Baseline Study for the Tuungane Health and Conservation Project

Social Assessment of Lake Tanganyika Households

Sustain East Africa

Sustain East Africa

November 2024

Table of Contents

Summary 5
Introduction 6
Poverty Probability Index 9
Quantitative Analysis 10
Livelihoods 11
Living Conditions, Housing, and Energy Use 14
Household Items 20
Access to Credit 22
Fishers 26
Fish Trading 35
Fish Processing 39
Bibliography 42

List of Tables

1 Proportion of household heads born in the ward 8
2 Percentage (%) estimates of the Poverty Probability Index (PPI) for households 9
3 Water treatment in the dry season at village level (%) 14
4 Main water source in the dry season at village level (%) 16
5 Sanitation facilities at village level (%) 17
6 Handwashing at village level (%) 18
7 Asset ownership at village level (%) 20
8 Access rights, security, and decision making around fisheries resources at village level (%) 26
9 Awareness and acceptance of fish reserves at village level (%) 27
10 Group membership of fishers at village level (%) 34
11 Group membership of fishers at village level (%) 38
12 Group membership of fish processors at village level (%) 42

List of Figures

1 Map of lake Tanganyika with sample sizes from each locations 7
2 Population pyramid 7
3 Self-assessment of the ability to meet daily needs at village level 11
4 Type of fishing boats used at village level 12
5 Relative importance of different species at village level 13
6 Main type of water treatment in the dry season 14
7 Main source of water in the dry season 15
8 Household item ownership 20
9 Proportion of households that borrowed money in the last year at village level 22
10 Purpose of the loan 23
11 Source of loans 23
12 Reason for not having borrowed any money in the previous year 24
13 Household membership of a COCOBA, SACCO, or FICO at village level (%) 25
14 Mobile phone usage for financial transactions at village level (%) 25
15 Self-assessment of fisheries resource management over the past five years 26
16 At the moment, do you think the current number of fish in the lake is sufficient to meet the fishing, food, and livelihood needs of the community? 28
17 In the future, do you think there will be sufficient fish for the communities 29
18 Type of fishing gear used at village level (%) 29
19 Seasonal targeting of fish species over the past five years 30
20 Highest sale prices (TSh) of fish species over the past five years 31
21 Lowest sale prices (TSh) of fish species over the past five years 31
22 Satisfaction levels of fishers 32
23 Do you think BMUs are helpful to improving your fishing practices? 34
24 Do you think your current activities are likely to support your needs over the long term (next 5 - 10 years) ? 35
25 Seasonal trading of fish species over the past five years 36
26 Highest sale prices (TSh) of fish species over the past five years for fish traders 36
27 Highest sale prices (TSh) of fish species over the past five years for fish traders 37
28 Satisfaction of fish traders 37
29 Do you think your current trading activities are likely to support your needs over the long term (next 5 - 10 years) ? 39
30 Seasonal processing of fish species over the past five years 40
31 Highest sale prices (TSh) of fish species over the past five years for fish processors 40
32 Highest sale prices (TSh) of fish species over the past five years for fish processors 41
33 Satisfaction of fish traders 41

Disclaimer

Disclaimer

Rights

Rights

Suggested citation

Please cite this report as such :

Acknowledgements

Acknowledgements

Summary

Provide broad overview of key findings

Introduction

Intro text…

General Household Information

Household sample sizes across villages along the lake Tanganyika shoreline.

