Managua and Thika/Chanai Baseline survey results

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Legend:
- Priority watersheds
- Constituency boundaries
- Towns
- Rivers/streams
- Waterbodies
- Roads

0 km 5

Kenya

Nairobi

Africa Conservation Region

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UPPER TANA-NAIROBI WATER FUND – CHANIA/THIKA/MARAGUA PRIORITY WATERSHEDS

The Nature Conservancy
Protecting nature. Preserving life.
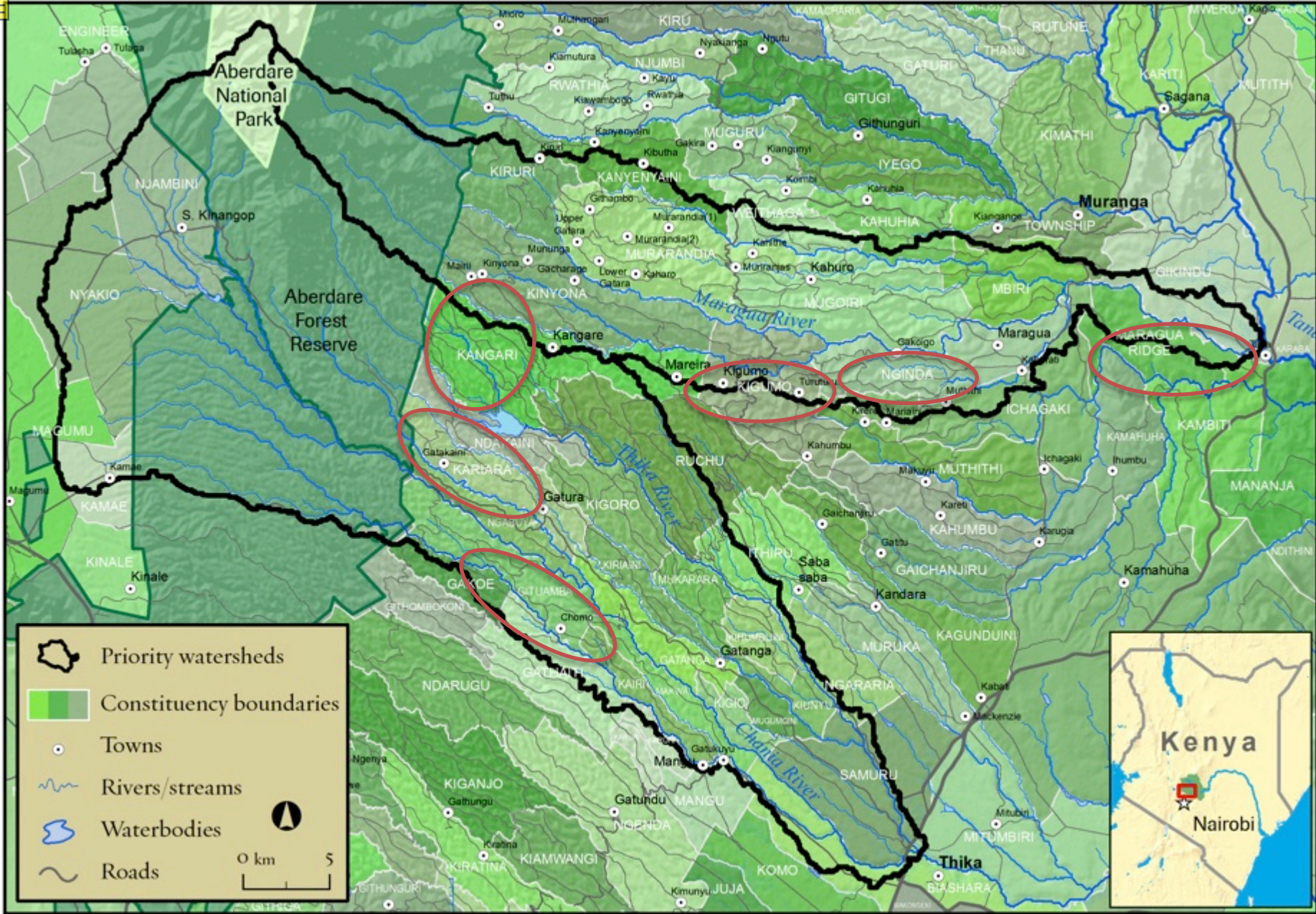
Results

