

Ithumula/Maluma Catchment: Nzambani Location, Chuluni Division (39 Participants)

Household Demography

Head of the Household sex

Sex	Percent
Female	23.1
Male	76.9
Total	100.0

Head of the Household age category

Age bracket	Percent
20 ò years	0
20 < years ó 35	25.6
35 < years ó 55	46.2
55 < years ó 70	28.2
70 < years	0
Total	100.00

Head of Household level of education

Level	Percent
informal	35.9
primary	51.3
secondary	10.3
tertiary	2.6
Total	100.0

Head of household main occupation (%)

Occupation	Percent	
	Main occupation	Secondary occupation
subsistence farmer	92.3	2.6
businessman	5.1	23.1
regular employment	0	0
wage earner	2.6	10.3
other	0	2.6
not reported	0	61.5
Total	100.0	100.00

Household annual income-% (KShs.)

Income	Percent
10,000 ò income	10.3
10,000 < income ó 30,000	66.7
30,000 < income ó 50,000	10.3
50,000 < income ó 100,000	5.1
100,000 < income	7.7
not reported	0
Total	100.0

Household size(%)

Size	Percent
3 ò members	2.6
3 < members ó 8	69.2
8 < members ó 12	25.6
12 < members	2.6
Total	100.0

Household composition (%)

Composition	Percent
females =males	20.5
females > males	41.0
females < males	38.5
Total	100.0

Household income sources (%)

	Percent	
	Main	Secondary
crop farming	69.2	28.2
livestock	5.1	0
business	10.3	23.1
regular employment	10.3	5.1
wage earning	5.1	10.3
pottery	0	2.6
other	0	0
no response	0	0
not reported	0	30.8
Total	100.0	100.00

Income sources contribution (%)

(KShs.)	Percent	
	Main (%)	Second (%)
10,000 ò	5.1	17.9
10,000 < income ó 30,000	59.0	38.5
30,000 < income ó 50,000	17.9	5.1
50,000 < income ó 100,000	7.7	7.7
10,000 < income	10.3	0
no response	0	0
not reported	0	30.8
Total	100.0	100.0

Household Inventory (Assets)**Number of houses (%)**

Number of houses	Percent
one	2.6
two or three	74.4
four or five	23.1
Total	100.0

Main house thatch

Thatch type	Percent
iron sheets	64.1
grass	35.9
Total	100.0

Main house floor type

	Percent
cemented	33.3
un-cemented	66.7
Total	100.0

Main house number of rooms

Number of houses	Percent
one room	38.5
two or three	43.6
four or five	10.3
six and more	5.1
no response	2.6
Total	100.0

Wall material- main house

Wall material	Percent
brick/mud	59.0
brick/cement	35.9
block/cement	0
poll/mud	5.1
Total	100.0

Household with toilets

	Percent
households with toilets	69.2
households without toilets	30.8
Total	100.0

Other household possessions

Number of chicken and ducks, cows and goats(%)

	Percent		
	Chicken/ducks	Cows	Goats
nil	5.1	46.2	33.3
one	10.3	0	0
1 < number ó 5	30.8	38.5	35.9
5 < number ó 10	28.2	12.8	25.6
10 < number	23.1	2.6	5.1
not reported	2.6	0	0
Total	100.0	100.0	100.0

Number of donkeys

	Percent
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nil	84.6
0 < donkeys ó 3	15.4
3 < donkeys ó 5	0
not reported	0
Total	100.0

Number of jembes, spades, mattocks, etc.

	Percent
nil	56.4
0 < jembes ó 5	41.0
5 < jembes ó 10	2.6
10 < jembes	0
Total	100.0

Number of Ox-ploughs, Bicycles, carts/wheel barrows, plant machines, Transistor radios, television sets(%)

	Ox-ploughs	bicycles	carts/wheel barrows	plant machines	radios	TV	motor vehicles
nil	45.2	69.2	82.1	84.6	46.2	92.3	94.9
0 < numberó 3	54.8	28.2	17.9	15.4	53.8	5.1	2.6
3< number	0	0	0	0	0	0	0
not reported	0	2.6	0	0	0	2.6	2.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Land

Land ownership total land rented (acreage)

	Percent	
	owned	rented
5 ò acres	61.5	2.6
5 < acres ó 10	20.5	2.6
10 < acresó 20	12.8	0
50 < acres	5.1	0
not reported	0	94.9
Total	100.0	100.00

Main land use (%)

Use	Participants	
	main use	second main use
homestead	5.1	38.5
agriculture	74.4	17.9
livestock grazing	17.9	41.0
rented out	0	0
not reported	2.6	2.6
Total	100.0	100.0

Source of energy

Source of energy

	Percent	
	main	second main
firewood	97.4	2.6
kerosene	2.6	82.1
charcoal	0	12.8
not reported	0	2.6
Total	100.0	100.0

Food intake:

Type of Breakfast (%)

	(Before IWSS)	(After IWSS)
tea/coffee	82.1	92.3
porridge	17.9	7.7
other	0	0
Total	100.0	100.0

Breakfast value before and after IWSS (KShs.)