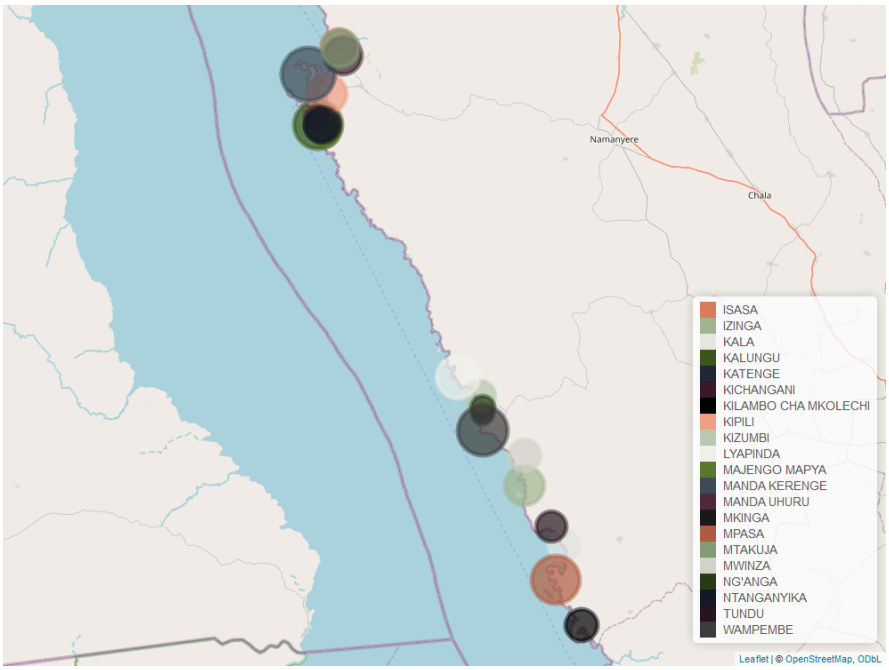


Figure 1: Map of lake Tanganyika with sample sizes from each locations

Population Pyramid

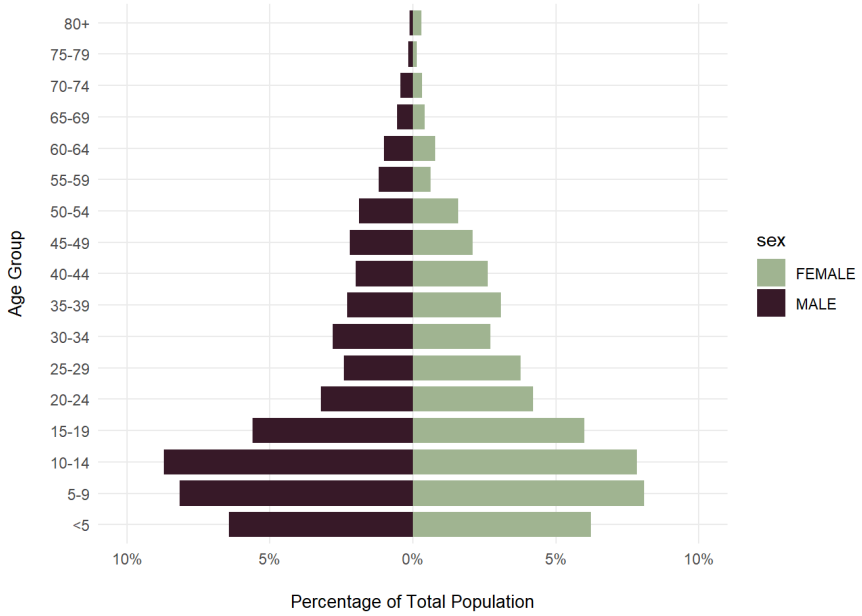


Figure 2: Population pyramid

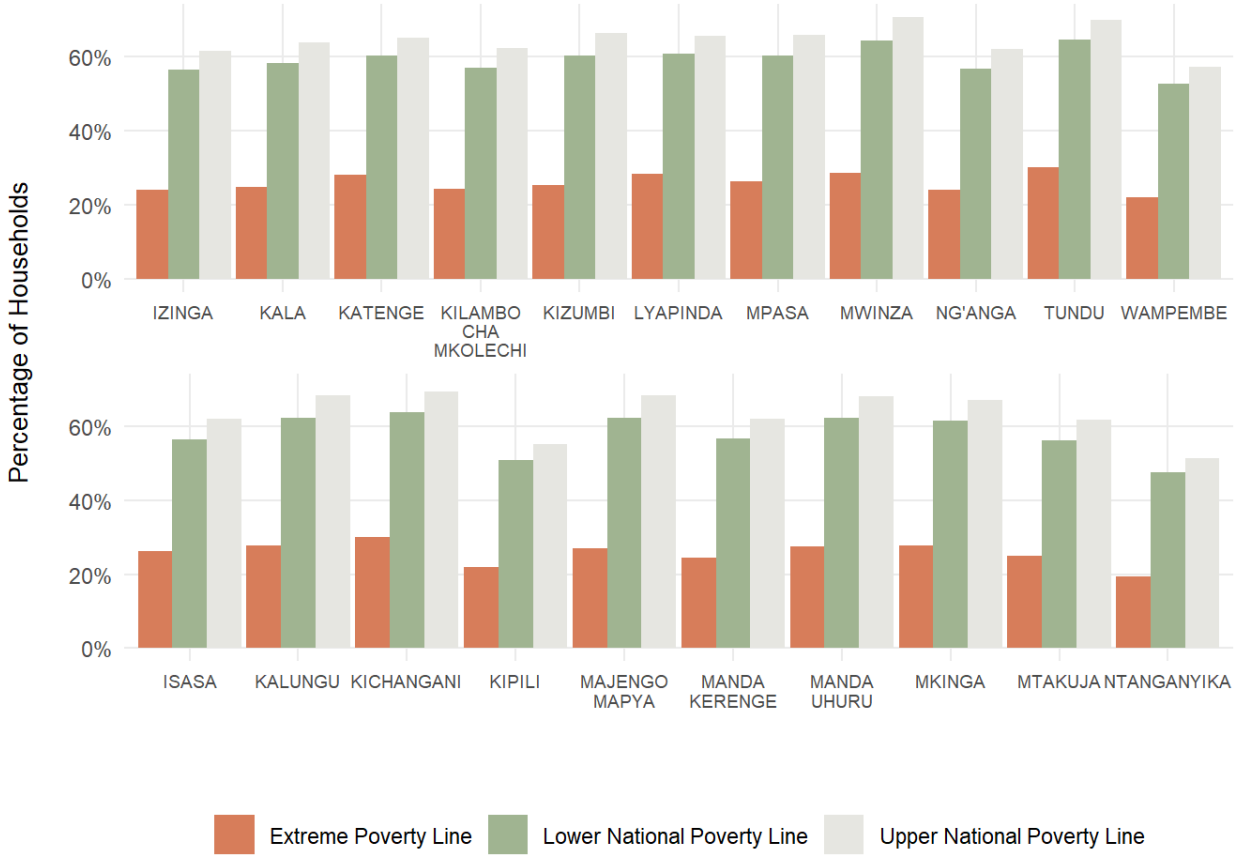
Table 1: Proportion of household heads born in the ward

Village	Yes	No	Average years spent if not born
ISASA	56.4%	43.6%	18.5
IZINGA	18.2%	81.8%	26.4
KALA	10.5%	89.5%	21.0
KALUNGU	48.3%	51.7%	18.2
KATENGE	53.3%	46.7%	25.4
KICHANGANI	57.8%	42.2%	22.0
KILAMBO CHA MKOLECHI	31.6%	68.4%	18.2
KIPILI	25%	75%	26.9
KIZUMBI	22.6%	77.4%	21.4
LYAPINDA	38.5%	61.5%	22.9
MAJENGO MAPYA	13.8%	86.2%	6.5
MANDA KERENGE	28.7%	71.3%	20.5
MANDA UHURU	10.5%	89.5%	28.5
MKINGA	30.6%	69.4%	22.9
MPASA	19.5%	80.5%	23.1
MTAKUJA	32.7%	67.3%	31.5
MWINZA	12.8%	87.2%	27.6
NG'ANGA	16.7%	83.3%	29.7
NTANGANYIKA	36.1%	63.9%	20.5
TUNDU	25%	75%	19.6
WAMPEMBE	18.6%	81.4%	19.7

Poverty Probability Index

Table 2: Percentage (%) estimates of the Poverty Probability Index (PPI) for households

Category	Upper National Poverty Line	Lower National Poverty Line	Extreme Poverty Line
Overall	63.6	58.2	25.6
Male	65.7	60.1	26.5
Female	56.3	52.1	22.4
Youth	61.5	55.7	22.8