- *n* = 730 interviews

- Reliability

  - 95% confidence interval

  - Internal consistency: asked key questions such as land size, irrigation and water sources two slightly different ways

  - Inter-enumerator reliability: no out of range data could be entered in the iPads; tracked time taken for each interview automatically

Results

- Validity
  - Margin of error = 5.1% for each sub-catchment sample and 3.4% for total sample
  - Male = 53% and female = 47%
  - Average age of respondents = 48

Education	Murang'a county (2009)	Survey (2013)
Completed primary school	70%	74%
Completed secondary school	18%	24%

Results

- Sample overview

| Sub-catchment and ward	Population (2009)	Average household size	Number of households	Households sampled	Margin of error
Subtotal Maragua	68,875	5.4	12,817	362	5.1%
Kambiti ward	21,195	4.9	4,306	116	9.0%
Kigumo ward	23,320	5.9	3,980	128	8.5%
Nginda ward	24,360	5.3	4,563	118	8.9%
Subtotal Thika/Chanai	92,801	5.3	17,489	368	5.1%
Gituamba ward	25,434	5.1	5,028	86	10.5%
Kangari ward	29,195	5.5	5,263	148	7.9%
Kariara ward	38,172	5.3	7,184	134	8.4%
Total	161,676	5.4	30,306	730	3.4%

Results

- Respondent characteristics

Sub-catchment and ward	Born in the area	Born outside the area	Average age	Farmers	Other occupations
Maragua average	67%	33%	49	98%	2%
Kambiti ward	46%	**54%**	46	97%	3%
Kigumo ward	92%	8%	53	100%	--
Nginda ward	62%	**38%**	48	97%	3%
Thika/Chanai average	85%	15%	48	99%	1%
Gituamba ward	87%	13%	49	100%	--
Kangari ward	84%	16%	46	99%	1%
Kariara ward	84%	16%	49	97%	3%
Overall average	76%	24%	48	98%	2%
n	556	174	730	717	11

