

# CCAFS EAST AFRICA

Site: Usambara/Lushoto, Tanzania



RESEARCH PROGRAM ON  
**Climate Change,  
Agriculture and  
Food Security**

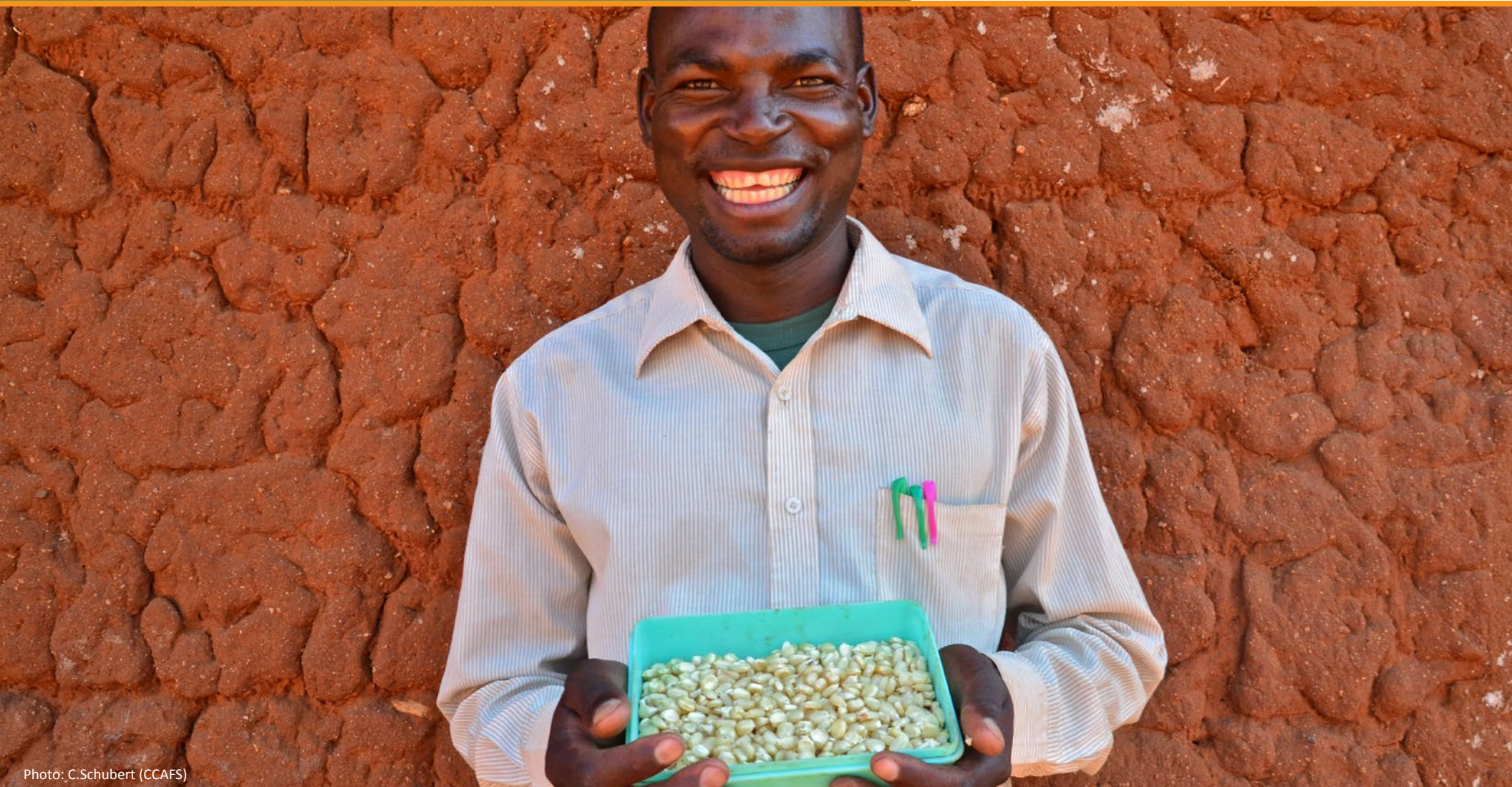


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### Contact:

CCAFS Coordinating Unit - Faculty of Science,  
Department of Plant and Environmental Sciences,  
University of Copenhagen, Rolighedsvej 21, DK-1958  
Frederiksberg C, Denmark. Tel: +45 35331046; Email:  
[ccaafs@cgiar.org](mailto:ccaafs@cgiar.org).