	(Before IWSS)	(After IWSS)
140 ò value	25.6	25.6
140 < value ó 350	61.5	53.8
350 < value ó 500	7.7	15.4
500 < value	5.1	5.1
no response	0	0
Total	100.0	100.0

Lunch before and after IWSS (%)

	(Before IWSS)	(After IWSS)
<i>ugali</i>	79.5	87.2
<i>githeri</i>	20.5	12.8
other	0	0
not reported	0	0
Total	100.0	100.0

Lunch value before and after IWSS (KShs.) (%)

	(Before IWSS)	(After IWSS)
140 ò value	2.6	5.1
140 < value ó 350	41.0	48.7
350 < value ó 500	38.5	38.5
500 < value	15.4	5.1
not reported	2.6	2.6
Total	100.0	100.0

Dinner/supper before and after IWSS (%)

	(Before IWSS)	(After IWSS)
<i>ugali</i>	25.6	17.9
<i>githeri</i>	71.8	79.5
other	2.6	2.6
Total	100.0	100.0

Dinner value before and after IWSS (KShs.)

	(Before IWSS)	(After IWSS)
140 ò value	5.1	2.6
140 < value ó 350	59.0	71.8
350 < value ó 500	30.8	15.4
500 < value	2.6	10.3
not reported	2.6	0
Total	100.0	100.0

Preparation, service and order of service

	Percent		
	Who prepares	Who serves	Who is served first
wife	76.9	79.5	0
Husband	0	0	41.0
children	0	0	0
house-help	0	0	0
husband/wife	0	0	0
wife/children	23.1	20.5	0
wife/house-help	0	0	0
all members	0	0	59.0
Total	100.0	100.0	100.0

Migration

Year of migration

	Percent
1990-1992	5.1
1993-1997	2.6
1998-2001	20.5
not migrated	71.8
Total	100.0

Nature of migration

	Percent
permanent	10.3
temporary	5.1
working outside the location	12.8
not migrated	71.8
Total	100.0

Place of settlement

	Percent
village	10.3
town	17.9
abroad	0
not applicable	0
not reported	71.8
Total	100.0

Reasons for migration

	Percent
in search of employment	17.9
land inadequacy	12.8
marriage	0
not migrated	69.2
Total	100.0

Daily water use

Daily water use before and after IWSS- litres

	Cooking		Washing/cleaning		livestock watering		Other uses	
	Before IWSS	After IWSS	Before IWSS	After IWSS	Before IWSS	After IWSS	Before IWSS	After IWSS
20 ò litres	59.0	20.5	41.0	15.4	15.4	23.1	2.6	2.6
20 < litres ó 40	38.5	69.2	46.2	48.7	10.3	5.1	0	2.6
40 < litres ó 60	2.6	7.7	5.1	10.3	2.6	5.1	0	0
60 < litres ó 80	0	2.6	2.6	15.4	2.6	2.6	0	0
80 < litres ó 100	0	0	2.6	5.1	0	2.6	0	0
100 < litres	0	0	0	0	0	0	0	0
no response	0	0	2.6	0	0	2.6	0	0
not reported	0	0	0	5.1	69.2	59.0	97.4	94.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Choice of Water Source: Factor influencing choice of water source:

Dry season

Factor/Percentage	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
distance	56.4	15.4	28.2	0	0	0
quality	12.8	38.5	2.6	0	0	0
quantity	20.5	15.4	5.1	0	0	0
Multiple use	2.6	0	0	0	0	0
Reliability	0	0	0	0	0	0
No alternative	7.7	7.7	15.4	7.7	0	0
not reported	0	23.1	48.7	92.3	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Wet season

Factor/Percentage	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
distance	53.8	12.8	28.2	2.6	0	2.6
quality	35.9	23.1	2.6	0	0	0
quantity	2.6	33.3	12.8	2.6	0	0
Multiple use	2.6	2.6	0	0	0	0
Reliability	0	0	7.7	5.1	2.6	0
No alternative	5.1	5.1	7.7	12.8	2.6	2.6
not reported	0	23.1	41.0	76.9	94.9	94.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

Main Source of Water

Source	Before IWSS		After IWSS	
	Dry season	Wet season	Dry season	Wet season
river	2.6	12.8	7.7	7.7
piped	0	0	2.6	0
springs	0	7.7	0	7.7
scoop-hole	38.5	33.3	2.6	15.4
bore-hole	2.6	2.6	0	2.6
roof catchment	0	5.1	0	2.6
rock-catchment	0	2.6	0	2.6
sand dam	2.6	0	56.4	28.2
wells	48.7	35.9	30.8	33.3
earth dam	5.1	0	0	0
not reported	0	0	0	0
Total	100.0	100.0	100.0	100.0

Depth of scoop holes (ft)

Depth (ft)	(Before IWSS)	(After IWSS)
2 ò depth	5.1	51.3
2 < depth ó 5	33.3	17.9
5 < depth ó 10	46.2	2.6
10 <depth ó 15	0	0
15 <depth	0	0
not applicable	5.1	12.8
not reported	10.3	15.4
Total	100.0	100.0