Quantitative Analysis

Livelihoods

Household welfare self-assessment

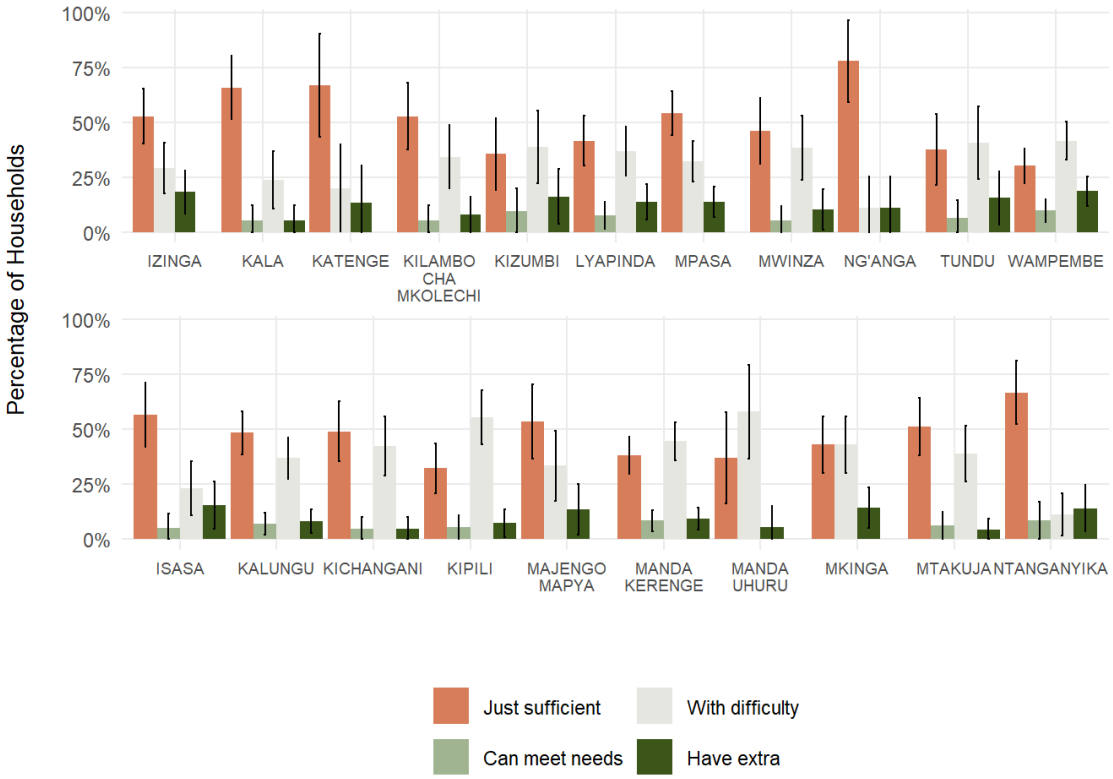


Figure 3: Self-assessment of the ability to meet daily needs at village level

Fishing

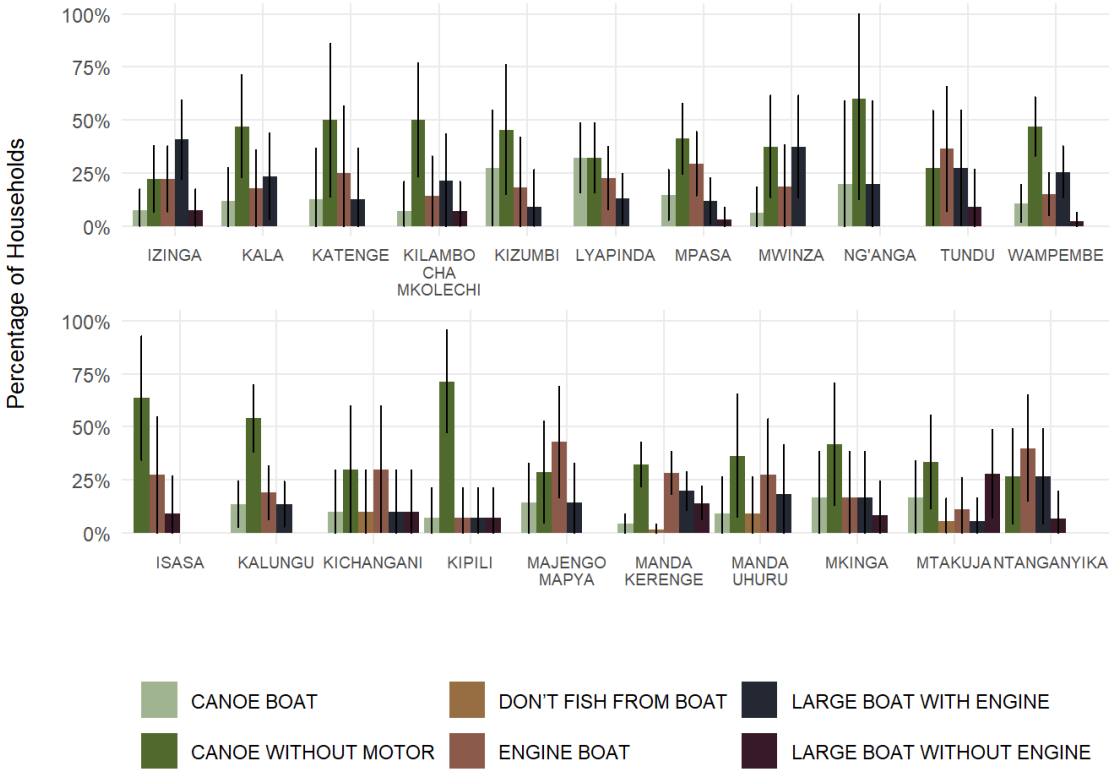


Figure 4: Type of fishing boats used at village level

Relative importance of different species at village level

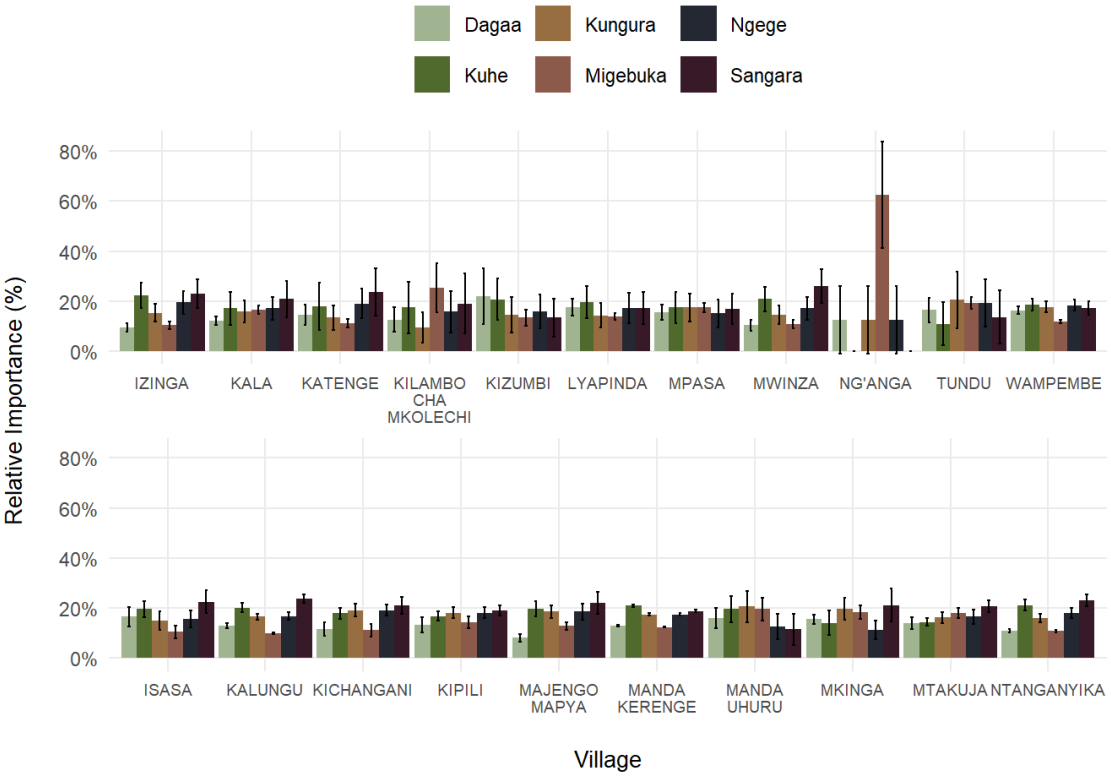


Figure 5: Relative importance of different species at village level

Living Conditions, Housing, and Energy Use

Water Use

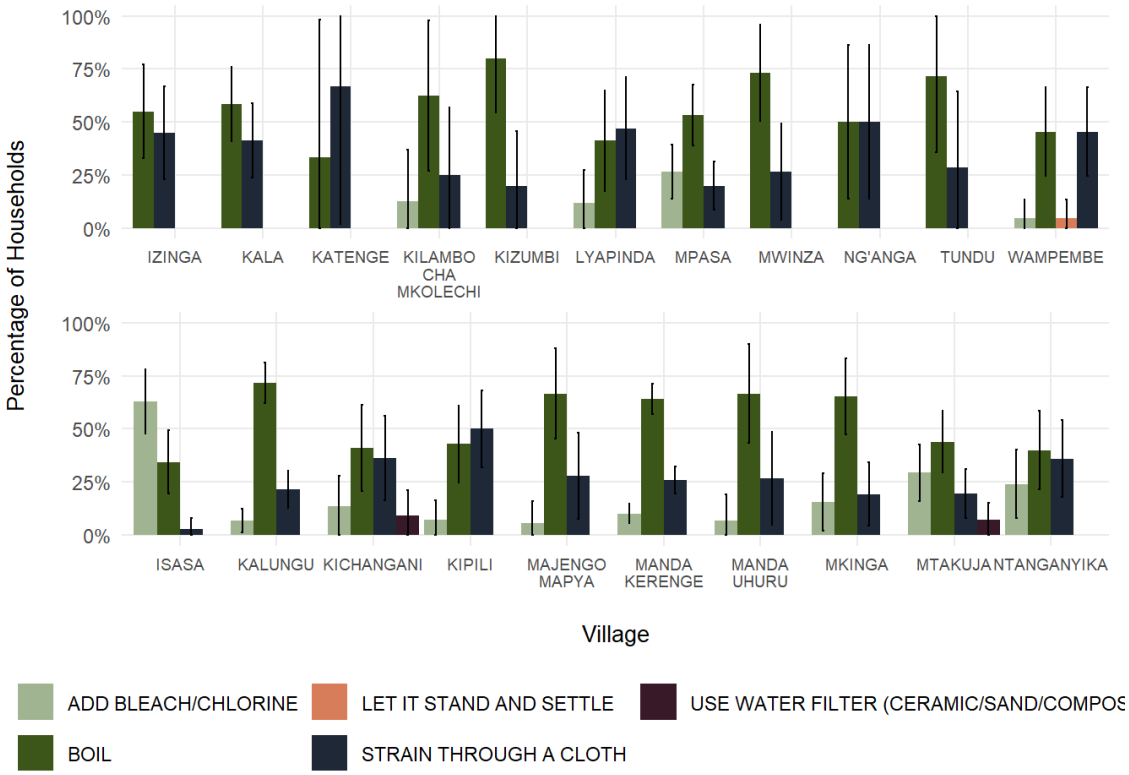


Figure 6: Main type of water treatment in the dry season

Table 3: Water treatment in the dry season at village level (%)