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## Introduction

The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) is a strategic partnership of CGIAR and Future Earth led by the International Center for Tropical Agriculture (CIAT). CCAFS brings together the world's best researchers in agricultural science, development research, climate science and Earth System science to identify and address the most important interactions, synergies and trade-offs between climate change, agriculture and food security.

CCAFS is focusing its research for development efforts in five regions, East and West Africa, South and Southeast Asia as well as Latin America, working in 25 research sites. The regions represent areas that are particularly vulnerable to climate change, and the sites are focal locations to generate knowledge and learning that can be applied and adapted to other regions worldwide.

Extensive baselines have been implemented at all CCAFS sites and consist of analysed information collected at three levels: households, communities and organisations. The baselines capture the big picture of how farmers are changing their practices in light of climate change and other pressures. The aim is to revisit the same communities and households in five and again in ten years to document changes in livelihoods, resource management practices and other factors over time

and update these indicator documents accordingly. The CCAFS baseline is a key component of the program's monitoring and evaluation system.

This document series compiles key indicators from the three levels of the baseline for each site. Indicators include: demography and basic site characteristics of each site, rainfall distribution, changes in farming practices and land management, income sources, food security and food sources, asset ownership by households and involvement in organisations and more.

This CCAFS baseline indicator document was developed for the CCAFS site at Usambara/Lushoto, in Tanzania.

The baseline indicator series is complemented by CCAFS site atlases, that include site maps with climate information, biophysical characteristics and socio-economic factors. Site maps are available at: [www.ccafs.cgiar.org/atlas-ccaafs-sites](http://www.ccafs.cgiar.org/atlas-ccaafs-sites)

Download the baseline tools, data and reports:  
[www.ccafs.cgiar.org/resources/baseline-surveys](http://www.ccafs.cgiar.org/resources/baseline-surveys)

Get in touch:  
Science Officer Wiebke Förch ([w.foerch@cgiar.org](mailto:w.foerch@cgiar.org))

### Sources

Throughout this document the sources of data for the indicators are colour coded as follows:



CCAFS Household baseline study



CCAFS Village baseline study



CCAFS Organisational baseline study

## Map

Country: Tanzania

CCAFS Sampling Frame: Usambara - Lushoto



CCAFS Site Name (ID):  
Usambara (TZ01)

CCAFS Sampling Frame  
Name (ID): Lushoto (05)

-  Town
-  Settlement
-  Road

CCAFS VBS / OBS Village



CCAFS HBS Village



Coordinates of the CCAFS  
Sampling frame

38.417E 4.790S

38.417E 4.850S

38.301E 4.850S

38.301E 4.790S

 Site location

Source: Förch W et al. 2013. Core Sites in the CCAFS Regions: East Africa, West Africa and South Asia, Version 3. Copenhagen: Denmark. CCAFS

## Demography and basic site characteristics

	Baseline	Mid-term	Final
Ratio of women headed households	20%		

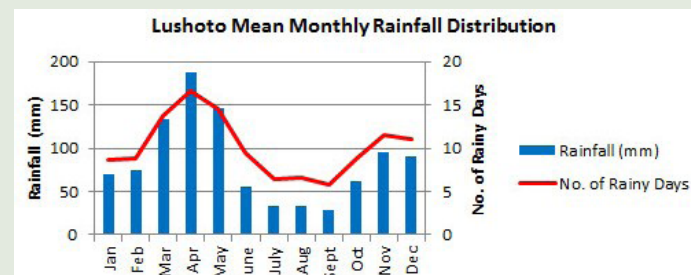
### % households of different sizes

Number of people in the household	Baseline	Mid-term	Final
1	1%		
2	6%		
3	8%		
4	17%		
5	16%		
6	14%		
6+	36%		

Area of land cultivated (ha)*	124.87		
Average (mean) per household (ha)	0.89		

### Highest level of education obtained by any household member

No formal education	12%		
Primary	64%		
Secondary	22%		
Post-secondary	2%		



Source: MarkSim<sup>1</sup>

### Ratio of local organisations to total number of organisations named\*

	Baseline	Mid-term	Final
Men's group	2/18		
Women's group	10/18		

\* Organisations have been recoded by CCAFS researchers from original data (participant perceptions of community, local and beyond local) to categories of local and external.