Results

- Asset ownership
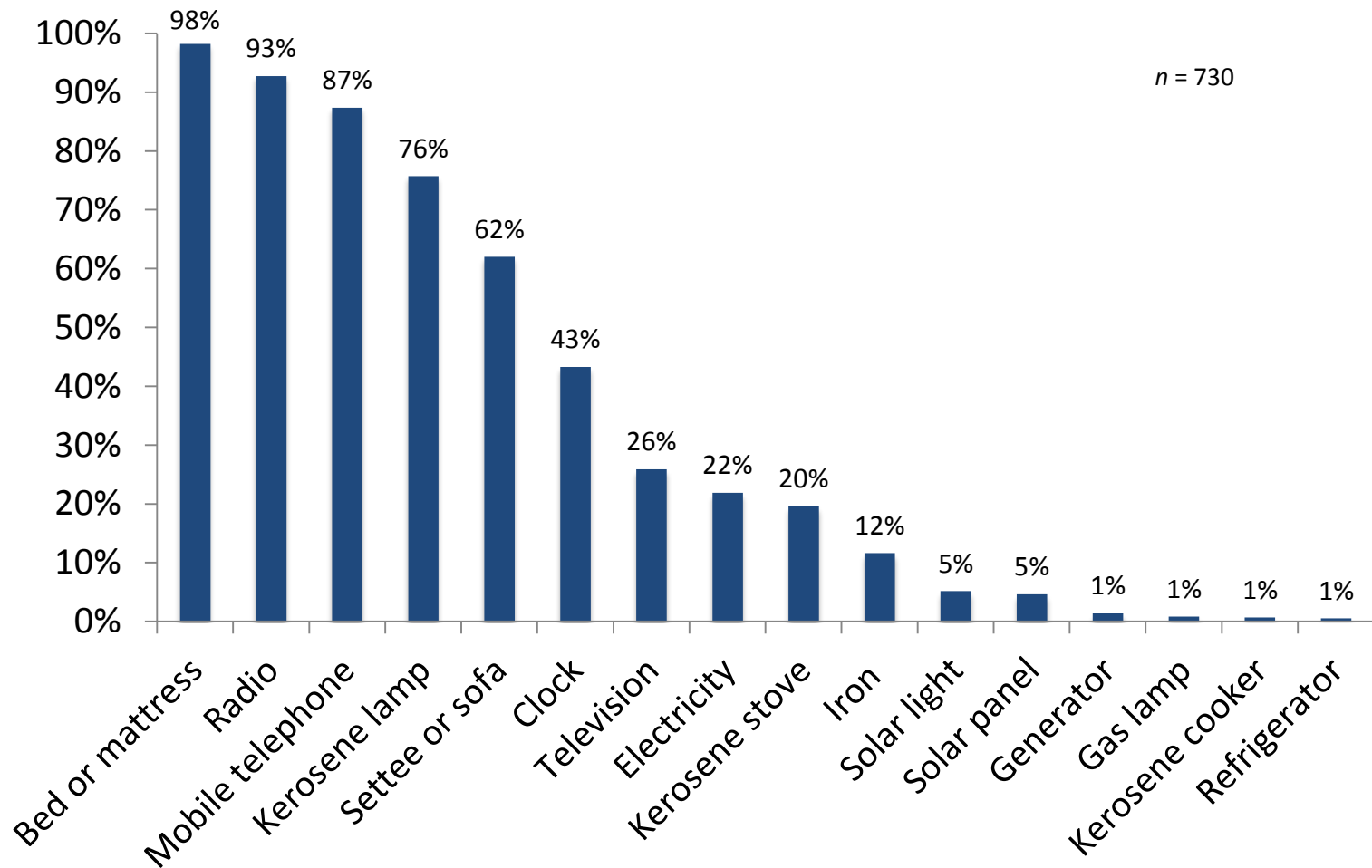
Results: land use

- Landholdings

Sub-catchment and ward	Average landholding (in acres)?	Average land under cultivation (in acres)?
Maragua average	2.0	1.4
Kambiti ward	2.4	1.6
Kigumo ward	1.3	1.1
Nginda ward	2.3	1.6
Thika/Chanai average	2.0	1.5
Gituamba ward	1.4	1.0
Kangari ward	2.5	1.8
Kariara ward	2.0	1.5
Overall average	2.0	1.5
n	730	

Results: land use

- Crops cultivated in last 12 months

Crops	Gituamba ward	Kangari ward	Kariara ward	Kambiti ward	Kigumo ward	Nginda ward	Total	n
Maize	98%	95%	97%	100%	97%	97%	97%	710
Trees	98%	97%	99%	72%	98%	81%	91%	665
Napier Grass	98%	98%	97%	62%	98%	86%	90%	657
Pulses (beans, peas & lentils)	94%	83%	93%	89%	88%	86%	88%	646
Vegetables (pumpkins, sweet potatoes, greens, etc.)	95%	97%	91%	54%	88%	75%	84%	611
Bananas	99%	71%	90%	53%	98%	92%	83%	605
Coffee	99%	1%	62%	--	95%	2%	40%	292
Tea	2%	98%	90%	--	2%	--	37%	270
Other	1%	3%	1%	3%	3%	2%	2%	17
Bamboo	--	2%	1%	--	--	--	1%	5

