facility at the moment is 5,500 people and on average 25 – 35 patients are seen daily. As an effort to sustain the activities of the facility, a half an acre farm has been established where French beans are grown, through irrigation. The Health Management committee was established in 1972, through the assistance of the local CDA, who initially mobilised people to form an interim committee. Thereafter elections were held and resources were eventually mobilised and the year 1992, the health facility got completed through self-help efforts. IFAD interventions were therefore directed towards the following) Water supplies that not only brought about improvements health status of the people but also brought in an influx of migrant workers. b) Primary Health Care, that saw general improvement in the Health of people c) Agricultural extension services mainly through Home Economics. Before the above interventions took place, community members received unsafe water from the shallow wells and occasionally travelled a distance of 2Km to fetch water. Before the construction of the dispensary, community members walked between 4 to 5Km to get to services. Between 1972 up to 1980, food security was a problem and the area was under the relief food programme.

##### **Institutional Strengthening**

As mentioned earlier an active CDA had initiated the process of Group Formation and registration, and linkage to DPO/IFAD, and officers from health and water. The committee has been strengthened and trained in simple management and accounting procedures, though the group was not able to tell the source of funding of such training. Other than seeing them as normal Governmental services. None of the committee member participated in the project management committee. Beneficiary participation was in form of Harambee contributions that saw the completion of the Dispensary. Beneficiary monitoring and evaluation was reflected through constant meeting and review of the progress of the functioning of the dispensary which at the moment is self sustaining through the establishment of farming as an income generating activity, that earn the centre Kshs. 60,000 per three months.

##### **Health**

Major causes of morbidity are malaria, pneumonia and sexually transmitted diseases. Pneumonia, diarrhoea, and malaria drive Infant/Child morbidity. The nutritional status of children is good. Children look healthy and no case of marasmus or kwashiorkor has been reported in the area, as the group is aware of preparations of good diet for their children. The public Primary Health Care was established and was active for some time until their supervisors were transferred to other areas. At the moment it is not clear as to whether the PHC is functional due to lack of supervision and no reports are being received from the field for the last one-year. Kitchen gardens, which have been established through irrigation, enable most families to prepare balanced diets.

##### **Water Provision**

Although there is piped water, the water is not safe for drinking a conclusion made from the persistence of diseases, particularly for those families who do not boil the water. Almost every member is doing some irrigation (¼ to ½ an acre) per member in shifts.

##### **Food Production**

Productivity: -

Crops	Production per Acre
Maize	8 to 10 bags
Potatoes	50 to 80 bags when applying chemicals 5 to 20 bags without fertilizer
Cabbages	5000 to 10,000 heads with fertilizer



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	20 to 1,500 plants without fertilizer
Wheat	6 to 10 bags
Beans	5 to 10 bags

On average each farmer – 3 goats. Farmers have adopted growing of napier grass and the majority is practising tree planting. Growing of snow peas is the new technology.

**Improvement in Income**

Incomes have increased due to irrigation and use of fertilisers as shown under productivity. Casual employment in farms has also increased where a female worker is paid Kshs. 70 per day and a male worker is paid Kshs. 100 per day. Permanent employees are not found in the farms. Due to increased farming activities shopping centre and rental houses for the temporary workers can be seen.

**Income Generating Activities**

Bee keeping – mainly for men. Fishponds – kept by women groups

**Empowerment**

Poorest of the poor: - In this particular place there were no people who were perceived to be poor of the poor. Even the squatters found in the centre, most of them have been employed as casual labourers. However, our further investigation revealed that there exists a small fraction of the poorest.

**Basic Services To The Very Poor And Poor**

It was noted that the small fraction of the poorest of the poor are somehow registered and their names are forwarded to the health facility and a water kiosk. Such services are offered free to the poor. However, those poor who are not known by the community are denied such services.

**CONCLUSION**

Improvement in living standards of the above community is as a direct result of the IFAD interventions in Water, Health, Agriculture and Social Services. Water has had the major impact in lives of the above community.

**2. KAREMENO PHC GROUP**

The PHC was started in 1992. It comprised of 4 CHWs and 9 VHCs making a total of 13 health workers. IFAD's interventions were directed towards primary health care in the community.

**Institutional Strengthening**

The group was trained only on Primary health care concepts. One of the community health workers was taken for a visit to Uganda in 1993 on issues of HIV/AIDS. From then onwards the CHWs were able to integrate HIV/AIDS issues in their community health education. The CHWs through the PHC training were trained on planning, implementation and monitoring and evaluation of their activities. They have been collecting data on their activities and follow up activities have been based on analysis of the data collected during their activities.

**Health**

Major causes of morbidity are Upper respiratory tract infection, Skin diseases, Pneumonia, diarrhoea, Ringworm, Diabetes, Malaria

**Karemeno PHC Group**

There are trained community health care workers since 1992 through project funds. At the beginning, one CHW was catering for about 280 households but later on the number of CHWs was increased to cater for about 50 households. There was a period of about 3 years when the group was not operational – prior to 1997 when the Catholic Relief Services revitalised the activities. At the time of interview, the group is not cohesive in PHC activities but exist as a self-help, which occasionally propagates the PHC issues in its activities.

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Major causes of morbidity for children below five years of age are pneumonia, upper respiratory tract infection, tonsillitis, ringworms, diarrhoea. On child mortality, there were 2 deaths in the last 6 months. On Nutritional status of children below five years of age, there were a few cases of marasmus but not kwashiorkor.

**Environmental protection**

Agro-forestry – Fruit trees include Oranges and Passion fruits, other agro-forestry trees – gravillea. Fodder and nitrogen fixing trees are calliandra. Terracing is practised in limited form and water is harvested is harvested through on farm small dams. Poor handling of chemicals reported. There are reported cases of death of children. The reasons are chemical poisoning resulting from poor storage and at times use.

**New Technologies**

Maendeleo Jikos are available in some households.

**Income Streams**

- Vegetable growing - Kales
- Cereals (Wheat)
- Poultry – 3 per household
- Cattle - at least 1 per household
- Sheep and goats – 2 per household

There is no income generating activities using local resources other than those related to farming.

**I. Water Provision**

The main source of water is the Karemeno River, which is 4 Km away from the furthest member of the community. Mutitu water project has not reached the area. There is limited roof water harvesting. Irrigation water is not available.

**Food Production**

**Crops**

CROP	ACREAGE	PRODUCTION	VALUE (KSHS)
Beans	1 acre	4-5 bags	1250/= per bag
Potatoes	1 acre	10 bags	400/= per hag
Wheat	1 acre	12 bags	-
Onions	1 acre	15 bags (90Kg bag)	10/= per Kg
Sukuma wiki	1 acre	-	800/= per bag

**Livestock**

ANIMAL	PRODUCTION	VALUE (KSHS)
Cattle	6 Kgs /cow/day	8/= per Kg
Goats	Sale as meat goat	1500/= per goat
Sheep	Sale as meat sheep	1500 per sheep
Poultry	Sale of eggs	6/= per egg

**Empowerment**

The level of empowerment of the PHC group initiated and supported through IFAD funding is low. When the chairman and secretary left and treasurer died the group was unable to elect competent leadership. Another factor that may have contributed to lack of building capacity in the group was that funding from the project had not been forthcoming during 1996/97. For the 5 active CHWs or so the referred system is working.

**3. WATUKA WATER UPPER ZONE BENEFICIARIES GROUP**

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The group interviewed was composed of beneficiaries of Watuka water project. These were the first people to benefit from the water scheme. The Watuka water project was started in 1992 by the community members who had migrated from Nyeri, Kiambu and Murang'a district in 1964, each member getting between 7 to 15 acres of land under the settlement Board scheme.

IFAD interventions were mainly directed towards provision of water both for domestic use and irrigation. Agricultural improvements and primary health care activities. This group has highly benefited through the provision of water funded under IFAD.

**Health**

Major causes of morbidity for adults are malaria and pneumonia. Main causes of infant/child morbidity are pneumonia, Diarrhoea. Pneumonia is the main disease causing infant/child mortality. There are no malnutrition cases in the area. Staple food is a mixture of maize and beans (Githeri). Other dishes include rice, Ugali plus irish potatoes and vegetable.

**Water Provision**

Source of water is Uaso Nyiro River. Over 400 households are connected. Water is used for domestic. It is not adequate for irrigation. Farmers irrigate ¼ acre plots (Kitchen gardens). Water quality is fairly safe for drinking. Most of the community does not boil drinking water.

**Agriculture**

**Food Crops**

CROP	ACREAGE	PRODUCTION	VALUE (KSHS)
Maize	¼	5 bags	-
Potatoes	¼	5 bags	-
Cabbage	¼	800 heads of approx. 2Kgs each	-
Onion	¼	1200 kgs	-
Wheat	¼	3 bags	-

**Livestock**

ANIMAL	PRODUCTION	PRICE (KSHS)
Cattle	6 kgs per cow per day	-
Sheep	Sale of meat sheep	3,000 (Improved breed)
Poultry	Sale of Eggs	5/= per Egg

**Environmental Protection**

This includes terracing, use of grass strips; no agro-forestry is practised since source of seedlings as the major problem-. Farmers do not adequately protect themselves from chemical contamination when using pesticides and acaricides. Chemicals are stored in the main house.

**New technologies**

New crops are Tigoni variety of potatoes and Red orient onion variety. Farmers are aware of energy saving devices but are not using them.

**Income Streams**

- Wheat farming
- Poultry – 5 per household
- Sheep (Improved breeds)
- Cattle

**Improvement in incomes**

Farm incomes – fairly improved  
Casual employment – None  
Permanent employment – None



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Business – Farming (Crop and livestock)

**Income generating – using local resources**

None

**Empowerment**

Poorest of the poor – none according to community interview and Female headed households – not probed. Basic services to the very poor and poor for the beneficiaries argue that there are no very poor of the poor as every member has a piece of land and deriving benefits directly for irrigation.

**4. KABATI HEALTH CENTRE MANAGEMENT COMMITTEE**

The group was registered in 1983 and started contributing twenty shillings per person with an objective of putting up a health centre. The group has a total membership of 2000 paid up members. From 1983 to 1997, the committee was not active until 1998 when fresh elections were held and the new management team was put in place. The new management team, as a temporary measure converted a workshop belonging to a school into a dispensary, through the assistance of the local councillor and the area MP. The facility became operational in 1999. The committee at the moment has identified an alternative site, which they have yet to acquire where they hope to put up a modern health centre. There were no IFAD interventions in this group except primary health care.

**Beneficiary participation in implementation**

The community has depended heavily on their local MP and the area councillor and has been able to convert the workshop into a health centre purely on self-help basis without any assistance from outside. They have also managed to put up a water intake on their own that cost Kshs. 800,000/=. At the moment they are waiting for a donor to assist them complete it. The project is estimated to cost Ksh. 32 million.

**Beneficiary Monitoring and Evaluation**

At the moment the committee is yet to get into serious planning and implementation of the already started project due to leadership problem. Currently such capacity to monitor and evaluate their activities is lacking. Due to leadership wrangles, IFAD could not support the extension of the water project beyond the intake.

**Health**

Major causes of morbidity are Upper Respiratory Tract Infection, Malaria, Typhoid, Skin, and disease, Diarrhoea. Children under five years of age leading diseases are pneumonia, Diarrhoea, upper respiratory Tract Infection, Malaria. No children died in the last six months. The management committee has been trained on PHC concept and community participation. This was done during the general training on management of the facility. There is a community pharmacy cited about 300 metres away – which is operational at the moment. The community said there is no case of kwashiorkor or marasmus – because the necessary food is available for children well being.

**Water Provision**

Uaso Nyiro River is the main source. 12 Km is the distance for the furthest members. There is an ActionAid financed borehole. Water is generally for domestic use. It is generally salty.

**Food production:** No intervention

**Empowerment**

The group has leadership problems and each articulates their priorities and totally lacks problem-solving capacities. Since they lack interventions the majority of the people are poor.

Services to the very poor and poor

The poor of the poorest are exempted from the cost sharing in the service offered by the health centre.

**5. GATARAKWA – MUGUNDA WATER PROJECT (LAMURIA LINE)**

The project started 19 years ago. The community constructed the intake through community contribution. The group is part of the larger scheme known as Gataragwa-Mugunda project with a total membership of 2,100. Gataragwa-Mugunda water project was started in 1991 and in 1993 they started getting assistance from the IFAD funded project. The group interviewed has members of the Lamuria line that has a membership of 1,000. The group members come from the lower zone of the project. The piping is 8Km away from the area and they are making efforts from their own contributions to have the project completed and benefit from the project.

**Institutional strengthening**

All the projects and targeted beneficiaries totalling 2,100 have participated actively in implementation of the intake. They have yet to construct the main storage tank of 22m<sup>3</sup> and to raise funds to procure the remaining pipes. The capacity of beneficiaries in M&E appears to be weak. They did not know the cost of the remaining works and did not have any clear plans on how to complete the remaining works.

**Health**

Major causes of diseases are URTI, Malaria, Skin diseases, Intestinal worms, Diarrhoea, Rheumatism. Some members of the community have been trained on PHC concepts and have been carrying out some PHC activities. Pneumonia, URTI, and Tonsillitis drive infant and child morbidity. No infant/child death reported in the last 6 months. Cases of malnutrition are not significant. They have the necessary variety of foods but in the past they have experienced transitory food insecurity where they have been supplied with relief supplies.

**Water Provision**

The community members travel 3 – 5 Kms to get water at Ngare Nyiro River. Water vendors who get water from the river and charge Kshs. 20 per 20-litre container also serve the community. The water from the river is not safe for drinking. Irrigation water is not available.

**Food Production**

Food production is of subsistence level

**Improvements in incomes**

Since the IFAD project interventions and other interventions have not been introduced into the area there have not been any improvements in incomes.

**Income Generating Activities using local resources**

Livestock (Poultry keeping and dairy)

**Agricultural Income streams**

- a) Horticultural crops – None
- b) Legumes – None
- c) Cereals – subsistence
- d) Small stock (sheep, goats, chicken): - used for home consumption and some are sold to earn incomes. An average every household has 3 to 4 goats
- e) Dairy- every household has at least 1 cow and milk production is a significant activity. A cow in the area will produce about 6 litres per cow per day.

**Empowerment**

Poorest of the poor: - The percentage of the poor of the poorest is higher than other areas. Female heads of households was not captured. Basic services to the very poor and poor were not captured.

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**6. AMBONI WOMEN GROUP**

The group was started in 1989 by 16 members Membership by February 2003 was 45. The objective was to uplift their standard of living by, conducting merry-go-round, buying utensils, construct water tank of 100/200 litres for each member and getting group loans.

**Institutional strengthening**

There were no interventions from DPO office. Members started the group to serve their felt needs. There were no donor interventions if group formation. Beneficiary participation in implementation of their activities has been high. Membership rose from 16 in 1989 to 45 in 2003. All members have benefited from utensils purchase and bedding. The only intervention the group got from the home economics training.

**Water Provision.**

The group members are also members of Simbara-Bondeni water project. The project is 90% complete and are yet to benefit from the water. There is therefore no impact from water. The current source of water is 5 Kms away and not safe for drinking unless boiled. Case of intestinal worms and Diarrhoea are common.

**Health**

Major causes of morbidity for adults are malaria, pneumonia, typhoid, intestinal worms, eye infection, and joint pains. Age group below five year of age morbidity is driven by pneumonia, malaria, Upper Respiratory Tract Infection, Tonsillitis, Eye infections. There have been no deaths in the last 6 months. The group stated that though they have no PHC group in their community, they have benefited from teaching held at the Amboni dispensary. There are a variety of foods to sustain good nutrition, hence no cases of kwashiorkor and marasmus.

**CENTRAL RIRU WOMEN GROUP**

**Water Provision**

Sources of Water are Simbara/Mbondeni and roof water harvesting. Water is used for domestic purposes only for there is no irrigation water. Drinking water has to be boiled.

**Agriculture**

**Crop Production**

CROP	ACREAGE	PRODUCTION	VALUE (KSHS)
Maize	1	6 bags	800/= per bag
Beans	1	1-2 bags	3,00/= per bag
Potatoes	1/4	20 bags	400/= per bag
Onion	New crop in the area, not yet harvested		

**Livestock Production**

ANIMAL	PRODUCTION	VALUE (KSHS)
Cattle	6 kgs per cow per day	8/= per Kg
Goats	Sale as meat goat	2,000/= per local goat 3,000 /= - improved breed
Poultry	Sale of eggs Sale of chicken	5/= per egg 250/= per chicken

**Environmental Protection**

Un safe use of pesticides and acaricides against crop and animal pests is common. Through aware of the dangers of chemicals, chemical handling is not adequate No



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protective clothing and proper storage of the chemists. Soil and water conservation measures are use of terracing and tree planting. Graviillea is very abundant.

**New Technologies**

Energy saving devices, like Maendeleo jikos, have a 100% adoption rate. Food warmer and tea cosy have 0% adoption. Kitchen gardens are not seen.

**Income Streams**

Horticultural crops – Onion growing (Newly introduced)

Legumes – Beans

Cereals – Maize

Small stock – Goats average of 2 per household

Poultry – 3 per household

Beekeeping – few beehives due to theft of honey

**Empowerment**

There were no poor of the poor in this group. The group members are participating actively in their activities, and they are able to express their feelings effectively. Since the community interviewed has not started utilising water, it is difficult to conclude how the poor of the poorest will be catered for.

**7. KIMURI WOMEN GROUP (GROUP 2)**

Kimuri women group was started in 1993 with the initial purpose of helping members purchase household goods through merry-go-round activities. The group has a total membership of 40 women and this number has remained constant since its inception. These members came to settle in this area from 1982 to 1990 when they purchased pieces of land. Through group effort of contributing 50 shillings per member, they have been able to purchase household utensils, blankets and put up iron sheet roofing for every member and at the moment they are buying goats for each member. 10 members have already received one goat each.

IFAD interventions have been directed towards the establishment of primary health care, social services, agricultural extension and the provision of water.

**Beneficiary participation in implementation**

The group was initiated solely through the efforts of their members to uplift their living conditions. The members of the self-help group have been participating actively in the planning and implementation of their activities. They have been meeting monthly to review implementation of their activities, identify and address any constraints and to chart the way forward.

**Beneficiary M&E capacity**

The group has received training from staff of Agricultural extension, social services and health. They indicated that the training has helped them to plan, implement and monitor their activities. Every month the group members meet to review their implementation progress and plan for future activities. They maintain a record of the minutes of their meetings. Beneficiary M&E capacity has been enhanced through training from IFAD interventions.

**Beneficiary participation in PMC**

None

**Health**

Causes of adult morbidity before were upper respiratory tract infection, pneumonia, skin diseases, amoeba, kwashiorkor & malaria. Currently they are URTI, malaria, pneumonia, amoeba and HIV/AIDS. For children below 5 years of age before they were pneumonia, malaria, Diarrhoea, intestinal worms, ringworm's. Now they are URTI, pneumonia, ringworm, ear infections, and congenital anomalies. There

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are no cases of kwashiorkor, marasmus etc. Various foods staff for good nutritional practices are available and health education activities in place. PHC is in place and activities such as kitchen garden, home visiting, clearing of compounds is being carried out. Some members of community have been trained to assist in safe delivery of children.

**Water**

After settlement from different parts of the country from 1982 to 1990, members used to get water from Nanyuki River, which are 3Km away. In 1994 Mwea "B" water project group was formed and registered with social services. Each member contributed Kshs. 150 as membership. Share contribution is set at Kshs. 10,000 per member. In 1998 IFAD came in to help the group in form of provision of pipes for gravity main and distribution line. Share capital was raised to Kshs. 15,800 per member. Today 262 members are connected with water for domestic use out of 430. Members to be connected must have completed the communal working days and pay the share contribution. Water for irrigation is available through Mwea "B" water project. Members are able to practice minor irrigation on 1/16 to 1/2 acre plot. Acreage for the area is 1 acre per plot.

**Food Production**

TYPE OF CROP	ACREAGE	PRODUCTION/ACRE	UNIT PRICE (KSH)
Potatoes	Acre	20 – 25 bags	500/= per bag
Maize	For subsistence –	harvested for roasting	15-20= per Kg
Beans	1 acre	1 bag	25/= per Kg
Cabbages	1/4 acre	700 heads, average 2Kgs	5/= per Kg
Carrots	1/2 acre	10 bags (130Kg/bag)	10/= per head
Snow peas	1/4 acre	500-600Kgs	15/= per Kg
Onion	1/4 acre	5 bags	10/= per kg

Maize, green peas, kales and spinach are grown mainly for subsistence. Maize is harvested for wasting because of the fear of damage by wild animals, mainly the elephants. Snow peas are a new crop in the area and are gaining popularity as a cash crop. Soya beans is also being grown on trial basis for its performance.

**Animal Production:**

TYPE OF ANIMAL	PRODUCTION	VALUE (KSHS)
Cattle (Crosses)	Milk – 3Kgs/cow/day	1 bottle at 8/=
Sheep (Local breeds)	Sale as meat sheep	Adult sheep 1,500/=
Goats (Local breeds)	Sale as meat goat	Adult goat 1,500/=
Pigs	For sale	3 months old – 1,500/= Adult – 1Kg at 80/=
Poultry (chicken)	For eggs	5/= per egg

The community also has rabbits, turkeys and ducks, though not very popular.

**Environmental Protecting Agricultural Techniques**

These are mainly geared towards soil and water conservation measures and include. Fanya juu terraces in 100% of sloppy farms and Agro-forestry with gravillea as the common tree species are the main treatments.

**New Technologies**

Kitchen gardens are found in 50% of the homes, growing various types of vegetables such as cabbages, kales, spinach, green peas and onions. . Energy saving Maendeleo jikos is adopted by 50% of the households. Community training have been conducted on its construction by the agricultural extension staff. New crops like Snow peas as a cash crop are increasingly gaining popularity in the area. A new Napier planting method called "Tumbukisa", where a hole of 1m x 1m x 1m is prepared in which Napier is planted is new in the area.

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**Improvements in income**

Farm incomes have improved although farmers complained of exploitation by brokers offering poor prices and some times complete lack of marketing channels. Few farmers especially during peak farming operations engage casual employment. Permanent employment is marginal as farms are small, only 1.0 acre. Small vegetable and milk kiosks are found.

**Income Generating Activities Using Local Resources**

Sale of farm produce and sale of tree seedlings was seen. One individual operates a tree nursery.

**Agricultural Income Streams**

In horticulture a few individuals just start growing snow peas. Others grow tomatoes, cabbages and carrots. Beans and maize are grown only for home consumption. Small stock: of local breeds of sheep and goats are kept by 3 out of 10 farmers have a sheep or a goat. Few farmers have a dairy cow.

**Empowerment**

The women group has received a number of training in terms of group organisation and management, and general knowledge in primary health care activities and are applying the knowledge in their day-to-day activities. Agricultural extension services have been applied. All these interventions were funded by IFAD. They are able to express themselves, are also well organised, and have since inception held three elections giving room to other members of group to acquire leadership skills.

**Female Headed Households**

30% of the homesteads are female-headed households. The husbands are either dead or working in towns.

**Basic services to the very poor and poor**

In the area the very poor are composed of the aged. The community members are able to support these people when they have harvested their crops. They are also exempted from cost sharing at the dispensary when they fall sick. They also get eater from those who have freely.

**8. GITWE WATER PROJECT MANAGEMENT COMMITTEE**

The community benefiting from the Gitwe water project settled in this area in 1963. This was through the Settlement Board, which picked the very poorest from many districts and settled them in lands formerly farmed by the Colonialists. Each person got 15 to 500 acres of land depending on the soil fertility. In 1970, the government started the Naromoru water scheme, which was to serve the total population of the 300 farmers. Although the project got completed, ten years later due to population growth, the water from the above scheme was not sufficient. By 1984, the community started contributing money and managed to complete another water intake at a cost of Kshs. 450,000, which they managed to connect to the existing water system.

IFAD interventions in this community were directed towards improvement of water provision, and training in public health care. The current management committee is composed of nine members who were elected recently and could not remember well the past activities of the project. The committee has a bank account and some money for future maintenance of the project.

For new members to join the scheme, Kshs. 13,00 are required as an initial membership fee and thereafter, a monthly contribution of Ksh. 20 for usage of water.

**Planning**

Beneficiaries did not participate in PMC. The participation of the community in implementation of their development activities, particularly in construction of water projects, has along history. In 1970 the government assisted the community to get water. The community contributed labour while the government did the rest of the project activities. The project was covering Gitwe, Nyange and Kamburaini area. After a period of 10 years it was found that the water was not enough. The government once again provided



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pipes to augment the system and the community members contributed labour. Later the community started to experience water shortages due to increase in population.

In 1984, the community of Gitwe area decided to start their own project separate for the Naromoru scheme water project they had depended on all along. Each member agreed to contribute Kshs. 1,500 towards the project and in 1984 they completed construction of an intake. They also bought pipes they connected into the old system. As population increased water shortages started to be experienced and in 1998 approached IFAD for assistance to augment their project. They entered into an arrangement with GoK/Donor where they were to be provided with all pipes and the community to provide cash, labour and materials amounting to 30% of the total cost. Beneficiary contribution as part of their contribution included construction of two tanks and trenching. They approached another donor, Spencer to assist them construct one of the storage tanks. Today they are benefiting from the water. The beneficiaries have actively participated in the implementation of project activities.