\*Area of land cultivated (ha) is the total amount of owned or rented land used for growing food or aquaculture

<sup>1</sup>Source: Jones P G, Thornton P K, Diaz W and Wilkens P W. 2002. MarkSim, a computer tool that generates simulated weather data for crop modeling and risk assessment. Version 1, 2002. CD-ROM and Users Manual. CIAT, AA6713, Cali, Colombia, 87 pp.

## Changes in farming practices and drivers of changes in resources

% households introducing 3 changes or more

	Baseline	Mid-term	Final
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Crop	83%		
Water	4%		
Soil	46%		
Tree/agroforestry	77%		
Livestock	62%		

### Adaptation

% households reporting changes to their agricultural practices

0-1 change	2%		
2-10 changes	16%		
11 or more changes	82%		

### Mitigation

% households doing

Tree management\*

Yes	77%		
No	23%		

Soil management

None	6%		
Some	94%		

Intensification

None	1%		
Low	44%		
High	55%		

Productivity

No Increase	10%		
Some increase	90%		

### Drivers of changes to crop production and land management

% households reporting this driver

	Baseline	Mid-term	Final
Markets	93%		
Weather/climate	89%		
Pest and Diseases	80%		
Labour	70%		
Land	84%		
Projects	62%		

### Drivers of changes to livestock production\*

% households reporting this driver

Markets	80%		
Weather/climate	31%		
Pest and Diseases	84%		
Labour	23%		
Projects	55%		

### Drivers of change in the community

Frequency with which they were mentioned in group discussions

	Men			Women		
	Baseline	Mid-term	Final	Baseline	Mid-term	Final
Population Growth	2			3		
Deforestation	1			1		
Pest and Diseases	0			0		
Information/Knowledge	0			0		
Land Demarcation/fragmentation	0			1		
Soil degradation/Erosion	0			1		
Rainfall Changes	0			1		
Charcoal Burning/Fuel	1			0		
Government	0			0		
Forest Fire/Bush burning	1			0		
Overuse	1			0		
Spiritual/Cultural/Religious	0			0		
Invasive tree species	0			0		
Increase in wealth	0			0		
Increase in livestock	0			0		
Social/Community conflicts	0			0		
Infrastructure	0			0		

\*For tree/agroforestry changes these are the households who have either planted or protected trees within the last year

\*For livestock changes these are the households who have made 3 of more of the changes in the livestock section



## Livelihood diversification

	Baseline	Mid-term	Final
<b>Source of Cash Income other than own farm</b>			
Employment on someone else's farm	54%		
Other off-farm employment	6%		
Business	34%		
Remittances/gifts	50%		
Payments for environmental services	2%		
Payments from government or other projects/programs	1%		
Loan or credit from a formal institution	2%		
Informal loan or credit	14%		
Renting out farm machinery	0%		
Renting out your own land	0%		
No off-farm cash source	14%		
<b>Product diversification</b>			
% of households			
1-4 products (low)	16%		
5-8 products (intermediate)	50%		
9 or more products (high)	35%		
<b>Selling/Commercialization Diversification:</b>			
% of households			
No products sold	3%		
1-2 products sold (low)	18%		
3-5 products sold (intermediate)	49%		
6 or more products sold (high)	31%		



## Food security

### Food Security Index

% households	Baseline	Mid-term	Final
More than 6 hunger months/year	35%		
5-6 hunger months/	27%		
3-4 hunger months/	26%		
1-2 hunger months/	7%		
Food all year round/No hungry period	4%		

### Food security organisational linkages

Men groups		Baseline	Mid-term	Final
Organisation receives				
Funding		0		
Capacity Building		1		
Food		2		
Organisation provides				
Funding		0		
Capacity Building		1		
Food		2		