Quality of water from main source before and after IWSS

Quality	Before IWSS		After IWSS	
	Dry season	Wet season	Dry season	Wet season
Clean/clear/good	89.7	92.3	89.7	92.3
Dirty/coloured/bad smell	7.7	7.7	2.6	2.6
Salty	0	0	0	2.6
Other	0	0	5.1	2.6
not reported	2.6	0	2.6	0
Total	100.0	100.0	100.0	100.0

Quantity of water from main source before and after IWSS (litres)

Litres	(Before IWSS)		(After IWSS)	
	Dry season	Wet season	Dry season	Wet season
40 ò quantity	38.5	12.8	15.4	5.1
40<quantityó60	23.1	38.5	25.6	25.6
60<quantityó80	15.4	23.1	15.4	23.1

80<quantityó100	15.4	7.7	20.5	23.1
100>quantity	5.1	12.8	23.1	23.1
not reported	2.6	5.2	0	0
Total	100.0	100.0	100.0	100.0

Distance to the main

water source before and after IWSS (Km)

Kilometres	(Before IWSS)		(After IWSS)	
	Dry season	Wet season	Dry season	Wet season
0.5 ò Km	43.6	69.2	69.2	79.5
0.5 < Km ó 2	41.0	25.6	30.8	20.5
2 < Km ó 5	10.3	0	0	0
5 < Km ó 10	5.1	0	0	0
10 < Km ó 15	0	0	0	0
not reported	0	5.1	0	0
Total	100.0	100.0	100.0	100.0

Time taken to and from the main water source (hours)

Hours	(Before IWSS)		(After IWSS)	
	Dry season	Wet season	Dry season	Wet season
0.5 ò hour	28.2	56.4	69.2	69.2
0.5 < hours ó 1	38.5	33.3	23.1	25.6
1 < hours ó 2	15.4	2.6	2.6	5.1
2 < hours ó 5	7.7	2.6	5.1	0
5 < hours ó 10	10.3	0	0	0
10 > hours	0	0	0	0
not reported	0	5.1	0	0
Total	100.0	100.0	100.0	100.0

Trips to the main water source in a day

Trips	(Before IWSS)		(After IWSS)	
	Dry season	Wet season	Dry season	Wet season
One	10.3	5.1	0	5.1
two	59.0	48.7	59.0	48.7
three	12.8	23.1	10.3	12.8
four and five	12.8	15.4	12.8	10.3
more than five	2.6	2.6	17.9	17.9
not reported	2.6	5.1	0	5.1
Total	100.0	100.0	100.0	100.0

Main water use from the main water source

Main use	(Before IWSS)		(After IWSS)	
	Dry season	Wet season	Dry season	Wet season
washing/cleaning	0	2.6	2.6	0

drinking	0	0	0	5.1
general	94.9	92.3	87.2	89.7
cooking	0	0	0	5.1
livestock watering	2.6	0	2.6	0
not reported	2.6	5.1	7.7	0
Total	100.0	100.0	100.0	100.0

Who used to fetch water before and after IWSS?

Who	(Before IWSS)	(After IWSS)
husband	2.6	0
wife	41.0	35.9
boys	0	0
girls	2.6	2.6
D.I.L	0	0
house-help	0	0
husband/wife	2.6	0
husband/girls	2.6	0
wife/boys	15.4	23.1
wife/girls	28.2	33.3
wife/house-help	0	0
boys/girls	2.6	0
boys/house-help	0	0
wife/Children	2.6	5.1
wife/D.I.L	0	0
Total	100.0	100.0

Means of fetching water (main) before and after IWSS

Means	(Before IWSS)	(After IWSS)
human labour	84.6	84.6
donkey	7.7	7.7
cart/wheel barrow	0	0
motor vehicle	0	0
human labour/donkey	7.7	7.7
human labour/cart/wheel barrow	0	0
donkey/cart/wheelbarrow	0	0
not reported	0	0
Total	100.0	100.0

General Impact of IWSS

	increased	decreased	no change	no response	not reported	Total
water	97.4	0	0	0	2.6	100.0
distance	2.6	41.0	2.6	0	53.8	100.0
disease	7.7	7.7	2.6	0	82.1	100.0
crop farming	23.1	0	2.6	0	74.4	100.0
kitchen gardening	17.9	0	2.6	0	79.5	100.0
vegetable growing	59.0	0	0	0	41.0	100.0
livestock watering	53.8	0	0	0	46.2	100.0
brick making	28.2	0	0	0	71.8	100.0
bee keeping	20.5	0	0	0	79.5	100.0
body washing	51.3	0	0	0	48.7	100.0

clothes washing	43.6	0	0	0	56.4	100.0
utensil washing	41.0	0	2.6	0	56.4	100.0
tree nurseries	33.3	0	2.6	0	64.1	100.0
house washing	43.6	0	0	0	56.4	100.0
terracing	17.9	0	0	0	82.1	100.0
other	12.8	5.1	2.6	0	79.5	100.0

Water rationing (%)

	(Before IWSS)	(After IWSS)
yes	46.2	10.3
no	46.2	79.5
not reported	7.7	10.3
Total	100.0	100.0

Mode of water rationing before and after IWSS (%)

	Before IWSS	After IWSS
Restricted to a fixed amount of water per day	10.3	12.8
Queuing	35.9	7.7
other	0	0
not reported/no rationing	53.8	79.5
Total	100.0	100.0

Accessibility of your nearest dam

	Percent
accessible	84.6
not accessible	7.7
other characteristics	0
not reported	7.7
Total	100.0

Satisfied with the sand dam project?