**Beneficiary M&E capacity**

Beneficiaries M&E capacity seems not to have been enhanced substantially. However, they seem to have gained some knowledge in M&E during implementation phase of the project. The implementing officers for water component used to facilitate the development of participatory work plans in respect of these activities that were supposed to be undertaken by the community. However, during the operational phase of the project, the beneficiary representatives do not seem to realise that the user fee of Kshs. 20 per month per member is too low to effectively operate and maintain their water project.

**Health**

Prevalent causes of morbidity before were URTI, pneumonia. Currently they are URTI, malaria, intestinal worms, typhoid, and asthma. Past prevalent causes of morbidity, for children below 5 years of age, were URTI, pneumonia, and measles. Currently they are URTI, malaria, pneumonia, ringworm's, and chicken pox. There have been about 4 deaths (pneumonia) in the last 6 months. The members say there is no case of Kwashiorkor, marasmus etc. A variety of food necessary for good nutritional practices plenty/available. There are some members of community who have trained as CHWs – though not very active at the moment.

**Water**

The community settled in the area from 1963. They used to get water from the nearby rivers for domestic use while livestock were taken to the river some going for 5Km away. In 1970, the government of Kenya started a water project for the whole scheme comprising of Nyange, Kamburaini and Gitwe areas. In 1984, Gitwe zone started their water project after realising that water was becoming inadequate. Water was for domestic use only. They constructed an intake and bought pipes of various diameters, which were connected into the existing system of the scheme. Each member was contributing 1,500/=. In 1998, IFAD came in to help the community by providing UPVC pipes of sizes 225mm diameter, 60mm diameter and 110mm diameter. The pipes were laid from near the intake to the 1<sup>st</sup> storage tank and for distribution lines. The present membership is 300 households out 1,500 households in the area.

The community provided unskilled labour while the GoK provided skilled labour. The community was also to construct two storage tanks of 225m<sup>3</sup> and 135m<sup>3</sup> as their 30% component. Lucky enough the community got a separate donor who funded the construction of the 225m<sup>3</sup> tank namely Mr. Spencer.

The community has managed to construct the 2<sup>nd</sup> storage tank. The impact of IFAD intervention is manifested since flow improved and irrigation increased. As new members are connected with water by ½ pipe the water they get is inadequate for irrigation. This had resulted in the use of shift system so that every member can get water.

The community is embarking on dam construction in the forest area so that they can get water all the year round. The design is complete but the cost is prohibitive. The flow in the river has gone down to over extraction, forest cover destruction and less water from the mountain due to climatic changes. For sustainability of the project, each member contributes 20/= per month which according to them is not enough. They plan to call AGM to ask members to review the amount upwards.

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**Food Production**

**Crop Production**

TYPE OF CROP	ACREAGE	YIELD/ACRE	UNIT PRICE (KSH)
Potatoes (Irish)	1 acre	20-25 bags	Farm gate: 500/= per bag
Beans	For subsistence only		-
Maize	For subsistence only		-
Wheat	1 acre	6-8 bags	Farm gate: 1100-1200 per bag and sometimes goes down as 900/= per bag
Cabbage	1 acre	10,000 heads of 1 Kgs each on average	2/= per head
Snow peas	1/8 acre	50-60 cartons (1 carton – 2.5Kg)	Where off season 30-40 per carton In season – 1500 per carton

**Livestock Production**

ANIMAL	PRODUCTION	VALUE (KSHS)
Cattle (crosses)	Milk 8 Kgs/cow/day	7/= per Kg
Sheep	Sale as meat sheep	Adult 1000/=
Goats	Very few goats	Very few goats and go for 1000/=
Poultry (chicken)	Few eggs	5/= each
Rabbits	Few	150/=

**Environmental Protection Techniques**

There was no IFAD intervention. However, grass strips are found in those areas requiring terracing. Flooding is a problem in the area but no measures taken to alleviate the problem.

**New Techniques**

Calliandra a fodder tree was introduced recently (2002) and is still in the nurseries. Its performance in the area is yet to be known. Energy saving devices awareness has been created through the department of Agriculture. A few homes have the "Kuni Mbili Jiko".

**Improvements in Income**

No improvements in farm incomes as perceived by the community, citing exploitation by middlemen and market liberalisation. Young men and women seek casual employment for income to cater for their family needs in the farms and big hotels, such as Naromoru River Lodge, and some as mountain climbing guides or porters. There is no permanent employment. Businesses are essentially vegetable kiosks and small retail shops.

**Income generating activities using local resources**

These are limited to vegetable growing and sale of tree seedlings.

**Agricultural income streams**

Horticultural crops, among which snow peas, cabbages with those having minor irrigation facilities are main activities. Legumes do not generate cash. Of the cereals wheat is for sale for those few who produce it. Small stock – mainly sheep, average 3-5 animals per households, are significant. So is milk for on average there are 2 dairy animals per households.

**Empowerment**

The management committee was recently elected and they have not received any training in organisation and management skills. Female-headed households form 10% of the households. About 30% of the population are considered poor. These are mainly employed as casual labourers in other people's shambas. The situation will change when enough water for irrigation is available.



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**Basic services to the very poor and poor**

Very poor are not given water free unless they are disabled or get drinking water from their neighbours.

**9. NAROMORU HEALTH CENTRE MANAGEMENT COMMITTEE**

The Naromoru was part of the white highlands area that belonged to white farmers during the colonial days. After independence, white farmers moved out. Community members started settling in this area from 1965 to 1966, being settled through the government efforts of settling the local people each getting 40 acres and above, and through land buying companies, each member getting at least two acres and above, depending on the number of shares purchased.

These people did not have a health facility in the location, up to year 1971, when the government established the Naromoru dispensary, which eventually through IFAD funding, in 1996/97 expanded, and converted the dispensary into a health centre, which currently has a maternity ward of six beds. The facility management committee was established in 1993. Each facility was required to have a management committee before being assisted. At the moment the committee is composed of 20 members.

IFAD interventions were directed towards putting up the health centre, establishment of primary health care and agricultural extensions. The community around the facility did not benefit from IFAD in terms of water provision.

GoK started the facility in 1971 serving 8,000 people in the former Naromoru location, which included Kiamathaga location. The land was one in the trustee of Laikipia council. It was the only facility in the whole location and the only one near was 15Km away.

The first committee was put in place in 1993 with the coming of IFAD project. This was selected in leaders meeting representing all the areas in the location; but since then new facilities have come up.

Mururu dispensary and Kiamathaga are 6 and 10 Km away respectively. The committee, which started in 1993, led up to year 2001. Initially, its role was not clear and hence in the later year some members dropped out when a new one was elected. This is made up of 13 members, 3 ex-officials, and 4 co-opted members.

The committee's roles are to supervise cost-sharing/fund raising, maintenance of facility, employ subordinate staff – watchmen, clerk, attendant

**Planning**

Beneficiaries did not participate in the PMC. They participated in planning implementation of the things they wanted after imposition of cost sharing. The government in 1971 started the health facility. The government without any involvement of the community also ran it. This facility was serving Naromoru location. This location has since been split into two locations, Naromoru and Kiamathaga. In 1993 a leaders meeting was convened who decided that they needed to start a maternity wing as the nearest facilities with maternity facilities were very far away.

The nearest maternity facility was 20 kilometres away and the community in the surrounding area felt that this was a priority problem. At the leaders meeting representative of the various areas in the location were selected to pursue the issue of a maternity wing. The leaders approached IFAD officer in Nyeri to be funded for the maternity wing. To qualify for funding they were informed that they had to make some contributions to the erection of the maternity wing. The community leaders met and decided that each member in the catchment area contributes Kshs. 100 towards the project. A total of Kshs. 240,000 was raised which went to finance a septic tank, Soak pits and Placenta pits. According to arrangements with the IFAD project, this was beneficiary contribution.

The maternity wing was completed and became operational in 1996. The leaders confirmed facility implementation of activities up to 2001 when elections were carried out. A new committee is now in place.



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None of those leaders were elected into the new committee. The earlier committee had initiated an x-ray project and the building has been started but the new committee has felt that they first start a laboratory project so that the user fees from the laboratory can be used to finance the stalled x-ray project. The new committee had developed a development plan, which they have broken down into work-plans and the committee members are assigned the responsibility for overseeing the implementation of various aspects of the work-plan. The co-opted NGOs/CBOs in the HFMC has been advising and participating in planning and implementation of activities funded mainly from cost sharing funds.

The interaction between the elected HFMC members and the co-opted members of the HFMC from CBOs/NGOs has enhanced the capacity of the committee in planning, implementation and monitoring of committee activities. The committee meets every month. They analyse the data collected from the facility such as trend in attendance, amounts collected and other data gathered. They make their decision based on the analysis of data gathered. For example, if the attendance of patients goes down drastically they try to get to the actual causes. Based on findings they take appropriate action. They are fully aware of the DFRD process from grassroots to district level.

**Health**

IFAD project assisted the community in renovation of the facility and construction of maternity wing of 6 beds – 1996-97 period. The maternity services started in March 26<sup>th</sup> 1997. Currently the bed occupancy rate is about 50%. The committee is trying to find out what is the reason. The community did their part by completing the septic tank, placenta pit and soakage pit. They have undertaken various ventures for development such as - Harambee was held to start X-ray unit. Only 30,000 were realised because the organisation was not properly targeted. So it is currently shelved and embarked on constructing facility for laboratory service. Acquisition of Title Deed: - They have started the process and have been to the Clerk of the Council and Commissioner of Lands.

**Prevalence of causes of morbidity**

Before: Malaria, URTI, Pneumonia, and Typhoid  
Currently: HIV/AIDS, malaria, intestinal worms, eye infections and STI

Prevalence of causes of morbidity for children below 5 years of age

Before: URTI, Pneumonia, Measles, and intestinal worms  
Currently: URTI, pneumonia, intestinal worms, eye infections

Child mortality: Have not observed any deaths for the last 6 months

Nutritional status: No cases of kwashiorkor, marasmus etc.

Improved diet: Awareness on good nutrition practices, high and various food stuff/variety available in the community

Maternity services: - C/S – (CO & DR) affected by lack of these cadres

**Water**

The health centre gets water from Nyeri county council by way of a connection, which is metered. They pay monthly for about Kshs. 400. Nyeri county council pumps water from Tigithi River to a storage tank. The water is therefore not treated and a little for drug taking/mixing is boiled at the health centre. The management committee has improved on water storage by purchasing and installing a plastic tank at a cost of Kshs. 35,000, which they get from cost sharing kit. This has improved services at the maternity wing.

The administration personnel are illegally using water of the health centre thereby causing conflicts. Parties concerned will address this problem. It was reported that there was no direct IFAD intervention as far as water is concerned. There is no irrigation activity within the health centre.

**Food Production**

**Irrigated Crops**

TYPE OF CROP	ACREAGE	PRODUCTION PER ACRE	UNIT PRICE (KSHS) FARM GATE
Cabbages	1 acre	800 heads average 2Kgs	3-5/= per head
Tomatoes	1 acre	2 kgs	10/= per Kg

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Carrots	1 acre	30 bags	500/= per bag
Snow peas	¼ acre	-	30/= per 2.5Kg
Irish potatoes	1 acre	30-40 bags	400/= per bag
<b>Rainfed Crops</b>			
Maize	1 acre	Less than 1 bag	Market price 1200/= per bag
Beans	1 acre	2.3 bags	2000/= per bag
Wheat	1 acre	13-15 bags	800-1000 per bag
Fruit trees	-	-	-

**Animal Production**

ANIMAL	PRODUCTION	VALUE (KSHS)
Cattle (Crosses)	5Kg/cow/day	10/= per Kg
Sheep/goats	For meat	Adult – 1200/=
Pigs	For meat	1Kg of meat – 160/=
Chicken	For eggs	5/= per egg

**Environmental Conservation Techniques**

Tree planting: 80% of the farmers, mainly gravillea, blue gum (Eucalyptus) planting being discouraged by extension staff because it depleted the water table.

Terracing: Napier grass strips on 40-50% of the farms  
Stone terraces in few farms  
Bench terraces also in few farms

**Safe use of agro-chemicals**

Farmers accepted they have been trained on the safe handling of agro-chemicals.  
Disposal of used containers – by burning (nearly all farmers)  
Storage – stored in the main house  
Protective clothes – only 1/10 farmers own one.

**New Techniques**

Energy saving devices: The men interviewed accepted the devices could be found in many homes, but could not give a percentage of homes with the devices.

New Crops: Snow peas  
Kitchen gardens: 50%  
Agro-forestry: Community has established tree nurseries on their own and some with assistance from Archdiocese of Nyeri

**Improvement in income**

Farm incomes:  
There are some improvements. They complained of small profit margins because of exploitation by middlemen (poor marketing channels)

Casual employment:  
Engaged by those who can afford at the rates of 5hrs of working at Kshs. 100.

Permanent employment:  
Engaged by those with big farms, more than 10 acres.

Business:  
Food kiosks & vegetable kiosks

**Income generating activities using local resources:**

- i) Tree nursery project – sale of seedlings
- ii) Vegetable plots – Cabbage, carrots, kales, spinach etc.

**Agricultural income streams**

Horticultural crops: Snow peas, carrots, tomatoes and cabbages  
Legumes: None

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Cereals	Wheat
Small stock	Sheep and goats
Dairy	Dairy cow

**Empowerment**

The committee is composed of educated retired workers, conversant with organisation at the management aspects of the project.

**Poorest Of The Poor:**

Due to problems being faced in agricultural production that is fetching low price, 20% of the population around could be regarded as poor. This situation could be averted if measures to improve the prices of the agricultural produce were instituted.

**Female Headed Households**

: - 20% due to HIV/AIDS

Basic services to the very poor and poor

The health dispensary has a mechanism of waiving the fees charged under cost sharing. On education, children from the poor families are catered for through constant Harambee held by community members.

**10. LOISOI PHC GROUP**

The group composed of a CHWs/CHCs was formed and trained in 1994 for a three days session. In 1995, some more 5 members were selected to bring the number to 14. They functioned as a group for about one year and then became dormant since there was no supervision, follow-ups and economic hardships.

The group was revived again in 1999-2000 period with members numbering 25 and trained for a longer period (one day per week for one year). The group, which serves ¾ of Loiso, has been carrying out activities such as: -

- a) Establishing serviceable pit latrines. At the moment there is no household without a latrine while at the beginning there was about 20%.
- b) Assist expectant mothers.
- c) They have been involved in special supplemental immunisation activities.

At the time of this interview, February 2003, a year or so had passed since they carried out activities as a group – though quietly continuing assisting the community as individuals. The reasons given, which has brought about this state of affairs are:

- Lack of supervision.
- General elections activities.
- Prevailing economic situation.

But before taking a low profile, they had plans of buying each member a water tank of 5000 litres at a cost of Kshs. 8,000 each. They also wanted to establish community pharmacy (BI) since the nearest health facility is about 6 kilometres away.

They have decided that for them to be able to carry on together – they have to join various IGAs and then re-organise themselves with a new approach, while sure of provision basic health needs for themselves and families.

**Beneficiary Participation In Implementation**

The PHC group was trained on PHC in 1994. The initial group comprised 9 people. They were trained for 3 days. After one year another 5 people joined the PHC group making a total of 14 members. After the training the PHC group carried out PHC activities in the community where they covered about ¾ of the sub-location. With time the group almost became dormant. In 1999 the PHC group became active once again. More CHWs were trained making a total of 25 members. They were being trained one day per week for 1 year. During this time the group remained active and passed health message in their areas. The group once again became dormant. The reasons they gave for the group becoming dormant was: -



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- 1) Drought: They reported that because of frequent droughts most of the time was being used to earn a living.
- 2) Lack of follow-ups by government officers.

**Prevalence of causes of morbidity**

Before: URTI, typhoid, amoeba, malaria, Intestinal worms

Currently: URTI, pneumonia, and malaria, HIV/AIDS

**Prevalence of causes of morbidity for children below five years of age**

Currently: URTI, pneumonia, malaria – Mosquito breeding at the dam etc.

Child mortality: There have been no deaths in the last six months.

Nutritional status: There are no malnutrition cases – diet has improved.

**Food Production**

There are about 700 households in the area with 7.5 acres of land on average

**Crop Production**

TYPE OF CROP	ACREAGE	YIELD/ACRE	UNIT PRICE (KSHS)
Maize	1 acre	5-8 bags	Farm gate: 800/= per bag
Beans	1 acre	1-2 bags	Farm gate: 1200 per bag
Irish potatoes	For subsistence		
Snow peas	1/8 acre	13 cartons (each 2.5Kg)	Off-season: 150/= per carton When in plenty: 30/= per carton
Cabbages	1 acre	10,000 heads (each 5-6Kgs on average)	2Kg per head
Carrots	1/8 acre	4 bags (130Kg – bag)	Off season: 1500/= per bag When in plenty: 300/= per bag

Other food crops grown in small quantities for subsistence include: Kales and sweet potatoes, tomatoes, onions, and garlic perform well in the area but those interviewed were not able to give yield or unit price estimates.

**Livestock Production**

TYPE OF ANIMAL	PRODUCTION	VALUE (KSHS)
Cattle (Crosses)	Milk – 11Kg/cow/day	Lusoi Co-op society – 6/= per Kg Brokers: 10/= per Kg
Sheep	Sale as meat sheep	Male: 2000/= (adult) Female: 1800/= (adult)
Pigs	Sale of meat	100/= per Kg

Only 2 farmers rear pigs, one with 70 animals. She is encouraging others to go into pig farming as it is cheap to feed, marketable (farmers choice) and difficult to steal. Local poultry are kept with each household with 10 birds on average. Few farmers keep goats.

**Environmental Protection Techniques**

**Soil and water conservation:**

Terracing: Bench terraces stabilised with napier grass

Planting of grass strips (Napier)

Agro-forestry: Fruit trees – Passion fruit, yellow passion and tree tomatoes

Fodder: Calliandra

Agro-forestry trees: Graviola

Water harvesting: At least 150 farmers or households out of 700 have constructed water jars to harvest roof rainwater. Cost of constructing one tank was Kshs. 8000/= and were constructed through group work (i.e. formed groups to construct water jars)

Dams: (To harvest road runoff) 1 communal farm previously owned by a Mzungu and there is one individual farm.

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**Safe use of Agro-chemicals**

Storage of agro-chemicals:	In the main house
Disposal of used containers:	Thrown into pit latrines or burned.
Safety periods:	Strictly observed
Protective clothing:	Aware of the dangers of chemical poisoning but some do not care wearing or owning protective clothing or even improvising.

**New Technologies**

Kitchen gardens:	¾ of the community have kitchen gardens and are able to grow vegetables for home consumption and surplus for sale.
“Njarumba” method of irrigation:	Uses little water for irrigation; water is directed to the base of the crop through trenches or small furrows.
Energy saving devices: -	Tea cosy – 30 members of a certain women group adopted. Tea warmers – as above Maendeleo jiko: - ¾ of the total households has them Kuni Mbili (jiko liners) found in ¾ of the households
New Crops:	Snow peas gaining popularity as cash crops Calliandra – A few farmers grow calliandra.
Drip irrigation:	Not practised. 20 farmers have water pumps, pumping water from river Nairobi for irrigation purposes.

**Improvements in income:**

Farm incomes:	Improvements in income have been observed after the projects (NDAP) intervention
Casual employment:	Some people seek casual employment in vegetable farms and from those with big numbers of livestock
Permanent employment:	Engaged in big farms by those who can afford Some members of the households employed as teachers and other jobs within and outside Lusoi
Business:	Hawking of clothes Some operating food kiosks Recreation facilities such as pool games and darts game
Income generating activities using local resources:	None

**Agricultural income streams**

Dairy Animals:	Average of 2 animals per household.
Horticultural crops	Cabbages, carrots and snow peas.

**Empowerment**

The level of empowerment as far as PHC activities are concerned has been low. During the times there was no outside assistance and supervision from government health staff and the PHC activities were reportedly to be low.

**Poorest of the poor:**

As far as health services are concerned they are not denied services at Warazo health centre.

**Female headed households:** - Estimated at 20%.

**11. THUNG'ARI WATER MANAGEMENT COMMITTEE**

The community benefiting from the above scheme is about 1500 people who settled in this area in 1973, each person getting an average of 7 ½ acres. About ½ of the population is yet to receive water. The area experiences insufficient rainfall and is generally dry. In 1984, the Catholic Church managed to put up two boreholes, which currently are not functional due to high electricity bills, which are yet to be paid. Currently, Thung'ari water project is the main source of water covering at least 120 homesteads while 180

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households are still waiting to be connected. This scheme was started in 1998 through IFAD assistance. The major conflicts experienced in this area are as follows: -

- i) The 180 households without water are not sure as to whether they will get water at their households despite having contributed right from the time when the intake was under implementation.
- ii) Those who have water at their homesteads are using the water for irrigation and since the water is not metered, there is no control mechanism to monitoring the water usage.
- iii) Above the eater intake there are farmers using water pumps, which make it difficult for the scheme to have enough water.

IFAD interventions were directed towards provision of water and training in primary health care.

**Planning**

Beneficiary participation in implementation of project activities has been very active. This is one of the driest areas in Kieni East and the community has identified water, as their key priority need. Previously they were getting water from a borehole where they were paying an average of Kshs. 300 per month. The pump broke down due to power surge. They therefore thought of an alternative source of water. They identified a source and approached IFAD in 1998. They were promised pipes and for their part they were to contribute 30% of total cost of the project. The beneficiary responsibility as part of their 30% contribution was construction of the intake, construction of tank and trenching.

The beneficiary capacity in M&E has been enhanced through training under the various components. The committee maintains proper records on the operation of the water project. They charge 100/= per month for the use of the water. From their analysis of the date they collect they know that the amount is not enough to meet their operation costs and are of the consensus that installation of metres will be the most effective way to operate their project.

**Health**

Prevalent causes of adult morbidity are bilharzia, typhoid and malaria. Prevalent cause of mortality for children below five years of age is pneumonia. Child mortality used to be common when people settled in the area. There were 4 deaths in the last 6 months. There are no malnutrition cases.

On PHC/CBHC, an earlier group (4 members) was trained in 1994 but lack of follow-up supervision led to inactivity. The group started again between 1997 and 2001 period with 25 CHWs. This included giving food ration for the mother and child. At the time of interview, the members said that there was nothing going on because the food aid stopped. But some say the knowledge gained is still being utilised whenever the resources are available. They also still assist women when delivery children.

**Food Production**

**Crop Production**

TYPE OF CROP	ACREAGE	YIELD/ACRE	UNIT PRICE (KSHS)
Beans	1 acre	2-3 bags	Farm gate: 1600/= per bag
Maize	The area experiences crop failures all the time		
Irish potatoes	1 acre	20 bags	Farm gate: 500/= per bag

Other crops grown in small quantities for subsistence include sorghum, sweet potatoes, vegetable mainly spinach and kales.

**Livestock production**

ANIMAL TYPE	PRODUCTION	VALUE (KSHS)
Cattle (Crosses)	Milk – 6Kg/cow/day	8-10/= per Kg
Sheep/goats	Sale as meat animals	Adult 1500/=
Poultry (chicken)	Eggs	5/= per egg

Other animals kept are, Rabbits-mainly by boys, donkeys, and -for transport purposes. One donkey goes for Kshs. 7,000/=



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**Environmental Protection Techniques**

Terracing: Trash lines

Agro-forestry: Practised with gravillea as the major agro-forestry trees.

Water harvesting: Roof catchment – 40% of the households have water tanks for roof catchment. They have been assisted by Archdiocese of Nyeri (50%) to construct the storage jars.  
Road run-off no community farms for road run-off harvesting but are intending to start the projects.

**Safe use of agro-chemicals**

People are aware of the dangers of poor chemical handling but safety precautions not strictly adhered to, especially on protective clothing.

**New Technologies**

A few farmers are growing new Irish potato varieties such as Tigoni and Asante

**Improvements in Income**

Farms incomes: - Improvements have been observed, in milk yields as a result of water provision closer to the home which reduced distances to watering points thereby keeping animals in condition and growing vegetable for home consumption and sale of surplus.

**Casual employment**

Before the project (NDAP) a lot of people looked for casual employment for money to cater for their needs, but after project, the number of those seeking casual employment has dropped by 60% as many concentrate on farm production.

Permanent employment: None.

Business: Only food kiosks exist.

**Income generating activities using local resources**

Vegetable growing and some kitchen gardens.

**Agricultural income streams**

Dairy 2-3 animals per households.

**12. MERE MUUNGANO PHC GROUP**

The Kirima sub-location community formed the group in the year 2000. The TOTs situated in Mere dispensary trained them for period of 5 weeks. Those trained were 13 village committee members and 55 CHWs. The CHWs number has dropped from 55 to 43.

The PHC group has divided the Kirima sub-location of (1300 households) and 9 sub units. Chairperson who reports to the VHC leads these units. The group registered with the department social services on 29/8/2000. They also held regular meetings. They work with community members in clearing the compounds, construct latrines, dish racks, improved charcoal stoves and conduct growth monitoring and de-worming. Their future plans include establishing Home Based Care activities for the sick and establishing BI sites. Major past problems are, lack of funds to start BI, lack of scales and portable weighing scales to weigh ANC mothers in the community and reduce workload at the facility and lack of funds to train more VHC/CHWs.