Women groups		Baseline	Mid-term	Final
Organisation receives				
Funding		1		
Capacity Building		1		
Food		0		
Organisation provides				
Funding		1		
Capacity Building		1		
Food		0		

### Source of food during highest and lowest shortage months

	Baseline	Mid-term	Final
% households mainly consuming from own farm in the month of highest shortage	19%		
% households mainly consuming from own farm in the month of lowest shortage	91%		

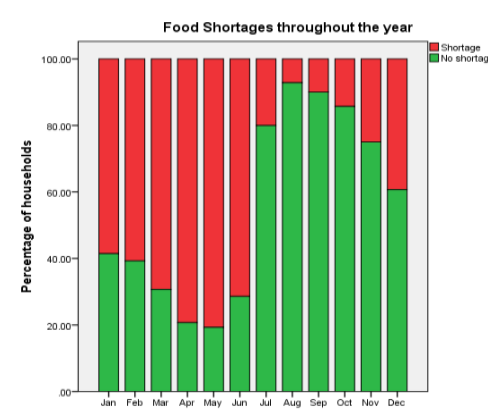
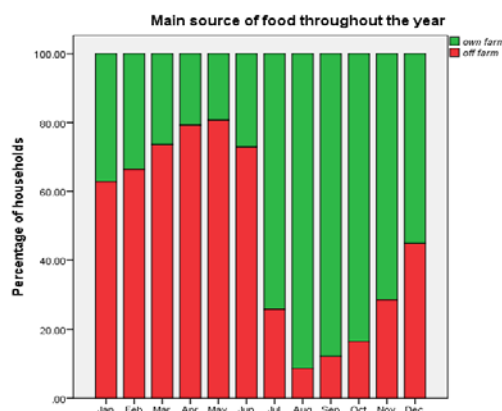
### Ratio of local organisations to total number of organisations named in each area of food security work\*

Men's group	Baseline	Mid-term	Final
Availability	2/13		
Access	0/2		
Utilisation	1/1		

Women's group	Baseline	Mid-term	Final
Availability	8/12		
Access	3/4		
Utilisation	2/2		

\* Organisations have been recoded by CCAFS researchers from original data (participant perceptions of community, local and beyond local) to categories of local and external.

These charts are taken from the Household Baseline Survey - Food Security Section



## Collective action in natural resource management (NRM)

Resource	Gender	Discussed	Baseline	Mid-term	Final
<b>Is there an issue with the resource?</b>					
<b>Irrigation</b>	M	Yes	River reduced in size and contaminated by pesticides		
	F	Yes	River level has gone down. Dirty water		
<b>Farmland</b>	M	Yes	declining fertility, steep slopes		
	F	Yes	Soil erosion, little water availability, poor farming methods, low yield		
<b>Forest</b>	M	Yes	Forest is not as dense and extensive as it used to be. Some species are extinct		
	F	Yes	Far from village		
<b>Pasture</b>	M	No			
	F	No			
<b>Markets</b>	M	No			
	F	Yes	High input price and low selling price		
<b>Is there a problem of access to the resource?</b>					
<b>Irrigation</b>	M	Yes	River water limited access in dry season		
	F	No			
<b>Farmland</b>	M	Yes	Private and communal, controlled by village authorities		
	F	Yes	small farm size		
<b>Forest</b>	M	Yes	Owned and managed by the government		
	F	Yes	Owned by government		
<b>Pasture</b>	M	No			
	F	No			
<b>Markets</b>	M	No			
	F	Yes	Owned by village		
<b>Is there any local action in place to address the problem?</b>					
<b>Irrigation</b>	M	No			
	F	No			
<b>Farmland</b>	M	No			
	F	No			
<b>Forest</b>	M	No			
	F	No			
<b>Pasture</b>	M	No			
	F	No			
<b>Markets</b>	M	No			
	F	No			

## Membership of organisations and organisational agendas

### % households with at least one member belonging to organised groups

	Baseline	Mid-term	Final
Tree nursery/tree planting	4%		
Water catchment/management	1%		
Soil improvement related	1%		
Crop improvement related	1%		
Irrigation	1%		
Savings/credit related	1%		
Agricultural product marketing	0%		
Agricultural productivity enhancement related	1%		
Seed production	1%		
Vegetable production	1%		
Other group not mentioned above?	1%		
No groups	88%		