	Percent
Satisfied	87.2
Not satisfied	12.8
not reported	0
Total	100.0

Why satisfied?

	Percent
Plenty of water for domestic use	46.2
Farm productivity has increased	17.9
Increased water for watering animals	7.7
Water helped in construction of houses	0
Reduced distances to water source	0
Other reasons	2.6
Not reported	25.6
Total	100.0

If not satisfied, why?

	Percent
No opportunity for multiple use	7.7

The well dries up in the dry season (too shallow)	0
The water is not clean	0
The well is too shallow	0
Other reasons	2.6
Not reported	89.7
Total	100.0

Shift from the traditional water source?

	Percent
Shifted	71.8
Not shifted	28.2
No response	0
Not reported	0
Total	100.0

If not shifted, reason

	Percent
Traditional water source nearer	17.9
No opportunity for multiple use	0
the well dries up in dry season	2.6
water not clean	2.6
other	0
no response	0
not reported	76.9
Total	100.0

Sanitation before/after IWSS

Per week	Clothe washing		Body washing		Utensil washing		House washing	
	Before IWSS	After IWSS	Before IWSS	After IWSS	Before IWSS	After IWSS	Before IWSS	After IWSS
daily	10.3	41.0	79.5	94.9	64.1	69.2	5.1	10.3
once	23.1	7.7	2.6	2.6	7.7		20.5	12.8
twice	38.5	12.8			12.8	17.9	10.3	10.3
thrice	25.6	28.2	17.9	2.6	15.4	12.8	5.1	12.8
rarely	0	0	0	0	0	0	0	0
when dirty	0	0	0	0	0	0	0	0
never used to/doesn't	0	0	0	0	0	0	0	0
not applicable	0	0	0	0	0	0	20.5	17.9
not reported	2.6	10.3	0	0	0	0	38.5	35.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Protection of water points before and after IWSS

	(Before IWSS)	(After IWSS)
fencing	38.5	23.1
covering well with lid	10.3	25.6
watchman	0	0
no protection	35.9	41.0
not applicable	0	0

locking gate	0	2.6
local arrangements	0	0
not reported	15.4	7.7
Total	100.0	100.0

Soil conservation

Terracing before and after IWSS (%)

	(Before IWSS)	(After IWSS)
nil	20.5	25.6
0 < number ó 3	41.0	30.8
3 < number ó 5	12.8	10.3
5 < number ó 10	10.3	7.7
10 < number	7.7	12.8
not reported	7.7	12.8
Total	100.0	100.0

Tree planting before and after IWSS (%)

	(Before IWSS)	(After IWSS)
nil	15.4	15.4
0 < number ó 5	12.8	17.9
5 < number ó 10	7.7	12.8
10 < number ó 50	46.2	30.8
50 < number	7.7	15.4
not reported	10.3	7.7
Total	100.0	100.0

Gabions before and after IWSS (%)

	(Before IWSS)	(After IWSS)
nil	64.1	64.1
0 < number ó 5	2.6	0
5 < number ó 10	5.1	7.7
10 < number	2.6	2.6
not reported	25.6	25.6
Total	100.0	100.0

Misonzo (Ridges) before and after IWSS (%)

	(Before IWSS)	(After IWSS)
nil	15.4	12.8
0 < number ó 5	12.8	15.4
5 < number ó 10	35.9	33.3
10 < number	23.1	28.2
not reported	12.8	10.3
Total	100.0	100.0

Grass planting before and after IWSS (%)

	(Before IWSS)	(After IWSS)
Yes	27	71.8
No	7	10.3
Not reported	12.8	17.9

Total	100.0	100.0
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Waterborne diseases mitigation measures

Boiling (%)

	(Before IWSS)	(After IWSS)
Boil drinking water	41.0	69.2
not reported	59.0	30.8
Total	100.0	100.0

Chemicals application before and after IWSS (%)

	(Before IWSS)	(After IWSS)
Treat drinking water with chemicals	2.6	2.6
not reported	97.4	97.4
Total	100.0	100.0

Clean/clear compound/bushes before and after IWSS (%)

	(Before IWSS)	(After IWSS)
clean/clear compound	2.6	2.6
not reported	97.4	97.4
Total	100.0	100.0

Dry stagnant waters before and after IWSS (%)