**Planning:**

Are aware of the DFRD process but are not represented in the sub-DDC at the sub-locational level. They are also aware of the functions of the DFRD process.

The PHC group was trained on PHC activities and their roles in 2000. Since being trained they have actively been involved in implementation of PHC activities in the whole sub-location. For ease of implementation of PHC activities they have divided the whole area into 9 sub units. In every sub-unit are a number of CHWs who report to a ToT who is in charge of a unit. The CHWs in a unit will carry out PHC

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activities in their area and maintain a record of their activities. The CHWs in a unit meets monthly under their respective chairmen (TOTs) to review implementation of activities in the previous period and plan activities for the next month. After 3 months all the CHWs and VHCs in the sub-location meet under the overall chairman to review and plan activities for the next 3 months. The PHC group members have remained cohesive since they were trained in 2000 and have been actively involved in implementation of PHC activities.

Through the initial CHW training and practice in the field the beneficiary M&E capacity has been enhanced. Each of the 9 sub-units participates actively in the planning implementation and monitoring of PHC activities. Each of the CHWs and TOTs maintain records of their activities and home visits and their subsequent activities are based on the reports they compile in the field.

**Health**

Prevalence of causes of adult morbidity:

Before: URTI, intestinal worms, tonsillitis, eye infections and chicken pox.

Currently: Dental, malaria, amoeba, tonsillitis, and pneumonia, ring worms and Boils.

Prevalence of cause of morbidity for children below 5 years of age

Before: URTI, pneumonia intestinal worms, eye infections.

Currently: Pneumonia, intestinal worms.

Child mortality (below 5 years of age):

There were 2 deaths in the last 6 months. One of the deaths was caused by pneumonia.

Nutritional status: -

There are cases of malnutrition because there is availability of variety of food staff. The diet has generally improved.

**Water**

This group falls within Kirima sub-location. They get water both for domestic and irrigation from the rivers namely, Mere, Warazo, Little Mere and Gathima. The community has organised themselves into small groups (project) numbering 17. They informed the team that after they get water permits and construction conducted from DWOs office; they are left on their own. This has resulted in conflicts since the downstream populations do not get water. There is a major water project called Thegu but apart from the intake construction nothing more has happened. Each member is supposed to contribute Kshs. 10,000. There are no IFAD funded water projects in the area.

**Food Production**

Average farm size during settlement was 15-20 acres.

**Crop Production**

TYPE OF CROP	ACREAGE	YIELD/HA	UNIT PRICE (KSHS)
Maize	1 acre	4-6 bags	15-20/= per 2Kgs
Beans	1 acre	1-2 bags	40-50/= per 2Kgs
Irish potatoes	1 acre	15-20 bags	500/= per bag
Field peas	1 acre	6-7 bags (60Kg bag)	8/= per Kg
Snow peas	¼ acre	120 Kgs per week	-
Carrots	¼ acre	800bags (120Kg bag)	500/= per bag
Cabbages	1 acre	5000 heads (aver. 3-4kgs)	1 <sup>st</sup> harvest 5/= per head 2 <sup>nd</sup> harvest Approx. 500 heads at 2.5/= per head

Other crops grown in small quantities include: - Sugar cane, soya beans (few farmers), pyrethrum (introduced in year 2002), and wheat.

**Livestock Production**

TYPE OF ANIMAL	PRODUCTION	VALUE (KSHS)	REMARKS
Cattle (crosses)	Milk 8Kgs/cow/day	8-10/= per Kg	2-5 animals per household

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Sheep/goats	Sale of meat	adult animal: 1500-2000	Sheep: 4-7 Goats: 2-4 animal per household
Poultry (chicken)	For eggs/chicken meat	5/= per egg 150/= per bird	Sold locally 15-20/= per bird Per household

**Environmental Protection Techniques**

Soil and water conservation:

Grass strips and bench terrace practised by 80% of the community in steep areas.

Tree planting is done with the following type gravillea, cedar, croton megalocarpus, muthiga, bottlebrush, eucalyptus and firebreaker.

**New Technologies**

New Crops: Tigoni and Asante potato varieties by a few farmers.

Climbing beans – by 40% of the community.

Energy saving devices: - 60% of the households has at least one of the devices – tea warmers, Kuni Mbili and Maendeleo jikos.

**Improvements in Income**

Farm incomes have improved. 80% of the community members seek casual employment in vegetable farms in and outside the sub-location and at quarries. There is no permanent employment. Local businesses are food kiosks

**Income generating activities using local resources**

Quarries – 3 farms in the area have quarries.

**Agricultural Income streams**

Horticultural crops are - Cabbages, carrots and field peas. There are no legumes or cereals sold for the quantities are small.

Small stock:

Sheep 4-7 animal per household

Goats 2-4 animals per household

Rabbits 5-10 animals per household

Chicken 15-20 birds per household

Dairy 2-5 dairy cows per household

Only 3 farmers for transport purposes keep donkeys.

**13. RIRO WOMEN GROUP**

16 members started the group in 1989 but by February 2003, it had 45 members. The objective was to uplift their standard of living by conducting merry-go-round, buying utensils, Construction water tank of 100/200 litres for members and Loaning.

**Institutional strengthening**

There were no interventions from IFAD/DPO's office. The group was started to address members' priority needs. There was no intervention by the project then. Beneficiary participation in implementation of their activities has been high. Membership rose from 16 in 1989 to 45 in 2003. All members have benefited from utensils purchase and bedding. The only intervention the group got from the project was agricultural extension services and home economics training.

**Water Provision**

The group members are also members of Simbara-Bondeni water project. The project is 90% complete but they are yet to benefit from the water. There is therefore no impact from water to talk of. The current source of water is 5 kilometres away and not safe for drinking unless boiled. Cases of intestinal worms and



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Diarrhoea are common. Sources of water are Simbara and Mbondeni and Rainwater (roof water harvesting). The water is used for domestic purposes only.

**Health**

Prevalence of major cause of morbidity (age group above five years of age) is Malaria, Pneumonia, Typhoid, intestinal worms, Eye infection, and Joint pains. For the age group below five years of age, they are Pneumonia, Malaria, Upper Respiratory Tract Infection, Tonsillitis, and Eye infections. There have been no deaths in the last 6 months. The group stated that though they have no PHC groups in their community, they have benefited from microteaching held at the Amboni dispensary. Since there also are a variety of foods to sustain good nutrition, there are no cases of malnutrition or its derivatives.

**Agriculture**

**Crop Production**

CROP	ACREAGE	PRODUCTION	VALUE (KSHS)
Maize	1 acre	6 bags	800/= per bag
Beans	1 acre	1-2 bags	3000/= per bag
Potatoes	¼ acre	20 bags	400/= per bag
Onion	New crop in the area, no yet harvested		

**Livestock Production**

ANIMAL	PRODUCTION	VALUE (KSHS)
Cattle	6Kgs/cow/day	8/= per Kg
Goats	Sale of meat goat	2,000 per local goat 3,000/= improved breed
Poultry	Sale of eggs Sale of chicken	5/= per egg 250/= per chicken

**Environmental Protection**

In the use of pesticides and acaricides against crop pests, diseases and animal pests, safety measures are not adopted though people are aware of the dangers of chemicals. There is no protective clothing or proper storage of the chemicals.

Soil and water conservation measures are terracing and tree planting. Gravellea is very abundant

**New Technologies**

Energy saving devices: - Maendeleo jiko adoption – 100%; Food warmer – 0% adoption, Tea cosy – 0% adoption.

**Agricultural Income streams**

Horticultural crops – Onion growing (Newly introduced)

Legumes- Beans

Cereals – Maize

Small stock – Goats average of 2 per household

Poultry – 3 per household

Bee keeping – Few bee hives due to theft of honey

**Empowerment**

There were no poor of the poor in this group. The group members are participating actively in their activities, and they are able to express their feelings effectively.

**Basic Services To The Very Poor And Poor**

Since the community interview they had not started utilising water, and therefore it was difficult to conclude how the poor of the poorest will be catered for.

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**14. KAMBI BEE KEEPING WOMEN GROUP**

This group was formed about 23 years ago, with 20 members, which has grown to 31 by February 2003. It was started as a welfare group to uplift the standard of living for the members of the group. They bought each member utensils, sofa sets etc. In 1994, they were introduced to goat keeping through IFAD project and then in 1995, Bee keeping was introduced with 4 beehives. Other activities carried out are, Fireless cooker, Rabbits keeping, Merry-go-round, Making juice/Soap, Tree planting

They group has been trained on issues pertaining to leadership, conflict resolution. At the moment the group has abandoned bee keeping because the venture is not viable by their own observation.

**Health**

Prevalent causes of adult morbidity are, Intestinal worms, malaria, URTI, diarrhoea, pneumonia and typhoid. For children below 5 years of age morbidity is caused by Pneumonia, malaria, URTI, diarrhoea and Intestinal worms. On Child mortality of the under five years of age, there was 1 death in the last 6 months. On Nutritional status there is plenty of food for children in this community. There was no PHC group as such but an activity on water catchment by water jars was introduced in 1998.

**Agriculture**

**Crop Production**

FOOD PRODUCTION	ACREAGE	UNIT PRICE
Cabbage	¼ = 4000 pc.	3/=
Carrot	¼ = 300 cartons	30/=
Snow peas/scadalia	¼ = 10 bags	400/=
Beans	¼ = 3 debes	30/=
Potatoes	¼ = 4 bags	500/=
Tomatoes	Subsistence	-
Maize	-	subsistence

**Livestock Production**

ANIMAL	PRODUCTION	UNIT PRICE
Cow	Milk 3litres/cow	7/= per Kg
Goat	-	20,000/= @
Chicken	-	150/= @
Eggs	-	3/= per egg

**Water**

The community settled in this area from 1978. They used to get domestic water from nearby Tigithi River. In 1994 Kabunda furrow water projected was started to provide domestic water. In 1996, IFAD programme came in and provided pipes for mainline and distribution. Water for irrigation is inadequate during dry period. They claim that the catchment for water has been destroyed and also the gravity main was too much reduced for m225mm diameter to 110-mm diameter before entering storage tank. Average area under irrigation per farmer is ¼ acre. But generally, they have benefited from the IFAD programme.

**15. KIAMATHAGA DISPENSARY**

The population served by this dispensary came to live in this place in 1972. The search for the dispensary site was started in 1995. But it was not until 1998 that the community agreed present site where the facility is built. It was completed in 1999.

IFAD agreement was to build a service block, the GoK to provide staff and drugs. The community contribution was to build staff houses, provide land, fence the compound and provide water. This basically amounts to about 600,000/=. A health facility management committee, which was elected in 1998 – was trained on basic management of facility, maintenance and various ways of raising some funds, single book

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keeping. They employ a watchman, clerk, and a grounds-man. They also provide funds for supplemental drugs

**Health**

Prevalence of causes of morbidity

Before in early 1990's: - URTI, malaria, typhoid, amoeba and STI

Currently: HIV/AIDS malaria, URTI, STI, TB, intestinal worms, arthritis, skin conditions, hypertension.

Of morbidity for children below 5 years of age Pneumonia, URTI, malaria, tonsillitis, skin diseases, ringworm are key.

Child mortality: There were about 8 deaths for children below 5 years of age for the last 6 months.

Nutritional status: - There are no nutritional related conditions, such as Kwashiorkor and marasmus. The community attributes this to the availability of variety of food staff.

A PHC group existed in 1996-97 period. It carried out a number of activities such as establishment of kitchen gardens ferro-cement tanks, pit latrines. The group is currently dormant due to lack of supervision and follow-up though what was established has made the basis of replication by other members of the community. The percentage of households with pit latrines is about 99%.

**Water**

The facility is situated in Mwichuri sub-location in Kiamatha location. The catchment area covers the four sub-locations of Kiamatha location namely: Murichu, Mwichuri, Kabendara and Tigithi. When the community settled from 1997 to 1992 in different areas, they used to get water for domestic from Burguret, Tigithi and Kabunda rivers.

In Kabendara sub-location the project started in 1984. IFAD came in and provided pipes for mainline from tank and distribution lines. Murichu sub-location is served by NGK and Gatune water projects, which had no IFAD intervention. In Tigithi sub-location the community get water from Kabunda water project, which started in 1990 as a furrow. IFAD came in and provided pipes of various sizes from storage tank into distribution area in 2000-01. In Mwichuri they get water both for domestic and irrigation from Mwichuri water project started in 1983.

IFAD had provided several pipes for mainline and distribution. The community has greatly benefited from IFAD intervention although some distribution lines are still outstanding and would like further help.

**16. THEGU SACCO GROUP**

Members interviewed were from various self-help groups. Activities of the groups are: Merry-go-round, General welfare, and Offering credit.

They offer credit at an interest rate of 10% for three months and 40% for one year. The major conflict is the banking system that charges high interest rates. Because of this problem, the groups decided to come together and form Thegu Sacco. It was formed in July 2002. The Sacco lends money at an interest rate of 15%. It only registers women groups and its members. Registration fee for groups is Kshs. 500 and Kshs. 200 for group members. They pay Kshs. 60 for passbooks.

After that they can now buy shares at Kshs. 100 per share and insurance at Kshs. 5 per month, so that in case one is not able to repay the loan due to death, the family of the deceased will not be followed to repay the loan. Currently they have registered 32 groups. Their target is to register 100 groups. The group was trained on leadership, record keeping and group management by DSS. IFAD interventions in NDAP were only felt through KIREFU, which trained groups on credit. Some of the people involved in this SACCO were initially trained by KIREFU.

**Health**

The community is served by Kiganjo dispensary. Major causes of adult morbidity are Malaria, Typhoid, Amebiasis, Arthritis (joint pains), and Backache. Infant/child morbidity is caused by Malaria, Pneumonia



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(Bronchitis), Diarrhoea, Ringworm (Mashilingi), Amebiosis, and Problems of teeth. No children deaths were reported over the past six months. There are no malnutrition cases in the area.

**Water Provision**

IFAD Programme had no intervention in this area. The community gets water from nearby rivers, mainly river Nairobi. It is mainly for domestic use. There are proposed water projects namely: - Ngonde, Maragima (Tagwa which are to be funded under the Central Kenya IFAD Programme)

**Food Production**

Average farm size in the area is 1.7 acres.

Crop enterprises: The major crop enterprises are maize, beans and irish potatoes mainly for subsistence. The yields are negligible. Major production constraints are elephant menace and frequent drought. The major livestock species are daily cattle (crosses) yielding 5 litres of milk per cow, going at Kshs. 5-10/= per litre. Other animal species are sheep goats for meat; average price of sheep or goat is Ksh. 15500, local poultry and rabbits.

**Environmental Protection Techniques**

Soil and water conservation measures: water erosion is not a major problem in the area according to their perception, though some plant grass strip (Napier) as a soil and water conservation measure. Agro-forestry: Tree planting is quite common in the area. Abundant trees in the area include gravillea, cedar and croton. About 5 households have roof catchments. Road runoff harvesting is practised. There are about 15 earth dams in the area for minor furrow irrigation. Although they have been trained on safe chemical handling they do not wear protective clothing such as nose masks, gloves or gumboots during spraying operations.

**New Technologies**

New crops/crop varieties – None

Energy saving devices – improved jikos adopted by at least all the households (75%). They said that the improved jikos couldn't cook Ugali because they break easily.

**Improvements In Income**

No improvement in income from the farm Casual employment is practised by 85% of the community. Members seek casual employment, especially in nearby quarries; both men and women are so employed. There is not permanent employment. Local business is buying and selling food commodities

**Income generating activities using local resources**

Sale of building stones from the quarries (50%) and Tree nurseries.

**Income streams (Agricultural)**

Horticulture: - None, Legumes: - None, Cereals: - None, Small stock: - Sheep/goats 3-5 animals per household, Dairy – average of 3 animal per household.

**Empowerment**

Poorest of the poor: - They claim to be 75%. Female-headed households are claimed to be 75%.

**- -GOK/IFAD – Nyeri Dry Area Smallholder and Community Services Development Project.  
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Annex 1

**CATEGORIES OF IMPACTS FOR USE IN FIELD INTERVIEWS**

- Infrastructure.
- Planning.
- Beneficiary participation in planning.
- Beneficiary participation in implementation.
- District planning capacity.
- Beneficiary participation in PMC
  - District
  - Division
- District implementing capacity.
- District M&E capacity.
- Safe drinking water.
- Irrigation water.
- Environmental protecting agricultural techniques.
- Income generating activities using local resources.
- Basic services to the poor.
- General health.
- Improved diet.
- Establishment of PHC.
- Infant child morbidity.
- Infant child mortality.
- Prevalence of major causes of morbidity.
- Nutritional status of infant/children.
- Food production
  - Productivity
  - Production quantities
  - New technologies
- Improvements in income
  - Farm
  - Casual employment
  - Permanent employment
  - Business
- Agricultural income streams.
  - Horticultural crops
  - Legumes
  - Cereals
  - Small stock
  - Dairy
- Empowerment
  - Poorest of the Poor
  - Female Heads of Households
  - Elderly Farmers

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Annex 2

**LIST OF PARTICIPATORY WORKSHOP ATTENDEES**

**COMMUNITY BENEFICIARIES.**

No.	NAME	GROUP
1.	Alice N. Kamama	Kirima Muungano PHC
2.	Anastasia Wanjiru	Mathina Young Women Group
3.	B. M. Kiangonyo	Micro finance Africa
4.	C. G. Githaiga	Kirefu
5.	Catherine Njoki	Mutarakwa Women Group
6.	Charles Mutahi	Warazo Lusoi
7.	Cornelius Muriithi	Kaga Water Project
8.	Ephraim Githui	Mere Dispensary
9.	Eustace Muchiri Kande	Ndathi Mbiriri Water Project
10.	Florence W. Nderitu	Muririchua Tank Women Group
11.	Francis Mathenge Karema	Ndiriti Aguthi Water Project
12.	Francis Nderitu	Warazo Lusoi
13.	Gabriel Murage	Simbara Amboni Water Project
14.	James Ndegwa Kahiha	Kamburaini
15.	Jane Wangui	Thung'ari Home Betterment Group
16.	Jascinta Adhiambo W.	Kahoreru Women Group
17.	Jascinta Nyokabi Ndirangu	Mama Wema Women Group
18.	Judy W. Muriuki	Kambi Bee Keeping
19.	Julius Ndung'u	Kirefu
20.	Mary Muchiri	Gakawa Dispensary
21.	Regina Murugi	Marahaba Women Group

**GOKBENEFICIARIES**

1. CHRISTINEOWONDO	Agricultural Officer	BSc. Agricultural Economics Dip. Farm management Certificate in management course for women in rural development	Desk Officer CKDAP Ministry of Agriculture & Livestock Production Headquarters
2. DICKSON KARANJA	District Rural youth Officer (AOI)	BSC Agriculture	Supporting officer Agricultural extension Officer
3. ELIJAH M. THUITA	Senior inspector Water Engineering	Higher Diploma (Water Engineering)	Designer/implementer
4. JAMES K. KIUNGA	District Animal production Officer	M. A Agriculture (Animal Production) Application of Computer Data Analysis	Subject matter specialist Implementer (small stock)
5. JENIFFER GITONGA	District Nutrition officer	Dip. In Community Nutrition TOF by AMREF PMTCT - NARESA Diabetes by ILLE-LILY	PHC implementer
6. JOHN G. MUGENYO	Public Health Officer I	Higher National Diploma Environmental	Implementer PHC



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Qualitative Impact Assessment Report**

		Sciences Dip. Community Health	
7. JOHN M. NDIRANGU	Divisional Water Officer Kieni East	Higher Diploma (Mechanical engineering Dip. Mechanical engineering Certificate in Sewerage Inspection	Implementer
8. JOSEPH K. WAWERU	District medical Laboratory Technologist	Dip. Medical Laboratory Sciences	Support officer
9. JOSEPH MAINA	District Health Records & Information officer	Cert. In Health Records & Information	Support officer PHC
10. MARGARET WAIRIMU NDUNG'U	District Home Economics Officer	BSc. Agriculture & Home Economics Dip. Agriculture & Home Economics Computer course Communication skills (TOT) PRA Farm management analytical tools Population/HIV/AIDs education	Implementing officer Home Economics Component
11. MUGITA GESONGO	Economist	M. A. Economics Project Management M&E Rural credit financing & Management Management of information systems Design and implementation Computer applications	Project Coordination and Management M&E officer
12. MWAKIO O. RIGHA	Assistant Commissioner for Social Services	M. A. Economics Monitoring & Evaluation course	Support officer
13. PATRICK W. WERU	Senior Inspector, Water Engineering	Higher National Dip. Water Engineering	Implementing officer (Domestic Water Supply)
14. ROSE WAWIRA GICHOBI	Divisional Home Economics & Youth Officer K. East	Dip. Agriculture & Home Economics Soil conservation Gender integration in National agriculture Extension programme Marketing	Implementing officer (Agriculture Extension, K. East)
15. ROY MWANGI	Senior Inspector, Water Supplies	Cert. In Water Supplies	Implementer
16. SAMUEL N. NGOMO	Economist/Statistician	Post Graduate Dip. Development Planning techniques Computer applications Project Cycle management	Assistant M&E Officer CKDAP
17. SARAH W. NGATIA	District Social Development Officer	B. A. Government & Sociology Social Development course Senior Women manager course Counseling & Guidance Facilitation skills course	Implementing officer Group Development

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18. TERESA NGUNIA WANGUI	District Information & Documentation Center Officer	Dip. Information studies Library Management Skills Computer courses Information systems management	Officer in project coordination Office.
19. WYCLIFFE WANGWE	N. Deputy District Social Development Officer	B. A. Government & Anthropology PRA Project proposal writing skills course Project participatory planning Computer Courses	Implementing officer Group Development
20. KINYANJUI NGUGI	Field Services Officer CKDAP	MSc. Economics (Design Of Rural Poverty Projects) Credit Design and Management Planning & Budgeting	Field Services Officer

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Qualitative Impact Assessment Report**

Annex 3

**Population by Location and Sub-location in Kieni Divisions of Nyeri District**

Division	Location	Sub-Location	Population 1989 Census	Population 1999 Census	Variation	No. HH in 1989	No. HH in 1999	Variation
<b>Kieni West</b>			<b>57,638</b>	<b>68,461</b>	<b>10,823</b>	<b>11,844</b>	<b>16,699</b>	<b>4,855</b>
	<b>Mwiyogo</b>			<b>10,312</b>	<b>10,312</b>		<b>2,446</b>	<b>2,446</b>
		Kabati	1,576	1,875	299	291	432	141
		Muthuini		1,762	1,762		427	427
		Labura		5,121	5,121		1,209	1,209
		Mwiyogo	2,879	1,554	-1,325	559	378	(181)
	<b>Mweiga</b>		<b>22,666</b>	<b>15,055</b>	<b>-7,611</b>	<b>5,095</b>	<b>4,152</b>	<b>(943)</b>
		Njeng'u		2,747	2,747		678	678
		Bondeni		1,308	1,308		279	279
		Kamatongu	6,363	6,958	595	1,662	2,199	537
		Amboni	5,008	4,042	-966	919	996	77
	<b>Endarasha</b>		<b>13,544</b>	<b>15,143</b>	<b>1,599</b>	<b>2,637</b>	<b>3,579</b>	<b>942</b>
		Mitero	2,930	3,260	330	492	703	211
		Gakanga	2,431	1,818	-613	557	429	(128)
		Charity		4,256	4,256		904	904
		Endarasha	4,811	5,809	998	1,002	1,543	541
	<b>Gatarakwa</b>		<b>21,426</b>	<b>16,310</b>	<b>-5,116</b>	<b>4,112</b>	<b>3,809</b>	<b>(303)</b>
		Watuka	2,473	3,357	884	490	771	281
		Lamuria		3,918	3,918		1,031	1,031
		Embaringo	2,863	3,768	905	518	816	298
		Kamariki	9,790	5,267	-4,523	1,871	1,191	(680)
	<b>Mugunda</b>			<b>11,641</b>	<b>11,641</b>		<b>2,713</b>	<b>2,713</b>
		Karemeno		2,061	2,061		448	448
		Ruirie		3,427	3,427		827	827
		Kamiruri		2,665	2,665		623	623
		Nairutia		3,488	3,488		815	815
<b>Kieni East</b>			<b>55,584</b>	<b>83,635</b>	<b>28,051</b>	<b>12,510</b>	<b>21,738</b>	<b>9,228</b>
	<b>Naromoru</b>			<b>17,929</b>	<b>17,929</b>		<b>4,667</b>	<b>4,667</b>
		Ndiriti		3,471	3,471		708	708
		Naromoru	5,351	2,975	-2,376	1,269	988	(281)
		Kamburaini	6,655	5,406	-1,249	1,359	1,440	81
		Gaturiri		3,018	3,018		681	681
		Rongai		3,059	3,059		850	850
	<b>Kiamathage</b>			<b>11,197</b>	<b>11,197</b>		<b>2,836</b>	<b>2,836</b>
		Kabendera		3,312	3,312		750	750
		Tigithi		1,361	1,361		360	360
		Miricho		2,083	2,083		561	561
		Gakamba		4,441	4,441		1,165	1,165
	<b>Gakawa</b>		<b>17,923</b>	<b>24,636</b>	<b>6,713</b>		<b>6,371</b>	<b>6,371</b>
		Gathiuru	4,665	8,081	3,416	1,665	1,611	(54)



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	Githima	3,719	4,355	636	786	1,058	272
	Kahurura	9,549	12,200	2,651	2,490	3,702	1,212
<b>Kabaru</b>		<b>18,280</b>	<b>19,038</b>	<b>758</b>	<b>3,966</b>	<b>4,918</b>	<b>952</b>
	Kirima		4,191	4,191		1,059	1,059
	Ndathi	2,232	6,315	4,083	578	1,646	1,068
	Kimahuri	3,925	5,645	1,720	802	1,462	660
	Munyu	4,063	2,887	-1,176	865	751	(114)
<b>Thigu</b>			<b>10,835</b>	<b>10,835</b>		<b>2,946</b>	<b>2,946</b>
	Thung'ari		3,451	3,451		1,126	1,126
	Luisoi		1,745	1,745		456	456
	Thirigitu		3,138	3,138		751	751
	Maragima		2,501	2,501		613	613

NB: Areas with no population and No. of household data for 1989 did not exist during that census.