### Ratio of local organisations involved in Natural Resource Management to total number of organisations involved in NRM\*

	Baseline	Mid-term	Final
Men's group	1/4		
Women's group	2/7		

*\* Organisations have been recoded by CCAFS researchers from original data (participant perceptions of community, local and beyond local) to categories of local and external.*

## Household assets

% household with assets by type	Baseline	Mid-term	Final
Basic level	16%		
Intermediate level	78%		
High level	6%		

### % households ownership

#### Transport

Bicycle	9%		
Motorcycle	2%		
Car or Truck	2%		

#### Production

Tractor	0%		
Mechanical Plough	0%		
Mill	2%		
Water pump/Treadle pump	0%		
Thresher	0%		
Boat	0%		
Fishing Nets	0%		

#### Energy

Solar Panel	1%		
Generator	2%		
Battery	0%		
Biogas Digester	0%		
LPG	0%		

#### Information

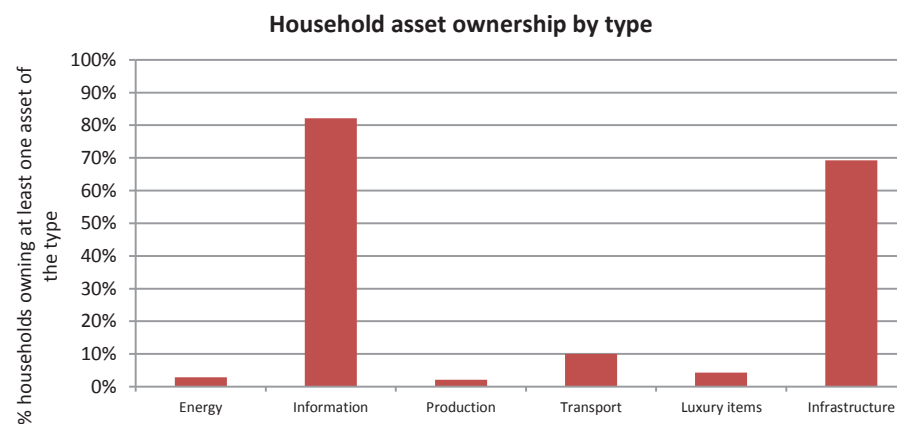
Radio	75%		
Television	4%		
Cell Phone	60%		
Computer	0%		
Internet Access	1%		

#### Luxury

Refrigerator	0%		
Air Conditioning	0%		
Electric Fan	0%		
Bank Account	4%		

#### Infrastructure

	Baseline	Mid-term	Final
Improved storage facility for crops	6%		
Water storage tank	1%		
Well/borehole	5%		
Running/tap water in dwelling	2%		
Electricity from a grid	1%		
Improved housing	21%		
Improved roofing	55%		
Separate housing for farm animals	53%		





## Networks of information

### Networks of information - Men Group

	Baseline	Mid-term	Final
<b>Seasonal changes</b>			
Family	No		
Friends	No		
Neighbours	No		
Elderly people	No		
Organisations	No		
Radio	Yes		
TV	No		
Newspaper	No		
Personal observation	No		
Gatherings/meetings	No		

### Networks of information - Men Group

	Baseline	Mid-term	Final
<b>Onset of rainfall</b>			
Family	No		
Friends	No		
Neighbours	No		
Elderly people	Yes		
Organisations	No		
Radio	Yes		
TV	Yes		
Newspaper	Yes		
Personal observation	No		
Gatherings/meetings	No		

### Networks of information - Men Group

	Baseline	Mid-term	Final
<b>Planting time</b>			
Family	No		
Friends	No		
Neighbours	No		
Elderly people	No		
Organisations	Yes		
Radio	No		
TV	No		
Newspaper	No		
Personal observation	No		
Gatherings/meetings	No		