	Before IWSS	After IWSS
Dry stagnant water	0	0
not reported	100.0	100.0
Total	100.0	100.0

Inoculation before and after IWSS (%)

	(Before IWSS)	(After IWSS)
Inoculation	0	2.6
not reported	100.0	97.4
Total	100.0	100.0

Eating well cooked food before and after IWSS (%)

	Before IWSS	After IWSS
well cooked food	0	0
not reported	100.0	100.0
Total	100.0	100.0

Use of mosquito nets food before and after IWSS (%)

	Before IWSS	After IWSS
Using nets	0	0
not reported	100.0	100.0
Total	100.0	100.0

Observing cleanliness of utensils before and after IWSS (%)

	Before IWSS	After IWSS
Utensil cleanliness	0	2.6
not reported	100.0	97.4
Total	100.0	100.0

Other measure before and after IWSS (%)

	Before IWSS	After IWSS
other measure	0	0
not reported	100.0	100.0
Total	100.0	100.0

Mode of choosing water source committee members/dam committee members

Nomination?

	Dam committee			
	Nomination	Election	Selection	Other mode
Yes	20.5	51.3	30.8	2.6
Other	33.3	48.7	69.2	97.4
Total	100.0	100.0	100.0	100.0

If nomination, by whom?

By whom	Dam committee			
	Nomination	Election	Selection	Other mode
community	23.1	43.6	25.6	2.6
provincial administration	0	5.1	7.7	2.6
dam members	0	2.6	0	0
Other	0	0	0	0
not reported	76.9	48.7	66.7	94.9
Total	100.0	100.0	100.0	100.0

Duration in office- dam committee

	Percent
not reported	0
one month	7.7
half-year	23.1
one year	2.6
two years	5.1
more than two years	0
not stated	2.6
indefinitely	59.0
no response	0
Total	100.0

Benefits as a committee member

	Percent
none	12.8
respect	2.6
position in other committees	10.3
seminars/studies/knowledge	0
other	64.1
unanswered question	2.6
not reported	7.7
Total	100.0

Impact of dam committee in regard to:

<i>Factor</i>	<i>Positive</i>	<i>Negative</i>	<i>no impact</i>	<i>indifferent</i>
age	87.2	2.6	10.3	0
religion	76.9	0	23.1	0
political party affiliation	76.9	0	23.1	0
wealth	79.5	0	20.5	0
gender	94.9	2.6	2.6	0

Community give people who have not had opportunity to lead a chance to lead

	Participants
yes	87.2
no	12.8
no response	0
not reported	0
Total	100.0

Linkage between dam and other committees?

	Participants
yes	30.8
no	59.0
not reported	10.3
Total	100.0

If yes to linkage, how?

	Participants
considering community committee members in dam committee	10.3
dam committee members considered in other community committee	17.9
dam committee members opinion sought in development issues	5.1
other	0
no response	2.6
not reported	64.1
Total	100.0

Participants: Other general benefits derived from IWSS

	Percent
yes	48.7
no	25.6
not reported	25.6
Total	100.0

Participants: If yes benefits yes

	participants
advice from older people to young members of the society	5.1
community members interact freely while	17.9

working together	
women contribute to a fund to uplift their welfare	0
community formed groups for planting vegetables and seedlings for sale	15.4
formation of groups to help in harvesting/terracing and other undertakings	20.5
making new friends	15.4
other	10.3

Influence of development agenda by community

	Participants
yes	33.3
no	0
not reported	66.7
Total	100.0

If influence yes, how:

<i>How</i>	<i>Participants</i>
the community is free to express its interests during development meeting	7.7
before any law/bylaw/rule is passed people community is consulted	5.1
done through <i>barazas</i> whereby members air their views freely	12.8
through consultation with those concerned	2.6
involved when discussing development ideas	7.7
headman (administrators) consults with the people and forwards their views	7.7
chairpersons of groups, headmen and other leaders consulted through formation of groups	15.4
any other way	5.1

Impact of increased water after IWSS:

	improved	declined	the same
health	69.2	0	17.9
cleanliness	87.2	0	2.6
leisure	51.3	5.1	20.5
girl-child school absenteeism	5.1	30.8	20.5
boy-child school absenteeism	5.1	33.3	12.8
girl-child school punctuality	41.0	7.7	5.1
boy-child school punctuality	48.7	0	7.7
cooking at the right time	76.9	0	12.8

Increase in water impact

	improved	declined	the same
security	66.7	5.1	17.9

pregnancy rates	28.2	23.1	38.5
community cohesiveness	74.4	2.6	12.8
marriage rates	35.9	23.1	30.8

Is trekking long distances by girls regarded as good?