Source: Kenya Population Census Reports 1989 Volume II and 1999 Volume I.

Annex 4

**JOINT PARTICIPATORY EVALUATION WORKSHOP METHODOLOGY**

**1. OBJECTIVE**

The objective of is for beneficiaries and implementers to come to a common understanding of the impact of the project through establishing its weak and strong points as well as impacts.

**2. THE METHOD**

**Establishing Causal Relationships**

First Step: Each group will identify what determinants /building stones were important for achieving one of the following major areas of the project: Sustainable water supply, Sustainable health services, Food security, and Managing participatory development. The agreed determinants /building stones will be written up for presentation.

Second Step: Each group will then brainstorm on what factor cause getting or not getting the determinant. These will be ranked in order of importance.

Third Step: Each group will identify past project activities, which relate to specific determinants/building stones. These will be written next to it for presentation

Fourth Step: Each Group will list those is to list those determinants, which were not addressed by the project.

**Analysis of the Project's Strong and Weak Points**

Out of the experience and conclusions of the analysis undertaken so far, each group will undertake weak /strong point analysis in terms of its area of concern to cover and not be limited to a. Effectiveness b. Efficiency c. Gender balance d. Empowerment e. Technical feasibility f. Equity g. Human Resources Capacity Enhancement h. Enhancing Participation of the Very Poor and Poor h. Relevance.

**Recommendations**

Each Group will use the conclusions of Analysis of Project Strong and Weak Points to make a list of Impacts. These will be presented to in Plenary to establish overall workshop conclusions. Please make specific comments on the following:

**IMPACT ASSESSMENT WORKSHOP**

- ❖ HEALTH
  - Facilities
  - PHC
  - Diseases
- ❖ AGRICULTURE
  - Crops
  - Livestock
  - Irrigation
- ❖ WATER
  - Construction
  - Distribution
  - Irrigation
- ❖ TRAINING
  - Groups
  - Agriculture
  - Health
  - Water
  - Credit

**REPUBLIC OF KENYA**



**Nyeri Dry Area Smallholder and Community Services  
Development Project**

**(Grant No. BG-006-KE)**

**Qualitative Impact Assessment Report  
Volume 1**

**June 2003**

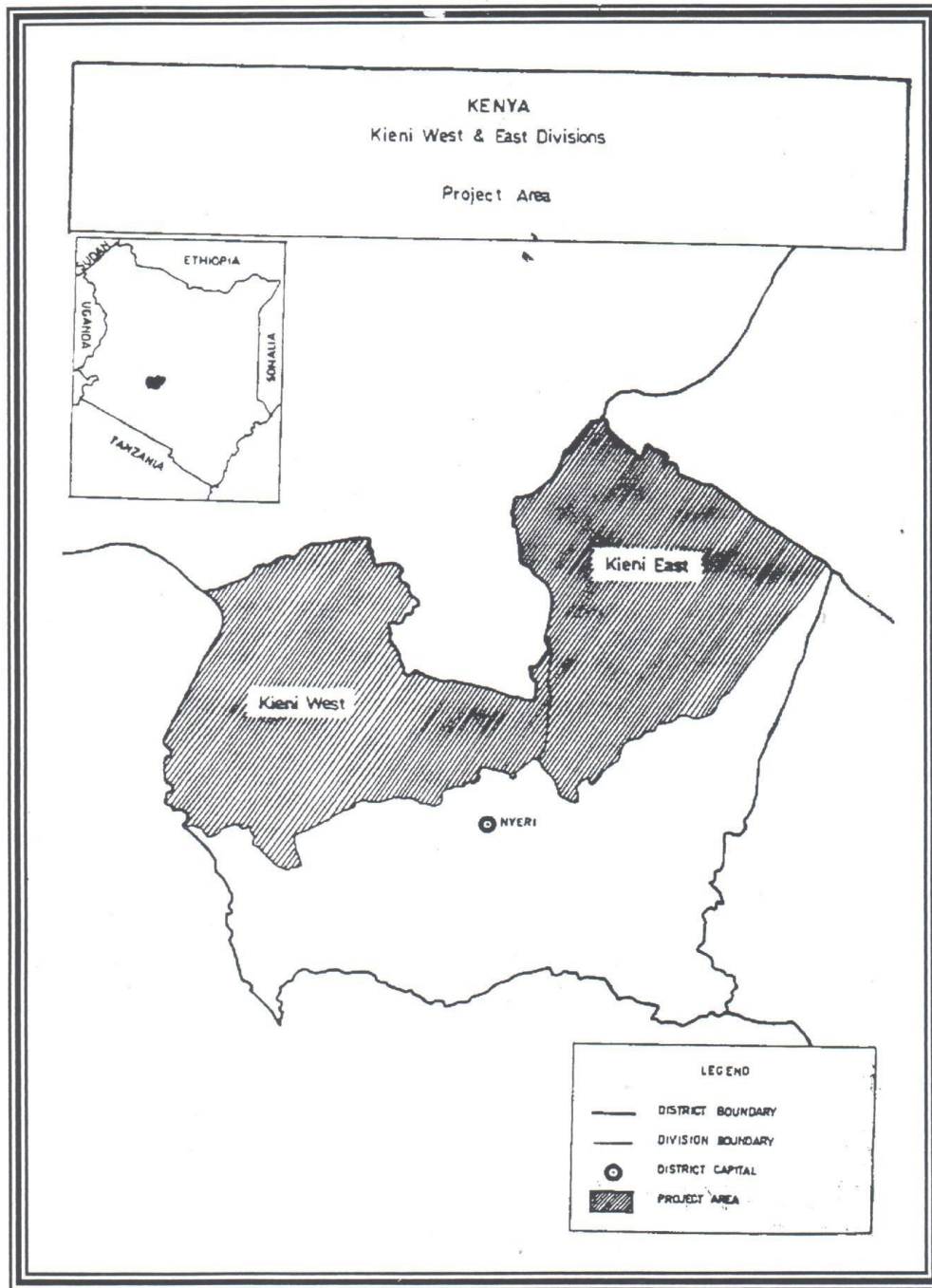
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# NYERI DRY AREA SMALLHOLD AND COMMUNITY SERVICES DEVELOPMENT PROJECT

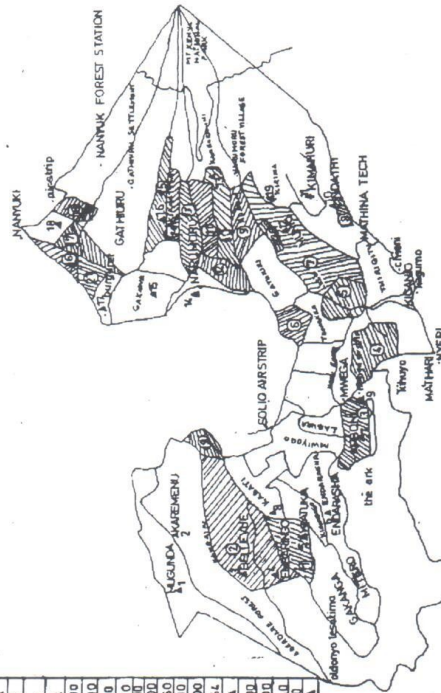
(IFAD/BSF PROGRAMME)

PROJECT COVERAGE MAP

WATER SCHEME		
No	NAME	P.S.
1	WATUKA	C 3240
2	GATARAKWA	O N/A
3	SIMBARA AMBOBOKENI	C N/A
4	SIMBARA KAHATONGU	C N/A
5	KINAKI	O N/A
6	THUNGARE	C 1000
7	WARAZA LUSOI	PC 6000
8	KARURMO GIKANGA	PC 1500
9	KIRINYAGA NYANGA	C 2310
10	KIRINYAGA NYANGA	C 2310
11	GIWIRI	C 3000
12	NAROMORU AGUTHI	PC 2280
13	KABUNDA	C 2500
14	KABENDERA	C 2600
15	MWICURI	C 4054
16	MAKA	C N/A
17	KAGA	C 1000
18	MWEA B	C 1000
19	LANUSIA	C 1310
20	LUBITAGNO MWIRUTI	C 510
21	KAMANGURA	O N/A

KEY  
P.S. — POPULATION SERVED  
C — COMPLETE  
O — ONGOING  
PC — PARTIALLY COMPLETE

HEALTH FACILITIES		
No	NAME	
1	MUGINDA DISP	
2	KABEMENI	
3	BELLEVE	
4	EMBARINGO	
5	WATUKA	
6	ENDARASHA HCENTRE	
7	AMBOINI DISP	
8	KABATI	
9	MARY IMMACULATE HOSP	
10	INDATHI DISP	
11	ISLAND PARK DISP	
12	WASSILY HCENTRE	
13	KABUKIRINI DISP	
14	NAROMORU HCENTRE	
15	MURURU DISP	
16	KIAMATHAGA DISP	
17	BERETI DISP	
18	GAKAWA	
19	MERE DISP	





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## 1. PREAMBLE

**"..(P) eople should not think that they will get free things from State House. Whatever development will take place in Nyeri will be done by the people themselves and not by State House." President Mwai Kibaki 16/06/03**

**"There is no joy in seeking resources from our development partners if they are not going to help our people." President Mwai Kibaki 21/05/03**

This Qualitative Impact Assessment Report is in two volumes. Volume one follows the PCR outline as required by the TOR and is written by the consultant using *inter alia* project data and the fieldwork data presented in volume two. The later, presents summary conclusions and the field data including beneficiary participatory workshop conclusions. Unlike the plan in the TORs, this Qualitative Impact Assessment was done after the completion of the draft Project Completion Report, which provides details on overall implementation of the Nyeri Dry Area Project. The project officers who had implemented the project prepared the Project Completion Report.

The Qualitative Impact Assessment objectives were more limited than the PCR's although the same officers were to be used and the consultant was to supervise the work so as to train the officers in the use of qualitative methods. The methodology was specified in the terms of reference as to use focus groups, key informants and observation as the main source of impact data and assumed that it will be done before the PCR. The areas of data gathering were specified as 6-10 sites in the TORs. Naturally the consultant was supposed to review the past documents before onset of work.

The Qualitative Impact Assessment Objectives were:

To assess the perceptions of project participants on effects and impact of project activities on the targeted beneficiaries and project area.

To provide data /information for preparation of a comprehensive Project Completion Report.

To strengthen capacity in Government in carrying out qualitative studies.

The consultant reviewed past reports and identified key missing data even in the PCR. As a result the units responsible for the project components, institutional, agriculture/livestock, health, water and group formation were required to update data on project outputs to enable more systematic conceptualisation of researching impact. This data was supposed to be available before the onset of fieldwork. Unfortunately it dribbled in bits and pieces right through fieldwork. Some units did not supply the data requested.

When the previous implementers at both district and national level were assembled in Nyeri, they were organised into five teams. The focus group methodology was covered in an inception workshop and an interview tool on project impacts developed by the group and the consultant. It consisted of working out key questions and probe questions on impact categories drawn up by the consultant are shown in **Annex 1** of volume one. A formal questionnaire was avoided for it would lead to set responses.

Interview sites were defined as sublocations, the lowest organised level of government and therefore object of District Focus for Rural Development. The consultant and the previous head of the project conducted fieldwork to identify ten sublocations, before the assembling of the other GOK officers. These were to represent variation in project activity, ecology and perception of district and divisional staff on specific sublocational development needs. The list of participating GoK officers, or more accurately GOK beneficiaries-defined as people with formal roles in the project and selected by the GOK-, is found in **Annex 2**.

When the past district and national officers assembled, it was decided in meeting to select existing groups as focus groups rather than create focus groups *de novo*. The later would not have been possible within the consultancy time limits and, perhaps more significant, would have not captured the history of totally people driven organising for welfare and development at the base communities.

Two arguments are important. First, Kieni people, just like other Kenyans in the drylands, have always organised for their welfare and development. At the onset of the project, past groups sidled to it and

became project groups. Good examples of this type of group are the ones associated with specific water or health activities, which existed before the project. The project also created new groups. Good examples of this are women groups, which existed for specific purposes before the project and which became part of the new project credit training. The different government ministries had worked in the field with this mixture of groups. The impact assessment team took a lot of time in selecting specific groups. Ultimately, 100 groups were identified in a meeting of the officers and the consultant. Since the project had more activities in Kieni East, 60 groups were to be interviewed in Kieni East and 40 in Kieni West. This weighting is also roughly representative of the population as shown in [Annex 1](#).

Filed interviews were conducted on 89% of the 100 groups identified to be interviewed. A variety of field problems, like communication, location etc militated against interviewing 11% of the purposive sample. The groups ultimately interviewed are found in [Annex 2](#). Analysis of the groups interviewed shows that more water groups were interviewed than any other sector/activity groups. Water, Health and Multipurpose Women Groups formed just about 89% of all groups interviewed as shown in Table1: Number of Groups Interviewed By Activity

Table1: Number of Groups Interviewed By Activity

Water	Health	Multipurpose Women	Agriculture	Credit	Cooperatives	Wildlife	Home Economics
31	25	23	6	1	1	1	1

To ensure that contact was made with groups and that field interviews generated systematic data each team interviewed only two groups a day. They made a report on each group. These, edited by the consultant on language and presentation only, are found in volume two. They are a very useful database not only for this effort but also for analysing other GOK/IFAD concerns. It is highly recommended that GOK/ IFAD find ways and means of further analysing this database.

On the completion of fieldwork a one-day workshop was held with all the GOK officers to identify major impact conclusions from the fieldwork. These are part and parcel of this report. The following day a two-day workshop, with community and GOK beneficiaries was held. A list of these participants is found in [Annex 2](#). The purpose was not only to fulfil the objective of involving community beneficiaries directly but there was a further need to anchor GOK officers capacities for interpreting cross component qualitative data within the beneficiaries' world views and their understandings of the project. It was also to test some of the conclusions of the previous day's conclusions of the GOK beneficiaries. Further, it also sought to test some of the data from the focus groups interviewed in the field for community participants were not all who had been interviewed in the focus groups. The rationale for this flow is simply that conclusions at each stage are tested at another level.

The expectation was that at the end of the two days there would be harmonisation of the major impacts by processing the four individual groups' products. This was not achieved for a variety of reasons. First, the two groups had opposed views about the project with respect to some components as evidenced in the different rankings. Two, some key informants brought up past controversies, especially on credit. They wanted some participants associated with training on the same sanctioned. Finally, there was little rapport between some of the community leaders and some of the officers which bogged down specific groups and thus limiting the generation of the group products. More time than was planned initially was given to generation of group products. Consequently, by the time group products were presented in plenary, it was clear that beneficiaries wanted to go. The groups' conclusions are part and parcel of this report and are discussed in detail in volume two.



## 2. PROJECT BACKGROUND AND INFORMATION

### 2.1. Kenyan Economy and Poverty

Kenya's economy is primarily agricultural for agriculture is the source of income for 70% of the population. 80% of the 30-m. population live in rural areas. The first decade of independence saw significant growth as new lands were opened up and new production technologies introduced especially in the high potential areas. However, in spite of an annual GDP growth rate averaging 6% between 1963 and 1973, growth has not been sustained. Over the next two decades the average GDP growth rate of 1.7% was way below the annual population growth rate of 3.8%. The decline is multifaceted. It was triggered by population growth, the oil crisis of the seventies, deteriorating terms of trade for agricultural exports as well as increased governance costs-including corruption. Still agriculture produces 25-30% of the national GDP according to the Ministry of Finance and Planning *Second Report on Poverty in Kenya: Volume: Incidence and Depth of Poverty (2000)*. The current policy framework calls for policies to address the increasing poverty. The current key policy in this is the *National Poverty Eradication Plan* operative since 1999.

### 2.2 Project Background

The Nyeri Dry Area Project (NDAP) was located in Kieni East and Kieni West divisions of Nyeri district. The rest of the district is wet, has better soils, established farming systems, stable social systems and therefore more developed. Mainly poor migrants populated the two divisions over the past forty years. The initial migrants were essentially the poor who left their original areas (in Nyeri district and other districts) because of land hunger soon after independence. Some were selected in their districts of origin to be settled by the independence government. These were the lucky ones for the settlement schemes were systematic. Others were squatters in the former Whitehighlands-Kenyan euphemism for the estates controlled by the colonisers. Others were squatters in forests. Others were poor land buyers either through land buying companies or through personal transactions. Only the poor buy land in weru- drylands.

These economically marginal populations were confronted with the need to build a community, physical infrastructure and a farming system in marginal land where their original knowledge was irrelevant for many came from higher rainfall areas. They had to do all this when they were also politically marginal. They were marginal in political terms for the key players in local and district affairs are from the more endowed areas. The centrality of marginality does not seem to have been sufficiently focussed on in project identification and design particularly in targeting and sequencing different sector activities.

The objectives of the project were defined as: a. increasing the district planning, implementing and monitoring capacity for delivery of services b. increasing food production, incomes and welfare c. improving the health of the population through primary health care, providing safe drinking water and improved diet and finally d. promoting beneficiary participation in the planning and implementation of rural development projects.

The project was identified and designed in 1991 as a pilot project designed to test BSF development approaches in a dry ecological situation with different socio-cultural conditions. It was originally scheduled for completion in December 1999. At that point it had only used 41% of its budget. Extension was granted to enable the utilisation of the allocated funds by completing some activities especially in PHC and water construction.

### 2.3. Executive Summary

The draft PCR stated, ... "NDAP's overall goal was to introduce measures that would reduce mortality, morbidity and improve the general well being of the rural poor in Kieni East and West Divisions. ... The focus of the project was to improve nutritional standards and food security by activating micro-economic factors that stimulate sustainable food production and productivity. The project was to promote policies, which offered the local communities the opportunities to take charge of their own development initiatives by adopting a participatory project cycle management to enhance project sustainability"

The consultant has some difficulties on the issue of detailed aggregate data on mortality of infants and children. The first is that there was no baseline data. The second is that the many facilities built or



rehabilitated have data for the past few years. Comments on the draft suggested using other national survey data and data from centres which are available. The consultant has reviewed the national survey data and it is not as detailed as the data derived in the field and subsequently reported below under the section on the component. The consultant requested data from the MOH participants in the exercise and got the data reviewed below. In his opinion, this data will in time become relevant time series data. To process it as such now does not seem logical.

Morbidity trends are mixed as shown in **Appendix 6: Kiwi Divisions Outpatient Morbidity Trends**. URTI reduced from 75612 in 1991 to a low of 47894 in 1997 but climbed back in 2001 to 61557. Malaria has climbed from 11217 in 1991 to 20201 in 2002. Significantly skin diseases have halved between 1991 and 2002. Diarrhoea has essentially climbed. Intestinal worms steadily reduced for three years, climbed during the next two and reduced again in 2002.

Although food production appears to have been somewhat improved in the short term, as is shown in Table 2: Kiwi West Crop Production 1994-2000 (Tons), as an example, perhaps due to expansion and or intensification in cultivation, due to creation of more households, as more people settled and families matured, as well as supplementary irrigation, food security is threatened in the long term. Opening new lands will soon cease. Supplementary irrigation is problematic for the mountains' ecologies have, and will continue to deteriorate thereby limiting the amount of water available, if GOK mountain conservation programmes do not come on stream soon. Some on farm production related water and soil conservation technologies were introduced and extended. The introduced gravity fed supplementary irrigation is contributing to non-sustainable and health threatening use of fertilisers, pesticides and herbicides. It has led to very serious resource use conflicts.

There is no evidence that the assorted communities took part in a complete participatory project cycle planning and management system, which would have involved communities being involved in identification and design of the assorted project activities. Such involvement would have enhanced the sustainability of the projects' activities and would have been a forum for handling some of the leadership and resource conflicts, which surfaced during implementation. It is true communities had identified and made some investments in some projects prior to the project especially in water, health and community organising. However, they were mainly used by the project in the planning of the use of their labour and locally available materials in project implementation.

On their part, community representatives, interviewed during focus groups and those who took part in the joint beneficiaries' workshop, still view government as the main provider of development. On the other hand significant numbers of GOK officers still see the need for GOK in project planning and implementation especially in technical areas and in O&M. That communities will have to do their own development is not an idea strongly felt by either group- at least the majority of those interviewed and those interviewing. Significant parts of the focus interview reports talk of communities as "they" showing clear non-identification as is generally known in sociology. This disjoint is equally shared by communities.

Water was the key implementation intervention, although this was not so envisaged at project design. It is argued by officials that community pressure led to the allocation of more resources to water provision than was envisaged at identification. Availability of water released community labour for production and other activities including social time. It also contributed to improved health for sources are an improvement over past sources according to focus groups and the officers who took part in project work.

The focus groups in general were not involved in project identification and, perhaps most controversial, they were not systematically visited by agriculturists to teach them general agricultural production new production technologies or to improve their productivity given that the component was cut early in the project. Neither were they systematically taught group processes related to the project activities-especially O&M- or to their own longevity. This is the impact of the original design focus on health as the project driver, the dropping of agriculture- other than nutrition- from project implementation.

Group development involved registration and training. Focus group interviews data shows that many groups were manipulated by local elites after being trained in credit by the project although the project was not involved in credit lending. This is not to deny that some groups have generated their own credit

systems. The same data source shows that some groups constructed water structures but elites are buying into the area. Health related groups showed higher satisfaction for the structures built have generated clear benefits for their members. The same cannot be said about PHC.

#### **2.4. Summary of Project Description**

##### **2.4.1. Agricultural and Irrigation Development**

The purpose of this component was to increase food production of the two divisions thereby positively impacting on incomes and food security. The strategy was to increase irrigated and rainfed agriculture by strengthening MOA extension and increasing its capacity by improving transport and other equipment at divisional level as well as developing rainfed agricultural production adaptive research and demonstrations. Work related to irrigation was initially supposed to be done by MOA. Specific outputs were to improve and rehabilitate 5 intake structures, to install main canal piping for 6 irrigation schemes thereby creating a 300-hectare irrigated area supporting 3000 families.

Major redesign of this component took place from onset of implementation. A livestock component was introduced during grant negotiation so as to increase farm incomes. The ~~1996 Mid-Term Review and Country Portfolio Review Mission~~ *seriatim* changed the financing agreement and cancelled three key sub-components. These are the irrigation sub-component although completion of on-going work was allowed, the adaptive research sub-component, and the agricultural input supplies sub-component. The Home Economics sub-component was retained for it was argued it would make a contribution to the nutritional status of the target groups.

These decisions had several impacts on the overall project design and outputs. First water provision was transferred to the DWO. Its justification became mainly domestic and not irrigation. Second, improvements in nutrition were to be driven by home economic production and not overall improvements in crop and livestock production.

##### **2.4.2. Health, Sanitation and Water**

The purpose of this component was to support Primary Health Care Programme by incorporating a family planning programme, promotion of improved nutrition after a nutritional study at the household level, rehabilitation and construction of 6 first contact facilities, provision of equipment for the 6 health facilities, provision of transport for the 6 health facilities, training of Community Health workers and Traditional Birth Attendants, promotion of good sanitation practices, construction of 600 simple low-cost VIP latrines, support of 6 gravity fed water supply schemes and strengthening of Health Information System-including growth monitoring- from community to national level.

##### **2.4.3. Institutional Support Development**

The purpose of this component was to strengthen the DFRD institutional infrastructure at district level and to support headquarter operations of participating organisations so as to provide supervision, monitoring and evaluation of the assorted components. Support to DFRD was through construction and equipping of the DDO and DPO offices as well as the DDC as well as coordinating overall project planning, implementation activity planning and overall project management at the district level.

##### **2.4.4. Group Development**

The purpose of this component was to enhance community participation and ownership of development interventions. This was to be done by supporting the Department of Social Services at District and Headquarters level so as to mobilise, register and train groups to be used in project interventions. Specific target groups were water use associations, village/facility health committees, agricultural production groups and of-farm enterprise groups.

##### **2.4.5. Special Financing Facility**

The purpose of this component was to enhance income generating activities, procurement of specialised equipment and training. This was to be achieved through smallholder group credit and input supply. This component was cancelled during the Mid-Term Review in 1996.