Results: land use

- Cash-crop characteristics of each ward

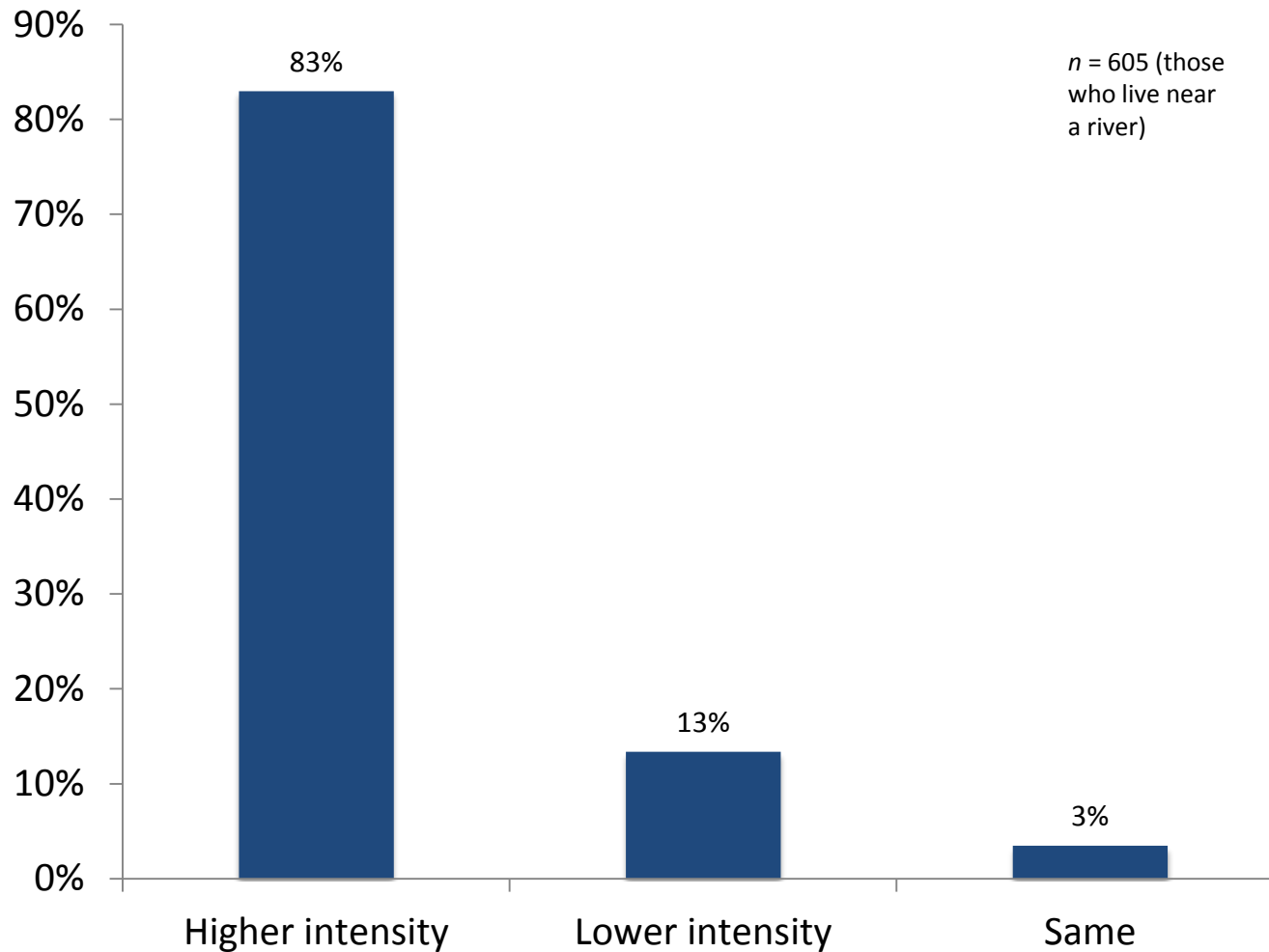| Maragua	
Kambiti ward = maize (40%), trees/mangos (29%), vegetables (16%) and others (15%)	
Kigumo ward = coffee (57%), maize (20%), bananas (18%) and others (5%)	
Nginda ward = bananas (47%), vegetables (27%), maize (24%), and others (2%)	
Thika/Chanai	
Gituamba ward = coffee (52%), bananas (29%), vegetables (5%) and others (14%)	
Kangari ward = tea (99%) and others (1%)	
Kariara ward = tea (85%), coffee (8%), and others (7%)	

Results: land use

- Colour intensity of the local river after a rain

n = 605 (those who live near a river)

Chart showing colour intensity after rain: Higher intensity 83%, Lower intensity 13%, Same 3%.

Results: land use

- How long does it take for the colour of the local river water to clear after a rain ?

	Few days	*1-2 weeks*	*3-4 weeks*	*More than one month*	*n*
Maragua average	5%	17%	18%	**60%**	296
Kambiti ward	2%	16%	9%	72%	86
Kigumo ward	13%	17%	33%	38%	95
Nginda ward	0%	18%	12%	70%	115
Thika/Chanai average	12%	35%	24%	**30%**	309
Gituamba ward	6%	34%	24%	36%	70
Kangari ward	20%	36%	24%	20%	135
Kariara ward	5%	34%	23%	38%	104
Overall average	8%	26%	21%	45%	605

Results: land use

- Slope of respondents' land

Sub-catchment and ward	Very steep	Steep	Sloping	Flat	n
Maragua average	**6%**	**28%**	45%	**21%**	362
Kambiti ward	7%	22%	53%	19%	116
Kigumo ward	7%	32%	56%	5%	128
Nginda ward	3%	30%	26%	42%	118
Thika/Chanai average	**11%**	**40%**	45%	**4%**	368
Gituamba ward	22%	42%	35%	1%	86
Kangari ward	5%	39%	52%	4%	148
Kariara ward	10%	40%	45%	4%	134
Overall average	8%	34%	45%	12%	730