Village	Add Bleach or Chlorine	Boil	Strain Through a Cloth	Use Water Filter	Let it Stand and Settle
ISASA	62.9%	34.3%	2.9%		
IZINGA		55%	45%		
KALA		58.6%	41.4%		
KALUNGU	6.8%	71.6%	21.6%		
KATENGE		33.3%	66.7%		
KICHANGANI	13.6%	40.9%	36.4%	9.1%	
KILAMBO CHA MKOLECHI	12.5%	62.5%	25%		
KIPILI	7.1%	42.9%	50%		

Village	Add Bleach or Chlorine	Boil	Strain Through a Cloth	Use Water Filter	Let it Stand and Settle
KIZUMBI		80%	20%		
LYAPINDA	11.8%	41.2%	47.1%		
MAJENGO MAPYA	5.6%	66.7%	27.8%		
MANDA KERENGE	10.1%	64%	25.9%		
MANDA UHURU	6.7%	66.7%	26.7%		
MKINGA	15.4%	65.4%	19.2%		
MPASA	26.7%	53.3%	20%		
MTAKUJA	29.3%	43.9%	19.5%	7.3%	
MWINZA		73.3%	26.7%		
NG'ANGA		50%	50%		
NTANGANYIKA	24%	40%	36%		
TUNDU		71.4%	28.6%		
WAMPEMBE	4.5%	45.5%	45.5%		4.5%

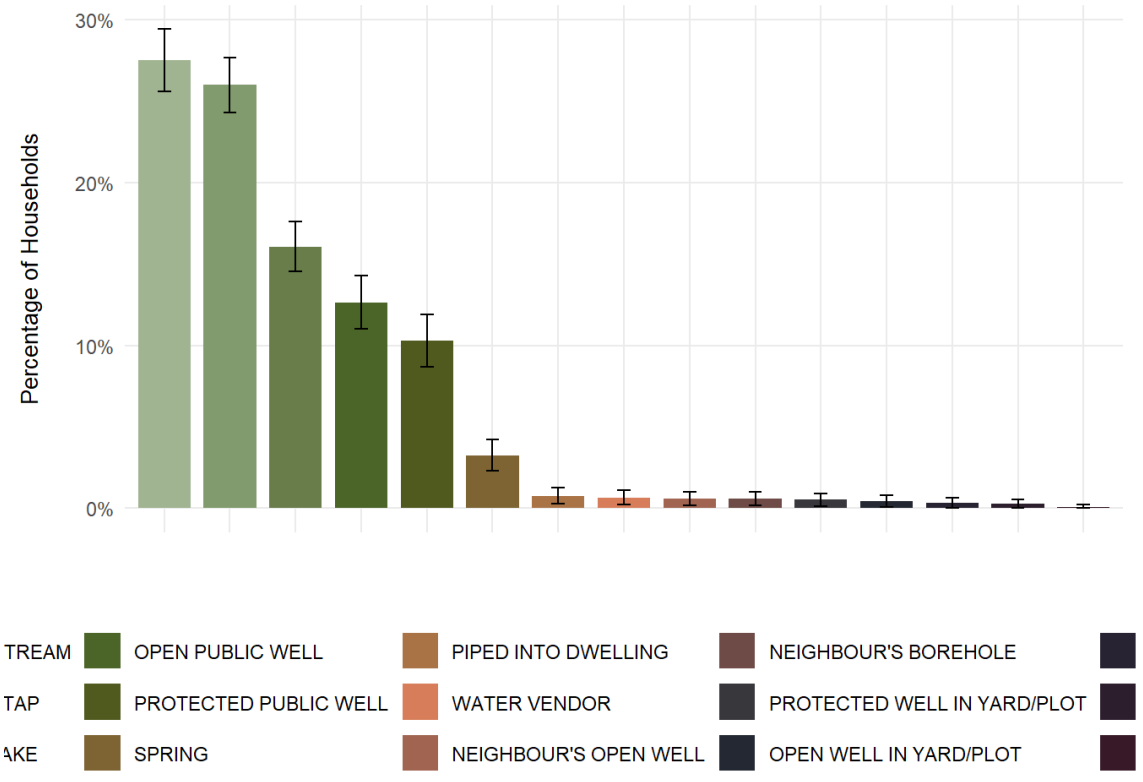


Figure 7: Main source of water in the dry season

Table 4: Main water source in the dry season at village level (%)

Village	Neighbour's Open Well	Neighbour's Tap	Open Public Well	Piped into Plot	Pond or Lake	Protected Public Well	Protected Well in Plot	Public Tap	River or Stream
ISASA	2.6%	2.6%	17.9%	5.1%	2.6%	15.4%	7.7%	7.7%	33.3%
IZINGA			7.3%		7.3%	38.2%			45.5%
KALA					5.3%				94.7%
KALUNGU			17.2%		10.3%	13.8%	1.1%	12.6%	31%
KATENGE			20%		6.7%	20%			53.3%
KICHANGANI	6.7%		24.4%		2.2%	4.4%	2.2%	11.1%	24.4%
KILAMBO CHA MKOLECHI					10.5%	2.6%		86.8%	
KIPILI	1.8%	1.8%		3.6%	12.5%	8.9%		66.1%	1.8%
KIZUMBI					3.2%				96.8%
LYAPINDA			40%		4.6%	7.7%			38.5%
MAJENGO MAPYA			16.7%		20%	6.7%		53.3%	
MANDA KERENGE					93.5%				2.8%
MANDA UHURU					84.2%			5.3%	5.3%
MKINGA			4.1%		6.1%	26.5%		59.2%	
MPASA					8%	1.1%		87.4%	1.1%
MTAKUJA	2%	2%	2%		12.2%	6.1%	2%	8.2%	32.7%
MWINZA					2.6%				97.4%
NG'ANGA			11.1%		27.8%				55.6%
NTANGANYIKA			8.3%		25%	25%		33.3%	2.8%
TUNDU					3.1%	6.2%		53.1%	37.5%
WAMPEMBE	0.9%		50.4%		2.7%	22.1%		21.2%	0.9%

Sanitation

Table 5: Sanitation facilities at village level (%)