	Participants
good	12.8
bad	76.9
no response	0
not reported	10.3
Total	100.0

bad

	Participants
tiring	41.0
compromise other household duties	23.1
develop irresponsible behaviour-early pregnancies/marriages	20.5
leads to school absenteeism/lateness	5.1
not generally safe	30.8
other reason	2.6

good

	Participants
body exercise and good health	2.6
test of adulthood- could take care of themselves	0
other reason	2.6

Impact of the project in relation to trek

	percent
time	17.9
absenteeism/lateness in school improved	0
school drop out rates lowered	5.1
improved security of girls	35.9
increased time for leisure	15.4
distance to water source reduced	0
other impact	43.6
no impact	7.7

participation in social functions/month (before and after IWSS):

religion

	(Before IWSS)	(After IWSS)
rarely	5.1	2.6
never misses	2.6	0
never attends	20.5	28.2
once	5.1	5.1
twice	10.3	5.1
thrice	7.7	5.1

four time and more	46.2	53.8
no response	0	0
not reported	2.6	0
Total	100.0	100.0

market days

	Before IWSS	After IWSS
rarely	5.1	7.7
never misses	0	0
never attends	7.7	7.7
once	46.2	33.3
twice	12.8	10.3
thrice	10.3	15.4
four time and more	17.9	25.6
no response	0	0
not reported	0	0
Total	100.0	100.0

funerals

	Before IWSS	After IWSS
rarely	23.1	17.9
as they occur	71.8	79.5
never misses	2.6	2.6
never attends	2.6	0
once	0	0
twice	0	0
thrice	0	0
four time and more	0	0
no response	0	0
not reported	0	0
Total	100.0	100.0

mwethya

	Before IWSS	After IWSS
rarely	53.8	43.6
as they occur	28.2	33.3
never misses	5.1	12.8
never attends	12.8	10.3
no response	0	0
not reported	0	0
Total	100.0	100.0

parties

	Before IWSS	After IWSS
rarely	66.7	64.1
as they occur	20.5	28.2
never misses	0	2.6
never attends	10.3	5.1
not reported	2.6	0

Total	100.0	100.0
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harambee

	Before IWSS	After IWSS
rarely	64.1	64.1
as they occur	28.2	30.8
never misses	0	0
never attends	5.1	2.6
not reported	2.6	2.6
Total	100.0	100.0

visiting friends

	Before IWSS	After IWSS
frequently	12.8	20.5
when necessary	25.6	35.9
when need arises	20.5	15.4
occasionally	35.9	28.2
never visits	5.1	0
not reported	0	0
Total	100.0	100.0

Hours of sleep

	Participants (Before IWSS)		Participants (After IWSS)	
	dry season	wet season	dry season	wet season
2 ò hours	0	0	0	0
2 < hours ó 4	12.8	0	0	2.6
4 < hours ó 6	12.8	5.1	0	0
6 < hours ó 8	46.2	51.3	53.8	51.3
8 < hours	28.2	43.6	46.2	46.2
not reported	0	0	0	0
Total	100.0	100.0	100.0	100.0

Whom do you consult before participating in community projects (sand dam project)

	Participants
husband (in the household)	5.1
husband (elsewhere)	2.6
wife (in the household)	12.8
wife (elsewhere)	5.1
friends	17.9
local administration (headman/Ass. Chief/Chief)	20.5
none	20.5
religious leaders	0
other	5.1
no response	2.6
not reported	7.7
Total	100.0

Factor promoting community cooperation: (% age mentioned)

	Participants
Hard work	20.5
commitment	15.4
unity	53.8
listening to people views	12.8
peace	15.4
good leadership	7.7
other	5.1

Factor limiting community cooperation: (% age mentioned)

	Participants
political party affiliation	5.1
gossip	10.3
lack of respect	5.1
poverty	10.3
diseases	5.1
hatred	33.3
poor leadership	33.3
illiteracy/ignorance	20.5
corruption	15.4
other	20.5

Economic activities (%):

Mentioned	Participant (Before IWSS)	Participant (After IWSS)
agriculture	87.2	76.9
goat/sheep	33.3	30.8
cattle	20.5	28.2
vegetable growing	23.1	43.6
kitchen gardening	12.8	15.4
brick making	2.6	12.8
tree nurseries	20.5	23.1
bee keeping	15.4	17.9

New crops/activities introduced after IWSS:

New crop/activity	Percent
spinach growing	15.4
vegetable growing	38.5
fish	12.8
<i>sukuma wiki</i>	20.5
onions	5.1
tomatoes	17.9
<i>ndania</i>	5.1
sugar cane	7.7
arrow roots	0
fruits	7.7
other crop	5.1

Contribution of the following activities after IWSS (KShs)

Activity	5000< value	500<value<1000	1000<value<5000	5000<value<10000	10,000< value
agriculture	7.7	2.6	0	0	5.1
goats/sheep	5.1	0	0	0	0
cattle	2.6	2.6	2.6	0	0
vegetable growing	2.6	2.6	10.3	5.1	7.7
kitchen gardening	0	0	5.1	0	0
brick making	2.6	0	0	2.6	2.6
tree nurseries	0	2.6	5.1	2.6	0
bee keeping	0	0	0	2.6	0
sugar cane	5.1	0	0	0	0
business	2.6	0	0	0	0