Results: land use

- Differences among wards for steep + very steep land

$n = 309$
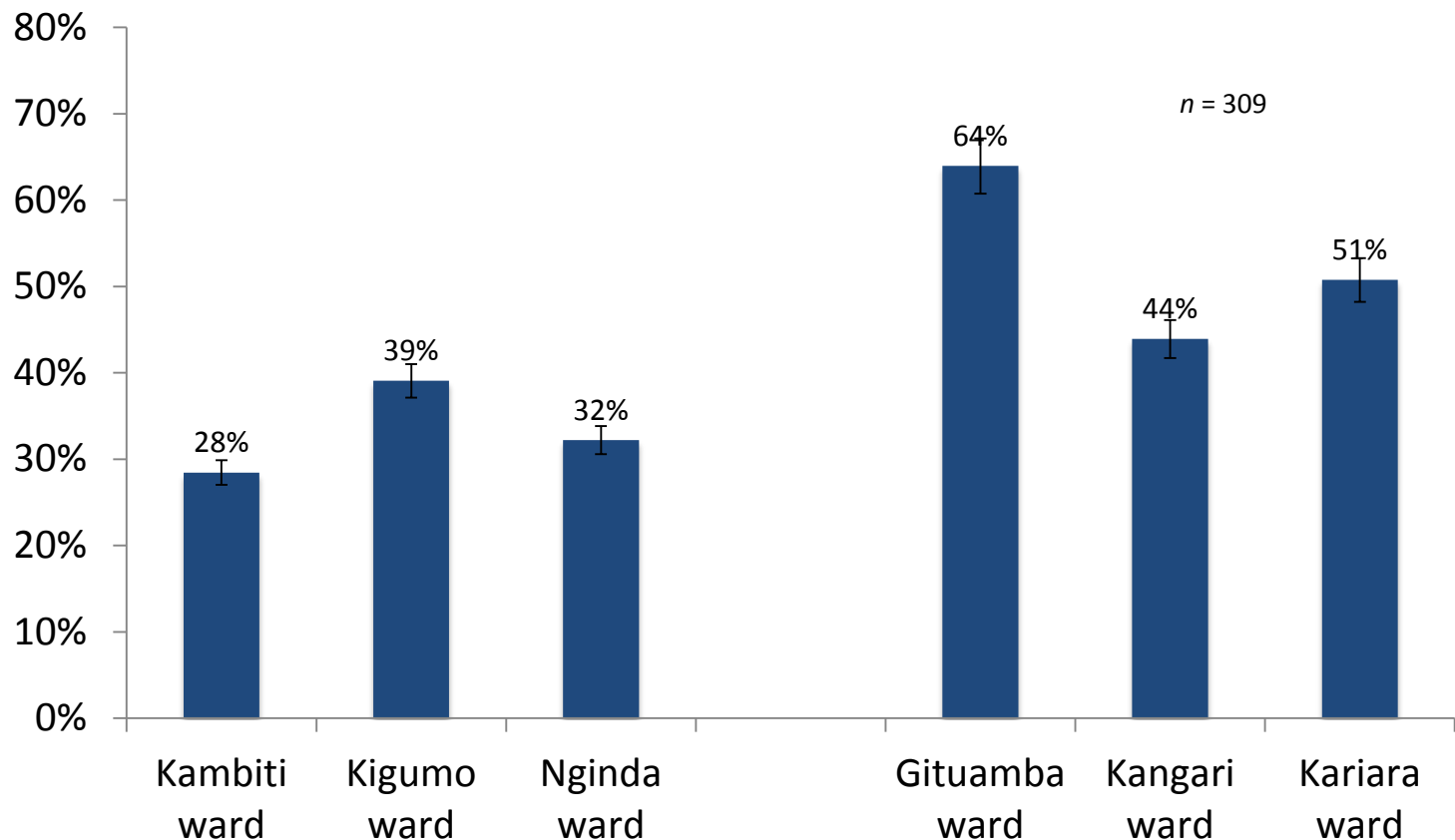
Results: Environmental issues

- Quarrying and brickmaking

Sub-catchment and ward	Stone quarrying	Brickmaking	Sand quarrying	Ore quarrying	Other	n
Maragua count	77	29	18	--	1	**125**
Kambiti ward	33	12	7	--	--	52
Kigumo ward	4	--	--	--	--	4
Nginda ward	40	17	11	--	1	69
Thika/Chanai count	43	1	1	--	--	**45**
Gituamba ward	21	1	--	--	--	22
Kangari ward	--	--	--	--	--	--
Kariara ward	22	--	1	--	--	23
Overall count	120	30	19	--	1	170