Village	Shared Sanitation Facility	Flush elsewhere	Flush to pit latrine	No facility	Pit latrine with slab	Open pit	Composting toilet	VIP latrine	Other
ISASA	17.9%	7.7%	69.2%	2.6%	5.1%	15.4%			
IZINGA	11.1%	1.8%	12.7%	1.8%	16.4%	63.6%	1.8%	1.8%	
KALA	24.3%	2.6%	5.3%	5.3%	5.3%	73.7%		7.9%	
KALUNGU	16.1%	1.1%	24.1%		14.9%	47.1%		12.6%	
KATENGE	6.7%		6.7%		20%	73.3%			
KICHANGANI	22.2%	15.6%	31.1%	2.2%	4.4%	24.4%		22.2%	
KILAMBO CHA MKOLECHI	26.3%		26.3%		2.6%	63.2%		7.9%	
KIPILI	23.2%	3.6%	30.4%	5.4%	21.4%	21.4%		17.9%	
KIZUMBI	12.9%		6.5%		25.8%	58.1%		9.7%	
LYAPINDA	15.4%	1.5%	3.1%	3.1%	9.2%	80%		3.1%	
MAJENGO MAPYA	31%		6.7%	3.3%	20%	63.3%		6.7%	
MANDA KERENGE	15.7%	2.8%	19.4%	0.9%	18.5%	43.5%		13%	1.9%
MANDA UHURU	33.3%		5.3%	15.8%	26.3%	52.6%			
MKINGA	18.4%		18.4%	2%	6.1%	65.3%		8.2%	
MPASA	23%	3.4%	5.7%		11.5%	75.9%		3.4%	
MTAKUJA	20.4%	4.1%	40.8%		20.4%	12.2%		22.4%	
MWINZA	23.1%		2.6%		7.7%	84.6%	2.6%	2.6%	
NG'ANGA	33.3%				16.7%	83.3%			
NTANGANYIKA	41.7%	2.8%	41.7%	2.8%	13.9%	36.1%		2.8%	
TUNDU	40.6%		9.4%	3.1%	12.5%	71.9%		3.1%	
WAMPEMBE	18.6%	0.9%	9.7%		18.6%	60.2%	0.9%	9.7%	

Table 6: Handwashing at village level (%)

Village	Handwashing Place Available	Soap	Tippy Tap	Water
ISASA	48.7%	27.8%	19.4%	52.8%
IZINGA	14.5%	46.7%		53.3%
KALA	5.3%	33.3%		66.7%
KALUNGU	56.3%	44.2%	10.6%	45.2%
KATENGE	20%	40%		60%
KICHANGANI	22.2%	43.8%	6.2%	50%
KILAMBO CHA MKOLECHI	23.7%	42.1%	21.1%	36.8%
KIPILI	23.2%	36.4%	4.5%	59.1%
KIZUMBI	19.4%	46.2%	7.7%	46.2%
LYAPINDA	9.2%	37.5%		62.5%
MAJENGO MAPYA	36.7%	30.4%	26.1%	43.5%
MANDA KERENGE	25%	43.6%	12.7%	43.6%
MANDA UHURU	36.8%	41.7%		58.3%
MKINGA	36.7%	48.6%		51.4%
MPASA	28.2%	37.2%	9.3%	53.5%
MTAKUJA	51%	43.2%	2.3%	54.5%
MWINZA	12.8%	33.3%	11.1%	55.6%
NG'ANGA	11.1%			100%
NTANGANYIKA	41.7%	41.7%	12.5%	45.8%
TUNDU	28.1%	25%	8.3%	66.7%
WAMPEMBE	9.7%	45%	5%	50%

Household Items

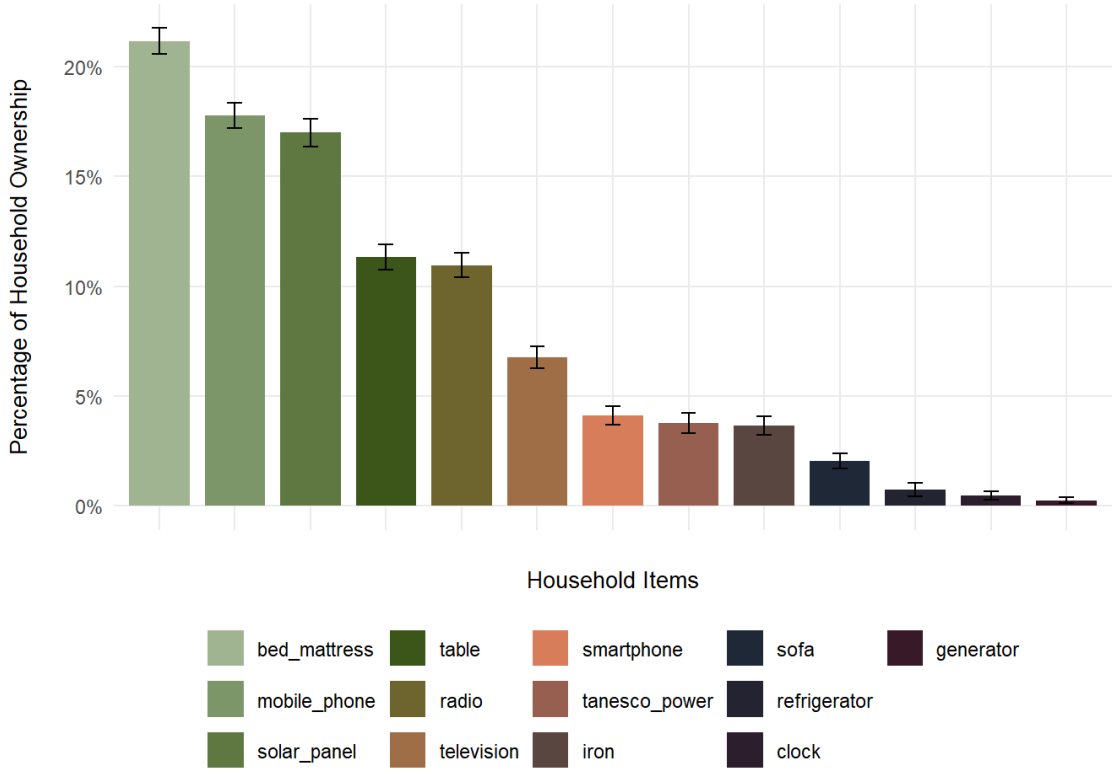


Figure 8: Household item ownership

Table 7: Asset ownership at village level (%)

Village	Bed or Mattress	Clock	Generator	Iron	Mobile Phone	Radio	Refrigerator	Smartphone	Sofa
ISASA	17.3%	0.9%	0.9%	7.7%	15.9%	10%	1.4%	6.8%	1.4%
IZINGA	26.3%	1%	0.5%	1.4%	19.6%	12%	0.5%	1.9%	0.5%
KALA	22.8%	0.7%		3.7%	20.6%	11.8%			1.5%
KALUNGU	19%	0.9%	0.5%	3.3%	16.2%	10.8%	0.7%	4.7%	1.6%
KATENGE	32.6%				23.9%	8.7%		2.2%	
KICHANGANI	16.8%	1.6%		6.8%	15.2%	7.6%	1.2%	5.2%	2.4%
KILAMBO CHA MKOLECHI	21%		1.2%	4.2%	17.4%	13.2%		4.2%	
KIPILI	19.8%	0.7%	0.4%	3.2%	15.9%	9.5%	1.1%	4.6%	2.8%
KIZUMBI	23.3%			4.3%	19%	13.8%	0.9%	0.9%	
LYAPINDA	24.4%	0.5%		1.9%	18.3%	15%		2.8%	0.9%
MAJENGO MAPYA	26.9%			0.9%	23.1%	10.2%		2.8%	
MANDA KERENGE	19.6%			2.8%	15.6%	10.3%	1.2%	7.1%	3%
MANDA UHURU	22.2%			2.5%	17.3%	9.9%		4.9%	2.5%
MKINGA	21%	0.5%		2.5%	18.5%	10%		2.5%	3%
MPASA	21.4%		0.3%	4.5%	18.5%	12.1%	0.3%	4%	1.8%
MTAKUJA	15.3%	1%	0.3%	7.5%	14.3%	9.4%	1.9%	5.5%	5.2%
MWINZA	27.8%			3.2%	20.6%	10.3%		2.4%	
NG'ANGA	27.9%				21.3%	8.2%		3.3%	
NTANGANYIKA	18.7%	0.5%		4.9%	15.9%	12.1%	0.5%	6.6%	2.7%
TUNDU	26.3%				22.2%	11.1%		2%	
WAMPEMBE	20.4%	0.4%	0.4%	3.3%	18.5%	10.7%	1.6%	4.1%	3.7%