Indirect benefits:

	mentioned (%)
increased land value	10.3
increased livestock reproduction rates	15.4
able to pay school fees- increased income	2.6
able to cloth the family- increased income	7.7
increased land productivity- increased water and terracing	7.7
soil fertility- tree planting and terracing	2.6
reduced cost of buying salt lick for animals	2.6
vegetables- plenty and cheap	28.2
increased sand for construction	20.5
other benefit	46.2

Whether IWSS has served as incentive to people to buy/lease land

	Percent
attracted- total	35.9
leased land to cultivate	25.6
paid sand dam fees before leasing the land	5.1

Whether there are some negative social and economic costs associated with your water resource (IWSS)

	Participants
yes	7.7
no	51.3
not reported	41.0
Total	100.0

Use of time saved from walking long distances:

	Percent
<i>Shamba</i> work	25.6
taking care of livestock	5.1
making bricks	10.3
kitchen gardening	17.9
tending tree nursery	10.3
business	7.7
leisure	10.3

other activities	17.9
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Contribution of the activity undertaken owing to increased time availability (KShs):

	Shamba work	tending livestock	making bricks	kitchen gardening	tending tree nursery	business	other activities
500 ò value	5.1	5.1	5.1	5.1	7.7	2.6	10.3
500 < value ó 1,000	2.6	0	0	2.6	2.6	0	0
1,000 < value ó 5,000	2.6	2.6	7.7	5.1	2.6	0	2.6
5,000 < value ó 10,000	5.1	0	2.6	2.6	5.1	0	0
10,000 < value	17.9	2.6	0	2.6	0	0	0

Time budget in hours

Before and after IWSS

Dry season

	Cultivation		Water fetching		Grazing		Household duties		Other activities	
	Before IWSS	After IWSS	Before IWSS	After IWSS	Before IWSS	After IWSS	Before IWSS	After IWSS	Before IWSS	After IWSS
2 ò hours	20.5	12.8	35.9	38.5	10.3	7.7	28.2	20.5	10.3	17.9
2 < hours ó 4	28.2	23.1	12.8	2.6	2.6	2.6	17.9	15.4	7.7	2.6
4 < hours ó 6	10.3	25.6	7.7	5.1	2.6	0	17.9	10.3	7.7	15.4
6 < hours ó 8	0	7.7	7.7	2.6	0	5.1	17.9	28.2	15.4	7.7
8 < hours	2.6	0	0	0	0	0	0	0	5.1	5.1

Wet season

	Cultivation		Water fetching		Grazing		Household duties		Other activities	
	Before IWSS	After IWSS	Before IWSS	After IWSS	Before IWSS	After IWSS	Before IWSS	After IWSS	Before IWSS	After IWSS
2 ò hours	2.6	7.7	46.2	43.6	10.3	15.4	20.5	20.5	7.7	15.4
2 < hours ó 4	10.3	15.4	2.6	2.6	2.6	5.1	0	23.1	15.4	15.4
4 < hours ó 6	25.6	20.5	2.6	2.6	0	2.6	30.8	2.6	15.4	10.3
6 < hours ó 8	23.1	20.5	0	2.6	0	5.1	28.2	23.1	5.1	12.8
8 < hours	0	0	0	0	0	0	0	0	0	0

Cost of water per 20 litre jerrican (KShs)

	Dry season		Wet season	
	Before IWSS	After IWSS	Before IWSS	After IWSS
5 ò shillings	53.8	74.4	79.5	87.2
5 < shillings ó 10	25.6	15.4	15.4	5.1
10 < shillings ó 15	2.6	2.6	0	0
15 < shillings ó 20	10.3	0	0	2.6
20 < shillings	2.6	0	0	0

Is the use of your water resource (IWSS) controlled/planned to avoid negative consequences

	Participants
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yes	53.8
no	35.9

Controlled measure

Measure	Participants
covering the well with a lid	10.3
washing of clothes not allowed in the IWSS	7.7
only participants are allowed	12.8
planting of grass to check erosion	12.8
children not allowed to play near the IWSS	20.5
other control/plan (eg. prayers)	12.8

If not controlled, why?

Why	Participants
it is a public/natural resource	5.1
participants are responsible people- respect their efforts	5.1
other reason	5.1

Pollution penalties/action(%)

Type of pollution	pays fine	report to dam committee	report to provincial administration	report to Sasol	warning/cautioned	excommunicated
washing inside the dam/well	33.3	2.6	2.6	0	38.5	5.1
washing clothes inside the dam/well	33.3	2.6	2.6	0	38.5	5.1
watering animals in the dam/well	28.2	2.6	2.6	0	38.5	5.1
spraying vegetables/crops chemicals around the dam/well	28.2	2.6	7.7	0	41.0	5.1
defecating/urinating near the dam/well	30.8	7.7	10.3	0	33.3	5.1
dropping objects in the source	25.6	7.7	12.8	2.6	33.3	5.1

Who is responsible for operation and maintenance of your water resource (Sand dam/well)

	Participants
dam committee members	28.2
chairperson of the dam committee	28.2
provincial administration	15.4
community	7.7
watchman	0
no body/party	10.3
no maintenance required	0
owner	0
Sasol	2.6
not reported	7.7
Total	100.0