Results: Environmental issues

- Erosion issues

Sub-catchment and ward	Surface erosion	Gullies	Landslides/ mudslides	Other	n
Maragua average	61%	22%	15%	3%	184
Kambiti ward	66%	19%	15%	0%	47
Kigumo ward	70%	19%	11%	0%	37
Nginda ward	55%	24%	16%	5%	**100**
Thika/Chanai average	52%	24%	22%	2%	147
Gituamba ward	63%	22%	15%	0%	27
Kangari ward	62%	18%	20%	0%	45
Kariara ward	41%	29%	25%	4%	**75**
Overall average	57%	23%	18%	2%	331

Results: Livestock

- Free range livestock

Sub-catchment and ward	None	Poultry	Goats	Cattle	Sheep	Pigs	Other	n
Maragua average	47%	38%	8%	5%	1%	0%	0%	343
Kambiti ward	30%	38%	**18%**	12%	1%	1%	0%	125
Kigumo ward	74%	24%	0%	0%	1%	0%	1%	104
Nginda ward	40%	52%	4%	3%	2%	0%	0%	114
Thika/Chanai average	81%	18%	0%	0%	1%	0%	0%	303
Gituamba ward	86%	14%	0%	0%	0%	0%	0%	73
Kangari ward	85%	14%	0%	0%	2%	0%	0%	117
Kariara ward	74%	25%	1%	0%	0%	0%	0%	113
Overall average	63%	29%	4%	3%	1%	0%	0%	646

Results: Water use

- Respondents' water sources

Sub-catchment and ward	River or stream	Shared tap	Indoor tap water	Well	Buying water	Other	n
Maragua average	51%	22%	15%	10%	1%	1%	362
Kambiti ward	44%	30%	16%	8%	2%	0%	116
Kigumo ward	33%	29%	27%	11%	0%	1%	128
Nginda ward	77%	5%	2%	13%	0%	3%	118
Thika/Chanai average	30%	34%	31%	4%	0%	1%	368
Gituamba ward	16%	42%	38%	3%	0%	0%	86
Kangari ward	37%	29%	28%	3%	0%	3%	148
Kariara ward	31%	35%	29%	5%	0%	0%	134
Overall average	40%	28%	23%	7%	0%	1%	730

Results: Water use

- Irrigation of crops during the dry season

Sub-catchment and ward	Yes	No	n
Maragua average	39%	61%	362
Kambiti ward	38%	62%	116
Kigumo ward	22%	78%	128
Nginda ward	**58%**	42%	118
Thika/Chanai average	24%	76%	368
Gituamba ward	35%	65%	86
Kangari ward	16%	84%	148
Kariara ward	27%	73%	134
Overall average	32%	68%	730