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### 2.5. Summary of Implementation Results

In spite of the difficulty with the baseline, and commitment to those at "risk", the project targeted groups in various sectors. The project assumed that the groups were representative of the population at risk. Under this assumption-to be contested below-, then the targeted community beneficiaries were reached by project inputs and services. Of course the GOK beneficiaries, defined as those implementing the project and needing assorted services and inputs, were reached.

The key conclusion is that in spite of the major redesign of the irrigation component, domestic water supply reached more people than was envisaged. However, one immediately notes that they are not settled in an irrigation scheme although they undertake some supplementary irrigation. It is not feasible to quantitatively determine whether overall incomes in the area have improved for there was no baseline survey. However, focus groups in water projects, which have adequate water for supplementary irrigation, claim that their incomes have improved. Other groups with out or with limited access to water for supplementary irrigation claim the opposite.

Construction of health facilities and the training of PHC committees were successful and the facilities not only function but communities contribute to their upkeep. It is not clear that this is driven by project outcomes given that the GOK instituted cost sharing in all health facilities. That this is sustainable will only be resolved in the future if the GOK mandated cost sharing is ended. The longevity of PHC operations is still an open question.

The district has well equipped infrastructure to support both district planning and coordination but more specifically to manage the project. It is not clear how financing of O&M of the district planning facilities, funded by the project, will be in the future for the funds collected in these facilities do not come back to them for this in current GOK revenue management systems.

Community beneficiary participation is clear especially in the construction and operation of water and health facilities where very large amounts of community contribution were noted. The bulk of focus group discussions however show that there is differential access to the benefits of water especially. There is very little controversy over health facility benefits for beneficiaries more equitably accesses them.

Given that the activities, which directly address increasing agricultural production, were cancelled early in the project, it is not clear that there has been an improvement. It is true new water dependent export cash crops have become part and parcel of the farming system. However these are dependent on irrigation. Given that the mountain ecologies are deteriorating fast, it is doubtful whether there will be enough water to sustain this activity.

On participation by beneficiary groups, it is clear that the bulk of participation is in provision of labour, local materials and to some extent cash especially in the water and health components. Their participation in project planning was in planning the same and not all phases of the participatory planning cycle. The group development component assisted by mobilising, registering and training the specialised groups needed for specific components.

In terms of long-term sustainability of project impacts then, it is doubtful whether these will be achieved given the shortage of water at sources, the mandated cost sharing and the expressed lack of remuneration of trained PHC workers expressed by focus groups.

Lessons learned in this project, as detailed in under each component below and previously in the [REDACTED], led inter alia to the recommendation that consideration be made for another project in the wider central Kenya dry lands. The Central Kenya Dry Area Project was ultimately started in 2001. Key lessons learned are *inter alia* that communities will invest in water and health components, that the groups approach is an important mechanism for delivering development activities to base communities and that a general agricultural component should be part and parcel of a poverty programme which intends to impact on incomes.



### 3. ASSESSMENT OF IMPACT OF PROJECT IMPLEMENTATION

#### 3.1 Historical Centrality of Anti-Poverty Policies and Programmes

Fighting poverty was a central plank in Kenya's freedom struggle as aptly detailed in KANU's *The Kenya We Want* at independence (KANU, 1963). It therefore formed the basis of many policies and programs of the government from 1963 to date. At times these were not articulated as poverty alleviation strategies for this conceptual framework did not get into development discourse until recently. Further, programmes were, during the first fifteen years, targeted to people in high potential areas. The drylands poor were not in the policy or programme periscopes until the seventies. Census and poverty data presentation is still to be disaggregated to below district level to show the lacunae of poverty as is in Kienis as a subset of Nyeri District data.

The key policies in the sixties onward, applicable to the project area and targeting poverty, were the settlement of the poor by the Settlement Board, Haraka Settlement schemes and land buying companies, all created in the sixties. Agriculture oriented policies relevant to the areas of origin of migrants to the project area were the expansion of AI and related dairy development, the expansion of coffee and tea and the development of new maize and beans varieties primarily for the higher potential areas. Since the development fashion up to the mid seventies was driven by arguments of emphasising the high potential areas, the dry lands did not become an area of focus until the second decade of independence. Research on traditional crops and livestock was not emphasised in the first two decades (Kariuki, 1997). Little research work or extension was done on crops for the arid areas, not to speak on those for the highland arid areas like Kieni (Kariuki, 1997).

At independence, population concentrations were in the high potential areas. The European farm areas-the Kienis included- had even less population than the other arid and semiarid lands. The migrations triggered by independence and the lifting of racial land holding triggered migration explosion out of the high potential lands to the former European owned lands with little population and more significantly to the other arid and semi arid lands.

The Arid and Semi-Arid Lands Development policies were articulated and implemented since the middle nineteen seventies. Colonial agriculture had not even looked at the agricultural potential of these areas. (Kariuki, 1997). They had been totally neglected in the first decade of independence other than with the development of the Katumani maize for the lowland dry areas (Kariuki, 1997).

The dry highlands have been ignored with respect to development of crop varieties up to date for they formed large-scale ranches. They were not subdivided until the eighties when the population growth of the first two decades of independence caught up with land hunger. These highland drylands are a time bombs for peasant producers with at best a hectare of land-as in the Kienis- still live next to large-scale ranches with thousands of acres as discussed in H.P. Gault, *Nyeri Water Supply, 1997*. Since there are more than twenty land laws and no systematic land use zoning, the long-term consequences are dire.

The District Focus for Rural Development policies and programmes were initiated at the beginning of the eighties (Kariuki, 1997). The formalistically poverty policies and programmes enter the policy and programme arena in the nineties. It should be noted that the policy documents on DFRD assumed a much more organised divisional, locational and sublocational level for purposes of identifying and prioritising development choices as discussed in *Development Coordinator's District Focus Phasing (1981)* (Kariuki, 1997: 8.). However, organising the sub-district institutions, conceived as the third generation activity of DFRD, has never been implemented systematically nationally since 1986.

The first decade of independence had a GDP growth rate of 6.6% basically driven by expansion in agricultural production, mainly dependent on opening new lands as discussed in G.C. M. Mwangi, *Conflict Resolution Programming Framework (1997)* (Reference 14). The oil crises of the seventies and the attendant inflation drastically reduced this. The eighties and the nineties present drastic decline into negative GDP growth driven essentially by structural adjustment, a bloated public service, corruption and unsystematic liberalisation and attendant inflation.

The impact of the collapse of the national economy on the project area's economy was devastating as documented in field data interviews. Their co-operatives collapsed triggered by the failure of the key national co-operative movement institutions like KCC and KFA, which had become a major marketing and input supply channel for farmers. Some parastatals which internally and externally marketed produce and inputs like NCPB, KPCU and Pyrethrum Board failed. The underpaid public bureaucracy, without effective field capacity-mainly transport and data processing- and increasingly paying attention to its private income generating operations, reduced beneficiary-officer contacts whilst increasing the beneficiaries' costs of getting extension advice. Government dependency on donor financing of development increased during the last twenty years as public revenues were used to support the bureaucracy and simultaneously looted (17).

It is in this context that the *National Poverty Eradication Plan (NPEP)* was formulated in 1999. It provided a national policy and institutional framework for tackling poverty, estimated to include 56% of the 30m Kenyans.

The new government, elected in 2002, is likely to change fundamentally the approach to poverty issues as its statements of intent suggest that the arid and semi-arid areas, which are currently estimated to have 25% of the national population, will be areas of focus.

### **3.2 General Policy and Programme Trends in Kenyan Agriculture**

Agriculture is still the driver of the Kenyan economy. It contributes 25-30% of the GDP, employs 70% of the labour force and produces 70% of the manufacturing raw materials whilst being the main source of government revenue.

In the sixties and seventies agriculture grew at the rate of 5% annually. This expansion was based on positive policies and programmes favouring the introduction of new food crop varieties in the high potential areas; introduction and expansion of dairy, coffee and tea; opening of new lands with the attendant institutional changes in marketing, extension and research as well as the training of experts in agriculture. However, over the next two decades the growth rate has been around 1-2%. High potential lands are crowded. Their soils tired. Inputs are too expensive and marketing problematic, locally, regionally and globally given the high cost of production resulting in un-competitive prices of agricultural products.

Policies and programmes did not keep up with the rising farming problems, particularly with regard to marginal areas. The state driven credit, cooperative and input supply systems collapsed. The extension bureaucracy was in place but it lacked resources for travel.

It is in this context that one has to see the dictates of the recent policies. The key policy documents of the recent past are *Kenya Rural Development Strategy (KRDS)*, *The Poverty Reduction Strategy Paper (PRSP)* and the *National Agriculture and Livestock Extension Policy (NALEP)*.

The KRDS fundamentally stresses expansion of off-farm enterprises, promotion of private sector investment in agricultural processing and rural area development programmes.

The PRSP defines the strategies to address poverty and food insecurity.

The NALEP sets strategies to provide a more demand driven approach to agricultural extension.

All these documents advocate for a more pluralistic approach to extension delivery in the opinion of the Ministry.

No specific small holder food production technologies developed for highland dry lands other than possibly potatoes as is the case for the low dry lands where many crop varieties are developed at Katumani KARI. One hastens to add that the new potato varieties do well in the areas with more rainfall in the project areas. For those in the really dry areas, there are really no new crops from adaptive research. It is true that the expansion of export horticultural crops, which are water dependent and unsustainable given deteriorating sources, is significant in the area over the past few years...



### 3.3 Impact of Project Target Group and Focus

The project did not specify and operationalised in detail the target group for lack of data. No baseline – economic or participatory community based – was done to focus the selection of the target group. Since the project was also extensively redesigned it ultimately worked with a rolling target group or, more accurately, target groups, for each component worked with sector specific groups. One should though note that focus group data shows that there were overlaps in membership across sectors but this is not quantifiable for there is no central database to verify this. The point is simply that groups were not coordinated across sectors to plan and manage specific area strategies.

These developments militated against using groups to set up systematic participatory community development systems which would have deepened the assumed community prioritisation and planning of development at the sublocational and locational levels as envisaged in DFRD. This failure is extensively documented in project documents. The draft PCR relevantly concludes: “During the process of project planning and implementation, there were no clear selection for activities and implementing officers did not objectively document their selection of sites and groups.” On its part, the *Synthesis of Lessons Learned Across IFAD BSE Portfolio*, by IFAD Management Department of 10/05/2008, further writes: “In all IFAD projects, community mobilisation or community development, referred as “group development” ... is treated as a sector rather than a crucial element in sustainable development in any sector (para 57)”. Further, “Single purpose groups would actually be subgroups of a more coordinated and strategic approach to community development (para 59)”. On the costs of the adopted approach to community groups, the same report further writes: “An issue that came up repeatedly in supervision reports was the large number of community groups mobilised only to be told to wait for next steps to be taken by project staff, finalised rural appraisal reports, and /or for funding to arrive from headquarters. ... Very poor people allocated scarce resources (time) and incurred opportunity costs (water not fetched or income not earned) in anticipation of projects that never came (para 61)”.

The cumulative impact of all these is that although some sectors achieved and some even over achieved their targets some of the beneficiaries are not the poor, not to talk of the poorest, as shown most clearly in the water user groups. In some situations rich beneficiaries have run away with the project benefits. Further, it is clear from the interviews that the unsystematic selection of groups led to many opportunistic organisations latching on them in exploitative ways-especially those who arose after the training in credit.

### 3.4 Impact of Instruments of Targeting

*The Aide Memoire of the Supervision Mission Report April 1994* stated: “ At present the full implementation of all project components is being hindered by lack of knowledge about the rural poor in the Kienis, their socio-economic status and geographical location. There is likely to be seasonal variation in poverty, if that can be defined in terms of food security, income and nutritional status” (para 7 c.). The project’s *Final Design Paper* had also recommended that a Baseline Survey be done to define the poor. One was ultimately done in the fourth year (1994) and rejected. The impact of this was to make nonsense of targeting and the M&E function. This is confirmed by the *Project Completion Evaluation Report* of February 1999 which inter alia states: “The group promotion has rather provided a mechanism for access to project resources (page xii) ... Nutrition survey was not carried out (para 66) ... There is no apparent targeting in the selection of beneficiaries to receive irrigation (para 75)... Group formation has, to a certain extent, detracted from the participatory nature of the project (para 200)... The lessons to be learned from this experience is that a participatory project can only be successful when it has been designed in a participatory way and when it is managed and followed up in a participatory way (para 245)”

The project design called for a multi-sectoral approach to addressing poverty in the divisions and use of DFRD guidelines to enhance targeting, promotion of beneficiary participation and inter sectoral collaboration, and strengthening local development institutions to ensure sustainability of interventions. There is no evidence that these were done at the base community level or even at the district level save for departments who met to coordinate the independently produced plans. For it to have been systematically done, sublocations and locations as well as the divisional, locational and sublocational DDCs would have been involved in targeting areas, groups and activities in their areas of jurisdiction. This would have contributed to building up and/or strengthening the local level DFRD planning institutions envisaged, since 1981, at divisional, locational and sub-locational levels. It was envisaged in the *District Focus Baseline*



that these institutions would be used in project selection, planning and therefore intermediation in local conflicts.

The consequential impacts of the failure to build up these local level DFRD institutions are the resource conflicts triggered in communities and the lack of cross sector management of project field activities. This would have saved field management costs whilst making it more efficient and effective over and above saving communities time and opportunity costs not to speak about assuring sustainability of development efforts. At the same time it would have empowered communities to develop capacity to see development activities in a continuous web and over time by building local DFRD development teams to address specific geographical areas ( ). A local level multi-sectoral selection of project activities would also have clarified for beneficiaries the need to guard over potential exploitation by either local elites or other forces. It would also have clarified for communities the need to prioritise and sequence the most advantageous activities.

The poor and poorest have limited resources to invest in development. Given this, it is important that planning capacities at the sub-divisional level be build up by all projects. This project failed to do this and the impact is continued lack of local level community wide planning capacity. Sector community planning of utilisation of community labour, materials and cash was undertaken especially in water and health. In fieldwork, the most dramatic evidence of this was a snow peas buyer who takes produce, does not pay for it and just migrates from one community to another.

This argument, denied in comments on the draft is also supported indirectly by the draft PCR, which argues that: "Poor financial flow to the district, liquidity problems at the District Treasury, cancellation of key economic component in 1995/1996 (Agriculture and Irrigation Development and Special Financing Facility) all contributed to weakening the operational framework of the project's multi-sectoral interventions."

The project's targeting strategy, which ultimately evolved, was to use existing and or to create groups for specific sectors. Most of the time this led to inter- and intra-group competitions and their allied conflicts. This is particularly clear in the water sector.

### **3.5. Primary Health Care Impacts**

Four health facilities were constructed at Wendiga, Gakawa, Kiamathaga and Burguret, together with staff houses and all are operational. Three old health facilities at Naro-moru, Warazo and Bellevue were rehabilitated. Maternity units added at Naro-moru and Bellevue. A room was rehabilitated for maternity use at Warazo. These outputs were over and above the design targets.

The construction of physical facilities no doubt has tremendous positive impact on health delivery in the project area, which was undeserved in the past. Facilities have improved physical accessibility to basic health services. All health facilities provide services in Family Planning, PHC, Sexually Transmitted Infection (STI) syndromes management and infection prevention. The PCR claims that 90 % of the population walk less than 8km to the nearest health facility compared to 12km before the project.

The project trained facility based health workers. Among them are inter-sectoral team of trainers with relevant expertise in the fields of PHC, nutrition education, training curriculum and control of endemic diseases in the project area. The PHC training programme was not restricted to the six initially targeted facilities but all the 19 facilities in the project area. Over 100 Village Health Committee (VHCs) (6 at design) and 700 CHWs (105 at design) were trained in PHC and 50% of them are functional. The assorted communities can now access not only treatment but also health information in closer quarters.

All the 19 facilities within the project area have introduced cost sharing-as is general GOK policy. The impact has been to get augmentation of services and supplies at facilities when the national government has not been able to provide drugs, security and so forth. Since facilities are managed by locally elected and trained health facility management committees, for the first time these relatively new communities have been able to anchor their health issues to local leadership.

The impact of the supplied vehicles, 2 vehicles and 3 motorcycles enabled district staff to supervise and supply drugs. Whereas 58 bicycles were provided for CHWs, TBAs and health unit staff, they were primarily privatised as focus groups argued.

Various instruments, equipments and furniture for health facilities were delayed by MOH in Nairobi until year 2000. This had negative impacts on the delivery of services for some of the new facilities did not have instruments, equipment or furniture. This delay forced communities at times to invest their meagre resources.

The Ministry of Health deployed health workers to the facilities assisted by the project. The additional staffs are 3 Enrolled Nurses, 28 Enrolled Community Nurses, 6 Public Health Technicians, 1 Clinical Officer, 1 Community Nutrition Technician, 1 Laboratory Technician and 2 Kenya Registered Community Health Nurses. They have made a major impact on the delivery of services to the various communities. During focus interviews, families were very happy about the services, especially maternity for many of the new homesteaders are young couples. Maternity also goes together with antenatal and post-natal activities.

Table 1: KIENI DIVISIONS MORBIDITY TREND

<b>Disease/Year</b>	<b>1991</b>	<b>1993</b>	<b>1995</b>	<b>1997</b>	<b>1999</b>	<b>2001</b>	<b>2002</b>
Malaria	11217	11884	6202	11088	16749	20028	20201
Diarrhoea	3158	4789	3029	3071	4776	4877	4304
Intestinal worms	13112	11260	11829	9946	12532	14260	12397
URTI	75612	70621	63415	47894	54910	61557	55276
Skin diseases	28951	25442	18301	13147	11242	16078	12855
Accidents	12705	8465	5834	4404	4677	5821	4771

Source: Primary Health Care Group, Ministry of Health, Nyeri, 22/02/03

With respect to changes in health status, Table 1 Kiени Divisions Morbidity Trend Data and Analysis show that the most important disease was and still is URTI. Its prevalence dropped from just over seventy five thousand to a low of just under fifty thousand between 1991 and 1997. It climbed to over sixty thousand in 2001 and in 2002 was just over fifty five thousand. The second most prevalent disease is skin disease. Between 1991 and 1997 it dropped from just under twenty nine thousand to just above thirteen thousand. By 2001 it had climbed back to just over sixteen thousand and subsequently dropped to just under thirteen thousand in 2002. Intestinal worms, the third most prevalent disease in 1991, dropped from thirteen thousand to just under ten thousand between 1991 and 1997. It rose dramatically to just over fourteen thousand in 2001 and dropped to just over twelve thousand in 2002. Malaria dropped dramatically between 1991 and 1995, perhaps because of the generally dry year in 1994 but has been on the increase since then. Diarrhoea spiked in 1993, it dropped in 1995, accelerated in 1999 and 2001 but lowered in 2002.

This summary data in general shows that general morbidity improved between 1991 and 1997. Since, it has deteriorated. Discussions during field work and two workshops did not lead to a conclusive explanation of the changes. Several comments were made about the impacts of drought, more irrigation water, changing lifestyles and in-migration as possible explanations. Field focus group interviews did not help to resolve this issue. In the groups where the consultant participated during interviews, beneficiaries argued that there is more malaria but did not have an explanation for the general morbidity trend. Again there were differences in morbidity explanations depending on age and occupation. The old people naturally complained about old peoples diseases. The younger couples emphasized children diseases for they are in the childrearing years.

Overall, a tentative conclusion can be that environmental sanitation, meant to improve household hygiene has only marginally impacted on the diseases. It is true that URTI is lower. However, malaria is up. Diarrhoea is also up. Intestinal worms' infestation is marginally down. Skin diseases are very much down perhaps reflecting more access to water.



Table 2: Focus Groups Mentions of Adult Morbidity Causes is presented below. This is simply a count of how many times a particular disease is mentioned by one of the 89 focus groups interviewed. The categories are as presented in the field.

What is of extreme import is the fact that 71 out of 89 groups listed Malaria as the single most important driver of adult morbidity. 53 of the groups nominate pneumonia for the second spot and 51 see URTI as the occupant of the third spot. Although, as commented in the draft review, HIV/ AIDS is not a disease, the community groups classify it in the fourth position. Amebiosis and Typhoid are the next in that order.

Table 2: FOCUS GROUPS MENTIONS OF ADULT MORBIDITY CAUSES

Malaria	Pneumonia	URTI	HIV/AIDS	Amebiosis	Typhoid	I. Worms	Skin Inf.
71	53	51	50	47	46	21	18
Diarrhoea	Arthritis	Diabetes	STI	Eye Inf.	Hypertension	Asthma	Rheumatism
15	13	10	10	10	8	8	7
Dental	Colds	Ulcers	Wounds	Tuberculosis	Malnutrition	Boils	Bilharzia
5	5	5	5	4	2	2	2
Burns	Dysentery	Allergies	Flu	Stroke	Cancer	Meningitis	Brucellosis
1	1	1	1	1	1	1	1

Source: Focus Groups' Reports.

In descending order then Malaria, Pneumonia, URTI, HIV/AIDS, Amebiosis and Typhoid are seen by more than 50% of the focus groups as the key drivers of adult morbidity. Over and above this, it should be noted that URTI, ranked number one in the facility-based data both in 1991 and 2002, is seen in the communities as number three. Malaria and Pneumonia are seen as more important as they are respectively number one and two. Note also that Intestinal Worms ranked, in the facility-based data, as number three in 1991 and number four in the 2002, drops to number seven in the community ranking. Diarrhoea, which ranked number six in the facility based data both in 1991 and 2002, is number nine in terms of the focus groups' ranking.

As shown in Table 3: Focus Groups Mentions of Infant and Children Morbidity Causes, the main driver of infant and children morbidity is Pneumonia, as identified by 59 groups out of 89 i.e. 66%. The second one is URTI with 52 mentions ie58.4%. The distant third and fourth are Malaria and Diarrhoea with 38 (43%) and 30 (34%) mentions respectively.

Table 3: FOCUS GROUPS MENTIONS OF INFANTS AND CHILDREN MORBIDITY CAUSES

Pneumonia	URTI	Malaria	Diarrhoea	R. Worms	I. Worms	Measles	S. Infect.
59	52	38	30	18	17	13	9
E. Infect.	Amebiosis	C. Pox	Typhoid	Wounds	Mumps	Burns	Asthma
8	5	4	2	2	1	1	1

Source: Focus Groups' Reports.

Comparing the two tables, on drivers of morbidity, one should note that Diarrhoea is ranked 9<sup>th</sup> in the adult morbidity table and fourth in the infant and children table. Further, the adult tablet shows some diseases, which are typically old people's diseases like arthritis and rheumatism. On the former, one focus group argued it was related to night irrigation due to shortage of water. What is interesting in comparing community selection of drivers of morbidity for adults on one hand and infants and children on the other is the general agreement that the top three are similar even though they differ in positioning.



In the 89 focus group reports there is limited data on drivers of infant and children mortality. The consultant thinks that most interviewer teams concentrated on getting the morbidity data. Some reports asked for deaths in the past six months and generally the answers were that there were not many deaths. Out of the thirty reports (34% of the 89 groups interviewed) where the mortality data was found, led to construction of **Table 4: Focus Groups Mentions of Infant and Children Mortality Causes**. Of the Forty-three mentions, twenty-two (51%) are for Pneumonia. The second killer is Malaria at a rate, which is just about a third of pneumonia. Surprisingly HIV/AIDS follows at third. URTI and Diarrhoea were tied at fourth place.

Table 4: FOCUS GROUPS MENTIONS OF INFANT AND CHILDREN MORTALITY CAUSES

Pneumonia	Malaria	HIV/AIDS	URTI	Diarrhoea	Malnutrition	Amebiosis	R.Worm
22	8	4	3	3	1	1	1

Source: Focus Groups' Reports.

On the nutritional status of infants and children, of the 75 (65%) out of 89 focus groups, which gave data on this argued that there is no extensive malnutrition in the area generally as shown in **Table 5: Infant and Children Malnutrition and Marasmus Focus Group Mentions**

TABLE 5: INFANT AND CHILDREN MALNUTRITION FOCUS GROUP MENTIONS

Malnutrition None	Malnutrition 1%	Malnutrition 2%	Malnutrition 3%	Malnutrition 4%	Malnutrition 5%	Malnutrition 6-10%
49	3	6	3	4	2	3
Malnutrition 11-20%	Malnutrition 21-30%	Malnutrition 31-40%	Malnutrition 41-50%	Malnutrition 51-60%	Malnutrition 61-70%	Malnutrition 71-80%
0	0	0	1	0	2	1

Source: Focus Groups' Reports.

The reason given for lack of malnutrition is variety of foods. This is a general comment on overall agricultural production and financial resources for buying food. There were no extensive comments relating this to kitchen gardens. In some of the interviews, it was pointed out that malnutrition has seasonality on one hand and at the same time during extreme droughts it is found in the area. However, four groups stated that there is very high malnutrition of infants and children at the level of 50%, one group; 70%, two groups; and 80%, one group. It is possible that these high figures were in areas where there are migrant forest farmers and/or very recent migrants at the extremely dry corners of the divisions. This data is suspicious though. One should further note that one group reported that traditional cultural practices of not giving children eggs for they cause pneumonia are still an issue in the Kienis. There is no data to test the veracity of this allegation and its spread. Further, one group did mention that there is marasmus.