Access to Credit

Proportion of households that borrowed money in the last year at village level

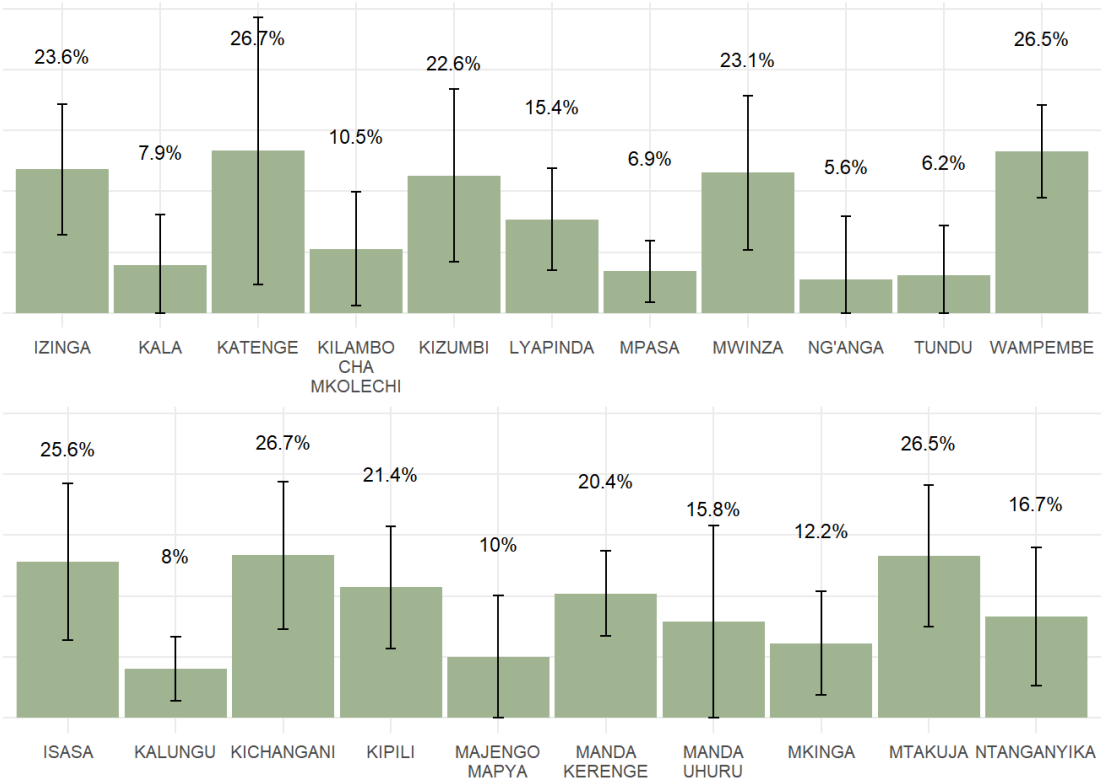


Figure 9: Proportion of households that borrowed money in the last year at village level