Results: Water use

- Status of rainfall now compared to five years ago
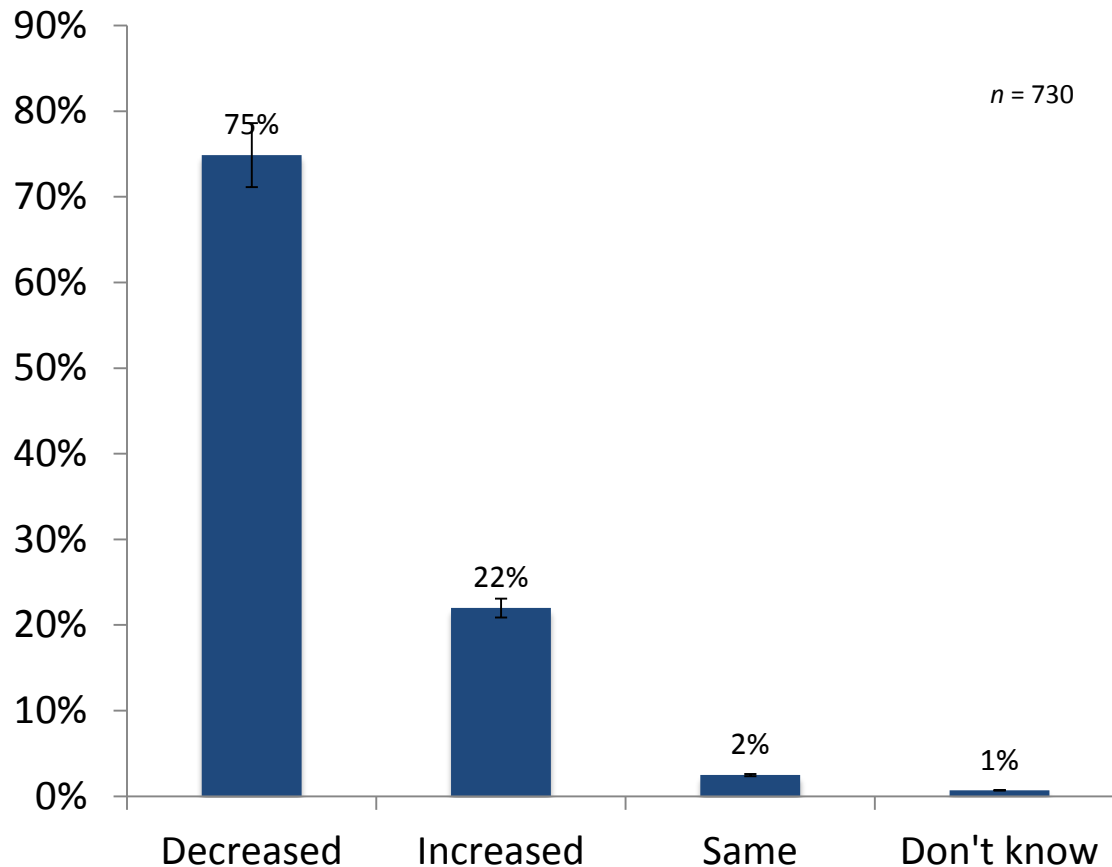
Results: Agriculture

- Do people cultivate on steep land in your area?

Sub-catchment and ward	Yes	No	n
Maragua average	61%	39%	362
Kambiti ward	54%	46%	116
Kigumo ward	67%	33%	128
Nginda ward	61%	39%	118
Thika/Chanai average	70%	30%	368
Gituamba ward	80%	20%	86
Kangari ward	61%	39%	148
Kariara ward	74%	26%	134
Overall average	66%	34%	730