TABLE 6: ENUMERATION OF VARIABLES IMPACTING ON CHANGES IN HEALTH STATUS

Active Trained PHC	Active A&P Natal Clinics	Drugs Available in Facilities	Proximity of Health Facilities	Improved Diets	Schools Deworming Programmes	Lack of PHC Activities
Mention 42	Mention 21	Mention 15	Mention 10	Mention 5	Mention 1	Mention 36
32.3%	16.1%	11.5%	7.7%	3.8%	0.76%	27.7%

Source: Focus Groups' Reports.

The original design target of constructing 600 VIP latrines was not met as only 9 were constructed. The PCR claims that by the close of the project 85% of the households had serviceable toilets as compared to 50% at the start of the project. This is doubtful from field observation. Even if it were true, for the interview teams did not go to every village, there are other actors in the divisions with PHC programmes targeting toilets at much cheaper cost. The issue is simply the design of the project VIP toilet. In situations of black cotton soils, to build the massive stone masonry VIP toilet is simply expensive for over and above the stone masonry costs they have to be lined. Some of the other programmes in the divisions have utilised timber, which is not only lighter but also cheaper. The impact of the numbers of VIP toilets is minimal. Visually there are still many homes without toilets. Other data relevant to changes in health status can be

derived from the focus groups data. Sixty-seven of the eighty nine focus groups gave data which facilitated calculations of perceptions of health services for such would have impacts on health status in the future. **Table 6: Enumeration of Variables Impacting on Changes in Health Status** refers. Sixty-seven of the eighty-nine focus groups, i.e. 75% of the focus groups, commented on this issue.

Thirty two percent saw the existence of a trained and active PHC as the one variable having the greatest impact on the changes in the health status. At times they explained that they have been able to understand hygiene and health issues and thus avoid diseases. Ante and Post Natal clinics were the second most important variable. Given other data that there is very little morbidity of infants, the teaching and activities of this variable are important positive impact on the health status. Availability of drugs in facilities, as well as facility nearness to the populations are the next variables impacting positively on changes in health status respectively. Focus group members argued that not only can they go to the near facilities but also they are confident there will be drugs. Existence of improved diets gets a low 3.8%. The school deworming activities are also lowly ranked.

If all the above are positive variables on changes in health status, the lack of PHC activities, at 27.7%, should be noted. Under this variable are two specific concerns. On one hand some focus groups argue that there was PHC training but they are inactive and on the other no PHC training took place. The point is simply that to train PHC is not enough. The variables that make the extension of that knowledge on continuous basis in communities evidently did not exist in the areas where the focus groups reported lack of active PHC. Among the issues mentioned on non-existence of PHC are movement away of those trained, failure of the project and/or the communities to give those trained incentives, and inappropriateness of those trained. Given the lumpiness of the focus interview data it is not possible to disaggregate this data further say in categories of Village health committees, CHWs, TBAs etc.

### **3.6. Domestic Water Supply**

A total number of 21 Domestic Water Schemes were started with 13 completed, 3 partially completed and 5 on going. Completed means that the intake and piping is done but not that all the planned connections are done. The total number of households connected is 4,000. It is expected that when all the schemes are completed and commissioned, 10,445 households will be connected, serving a total population of over 80,000 people. These farmers have improved access to water for domestic and livestock use plus minor irrigations.

Each water scheme has its own community elected Water User Association the institution envisaged for long term management of community water resources by the ministry responsible. Some were formed before the project. Since drylands communities give high priority to water projects, beneficiary contribution in cash, materials and labour were high and this partly explains the high number of water projects completed.

Beneficiary contribution towards water facilities construction was 34.8% in Kieni West and 34% in Kieni East as shown in **Table 7: Water Project Costs And Contributions By Donor And Communities**. Discussion with project staff suggest that this is an underestimate for many of the projects were not completed and beneficiaries have continued to finish them somehow. This means that they are investing more in these projects than already captured. Clearly then, beneficiaries were able to invest in their water. A managerial system, the WUAs, was set up. Commenting on the draft report, it was pointed out that: "Domestic water had priority initially but all projects had a component of minor irrigation".

There can be no doubt that water provision made dramatic positive impacts. It released labour; especially female labour for water is in the female gender, for other activities. It made it feasible to grow horticultural crops primarily and food crops secondarily. It also has had obvious impact on general cleanliness and thus on health. Irrigation has had some positive impact on incomes of the connected households. It has also created opportunities for casual employment in the high value horticultural industry that has been introduced into the project area through private sector initiatives. All these are positive impacts at any level of analysis.

TABLE 7: WATER PROJECT COSTS AND CONTRIBUTIONS BY DONOR AND COMMUNITIES

<b>Projects K. West</b>	<b>Total Cost</b>	<b>Donor</b>	<b>Community</b>
Watuka	13,758,588.0	6,289,579	9,812,792
Lamuria	5,516,640.0	1,575,994	648,458
Gataragwa Mugunda	35,572,241.0	1,979,348	6,982,376
Simbara Amboni Bondeni	12,022,242.0	2,986,325	645,008
Simbara Kamatongu	22,188,838.1	12,030,725	550,000

<b>Projects K. East</b>			
Mwea B	5,076,991.4	1,584,974	1,557,437
Kaaga	10,931,183.7	3,562,715	2,353,885
Warazo luisoi	67,764,678.8	6,775,538	3,200,000
Thung'ari	3,357,018.4	936,200	987,281
Karurumo	10,000,000.0	2,345,554	829,616
Kabunda	10,368,624.5	1,402,261	2,002,049
Maka	16,782,840.0	2,718,898	3,511,274
Kamburaini	9,500,000.0	8,959,542	3,207,607
Kirinyaga Nyange	9,972,121.0	2,092,473	2,735,200
Gitwe	16,817,340.0	865,600	1,293,346
Kabendera	10,202,746.0	1,206,350	350,141
Naromoru Aguthi	20,711,751.0	4,351,610	2,150,000
Kamangura	14,781,259.7	6,668,078	1,282,512
Kinaki	18,459,123.45	6,721,266	202,142
Urutagwo Mwiruti	1,200,000.0	146,275	310,376
Mwicheiri	16,128,681.4	6,721,266	3,411,254
<b>TOTAL</b>	<b>242,054,359.4</b>	<b>57,058,603</b>	<b>29,384,120</b>

Source: DWO Nyeri

No environmental baseline study was done before project design to produce data on water sources, uses and existent water borne disease patterns. It should be the procedure in all projects for the cost of undertaking it



are minimal for the District has enough data on some of these issues collected by the line ministries. All projects' schemes are either gravity pipe or canal based. This was judged as the most appropriate technology. Clearly these sources are an improvement on pre-project sources. However, it is possible there would be significant impacts of the particular water technologies in the long term on the farming system, equity, and the ecology of the area. Their determination is not possible given the lack of baseline data. However, we note several points which can be adjudicated by post-construction monitoring efforts.

To begin with water sources are in the gazetted public forests inhabited by wildlife. Since the water is not treated and beneficiaries do not boil it as much as they claim, there could be negative health impacts. That, however, is not the most critical issue.

The ecology of the forests has deteriorated very fast in the past twenty years and rivers do not flow all year round and in volumes initially expected. The designs provided water for irrigating only 1/16 of an acre per household. However, once water was availed, the tendency is for some households to irrigate much more than the planned area. As a result, more water than was designed for is drawn. There is not enough water for the whole population to irrigate with the present technologies- sprinkler and canal. Of course adopting more efficient irrigation methods e.g. drip irrigation, will enable the households to continue irrigating the planned acreages if not increasing it in spite of the water shortage. It should also be noted that some of the communities are already talking about financing the building of other structures to increase available water. Among these are dams in the forests to harness storm water. If such structures are built, potential conflicts over access to water between different supplied areas, between families and within families will be intermediated...

Equity, in terms of access to water, can only be assured if there is metering or rationing. These are yet to be effected by the assorted Water user association managements. However, a pioneering effort is found in Watuka where rationing in specific scheme areas, especially in dry periods is already being implemented. This should be encouraged in all other schemes

In the Kienis, those who are at the lower end of the systems usually are the poorest- for they are recent migrants as opposed to the early migrants who settled in the uplands next to the forest and who have had more than thirty years to develop their better land for they were the first settlers under the Settlement Board, soon after independence. Although recent lower end migrants are represented in the management committees- at times even key officials- they are denied water by the fact that in many schemes, the project terminated before the piping of the whole schemes was completed. Communities plan to finish the projects on their own in the post-project period.

Equity is also about how much one contributes to be connected assuming that they have contributed their labour. During fieldwork, figures of Ksh. 10,000 were generally mentioned if one contributed labour since the beginning of the project to be connected. If one comes to the area and had not been around when a scheme was being built, they have to pay an extra Ksh. 20,000 to 60,000. Field water department staff have pointed out that these sums of money, agreed on in public by members of particular schemes, are not required at one time and thus do not unduly impact on the poor for at times contributions are stretched to many years.

Intra-family conflicts are coming up as parents, usually the original settlers who laboured on construction, refuse their children to use their connections to supplementary irrigate. Although this information was generated in the field, field personnel with more experience in the area argue that the issue is not access to water but the traditional land holding and use system which demands that sons and daughters move to other areas to establish their households. The second generation families are allowed to use the water for domestic functions only. There is need to probe the nexus between land ownership and irrigation water in the future.

In one scheme, a rich beneficiary negotiated with the water user association committee to give more resources than the average member's contribution with conditionality that he would get a four inch pipe connection. This was duly written up in a sort of contract. When the water got to his land, prior to being distributed to other members who were below his farm, he used a lot of it. The Water User Association and the government officials knew about this for he was undertaking massive overhead irrigation. When we

interviewed members of the water use association they pointed out that they were aware that their water was being used. They complained to the DWE's office. Subsequently, this case has been handled by GOK officials as the members insisted on their due rights. We comment on this case to show that although there may be some deals, the community and GOK officials have mechanisms for handling such exploitative behaviour.

The emerging horticulture farming system –dependent on supplementary irrigation- is herbicide, fungicide, pesticides and fertiliser dependent. During the interview of one focus group, they were asked why they do not use the eco friendly solutions they have been taught by MOA. A grand mother, who appeared to be the prime mover of the group, answered that her husband did not want her wasting time mixing organic fertilisers or pesticides. The same point – that it is easier to just buy the chemicals and use - was made in many other focus groups but not in such dramatic form.

The fastest growing new businesses in the region are suppliers of agro-chemicals. Some of them are GOK employed agriculturists in the area. These chemicals are used and stored in absolutely unsafe ways-usually in the house. Of course the beneficiaries have been taught otherwise. Since the negative impacts, of unsafe chemical use, are long term it, is not possible to establish their impacts on the physical and social ecology now. However, it is not unlikely that a few years down the road, one will see impacts of the chemicals on the population, as is the case in the adjoining coffee areas over and above their contaminating water sources.

Control over the management of the water resource has led to some problems. The history of most water projects indicate that they were started in the late 1970's or early 1980's. They were mainly initiated by the upper zone settlers. Since the gravity system originates in the upper reaches, some irrigation starts there before construction in the lowered areas. In some schemes, the project terminated before all the lower areas got piping. Whereas this is seen as iniquitous, it should be noted that in many of the schemes, efforts have been made to complete the designed system even without project resources. Access to water is seen as the principal locomotive in reducing poverty for most households living in the lower marginal areas.

The District Water Officer's recommendation of installation of meters has been resisted by most of the water users' management groups in favour of payment of monthly flat rate of Kshs. 100. Equity can only be assured if metering and/or rationing are speedily instituted. That Watuka scheme is beginning to ration water is perhaps an indicator of how water users' management committees will handle the issue in the future for Watuka has been seen by many of the other schemes as well as district officials as a pioneer in management in the past.

It is then ironic that the sector, which has got most resources from the project, because of pressure from the beneficiaries, and, in which the community has participated and invested heavily, has some serious emerging problems.

Perhaps the key problem is sustainability of the sources. Communities are beginning to address this by planning the harvesting of storm water to augment the sources. It is thought that the existing pipelines will be used to convey the harvested water.

The second problem is the diminishing capacity of the rivers to provide water to all the schemes, particularly during droughts. To address equitable access by different schemes in a catchment, there are beginnings of coordination of the Water User Associations at a river basin level. This allows the opening of intakes sequentially to different schemes to distribute the scarce resource.

Third, provision of water is attracting rich land buyers to the area. Perhaps the leading scheme in terms of attracting the rich is in Mwea B scheme, which is near Nanyuki town. The newcomers are also seeking to control the management committee as they argue that they offer better leadership. This has triggered conflicts in the scheme. Similarly, rich people driven conflicts are also found in Kaburaini, Aguthi and Kirinyaga Nyage schemes among others. It should be noted that again Watuka scheme has also led in attempts to control the rich incoming people. It has put into the by-laws that new land buyers do not automatically get rights to irrigation water since allowing them these rights would mean that irrigation water demand grows beyond the designed capacity. New land buyers in Watuka are required to invest in



the next generation water provision which essentially will involve harnessing storm water and connecting it to the existent piping. This is an important innovation and is highly recommended to the other scheme. Since it would involve much more money than the previous schemes, it would be poetic justice.

### 3.7. Agriculture Production

As early as 1996, it was pointed out that the project's purpose within the agricultural component should not be just increase in overall agricultural production alone. *The Review of Cooperation with Belgian Survival Fund Joint Programme Phase I, March 1996* wrote: "Increased household food security cannot be achieved through increased agricultural production alone. Therefore the focus within BSF/JP should be on aspects such as access and security: crisis coping mechanism e.g. local storage and cereal banks to reduce cyclic pre-harvest food insecurity, credit systems etc, income generating activities, availability and accessibility of markets and marketing mechanisms. (Para 1.3.1.)". None of the enumerated activities were done by the project although the Home Economics component argues that there was some income generating activities. We will comment on this below.

Overall agricultural production is reported by the PCR Draft as well as field interviews, to have improved over the project period. *Table 8: Kieni West Crop Production 1994-2000*, showing the data for Kieni West illustrates this. The consultant has been unable to get data for Kieni East, just like the PCR Draft, not for lack of trying. It is important though is to note the rise of the supplementary irrigated crops. These are, *inter alia*, cabbages, onions, tomatoes and french beans. Data on floriculture, which has expanded is not reported.

TABLE 8: KIENI WEST CROP PRODUCTION 1994-2000 (TONS)

Crop	1994	1995	1996	1997	1998	1999	2000
Maize	5247	5925	6220	6418	26280	14213	62
Beans	2800	4836	5174	3248	1104	1240	58
Potatoes	27800	3600	4284	46517	8218	5620	583
Cabbages	19408	24900	31805	37600	4960	23820	18000
Onions	38	848	814	912	196	666	1048
Tomatoes	171	400	380	742	2190	464	672
Carrots	77	780	298	412	704	455	352
F. Beans	2	2	2	16	23	16	20

Source: Nyeri Dry Area Smallholder and Community Services Development Project (PCR Draft) Table 1.p. 12.

The formally designated agricultural irrigation areas, the activities of home economics, livestock development and general agricultural production form the detailed comments following in sequence.

Only two formal irrigation systems, Narumoru Aguthi and Lamuria were identified as such from the project onset. All the other 19 water provision facilities were conceptualised for domestic water but with a supplementary irrigation potential.

The original plan for Aguthi called for designing a gravity irrigation system covering 300 hectares. It was to draw 254 litres per second from the intake. When it was completed, it only drew 50 litres per second into a canal according to the estimate one of the DWO officers during fieldwork! Perhaps the effective current supply is only 20-30 litres per second! The canal will be converted to a piping system in the future. In any case, when construction was completed, only 98 hectares were irrigated. These are distributed between 750 households in Narumoru Aguthi.

On its turn, Lamuria was designed to cover 250 households. It is in a flood plain. Its population argue that the irrigation system has enabled them to escape the past when famine relief was a permanent feature of their area.

There has been income and employment contribution to the division's incomes and employment opportunities from these two schemes. The introduction of horticultural export crops in the two schemes has led to a major rise in land values. Another impact is the increase in the number of people settling in the



areas. The impact is not just that in-migration numbers are rising, but that some high income Kenyans are buying land at prices, which original settlers cannot match.

Lamuria transition to partial food security is an interesting case, which should be detailed in the future to inform other ongoing GOK projects. Before the project Lamuria was on food relief all the time according to agricultural officers who have been in the region for more than twenty years and members of focus groups in the area. Its population came together under a land buying company, which subdivided the land in the seventies. Most of the members entitled to settle then did not for there was no water. It is not until the canal based irrigation system was done that most people took residence. Thus the impact of the scheme was to enable many more people to settle. They have partly secured their food sources by irrigating some of the land or being employed in irrigation related operations of others. They uniformly argue that their incomes have improved.

On Aguthi, some farmers are already irrigating from wells and small dams. There is reason to doubt the viability of the irrigation system given the problems with amount of water available from the forest and the perennial conflicts in management and access as covered in very great detail in the later sections and in case studies 32 and 54.

The draft PCR claims that about 80% of households, as compared to 50% at design, have adopted energy saving technologies since women groups acknowledge making a meal with the traditional three stone stove requires three loads of woodfuel whereas the "Kuni Mbili Jiko" only require one load. It is further claimed that fireless cookers save about 75% of energy. And further that improved on-farm food processing, storage and preservation have contributed to increased food security.

Whereas the impact of these technologies can be seen in favourable light in terms of contributing to the health and well-being of the communities, this consultant is uneasy about the claim for very little of the technologies are visible on the ground. Some beneficiaries claimed that they were lectured on the technologies but they never implemented them given their relatively high costs. Other beneficiaries claimed that they have adopted the jiko but the reduced cost of flasks vitiates making tea cosies. Food warmers are of interest to middle class urban types! Peasants cook food and eat it immediately. Very little of it is left to be warmed later. Food stores are still mainly traditional. Food processing on farm is still to be extensively adapted for very little data on this came out in the focus group interviews and the consultant personally saw little of it in the field.

It is further claimed in the draft PCR draft that there is evidence of empowerment of women resulting from income generating activities related to making of tea cosies, food warmers, energy saving stoves and improved recipes using low cost, cheap and locally available materials. The supposed impact is that women are able to spend more time on group projects, which generate income both for group and individual household. In field interviews few groups were found doing this.

It is claimed that about 85% of households have adopted kitchen gardening whose impacts are improving family nutrition and generating income of about US\$ 10 monthly. Given the paucity of M&E data, it is doubtful that these impacts are as dramatic as argued. However, it is true that one of the impacts of the expansion in commercial vegetable growing has been improvement in nutrition.

Livestock development activities were primarily exchange of livestock sired by improved sires bought by the project. The idea was not to just improve the gene pool but also to build livestock capital within groups. In the cockerel exchange programme, a total of 1,388 pullets were exchanged. The Galla buck exchange programme produced a total of 300 off springs from 16 bucks, whereas the exchange of 41 Dorper rams produced a total of 2,000 off springs.

These programmes were sustained by the groups themselves and are currently on going. There are therefore several clear impacts. First is the improvement of the gene pool for some of the important livestock in the area. Second is the fact that these activities empowered groups to continue an economic activity. A third not so clear impact is the sustainability of a group for it is focussed on a viable activity, which enabled them to build not just group but individual capital. This is important in situations where

livestock deaths during droughts are dramatic. The Division for example lost Ksh. 75 million from livestock deaths during the 1999-2000 drought according to the District Livestock Office.

Some farmers have adopted apiculture as an income generating activity. Five apiaries and 96 individual beehives were established. Whereas this did not lead to a large impact, it should be noted that the region stands a good chance of becoming a major honey producer utilising modern beehives. This is a new technology whose long-term impacts are likely to be positive.

Social economic status of households is primarily driven by agricultural production in the Kienis as is true of other drylands. However, all drylands peoples adopt coping mechanisms that supplement agricultural incomes for households. The most important of these are casual labour of family members, off season labour migration, regular labour migration/split households, petty trade and formal trade. No formal data on these for Kieni was available or could be collected within the time frame of the consultancy.

For purposes of this consultancy, comments on socio-economic status will rely on agriculture related data gathered from the focus groups as shown in Table 9: Focus Groups' Mentions of Agricultural Production Assets. Groups were asked about averages of household landholding, livestock holdings and cropping patterns.

TABLE 9: FOCUS GROUPS' MENTIONS OF AGRICULTURAL PRODUCTION ASSETS

SIZE OF FARMS				
1-5 Acres	5.1-10 Acres	10.1-15 Acres	15.1-20 Acres	Over 20 Acres
68	9	0	1	0
LIVESTOCK				
1-2	3-4	5-6	6-8	Over 8
46	17	2	0	0
SHEEP				
1-5	6-10	11-15	16-20	Over 20
35	8	1	1	0
GOATS				
1-5	6-10	11-15	16-20	Over 20
19	2	0	0	0
Poultry				
1-5	6-10	11-15	16-20	Over 20
31	16	0	1	0

Source: Source: Focus Groups' Reports.

The most important agricultural asset from a production point of view is land. Seventy-eight (88%) of the eighty-nine focus groups mentioned average land holding. The data in the table shows that the majority of the people have less than five acres of land. Detailed discussing with divisional agriculture field staff suggested that in pockets of higher rainfall the average maybe as low as 3 acres. However, if all of the Kieni is taken into account, the figure of five acres seems realistic.

On livestock, 65 (73%) focus groups out of 89 supplied information. From their data the average households has two milk cows. On sheep, 45 (50.5%), focus groups, out of 89 groups mentioned sheep ownership. From this data, the average household has 1-5 sheep. For subsequent calculations we will use the figure of 3. On goats, which are less important than sheep in farming systems of the area, 21 (24%) focus groups out of 89, mentioned that the average holding is 1-5. Like sheep for purposes of productivity calculations we will use an average of 3 sheep per household. On poultry, 48 (54%) of 89 focus groups mentioned poultry with the average holding being 1-5. Again for purposes of productivity calculations we use an average of 10.

Different focus groups gave estimates of the amount of land planted with specific crops as well as prices. These have been calculated and the medians derived **Table 10: Household Production and Incomes**. The household is supposed to have 8 individuals, access to supplementary irrigation water, and willing to spend 100 days on casual labour in the region at the going rate of Ksh. 100 per person per day. These are realistic assumptions in the opinion of the consultant.

TABLE 10: HOUSEHOLD PRODUCTION AND INCOMES

Acreage	Item	Yield	Price Ksh.	Season	Year
1	Maize	12 Bags	1200	14400	28800
0.5	Potatoes	20 Bags	500	10000	20000
0.5	Beans	4 Bags	2000	8000	16000
0.5	Tomatoes	100 Boxes	60	6000	12000
0.25	Onions	1500 Kg	10	15000	30000
0.5	Cabbages	3000 Kg.	6	18000	36000
0.25	Carrots	1200 Kg.	40	48000	96000
	Milk	1200kg	9		21600
	Calves	2	5000		10000
	Sheep	3	1200		3600
	Goat	3	800		2400
	Poultry	10	150		1500
	40% Production Cost				-111160
	C. Labour 100 Days	100			10000
	Total Ksh.				176740
	Total USD=Ksh. 72				USD 2454
	Per capita (Household 8)				USD 307
	Daily Income Per capita				USD 0.84

The conclusion one draws out of this table is that the average incomes out of agriculture merely allow families in the Kienis to just subsist. They are just on the margins like the 56% of Kenyans who are below the poverty line. It is true if calculations include snow peas and other higher income export crops, the pattern may change. However, it is not clear to this consultant that the increase will not be all that significant for a variety of reasons. First those crops have higher production costs and their returns fluctuate tremendously as explained to the author by the chair of one society selling on the Internet. Second, DWO data shows that just over 10,000 households will be connected at project end. In the 1999 census there were 38,000 households in the Kienis. Assuming that they have increased and rounding up the households upward, we can assume that currently there are about 40,000 households. Therefore only about a quarter of the households will be connected. Even if one assumes all will produce the specialised export crops, given the problems of managing water, it is not realistic to see the export crops generating significant income to spread to the rest of the population.

Arising out of the data presented above, it is clear that food security and the data on malnutrition, one could argue that there is sufficient food for the Kienis. This must however be quickly qualified by the fact that during field interviews, focus groups said that food production is supplemented by subventions from members of households working elsewhere.

Food security is not guaranteed for the average farmer in Kieni from his on farm production over time for a variety of reasons. First and foremost is recurrent droughts. The impact of these in 1994 and in 1999-2000 was devastating. One farmer told the consultant during field interviews that in his village they lost all the milk cows during the last drought. The second is the centrality of farm production in assuring financing of family needs especially education and sickness. Even when the rains are good and there are surpluses, as farmers agree in interviews, family demands force them to even sell food when surpluses lead to low returns for this is the only way they can finance their other needs especially education and sickness. One cannot meaningfully talk of continuous surpluses or storage over seasons in this marginal area. Even in the



more wet coffee and dairy areas near Nyeri, where there are bottom lands for year round cropping, the collapse of the marketing systems, input subsidies and the rise of the speculative food trade brokers limit the returns farmers get. Still Kieni is a food insecure area as witnessed by the supply of famine relief over the past few years.