Source of funds for operation and maintenance of the IWSS if applicable

	Participants
dam committee members	79.5
chairperson of the dam committee	5.1
provincial administration	0
community	2.6
politicians	0
no funds needed	0
Sasol	0
not reported	12.8
Total	100.0

Operation and maintenance contribution by households if applicable (KShs)

	Participants
25 ò KShs.	7.7
25 < KShs ó 50	0
50 < KShs ó 75	0
75 < KShs ó 100	0
100 < KShs	7.7
in kind (labour)	2.6
no funds needed	0
not reported	82.1
Total	100.0

Frequency of dam committee meetings

	Participants
monthly	30.8
never meet	30.8
once per three month	12.8
semi-annually	0
annually	0
when there is need	17.9
other	2.6
no committee reported	0
not reported	5.1
Total	100.0

Services/goods considered necessary:

	Participants
Food	97.4
water	84.6
shelter	25.6
clothing	20.5
clean environment	7.7
money	30.8
education	0
medical services	17.9
fuel	33.3
land	23.1

livestock	0
transport	0
other	15.4

Control over family resources:

	Income		Labour		Expenditure	
	Before IWSS	After IWSS	Before IWSS	After IWSS	Before IWSS	After IWSS
husband	35.9	43.6	38.5	41.0	25.6	33.3
wife	7.7	17.9	15.4	17.9	20.5	17.9
husband/wife	30.8	38.5	38.5	41.0	51.3	48.7
boys	0	0	0	0	0	0
children	0	0	0	0	0	0
father-in-law	0	0	0	0	0	0
other	0	0	0	0	0	0
not reported	25.6	0	7.7	0	2.6	0

Impact of increased family income to family unit

	Percent
positive	43.6
negative	30.8
the same	10.3
no response	0
not reported	15.4
Total	100.0

Has increased incomes/opportunities led to conflict at:

	Percent
at family level- reported	17.9
at family level not reported	82.1
at community level- reported	5.1
at community level not reported	94.9

Laid down conditions for joining IWSS to non-participants: pays fees (KShs)

	Percent
100 ÷ KShs	5.1
100 < KShs ó 200	30.8
200 < KShs ó 500	33.3
500 < KShs ó 1,000	5.1
1,000 < KShs	0
not fixed	7.7
not reported	17.9
Total	100.0

Laid down conditions for joining IWSS to non-participants: fines in kind

	Percent
sheep	5.1
goat	5.1
cow	5.1
other	12.8
not reported	71.8

Total	100.0
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Value household attach to their water source

	Participants
500 ò KShs	10.3
500 < KShs ó 1,000	2.6
1,000 < KShs ó 5,000	5.1
5,000 < KShs ó 10,000	0
10,000 < KShs	10.3
not acceptable (invaluable)	56.4
not reported	15.4
Total	100.0

Willingness to pay for improved water resource

	Participants
500 ò KShs	46.2
500 < KShs ó 1,000	17.9
1,000 < KShs ó 5,000	2.6
5,000 < KShs ó 10,000	12.8
10,000 < KShs	7.7
not reported	12.8
Total	100.0

Ownership of water resource (sand dam):

	True	False
community	69.2	30.8
individual	7.7	92.3
government	15.4	84.6
schools	7.7	92.3
KANU	7.7	92.3
SASOL	33.3	66.7
NGOs	0	0
SDP	2.6	97.4
Christians	7.7	92.3
<i>Kathambi</i>	5.1	84.6
other	10.3	51.3

Why own the water resource (sand dam): Reasons

	community participated	it is a natural resource	sponsored	other	no response
community	94.9	0	0	2.6	2.6
individual	43.6	0	35.9	20.5	0
government	7.7	0	59.0	33.3	0
schools	0	0	69.2	30.8	0
KANU	43.6	0	20.5	0	0
SASOL	30.8	0	48.7	20.5	0
NGOs	0	0	0	0	0
SDP	10.3	0	69.2	20.5	0
Christians	2.6	0	71.8	25.6	0
<i>Kathambi</i>	0	0	71.8	25.6	2.6

other	0	0	59.0	5.1	35.9
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Suppose somebody started demolishing your water resource (sand dam), what action would you take (%):

	Participants	
	As an individual	As a member of the community
ask him/her why	5.1	0
report to dam committee chairperson	10.3	0
report to other members	10.3	0
report to the head man	35.9	0
report to the provincial administration	0	30.8
report to SASOL	0	2.6
report to the police	30.8	30.8
beat up the person	0	10.3
banish him/her	0	0
use force to stop him/her	5.1	15.4
no action	0	0
other	2.6	5.1
no response	0	5.1
Total	100.0	100.0

Any other comment

	Participants
more dams needed	15.4
congratulations- SASOL	7.7
sand dams are beneficial- increased incomes	35.9
satisfied with the location	2.6
sand dam too far, water source near home required	35.9
need IWSS	2.6
water source near home required	0
no comment	0
not reported	0
Total	100.0