## Networks of information

### Networks of information - Women Group

	Baseline	Mid-term	Final
<b>Marketing</b>			
Family	No		
Friends	Yes		
Neighbours	No		
Elderly people	No		
Organisations	Yes		
Radio	Yes		
TV	No		
Newspaper	No		
Personal observation	No		
Gatherings/meetings	Yes		

### Networks of information - Women Group

	Baseline	Mid-term	Final
<b>Harvesting</b>			
Family	Yes		
Friends	Yes		
Neighbours	No		
Elderly people	No		
Organisations	Yes		
Radio	Yes		
TV	No		
Newspaper	No		
Personal observation	No		
Gatherings/meetings	No		

### Networks of information - Women Group

	Baseline	Mid-term	Final
<b>Land preparation and planting</b>			
Family	No		
Friends	Yes		
Neighbours	Yes		
Elderly people	No		
Organisations	Yes		
Radio	Yes		
TV	No		
Newspaper	No		
Personal observation	No		
Gatherings/meetings	Yes		

## Networks of information

% of households receiving weather-related information			
	Baseline	Mid-term	Final
Start of the rains	71%		
Forecast of extreme events	63%		
Forecast of pest or disease outbreak	54%		
2-3 month weather forecast	28%		
2-3 day weather forecast	27%		

Of households receiving information, who in the family receives it			
	Baseline	Mid-term	Final
Start of the rains			
Men	36%		
Women	14%		
Both	50%		

Forecast of extreme events			
Men	40%		
Women	17%		
Both	43%		

	Baseline	Mid-term	Final
2-3 month weather forecast			
Men	51%		
Women	13%		
Both	36%		

2-3 day weather forecast			
Men	56%		
Women	11%		
Both	33%		

	Baseline	Mid-term	Final
Forecast of pest or disease outbreak			
Men	37%		
Women	15%		
Both	48%		

## Organisational priorities

Relative importance in the portfolio of organisations  
placed on climate or weather related activities

	Baseline	Mid-term	Final
<b>Allocation of time</b>			
Very high	0%		
High	25%		
Medium	63%		
Low	13%		
None	0%		
<b>Allocation of staff</b>			
Very high	0%		
High	38%		
Medium	13%		
Low	50%		
None	0%		
<b>Allocation of budget</b>			
Very high	0%		
High	13%		
Medium	25%		
Low	38%		
None	25%		



## Organisational priorities

Match of organisational activities to perceived needs of communities			
Community issues about natural resources and infrastructure	Organisation activities		
	Baseline	Mid-term	Final
<b>Forest:</b> Forests not as extensive or dense as before. Some species are extinct. Owned and controlled by the Government.	Encourage forest protection and the promotion of the restoration of indigenous trees and bee keeping; tree nurseries and tree planting;		
<b>River:</b> Reduced in size, has decreased, contaminated by pesticides from farms. Very seasonal, low level in dry season and floods in rainy season.	construction of water infrastructure, provide information about proper and efficient water utilization for irrigation; avoid encroachment on water sources for agriculture and revive traditional irrigation practices		
<b>Farmland:</b> soil erosion and decline in soil fertility, steep slopes, poor farming methods, scarce water availability, low yield. Small size, private but controlled by government	Land use planning and management; soil and water conservation; improved post harvest handling; training on integrated pest management, use of manure and compost and reduce the use of industrial fertilizers, mulching; promotion of drought tolerant crops; promotion of crop rotations with vegetables, fruit growing and cattle		
<b>Roads:</b> Poor condition, Unpassable roads during rainy season, narrow and with potholes.	No mention of roads or other infrastructure in activities of the organisations		
<b>Schools:</b> Dilapidated and inadequate infrastructure, increase number of schools, evenly distributed but in bad condition.	Support orphans and vulnerable children (OVC)		
<b>Centres:</b> market for goods, improving due to population.			
<b>Bridge:</b> poor condition	No mention of bridges or other infrastructure in activities of the organisations		
<b>Settlement:</b> it is expanding			
<b>Markets/shops:</b> Poor road condition, high input price, low prices for their products	Training in food value addition and marketing; Establishment of four market centres in the districts; Establish market channels eliminating middlemen and provide market information to individuals and groups of farmers		
<b>Grassland:</b>	Promotion of zero grazing and the planting of different fodder species		



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