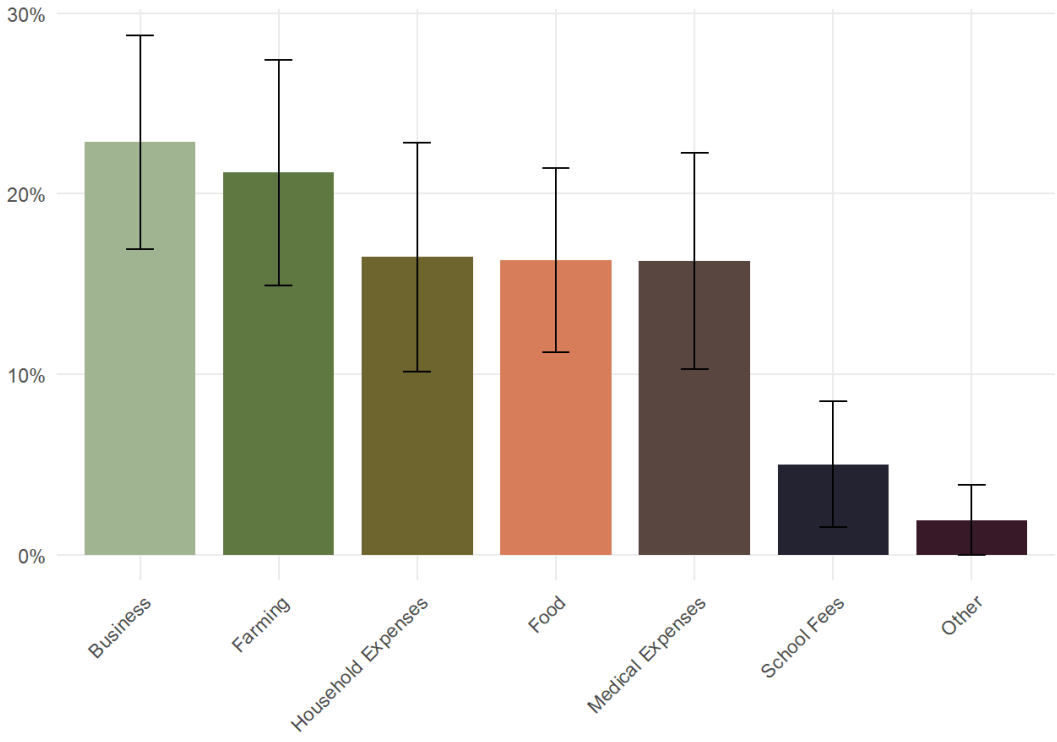


Figure 10: Purpose of the loan

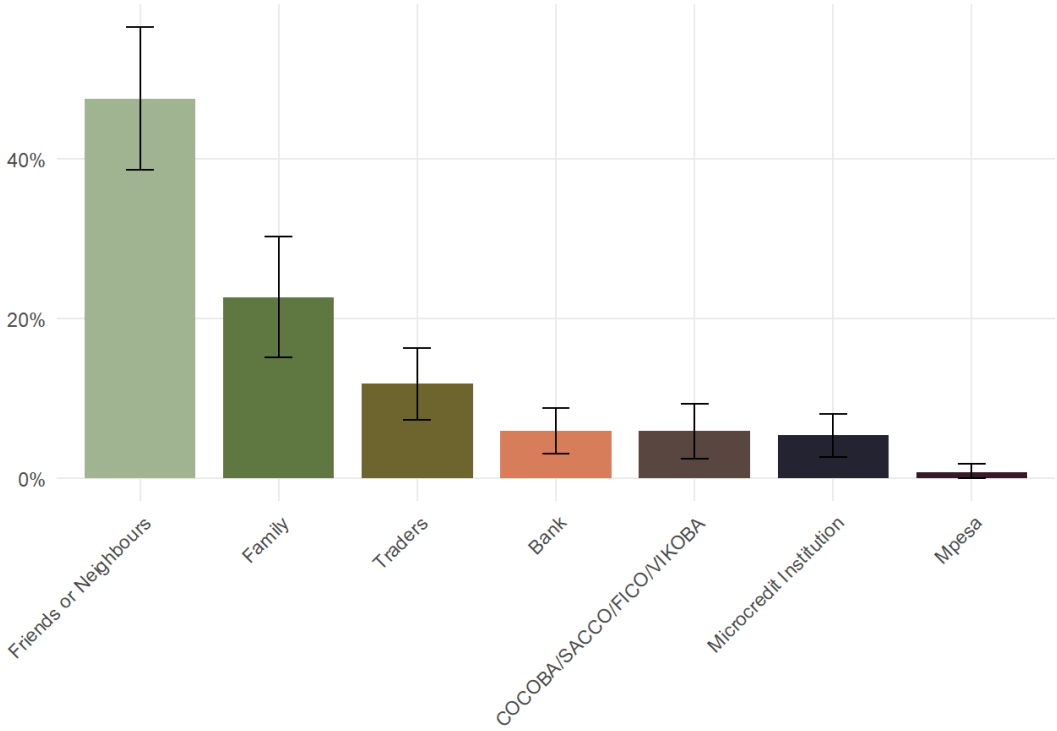


Figure 11: Source of loans

Reason for not having borrowed any money in the previous year

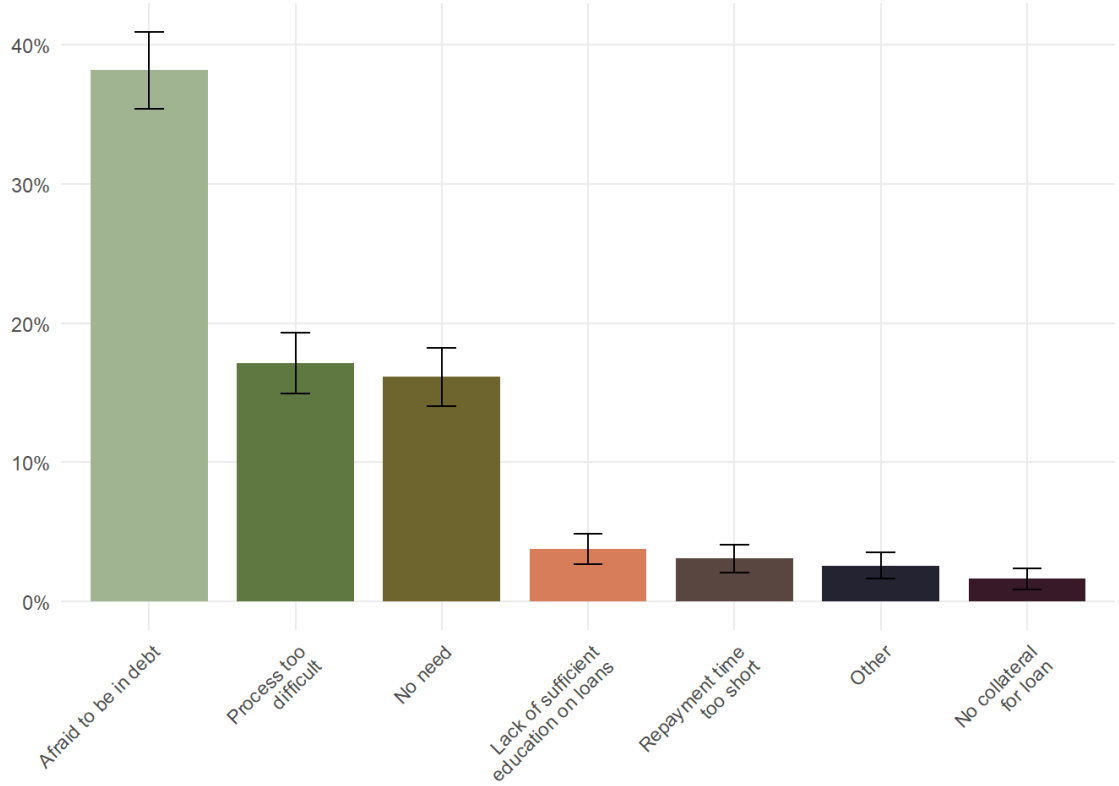


Figure 12: Reason for not having borrowed any money in the previous year

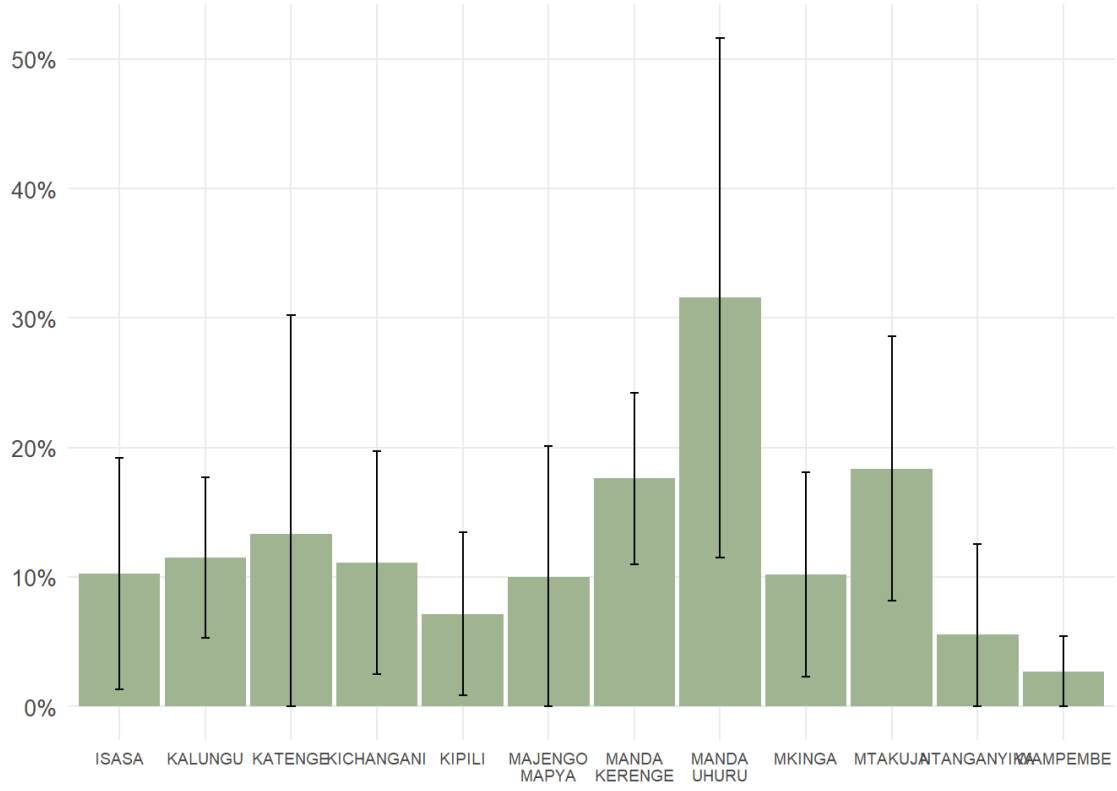


Figure 13: Household membership of a COCOBA, SACCO, or FICO at village level (%)