### 3.8. Group Development

The role of group development in the project was problematic in the sense that the project planners assumed capacities of MCSS which did not exist on one hand and on the other the MCSS does not appear to have done the things it was capable of doing as admitted in its own comments about lessons learned. In the *Farmers' Groups and Community Support Project Supervision Report of November, 1992* it is stated that: "MCSS does not have the staff to support the National Group Development Policy at Divisional and Locational levels." p. 7. It is further written that: "MCSS needs to place more emphasis on strengthening the management of existing groups" p. 7. This early comment was to reappear in many contexts in subsequent documents about the role of DSS in the project.

In the *Dry Area Smallholder and Community Services Development Project Supervision Report of September 1993*, on page four, it is written that: "The Mission is very disappointed to learn that the MCSS National Group Development Strategy has yet to be thoroughly discussed by the PMC." Clearly this is evidence that group formation was not central in the project from initiation. This may have improved given comments in the next mission. The next *Supervision Mission Report of March 1993*, in Annex D, states that 705 groups had been analysed and for the project 180 groups had been established.

In the *Annual Financial and Technical Report of July 1992- June 1993*, it is reported that the target for the DSS was to hold one leader training and one staff training. These were held with the later including SDAs and DSDO staff.

In the *Project Annual Report for July 1993-June 1994*, it is reported that 71 new groups were registered in 1992-1993 and 120 groups were "formed and registered" in 1993-1994. SDAs are reported in the same document as having trained 120 groups in 1992-1993 and having further trained 78 groups out of a target of 168 in 1993-1994. Data on 400 groups was analysed in 1992-1993 but in 1993-1994 data on 913 groups existed and was not analysed according to the same source.

The *1994-1995 Annual Report*, on page eight, it is reported that 92 new groups were registered, that there was institutional and community leaders training, that the department "sensitized and registered groups on credit", and that it "activated divisional nutrition committees and held four district nutritional committee meetings". That the donor was still not happy with the MCSS is reflected in the *Farmers Groups and Community Services Project Supervision Report of November 1995*. To wit: "In accordance with the recommendations of the CPR activity under this (Group) subcomponent, and the continued direct involvement of the Ministry of Culture and Social services beyond June 1996 would depend upon the level of available finances. If funds are limiting, MCSS activities under the project would be terminated..... The Mission appreciates efforts made to train community leaders and chiefs, but is also aware that the training provided to existing groups remains totally inadequate, and that follow-up training and support is not being provided to trainees..... Training programmes for groups, particularly for financial management have not yet been developed and staff have not been trained in their use. The MCSS has issued group training manuals but there is little evidence that they are being actively used in field activities." p. 15. Key concepts in this are the specific training of groups in financial management. They are not picked by the project as shown below.

The *Dry Areas Smallholder and Community services Development Project Biannual Report of July to December 1996*, page eleven states: "...the role in the programme continued to be that of providing the necessary services for group formation, registration and training. It was also supposed to provide a link between groups and other technical line ministries as well as NGOs for proper service delivery." Within the year 117 groups were formed which included 7 Health groups, 17 Water User Associations and 93 others. Page twelve notes that there was no target and thus measuring effectiveness or efficiency is not possible.

In the *1996-1997 Project Annual Report*, page thirteen states that 166 new groups were registered. Out of these 101 were in Kieni East and 65 were in Kieni West. The sector distribution was 12 in health, 25 in water and 129 other. One should note that these were the years when nationally there were campaigns for Youth and Women Harambees. The subsequent page notes that: "Given the reduced level of funding, most of what was targeted was shelved." It is however noted that 10 site training covering 200 groups took place and 1,000 people were sensitised on credit. The department also did social mapping.

In the *Annual Report of 1997-1998*, on page seven, it is stated that 92 groups were registered. Four were in Health, six in water and eighty two others. 400 groups were trained in project management although the target was 120. 60 chiefs were trained and 80 adult education groups were trained although the target was 50. 950 groups were "sensitized" on savings and credit although the target was 100.

In the *Dry Area Small holder and Community Services Development Project Supervision Report of September 1998*, it is stated that group expansion is driven by Youth and Women national Harambees on page eleven. In the same page it is also stated that 92 groups were "mobilised". Of these 82 were credit and small scale revolving loan. Further: "The Mission notes provision in 1998/1999 for training expansion to include a. surveillance and enforcement of water group by-laws. Data collection /processing and utilisation for health and water groups c. linkage of saving groups to larger credit institutions d. advanced accounting for large health and water groups and e. other demand driven needs. ... The project may need to establish contact with suitable and specialised organisations, under appropriate arrangements to deliver some of these courses." Key training concepts in this are enhancing management capacities of water groups, collection, processing and utilisation of data for health and water groups, up scaling of savings groups to credit and training in accounting for large water groups. Of course the clincher is that there are doubts whether the MCSS can undertake these training efforts. They do not appear in the subsequent reporting by the department. Note also that the department was involved in KIREFU, in spite of denials in review of the draft report. It is written: "The Mission notes the progress being made by KIREFU SACCO society, especially the valuable input of the MCSS" p. 12. Ironically, KIREFU was to become very unpopular with the community beneficiaries by the time of the fieldwork for it did not provide the services it promised and beneficiaries money was tied up in its opaque practices.

In the *1998-1999 Project Annual Report*, on page twelve it is reported that 95 groups were registered. Of those 83% were "income generating activities, agriculture as well as saving and credit" 15% were water and 1% was health. KIREFU was trained. Training modules in Monitoring and Evaluation, Institutional Development, Food Security and Health and Sanitation were developed but the draft was to be completed "next year".

The *Dry Area Smallholder and Community Services Development Project Supervision Report of September 1999*, the need to train groups in management issues, identified by earlier Supervision Missions are repeated and a call for higher level registration than the one by the department made. To wit: "... legal registration of the groups and further development of their bylaws need to be addressed and should be an area of attention of social services in particular. (Among these is that) Internal auditors or similar mechanism be installed in larger groups (and) information material is developed to inform committees and members about legal issues." (p. 11). Although it can be argued that MCSS is not the relevant body for legal registration regimes over and above self help groups in Kenyan law, the comment is also about the project's failure to address this. The legal excuse did not limit the MCSS from advising that this was beyond its legal mandate and surrendering the responsibility to Cooperatives or other higher order legal regimes within the GOK system. If it could not do that, it had an obligation to advise the PMC and the donor on the same.

Page twenty six of the *Dry Area Small holder and Community Services Development Project Annual Report of 1999/2000* notes that in the year 71 groups were "mobilised and formed". Their total membership was 8,093. MCSS further writes the lessons learned by MCSS in its work with groups is that there is poor leadership style with autocratic tendencies, lack of effective participation by all the members in the decision-making process of the group, poor financial accountability and transparency largely due to ignorance on the part of project management committees, personality differences within community leaders being extended to the project, leadership not being representative of general membership of groups, poor communication within the management committees and general members and lack of cohesion within



committees and within entire groups. (p. 26.) This mea culpa begs the question whether these were not the areas of training in group dynamics, leadership and management called for repeatedly by the various supervision Missions.

Overall four types of groups of interest to the project were registered by DSS. These were Agricultural Extension Groups (271), Health Groups (23), Water Users Associations (206) and Savings and Loans Groups (607). Group registration by the department is usually a conditionality for groups which seek to be assisted by donors through the GoK or directly. The argument is made that this formalisation enables the Department and, by extension, the GoK, to monitor the activities as well as to act as honest broker if there are conflicts.

DSS states that it "sensitised communities in public forums on the need to venture into savings and credit" in spite of disclaimers in the two past drafts. As a result of many groups being registered to work with credit giving organisations within the district over and above the training in credit given by the project. Some of the active ones are PEP, WEDI, K-REP, KWFT, and Faulu Kenya. In DSS view, shared also by some officers from other sectors, DSS registration work and the projects training in credit led to the creation of, by Kieni people, their own savings and credit umbrella organisation, Kieni Revolving Fund (KIREFU) where farmers can get loans. The consultant requested performance data from the Chairman of KIREFU but did not get any even though people from the organisation participated in the beneficiaries' workshop. The consultant repeats the point made earlier that the community beneficiaries, during fieldwork, were vehemently angry with it given its lack of transparency.

DSS claims to have registered a total of 1,207 active groups with a membership of 12,500 persons from the vulnerable class, especially, women and youth. All these groups operated bank accounts, as this was a precondition for registration. Beneficiaries and community leaders were trained in management and leadership skills, group dynamics, book and record keeping, formulation of constitution and by-laws, cost sharing and general beneficiary participation.

Given that there was no systematic data on the specific group histories, functions, capabilities and sectors of competence, it is very hard to comment on the veracity of these claims. What came out of field interviews is that many groups existed before the project. They sided to it to get some benefits. As conditionality they had to register with DSS. They were not systematically taught how to protect themselves and theirs from being taken advantage of by local elites or other external forces, specifically in dealing with agricultural production brokers, project management committees controlling key resources like water, etc.

That DSS never completed the database on groups for as the comments on the draft PCR argue, "no resources were provided for the above exercise". The lack of systematised data on all groups by sector, longevity, assets and performance etc presented problems of random selection of focus groups for this exercise. It is not clear how they are classified as vulnerable since group formation is not only found in one class in Kieni, or any place else in the republic.

The project plans called for the use of groups without systematically specifying how they were to be identified and trained as well as the qualifications of those who were to do it. It seemed to have an assumption that DSS would train them for group processes as well as sector specific functions including management. This consultant has not definitively established which ones were project driven for the database, which was supposed to be established, was not. Discussions with divisional agriculturists, who have been around since project inception, suggest that the divisional staff went out and found existing groups, which, became part and parcel of what was called extension groups. Water user associations seem to have evolved from pre-project water committees. The health facility groups seem to have evolved also out of pre-project committees. The impact of DSS training groups for specific sector deliverables cannot be established given the lack of data.

This consultants' academic and development professional work on groups, in many parts of the republic, Kienis included, since 1971, and other peoples' work, suggests that group formation, stability and sustainability is a much more complex issue than was envisaged by the project planners and implementers ( ). The complexity is reflected in the fact that the



officers who are involved in this impact assessment cannot even agree on how groups came into and were used in project activities. Some understand groups as committees. Some seem surprised when members of water user associations turn up as health facility group members and so forth. In spite of the comment from the review of the drafts that there is nothing wrong about an individual belonging to many committees such practice is usually seen as indicating domination or lack of systematic community participation for no individual should control all project brokerage if leadership is shared within the community. This problem would have been solved if there was systematic and coordinated use of participatory planning of all components at the base communities. This is not the responsibility of DSS solely but of all the sectors involved in the project.

The impact DSS "sensitising, mobilising, forming and registering" groups and its impact on the sector is not easily discernible for the community associational life of the project area has always thrived on its own. This was pointed out by the *Project Completion Report Volume 1 of February 1999*, which bluntly stated: "Group Development has mainly built on existing traditions in the Kienis and the project itself has probably not significantly increased beneficiary participation. The group promotion has rather provided a mechanism for access to project resources." (para. xii). Further, very many groups do not bother to register with DSS unless it is conditionality for getting specific support. They argue that the registration costs are high-especially the requirement of operating a bank account. A reading of the case studies from the field shows that groups existed before the project. Some training was done but the envisaged large role of the DSS did not take place or the conflicts, which are there, would be mediated if systematic group process, management and conflict resolution did take place.

In summary then the consultant quotes the *Project Completion Evaluation Report of February 1999* which inter alia concluded that: "The group promotion has rather provided a mechanism for access to project resources (page xii) .....Group formation has, to a certain extent, detracted from the participatory nature of the project (para 200)....The lessons to be learned from this experience is that a participatory project can only be successful when it has been designed in a participatory way and when it is managed and followed up in a participatory way (para 245)"

The consultant notes that these conclusions are contested by the MCSS parties concerned but reiterates that out of the records of reports by supervising missions, annual reports, the limited data provided by DSS and data gathered in community interviews, there is really no alternative professional comments possible.

### **3.9. District Information and Documentation Centre**

The DPU/DIDC was constructed and completed as planned. It houses the offices of DPO, DDO and DSO. It has a 7,000 publications library (DIDC), which can take 40 users at a time. Documentation includes government publications, development reports, annual reports, technical manuals, handbooks, statistical abstracts, development estimates and expenditure reports, and technical information on development projects. Its primary impact is a resource centre for district planning and as a reference point for teachers, students and specialised researchers. This is a major data source for the district. It attracts about 40 people monthly.

An attached conference hall has seating capacity of 60 people and has given very positive impacts for even the DDC now meets there comfortably. Very many GoK and NGO as well as community and private sector use it.

The DPO, DDO and DSO were provided with good office space. The Offices of DPO and DDO were provided with necessary equipment (vehicles, computers, faxes, photocopiers, etc). These have had a positive impact on project implementation. The DIDC has enhanced planning facilities in the district and serves as the district reference point. Both Government and Non Governmental Organisations use the conference hall for meetings, training, etc.

### **3.10. District Level Project Co-ordination**

A DPO was posted to the project and his office was the centre for co-ordinating and implementing project activities. A Monitoring and Evaluation Officer was posted to the district but was later transferred after a

while and only replaced after the recommendation of the Evaluation Team (1998). The District Accountant posted an accountant to the DPO to work with the DDO who was in place. This core team worked with the designated officers from the Ministry of Health, Ministry of Water Development, Ministry of Home Affairs, Heritage and Sports, Ministry of Agriculture and Rural Development to as a Project Management Committee. The Project Management Committee was constituted as a sub committee of the DDC charged with the responsibilities of project design, implementation monitoring and evaluation.

The lack of participation by beneficiaries in the PMC remained an issue in the project. *The Supervision Report of November 1992* wrote: "The Nyeri PMC is still reluctant to include beneficiary representatives, as required in the Appraisal Report. The PMC has instead set up two divisional level PMCs that include beneficiary representatives. While the Mission comments rotation of PMC meetings in the divisions and the involvement of beneficiaries in the divisional PMCs, the District PMC must have full beneficiary involvement to be effective. (Para 2 c)". *The Supervision Report of April 1993* commented on the issue as follows: "The District Project Management Committee has not yet recognised the need to formally include beneficiaries in its deliberations, although divisional PMCs, including beneficiaries, have been set up (para 3. a)". As late as 1996 the issue of beneficiary participation was still subject of comment. *The Final Note on Nyeri Dry Area Project for the UNOPs Mission, October 1996* wrote: "The Divisional PMCs are however weaker in that they have not been holding regular meetings as recommended. Initially, divisional PMCs were required to be meeting quarterly but since 1994/95, the *Annual Review Workshop* recommended monthly meetings (page 3)"

Participating GOK beneficiaries did not see a problem in this area! The impact of district level co-ordination was also seen in positive terms by focus groups who argued they were able to come to the core team and get clarification on plan activities and other implementation problems!

This typically second-generation DFRD project missed an opportunity of devolving the planning and co-ordination role to the divisional level to its advantage. If this had been done, the impact on project activity design and implementation, component record keeping, at the community level and group participation in all phases of the project cycle could have been improved in the opinion of the consultant. Significant numbers of divisional level staff were more familiar with specific communities having been in their stations for a long time. Such an approach would also have significantly impacted on the building up of the various community level DDCs.

### **3. 11. District Project Budgeting and Financial Management**

The DPO office developed uniform planning, budgeting and financial reporting formats for all participating ministries at the district level to ease handling by district officers. Unfortunately, they were not inter-linked for field activities design and management. Activity planning, budgeting and financial management remained the responsibility of each officer representing his or her ministry albeit coordinated at the district level by the projects' coordinating committee- a subcommittee of the DDC. If this had been replicated systematically at the two divisions, the locations and the sub-locations, it would have been a significant step in bringing planning and project management closer to the people. This was the original conception of the Third generation DFRD in 1981. Perhaps this is not in policy focus these days.

The major project implementation problem at the district level was District Treasury low liquidity, which negatively impacted on the implementation rate. This is an old problem since the onset of DFRD programmes, originally pioneered by the special ASAL programmes from 1977 and institutionalised in other district programmes after 1981. Ultimately the project had to be extended. This usually has negative effects as beneficiaries and implementing officers start activities and they cannot finish them. It also increases implementation operational costs. A future idea is to cost the extension of project implementation and thereby show that impediments at District Treasury level, as well as other levels, do actually cost money. This approach is general practice in private sector project audits and is part and parcel of value for money auditing which Kenya Government has adopted. There is not a logical reason it should not be applied in all public sector development projects.

Over and above these problems, there still is the controversial-in Kenya public service- issue of how much multidisciplinary project planning and final budgeting and financial administration powers. *The Synthesis of Lessons Learned Across IFAD-BSP Portfolio, by IFAD Programme Management Department of*

2006/2007 noted that "... (P) roject designers neglected to include mechanism for both complex financial administration and technical collaboration in project designs. The results have been lack of coordination at the district level, sectoral versus inter-disciplinary project approaches, retention of authority at headquarters level and endless resource bottlenecks at district level (para 42)... Without disciplined financial and operational framework for the administration of multi-sectoral intervention, rate of implementation and potential impact will be severely inhibited (para 23)... Project mechanisms developed to date have been designed for one way accountability rather than two way. They ensure upward accountability from communities to the project. Downward accountability from project to communities is not a consideration (para 31).

The consultant agrees with the three distinct points and further points out that there still is the issue of how much communities will be involved in the same issues when the district level issue is adjudicated in GOK's approach to development projects. Only then will it be possible to hold discourse on participatory development implemented by the public sector. No wonder then, in the seminars community beneficiaries and GOK beneficiaries looked at each other askance.

### **3.12. Components Organisation and Management**

Impact issues related to this are covered above under the specific components. The only relevant comment here is that there was little inter-ministerial activity planning. This is typical of the GOK system on the ground. It is negative for a variety of reasons. The key one is that it increases planning and supervision costs and it does not let communalities systematically participate in the planning and implementation of their development.



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## 4.0 ASSESSMENT OF PROJECT SUSTAINABILITY

### 4.1 Sustainability of PHC Activities

The drop out rate of the trained community health workers and committees has been very high. Other than the facility based systems, it is doubtful that this activity will be sustained. Health care delivery from facilities is very sustainable for communities have shown that they will invest in them. It is not whether cost sharing does primarily drive this or not.

### 4.2 Sustainability of Water Facilities

These will remain under conflict mainly because of ecological deterioration of the forest areas and issues of equitable access driven by sociological and management issues in the communities [REDACTED]

[REDACTED] identified shortage of supply to wit: "In some schemes water supply is becoming inadequate, especially for the older schemes during the dry periods. Beneficiaries are preparing to increase (water) in the catchment area by way of dams (para 47)". A probable future scenario is people de-linking from the piped systems and developing alternative water provision systems for the supply from the forests is not enough for supplementary irrigation and domestic use. On the slopes of Mount Kenya there were individuals already building small dams, wells and proposing large dams in the forest to augment current supply. Small dams and wells are within the reach of the poor. Large-scale dams in the forest areas are problematic from a conservation, cost and legal point of view. Some water user associations have proposed these.

Given recent ((2003) GOK statements about closing the forests for regeneration, it is doubtful whether construction of dams in the forest will be allowed. If such closure of the forest is enforced, it will arrest the ecological deterioration and perhaps contribute to increased off take of the existing gravity systems thereby enhancing their sustainability.

The main threat to the sustainability of gravity systems will remain in the social arena if O&M and equitable access issues are not solved by relevant and effective technological and management systems.

### 4.3 Sustainability of Beneficiary Groups

Community beneficiary groups are very sustainable in spite of projects in Kienis as is the case many parts of Kenya for they are part and parcel of the assorted cultural organisational life ([REDACTED]). They adapt and evolve. Look at the history of Nyakenyua Mabati Women for example. They evolved in areas where most of the Kieni population originated from simple issues of thatching houses to large-scale commercial operations in a period of thirty years. In the Kienis one should witness merry go round groups evolving into formal credit systems as reported in the beneficiaries' workshop.

Groups however need to be formalistically trained about participatory project cycle planning in its entirety. This should also involve detailed community projects' phasing and coordination and very specifically O&M of infrastructure projects. This perhaps is in the domain of the sector ministries for it requires that those who train in it be experts in the technologies implemented. The DSS historically has had strength in training in group process. The consultant is not aware that in the Kienis, it had capacity to train in participatory project cycle planning and implementation including O&M. Neither is he aware that they can sustain systematic management of complex organisations like river basin water users associations.

The project spent significant amounts of money on training on rural credit. This has spun a whole lot of groups claiming to be credit facilitators but who essentially collect money from groups and do not in turn lend them. Focus groups and community participants in the beneficiaries' workshop complained bitterly and loudly about this negative impact spin-off of a legitimate project activity. In the short term this is the most important negative impact of the project component. It is bound to explode politically in the long term as beneficiaries seek to get either services or their membership contributions from credit organisations. This is a major problem in credit groups. It is a problem in water groups as there is differential access to the resource. It is not a problem in health groups for the benefits are tangible to many community members.

GOK beneficiaries will continue to exist for the simple reason that the GOK approach to development projects is predicated on the public service individuals being central in the process. Pressures on the public budget may make the large investments in GOK beneficiaries in projects unattainable.

#### **4.4 Sustainability of Agricultural and Home Economics Activities**

Other than the jiko, and the livestock activity, the other agriculture activities are not sustainable. As early as 1993, the *Supervision Report of September 1993* pointed out that: " Farmers currently tend to concentrate on cash crops (vegetables) from which they derive income to buy food for the households (Annex 3para 4). Energy saving jikos fulfils needs. Gene pool expansion is always of interest to all farmers. They continue the exchanges.

Agricultural marketing was not addressed. This is a pity for the emergent farming system- driven by export crops- is deepening farmer exploitation over and above their negative ecological and social impacts

#### **4.5 Institutional Support Development**

Support to district level denied thinking about project support to build up the capacities of divisional, locational and sub-locational levels. The long-term interest of development is to get to the lowest level for development, like politics, is about local issues. Institutional support at higher levels is not sustainable from a community beneficiary point of view. Neither is it sustainable from an international financing point of view where arguments are being made about locating development support to private sector and community institutions as is evidenced by the tone of the numerous referenced *Synthesis of Lessons Learned Across IFAD/BSE Portfolio*, by IFAD Programme Management Department 20/06/2001.

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## 5.0 IMPACTS OF PERFORMANCE OF STAKEHOLDERS

In this report stakeholders/beneficiaries are defined here under as the Government of Kenya officers who took part in all aspects of the project and community groups.

### **Impacts Of Performance Of District Based Government Of Kenya Officers**

Overall, the redesign of the project, especially the dropping of agricultural extension activities, demoralised significant numbers for they had worked hard to identify groups to be involved in agriculture. No doubt this excision of general agriculture limited the potential of the project impacting on raising incomes for the bulk of the population for agriculture is the main source of income.

Related to this was the issue of the shift from the designed agriculture irrigation systems. This shift was accompanied by shifting implementation of water related matters to another ministry. It triggered bad feelings between the Ministry of Agriculture and the Ministry of Water Development.

Equipment procurement was delayed at higher GOK levels. This affected specific implementation activities especially in health where new facilities were started without specific equipment or where other budget lines financed such equipment obviously then with a chain effect on district capacities. The communities lost by not accessing planned services expeditiously.

District liquidity was problematic at times. The impact of this was to slow down the implementation rate for many of the district officers. At the planned project completion date, more than 50% of project funds had not been utilised. This drastically limited the effectiveness of the officers. GOK does not collect this kind of data to be able to quantify the impact.

At the community level, complaints were expressed that some costs e.g. daily allowances of masons in water projects were a burden to the community. This issue is part of the GOK cost sharing policy and not really of the project alone.

### **Performance of Community Beneficiaries**

The project expected beneficiaries to contribute about 15% of projects' costs. This was exceeded in water and health. It was more than 34 percent in water and if data was kept systematically it perhaps is higher. In health, communities did not just contribute to the building of facilities but also to PHC and at times BI. Given that most health facilities instituted/used GOK mandated cost sharing, it would be interesting to really work out the detailed costs to communities of these activities.

This high level of community beneficiary contribution, in the Kienis, has the impact of mobilising many community groups who did not directly benefit out of specific project activities to, as they said during field interviews, "look for a donor". This is not an argument that dependency has set in for we have argued that the organisational life of the community groups is healthy. It is simply to note that groups are always shopping for donors be they a government officer, a politician or members of the local elite.



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## 6.0 LESSONS LEARNT

From the perspective gained in the focus groups, lessons learned suggest that the project could have been more specifically targeted to the poor if detailed attention was paid to the history of settlement and social organisation of the Kienis. Key in this was the conducting of a relevant participatory baseline survey-not an economic baseline survey for this is usually not interested in community opinions...

### **Baseline Survey**

This does not have to be the economic type favoured by many in the development industry. The group case studies, done in ten days under this consultancy, show enough data to have formulated /reformulated the project. That is why this consultant recommends that GOK/IFAD allocate resources for further analysis of the data to inform themselves of the possibility of using such data in participatory project and programme formulation. If this is done, it should be concentrated below the divisional level so as to begin to get the divisional, locational and sublocational levels involved. Such involvement should include community beneficiaries and the attendant GOK beneficiaries. This would be a step towards third generation DFRD.