Results: Water use

- Average number of trees on respondents' land
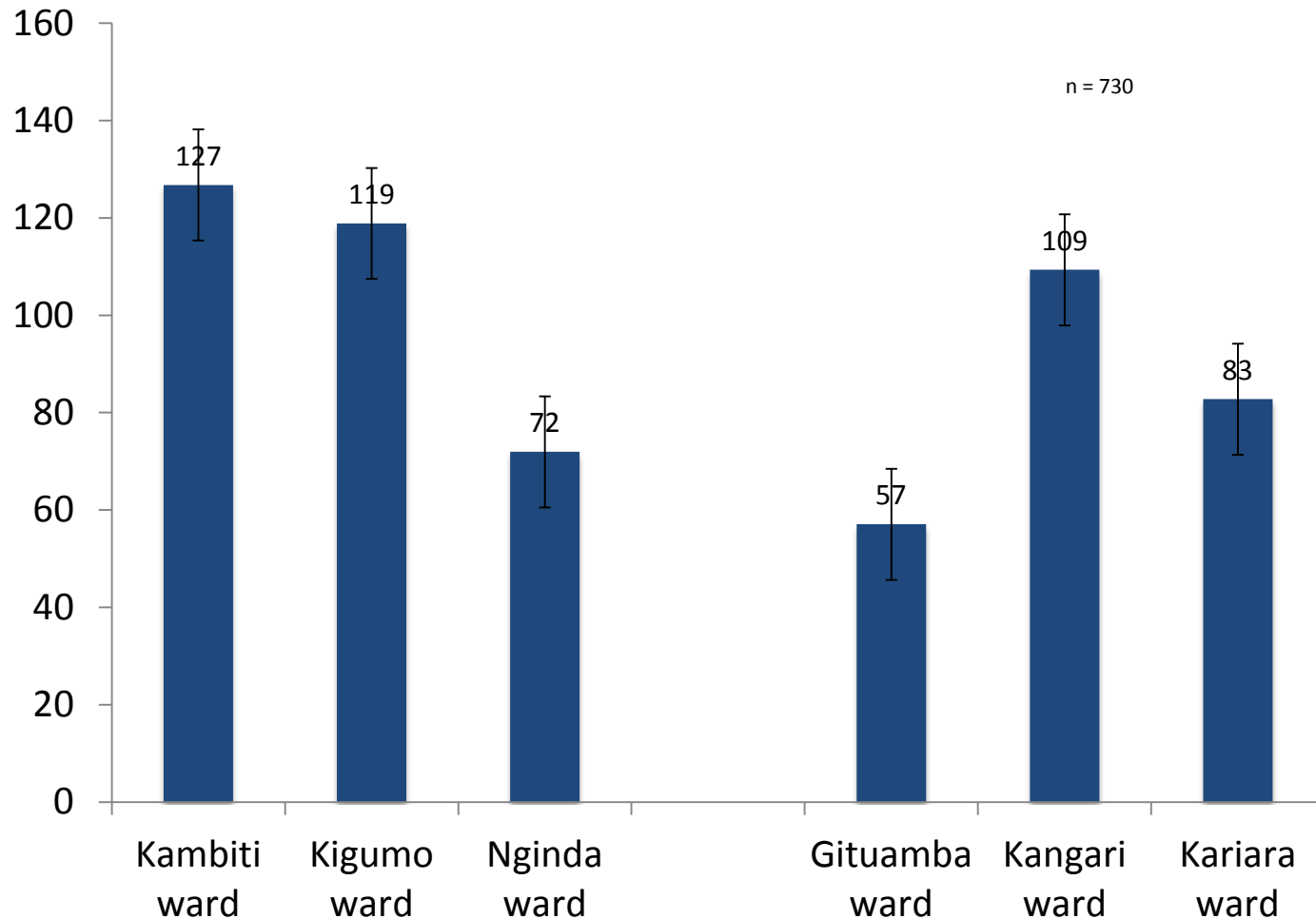
Results: Local participation

- Participation in local organizations

Sub-catchment and ward	Self-help group	Farmer co-operative union	Water Resource Users Association	Community Forestry Association	NDEKA	Green Belt Movement	Other environ-mental org	n
Maragua average	83%	9%	8%	0%	0%	0%	0%	235
Kambiti ward	89%	5%	5%	0%	0%	0%	1%	84
Kigumo ward	84%	16%	0%	0%	0%	0%	0%	67
Nginda ward	75%	7%	**17%**	0%	1%	0%	0%	84
Thika/Chanai aver	54%	12%	10%	14%	9%	0%	1%	295
Gituamba ward	88%	12%	0%	0%	0%	0%	0%	34
Kangari ward	36%	14%	**14%**	**21%**	**14%**	0%	0%	188
Kariara ward	85%	5%	3%	4%	0%	0%	3%	73
Overall average	67%	11%	9%	8%	5%	0%	1%	530

Results

- Willing to participate in a land and water conservation project?

Sub-catchment and ward	Yes	No	n
Maragua average	92%	8%	362
Kambiti ward	91%	9%	116
Kigumo ward	94%	6%	128
Nginda ward	92%	8%	118
Thika/Chanai average	93%	7%	368
Gituamba ward	93%	7%	86
Kangari ward	94%	6%	148
Kariara ward	93%	7%	134
Overall average	93%	7%	730

Discussion

- Larger farms in Thika/Chanai than Maragua; thus need fewer farmers to participate

- Lower diversity of crops in Thika/Chanai than Maragua; thus need fewer solutions to water-quality issues

- Farm land is steeper in Thika/Chanai than Maragua; thus activities have greater impact on water-quality issues

Discussion

- More people were born in the local area in Thika/Chanai than Maragua; thus may have deeper ties to the land.

- Fewer trees in Thika/Chanai than Maragua; thus more opportunity for agro-forestry and reforestation

- Greater existing participation in environmental groups in Thika/Chanai than Maragua; thus easier to build on what already exists

Conclusions

- Some sub-catchments will be easier to work in than others.

- In the medium-term, the water fund should consider focusing on the sub-catchment where we have the greatest chance of demonstrating success and then expand to other sub-catchments.

A good start to our partnership