### **Training And Capacity Building**

Training was done for many officers, mainly those from the district and national level. In written depositions to the consultant, those who took part in the group focussed fieldwork felt that their training was relevant to the project. Significant numbers were posted away from the project. This is a loss. GOK and its donors ought to find ways of getting commitment that the officers trained for a project stay in the district at least to the end of the project.

No training of divisional, locational and sublocational development personnel -community and GOK-was done systematically. This is a pity for these are the staff that are closer to communities and have living knowledge about the problems and opportunities. If there is to be training of GOK personnel in projects, the priority areas, in the consultant's view, are at the divisional and lower ranks. It is there also that capacity building is most needed.

Group training was in the consultant's view limited in scope and relevance. It was never multi-sectoral and management oriented. Group training should include analysis of community natural resources, social organisations, planning and development goal setting, including management of resources. DSS, at the district level does not have the knowledge or the capacity to do this training. Such expertise is found in the sector ministries, NGOs and the consulting sectors.

Specifically, the training on credit, led to some viciously negative impacts as exploiting organisations moved in to con groups. It will take a long term for anyone to organise this type of training in Nyeri for almost in all focus group discussions there were claims about how groups are being exploited

The draft PCR writes that site training is more effective than institutional training. This consultant concurs totally and highly recommends that all project training be done at the communities who, to date, mainly suffer development as conceived by others. This way, those being trained will have to learn the histories, the social organisations and the resource limits of the particular communities they claim to be developing.

### **Community and GOK Officers Consensus Building**

This is always problematic whatever district or division one is in Kenya. The two camps operate under different systems and approaches to development. Most times they do not agree for there is no shared knowledge, experience and social settings. In doing field focus group interviews, the consultant was amazed at the divide. It should be every project's requirement that all parties involved hold consensus-building meetings, facilitated by individuals with the necessary skills, to force bridging the gap. If a project is identified, designed and implemented after consensus building, relevant targets will be met, including targeting. In this, care must be taken that dominant community elites are not invited to the high table for more often than not they only use communities for their own ends.

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**Cost Sharing**

If an activity fits into a community's development priority, people are willing to pay for it. In this project this is a central fact. People were willing to pay for water and health facilities. They were willing to pay for energy saving jikos. They were not willing to pay for food warmers and tea cosies. Neither were groups willing to pay for group registration unless there were benefits linked to the registration. The lesson therefore is that people will pay for what is useful to them. They should be asked through participation in a complete participatory project cycle.

**Women Participation in Poverty Reduction Initiatives**

In one interview, an old lady said that women in Kienis are the basic earners. Data from the rest of drylands in Kenya confirms this as significant numbers of men migrate out for employment to supplement family incomes on one hand or they are social deviants who loiter locally. Therefore women should be the first targets of water and health projects or their components for these are clearly in the female gender. Similarly much of agricultural production –unless it is primarily export cash crops- is also in the female gender. Similarly, poverty is also in the female gender as reported in the First and Second Reports on Poverty in Kenya. Women should therefore be the major targets of any poverty reduction project. Given that the major output of this project is water, increasingly used for commercial export agriculture, it is clear that they were missed out. That they benefit from health care facilities is fact.

**Monitoring and Evaluation**

M&E should be participatory and thereby community driven and not just an economic exercise conducted without communities putting their histories and social organisations into judging how projects impact on them.

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## **Annexe 1**

### **CATEGORIES OF IMPACTS FOR USE IN FIELD INTERVIEWS**

- Infrastructure.
- Planning.
- Beneficiary participation in planning.
- Beneficiary participation in implementation.
- District planning capacity.
- Beneficiary participation in PMC
  - District
  - Division
- District implementing capacity.
- District M&E capacity.
- Safe drinking water.
- Irrigation water.
- Environmental protecting agricultural techniques.
- Income generating activities using local resources.
- Basic services to the poor.
- General health.
- Improved diet.
- Establishment of PHC.
- Infant child morbidity.
- Infant child mortality.
- Prevalence of major causes of morbidity.
- Nutritional status of infant/children.
- Food production
  - Productivity
  - Production quantities
  - New technologies
- Improvements in income
  - Farm
  - Casual employment
  - Permanent employment
  - Business
- Agricultural income streams.
  - Horticultural crops
  - Legumes
  - Cereals
  - Small stock
  - Dairy
- Empowerment
  - Poorest of the Poor
  - Female Heads of Households
  - Elderly Farmers



## Annexe 2

**LIST OF PARTICIPATORY WORKSHOP ATTENDEES****COMMUNITY BENEFICIARIES.**

No.	NAME	GROUP
1.	Alice N. Kamama	Kirima Muungano PHC
2.	Anastasia Wanjiru	Mathina Young Women Group
3.	B. M. Kiangonyo	Micro Finance Africa
4.	C. G. Githaiga	Kirefu
5.	Catherine Njoki	Mutarakwa Women Group
6.	Charles Mutahi	Warazo Lusoi
7.	Cornelius Muriithi	Kaga Water Project
8.	Ephraim Githui	Mere Dispensary
9.	Eustace Muchiri Kande	Ndathi Mbiriri Water Project
10.	Florence W. Nderitu	Murichua Tank Women Group
11.	Francis Mathenge Karema	Ndiriti Aguthi Water Project
12.	Francis Nderitu	Warazo Lusoi
13.	Gabriel Murage	Simbara Amboni Water Project
14.	James Ndegwa Kahiha	Kamburaini
15.	Jane Wangui	Thung'ari Home Betterment Group
16.	Jascinta Adhiambo W.	Kahoreru Women Group
17.	Jascinta Nyokabi Ndirangu	Mama Wema Women Group
18.	Judy W. Muriuki	Kambi Bee Keeping
19.	Julius Ndung'u	Kirefu
20.	Mary Muchiri	Gakawa Dispensary
21.	Regina Murugi	Marahaba Women Group

**GOK BENEFICIARIES**

1. CHRISTINEOWONDO	Agricultural Officer	BSc. Agricultural Economics Dip. Farm management Certificate in management Course for women in rural development	Desk Officer CKDAP Ministry of Agriculture & Livestock Production Headquarters
2. DICKSON KARANJA	District Rural Youth Officer (AOI)	BSC Agriculture	Supporting officer Agricultural extension Officer
3. ELIJAH M. THUITA	Senior inspector Water Engineering	Higher Diploma (Water Engineering)	Designer/implementer
4. JAMES K. KIUNGA	District Animal production Officer	M. A Agriculture (Animal Production) Application of Computer Data Analysis	Subject matter specialist Implementer (small stock)
5. JENIFFER GITONGA	District Nutrition officer	Dip. In Community Nutrition TOF by AMREF PMTCT - NARESA Diabetes by ILLE-LILY	PHC implementer
6. JOHN G. MUGENYO	Public Health Officer I	Higher National Diploma Environmental Sciences Dip. Community Health	Implementer PHC
7. JOHN M. NDIRANGU	Divisional Water	Higher Diploma (Mechanical)	Implementer

	Officer Kieni East	engineering Dip. Mechanical engineering Certificate in Sewerage Inspection	
8. JOSEPH K. WAWERU	District medical Laboratory Technologist	Dip. Medical Laboratory Sciences	Support officer
9. JOSEPH MAINA	District Health Records & Information officer	Cert. In Health Records & Information	Support officer PHC
10. MARGARET WAIRIMU NDUNG'U	District Home Economics Officer	BSc. Agriculture & Home Economics Dip. Agriculture & Home Economics Computer course Communication skills (TOT) PRA Farm management analytical tools Population/HIV/AIDS education	Implementing officer Home Economics Component
11. MUGITA GESONGO	Economist	M. A. Economics Project Management M&E Rural credit financing & Management Management of information systems Design and implementation Computer applications	Project Coordination and Management M&E officer
12. MWAKIO O. RIGHA	Assistant Commissioner for Social Services	M. A. Economics Monitoring & Evaluation course	Support officer
13. PATRICK W. WERU	Senior Inspector, Water Engineering	Higher National Dip. Water Engineering	Implementing officer (Domestic Water Supply)
14. ROSE WAWIRA GICHOBI	Divisional Home Economics & Youth Officer K. East	Dip. Agriculture & Home Economics Soil conservation Gender integration in National agriculture Extension programme Marketing	Implementing officer (Agriculture Extension, K. East)
15. ROY MWANGI	Senior Inspector, Water Supplies	Cert. In Water Supplies	Implementer
16. SAMUEL N. NGOMO	Economist/Statistician	Post Graduate Dip. Development Planning techniques Computer applications Project Cycle management	Assistant M&E Officer CKDAP
17. SARAH W. NGATIA	District Social Development Officer	B. A. Government & Sociology Social Development course Senior Women manager course Counseling & Guidance Facilitation skills course	Implementing officer Group Development
18. TERESA NGUNIA WANGUI	District Information & Documentation Center Officer	Dip. Information studies Library Management Skills	Officer in project coordination Office.

			Computer courses Information systems management	
19. WYCLIFFE WANGWE	N.	Deputy District Social Development Officer	B. A. Government & Anthropology  PRA Project proposal writing skills course Project participatory planning Computer Courses	Implementing officer  Group Development
20. KINYANJUI NGUGI		Field Services Officer CKDAP	MSc. Economics (Design Of Rural Poverty Projects) Credit Design and Management Planning & Budgeting	Field Services Officer



Annexe 3: Population by Location and Sublocation in Kiwi Divisions of Nyeri District

Division	Location	Sub-Location	1989 Census	1999 Census	Variation	HH 1989	HH 1999	Variation
Kiwi West			57,638	68,461	10,823	11,844	16,699	4,855
	Mwiyogo			10,312	10,312		2,446	2,446
		Kabati	1,576	1,875	299	291	432	141
		Muthuni		1,762	1,762		427	427
		Labura		5,121	5,121		1,209	1,209
		Mwiyogo	2,879	1,554	-1,325	559	378	(181)
	Mweiga		22,666	15,055	-7,611	5,095	4,152	(943)
		Njeng'u		2,747	2,747		678	678
		Bonden		1,308	1,308		279	279
		Kamatongu	6,363	6,958	595	1,662	2,199	537
		Amboni	5,008	4,042	-966	919	996	77
	Endarasha		13,544	15,143	1,599	2,637	3,579	942
		Mitero	2,930	3,260	330	492	703	211
		Gakanga	2,431	1,818	-613	557	429	(128)
		Charity		4,256	4,256		904	904
		Endarasha	4,811	5,809	998	1,002	1,543	541
	Gatarakwa		21,426	16,310	-5,116	4,112	3,809	(303)
		Watuka	2,473	3,357	884	490	771	281
		Lamuria		3,918	3,918		1,031	1,031
		Embaringo	2,863	3,768	905	518	816	298
		Kamariki	9,790	5,267	-4,523	1,871	1,191	(680)
	Mugunda			11,641	11,641		2,713	2,713
		Karemeno		2,061	2,061		448	448
		Ruirie		3,427	3,427		827	827
		Kamiruri		2,665	2,665		623	623
		Nairutia		3,488	3,488		815	815
Kiwi East			55,584	83,635	28,051	12,510	21,738	9,228
	Naromoru			17,929	17,929		4,667	4,667
		Ndiriti		3,471	3,471		708	708
		Naromoru	5,351	2,975	-2,376	1,269	988	(281)
		Kamburaini	6,655	5,406	-1,249	1,359	1,440	81
		Gaturiri		3,018	3,018		681	681
		Rongai		3,059	3,059		850	

							850	
	<b>Kiamathage</b>		<b>11,197</b>	<b>11,197</b>		<b>2,836</b>	<b>2,836</b>	
		Kabendera	3,312	3,312		750	750	
		Tigithi	1,361	1,361		360	360	
		Miricho	2,083	2,083		561	561	
		Gakamba	4,441	4,441		1,165	1,165	
	<b>Gakuwa</b>		<b>24,636</b>	<b>6,713</b>		<b>6,371</b>	<b>6,371</b>	
		Gathiuru	8,081	3,416	1,665	1,611	(54)	
		Githima	4,355	636	786	1,058	272	
		Kahurura	12,200	2,651	2,490	3,702	1,212	
	<b>Kabaru</b>		<b>19,038</b>	<b>758</b>		<b>4,918</b>	<b>952</b>	
		Kirima	4,191	4,191		1,059	1,059	
		Ndathi	2,232	6,315	4,083	578	1,646	1,068
		Kimahuri	3,925	5,645	1,720	802	1,462	660
		Munyu	4,063	2,887	-1,176	865	751	(114)
	<b>Thigu</b>		<b>10,835</b>	<b>10,835</b>		<b>2,946</b>	<b>2,946</b>	
		Thung'ari	3,451	3,451		1,126	1,126	
		Luisoi	1,745	1,745		456	456	
		Thirigitu	3,138	3,138		751	751	
		Maragima	2,501	2,501		613	613	

NB: Areas with number of population and number of household data for 1989 did not exist during that census.  
Source: Kenya Population Census Reports 1989 Volume II and 1999 Volume I.

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#### **Annexe 4**

### **JOINT PARTICIPATORY EVALUATION WORKSHOP METHODOLOGY**

#### **1. OBJECTIVE**

The objective of is for community beneficiaries and GOK beneficiaries to come to a common understanding of the impact of the project through establishing its weak and strong points as well as impacts.

#### **2. THE METHOD**

##### **Establishing Causal Relationships**

First Step: Each group will identify what determinants /building stones were important for achieving one of the following major areas of the project: Sustainable water supply, Sustainable health services, Food security, and Managing participatory development. The agreed determinants /building stones will be written up for presentation.

Second Step: Each group will then brainstorm on what factor cause getting or not getting the determinant. These will be ranked in order of importance.

Third Step: Each group will identify past project activities, which relate to specific determinants/building stones. These will be written next to it for presentation

Fourth Step: Each Group will list those is to list those determinants, which were not addressed by the project.

##### **Analysis of the Project's Strong and Weak Points**

Out of the experience and conclusions of the analysis undertaken so far, each group will undertake weak /strong point analysis in terms of its area of concern to cover and not be limited to a. Effectiveness b. Efficiency c. Gender balance d. Empowerment e. Technical feasibility f. Equity g. Human Resources Capacity Enhancement h. Enhancing Participation of the Very Poor and Poor h. Relevance.

##### **Recommendations**

Each Group will use the conclusions of Analysis of Project Strong and Weak Points to make a list of Impacts. These will be presented to in Plenary to establish overall workshop conclusions. Please make specific comments on the following:

#### **IMPACT ASSESSMENT WORKSHOP**

##### **❖ HEALTH**

- Facilities
- PHC
- Diseases

##### **❖ AGRICULTURE**

- Crops
- Livestock
- Irrigation

##### **❖ WATER**

- Construction
- Distribution
- Irrigation

##### **❖ TRAINING**

- Groups
- Agriculture
- Health
- Water
- Credit



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**Annexe 5****LIST OF GROUPS INTERVIEWED**

1. ENDARASHA HEALTH CENTRE MANAGEMENT COMMITTEE
2. LAMURIA WATER ASSOCIATION SELF HELP WATER
3. MAMA WEMA WOMEN GROUP
4. SIMBARA AMBONI WATER PROJECT
5. KAHOTHERU WOMEN GROUP
6. KAMIRURI PHC GROUP
7. LOWER LAMURIA WATER ASSOCIATION
8. MWEINGA FARMER'S COOPERATIVE SOCIETY
9. GAKAWA DISPENSARY HEALTH FACILITY MANAGEMENT COMMITTEE
10. KAAGA WATER PROJECT
11. KAMBURAINI WILDLIFE COMMUNITY GROUP
12. MURERU DISPENSARY PHC (GITHIMA PHC GROUP)
13. RUTHOINI WOMEN GROUP
14. LOWER THUNGARI WATER PROJECT
15. MITERO HOME ECONOMIC WOMEN GROUP
16. KARURUMO GIKANGA WATER PROJECT
17. MWOHOKO NJOGUINI SELF HELP GROUP
18. MWICHURI WATER PROJECT
19. FOOD ASSISTED CHILD SURVIVAL COMMUNITY HEALTH WORKERS
20. INORERO LAMURIA SELF HELP GROUP
21. MUTARAKWA WOMEN GROUP
22. WENDIGA DISPENSARY
23. URUMWE WOMEN GROUP
24. KINYAITI WOMEN GROUP
25. BELLEVUE WATER PROJECT
26. NEW CITY WATER GROUP
27. DEMU SELF HELP TANKS GROUP
28. RAGATI II WITEITHIE WOMEN GROUP
29. KAMANGURA WATER PROJECT
30. 30MWIRERI KIRINYAGA WOMEN GROUP
31. WARAZO LUSOI WATER PROJECT (LOWER ZONE)
32. NDERITI AGUTHI WATER PROJECT
33. NDATHI MBIRI WATER PROJECT
34. ISLAND FARM HEALTH FACILITY MANAGEMENT COMMITTEE
35. MWOROTO WOMEN GROUP
36. KABUNDA WATER PROJECT
37. KABENDERA WATER PROJECT
38. WATUKA WATER PROJECT
39. WATUKA HORTICULTURAL GREEN GROWERS
40. AMBONI KUGA NA GWIKA WOMEN GROUP
41. BONDENI WATER PROJECT (LOWER ZONE)
42. KAREMENO HEALTH MANAGEMENT COMMITTEE
43. NGANOINI ADULT CLASS TANK WOMEN GROUP
44. AMBONI HEALTH CENTRE MANAGEMENT COMMITTEE
45. URUMWE WATER TANK SELF HELP WOMEN GROUP
46. MWEA BEE KEEPER SELF HELP GROUP
47. WARAZO HEALTH FACILITY MANAGEMENT COMMITTEE
48. GAKAWA DISPENSARY PHC GROUP
49. KAMWENGA MWITRITHIA SELF HELP GROUP
50. MURERU HEALTH FACILITY MANAGEMENT COMMITTEE
51. THUNGARI WOMEN GROUP
52. MWITEITHIA TANK WOMEN GROUP
53. KUGA NA GWIKA SELF HELP GROUP
54. NARO MORU NDIRITI WATER PROJECT

- 
55. MATHINA YOUNG WOMEN GROUP I
  56. WATUKA WATER PROJECT (LOWER ZONE)
  57. BONDENI WATER PROJECT (UPPER ZONE)
  58. ENDARASHA PHC GROUP
  59. WENDIGA PHC GROUP
  60. EMABRINGO WATER PROJECT
  61. KAARAGE WOMEN GROUP
  62. NGINYII MWIRERI SELF HELP GROUP
  63. MUTITO WATER PROJECT
  64. BURGURET DISPENSARY
  65. RAGATI WATER TANK GROUP
  66. NAROMORU AGUTHI WATER PROJECT (LOWER ZONE)
  67. HARAKA WOMEN GROUP
  68. WARAZO-LUSOI WATER PROJECT (UPPER ZONE)
  69. KAUKA SELF HELP GROUP
  70. MERE DISPENSARY
  71. KAMBURAINI DISPENSARY
  72. KAMBURAINI WATER PROJECT
  73. KIRINYAGA NYANGE WATER PROJECT
  74. WATUKA DISPENSARY HEALTH MANAGEMENT COMMITTEE
  75. KAREMENO PHC GROUP
  76. WATUKA WATER UPPER ZONE BENEFICIARIES GROUP
  77. KABATI HEALTH CENTER MANAGEMENT COMMITTEE
  78. GATARAKWA – MUGUNDA WATER PROJECT (LAMURIA LINE)
  79. AMBONI WOMEN GROUP
  80. KIMURI WOMEN GROUP (GROUP II)
  81. GITWE WATER PROJECT MANAGEMENT COMMITTEE
  82. NARO MORU HEALTH CENTRE MANAGEMENT COMMITTEE
  83. LOISOI PHC GROUP
  84. THUNG'ARI WATER MANAGEMENT COMMITTEE
  85. MERE MUUNGANO PHC GROUP
  86. RIRO WOMEN GROUP
  87. KAMBI BEE KEEPING WOMEN GROUP
  88. KIASMATHANGA DISPENSARY
  89. THEGU SACCO GROUP

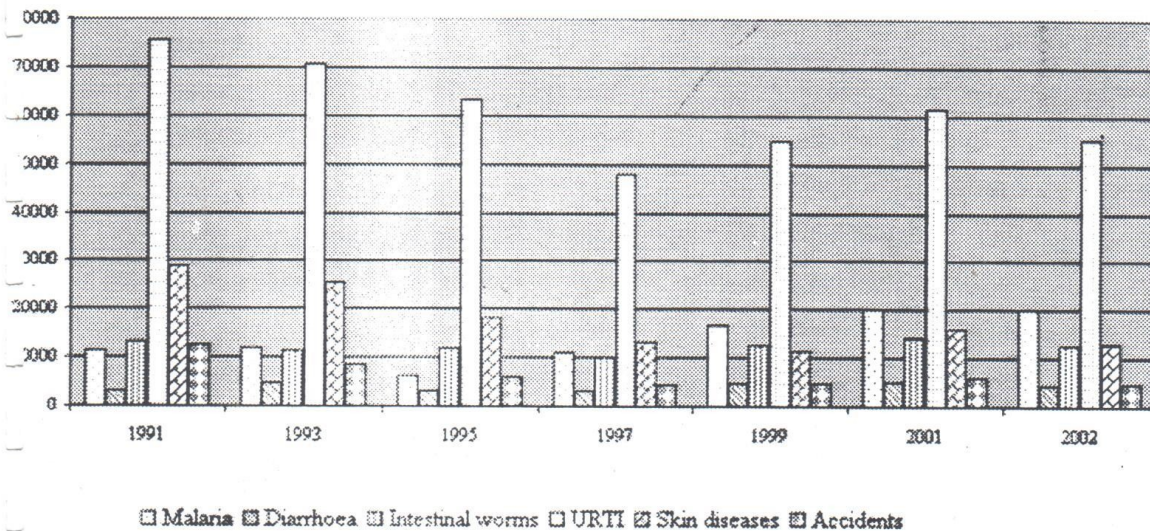
Annexe 6

KIENI DIVISIONS OUTPATIENT MORBIDITY TREND

<u>Disease/Year</u>	<u>1991</u>	<u>1993</u>	<u>1995</u>	<u>1997</u>	<u>1999</u>	<u>2001</u>	<u>2002</u>
Malaria	11217	11884	6202	11088	16749	20028	20201
Diarrhoea	3158	4789	3029	3071	4776	4877	4304
Intestinal worms	13112	11260	11829	9946	12532	14260	12397
URTI	75612	70621	63415	47894	54910	61557	55276
Skin diseases	28951	25442	18301	13147	11242	16078	12855
Accidents	12705	8465	5834	4404	4677	5821	4771

Source: Primary Health Care Group, Ministry of Health, Nyeri, 22/02/03

KIENI DIVISIONS OUTPATIENT MORBIDITY TREND





GENERAL LEDGER									
PAGE 10									
DATE: 12/31/2010									
TIME: 10:00 AM									
BY: J. D. SMITH									
CHECK NO. 1000									
AMOUNT: \$100.00									
BALANCE: \$100.00									
DEBIT: \$100.00									
CREDIT: \$100.00									
TOTAL: \$100.00									
1	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
3	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
4	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
5	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
6	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
7	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
8	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
9	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
10	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
11	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
12	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
13	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
14	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
15	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
16	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
17	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
18	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
19	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
20	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
21	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
22	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
23	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
24	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
25	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
26	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
27	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
28	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
29	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
30	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00
31	12/31/2010	1000	100.00	100.00	100.00	100.00	100.00	100.00	100.00

1993		1994		1995	
Payment		Payment		Payment	
Balance Unpaid		Balance Unpaid		Balance Unpaid	
Notes	500	Notes	600	Notes	6146
Issue	5012	Issue	600	Issue	6136
Follow-up		Follow-up	600	Follow-up	6701
Trees Purchase	2049	Trees Purchase	2558	Trees Purchase	1979
Payment	819.6	Payment	2558	Payment	3958
Balance Unpaid	4100	Balance Unpaid	3879	Balance Unpaid	2311
4 1605		4 1605		4 1605	
230 250 444		770 750 1820		4212 4201 3900 3325 5687	
2558 1455 3673		13206 11030 17411 39505 17004 2247		17672 17577 6177 5526 7136 3913	
2400 13567 8993		2100 2100 1352		1592 1590 2121 5215 8497 701	
5970 740 1103		2400 2200 954		4188 4333 5267	
810 660 672		1246 1246 1056		414 414 250 2390 2390	
		10362 10362 470 5757 5757		11040 10980 1375	
		240 200 180		560 560 560	
		800 1690		4063 4085 3479	
				1300 1300 88	
				2305 2340 197	
				927 926 915	
				5487 5317 5130	
				5000 5000 4983	
				10910 10900 10620	
				2480 2480	
				3020 3020	
				600 600	
				100	
				900	
				400 400	
				1600 1595	
					221
					27
					218
3980 4448 5230		4954 4996 5096		18910 18406 16425	
14345 15985 12165 11547 2659.6 10444		25095 25411 20744 47520 25319 6126		67747 66685 30094 18435 27665 9222	
7605		18910 18406 16425		13445	





Name of Party		Date	
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52
53	54	55	56
57	58	59	60
61	62	63	64
65	66	67	68
69	70	71	72
73	74	75	76
77	78	79	80
81	82	83	84
85	86	87	88
89	90	91	92
93	94	95	96
97	98	99	100