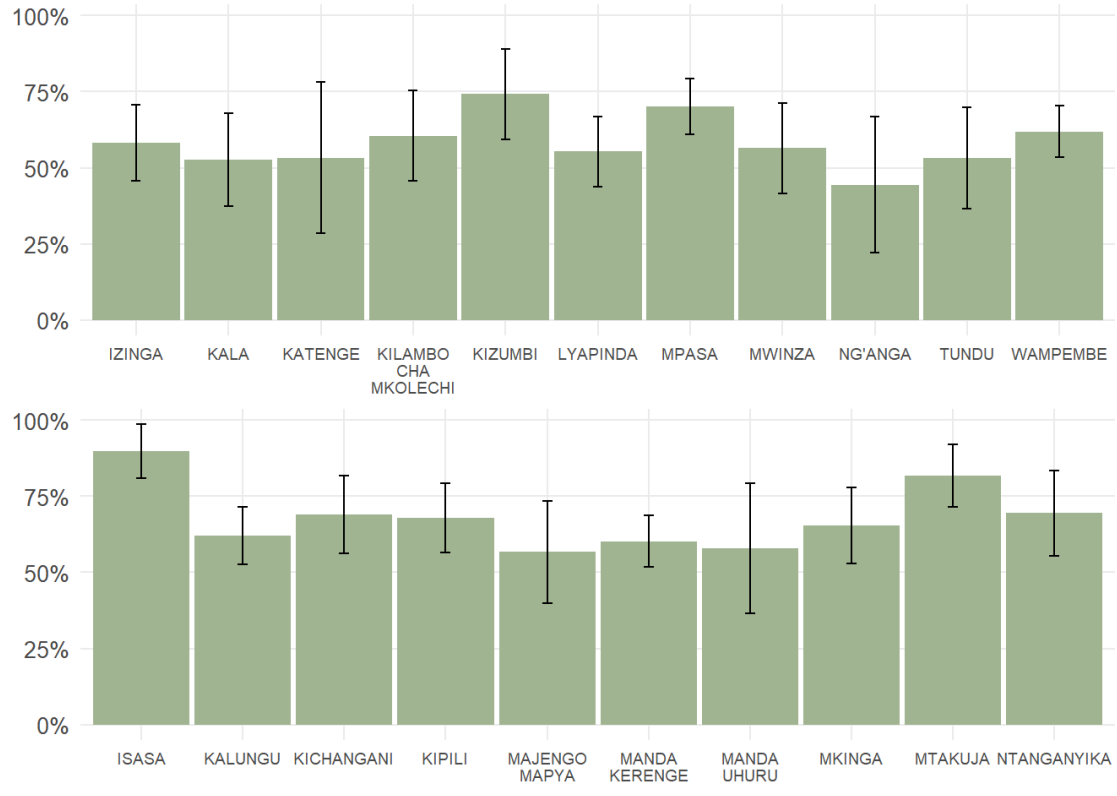


Figure 14: Mobile phone usage for financial transactions at village level (%)

Fishers

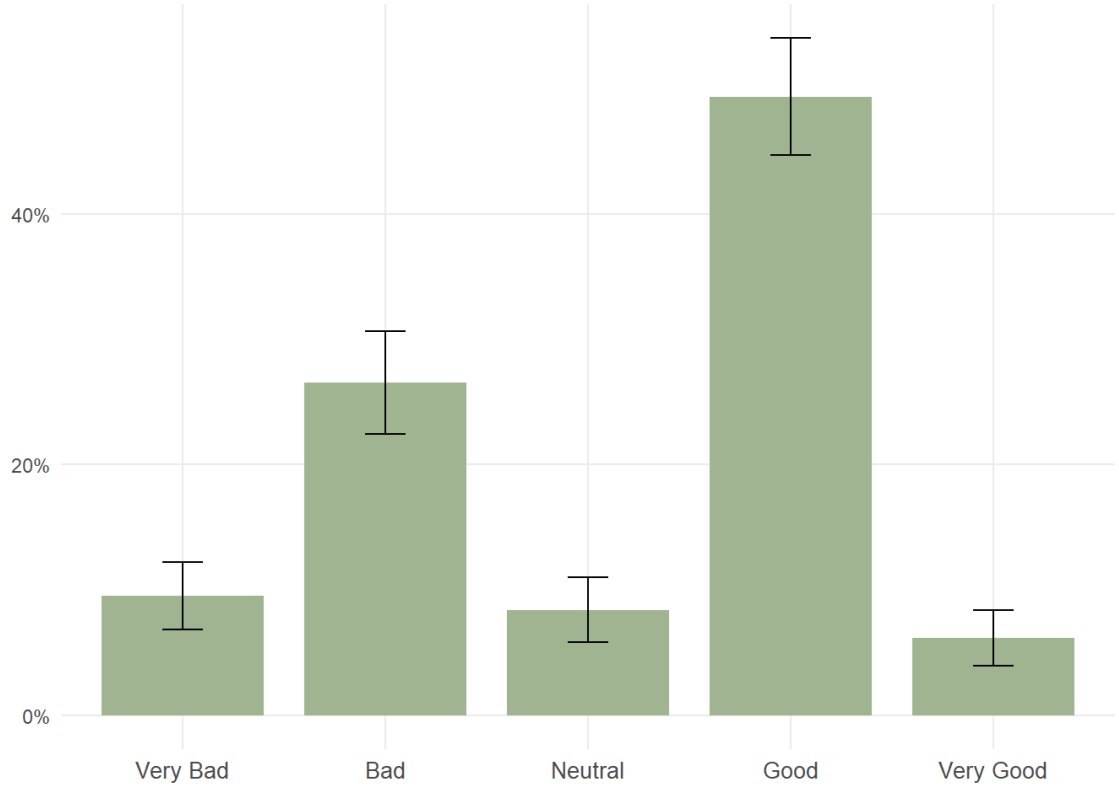


Figure 15: Self-assessment of fisheries resource management over the past five years

Table 8: Access rights, security, and decision making around fisheries resources at village level (%)

Village	Rights to access and use fishery resources are being upheld by regulatory and/or communal systems	Happy with the current security of your rights over fisheries resources	Involved in decision-making processes regarding fisheries resources
ISASA	70%	60%	40%
IZINGA	46.2%	53.8%	11.5%
KALA	71.4%	64.3%	7.1%
KALUNGU	51.4%	72.2%	30.6%
KATENGE	42.9%	42.9%	14.3%
KICHANGANI	60%	80%	40%
KILAMBO CHA MKOLECHI	69.2%	64.3%	35.7%
KIPILI	64.3%	64.3%	50%

Village	Rights to access and use fishery resources are being upheld by regulatory and/or communal systems	Happy with the current security of your rights over fisheries resources	Involved in decision-making processes regarding fisheries resources
LYAPINDA	75%	60.7%	7.1%
MAJENGO MAPYA	53.8%	69.2%	
MANDA KERENGE	67.8%	66.1%	40.7%
MANDA UHURU	55.6%	44.4%	44.4%
MKINGA	100%	100%	45.5%
MPASA	42.4%	57.6%	15.2%
MTAKUJA	40%	60%	40%
MWINZA	66.7%	60%	20%
NG'ANGA	20%	40%	
NTANGANYIKA	64.3%	50%	42.9%
TUNDU	45.5%	54.5%	
WAMPEMBE	48.9%	55.6%	17.8%

Table 9: Awareness and acceptance of fish reserves at village level (%)

Village	Aware of fish reserves	Aware of fish reserve purpose	Think fish reserves are a good idea
ISASA	100%	100%	80%
IZINGA	73.1%	57.7%	86.4%
KALA	100%	100%	92.9%
KALUNGU	83.3%	91.2%	90.6%
KATENGE	57.1%	42.9%	50%
KICHANGANI	100%	90%	100%
KILAMBO CHA MKOLECHI	85.7%	92.9%	100%
KIPILI	92.9%	100%	92.9%
KIZUMBI	60%	80%	80%
LYAPINDA	78.6%	77.8%	92.9%

Village	Aware of fish reserves	Aware of fish reserve purpose	Think fish reserves are a good idea
MANDA KERENGE	94.9%	89.7%	91.2%
MANDA UHURU	100%	88.9%	100%
MKINGA	100%	100%	100%
MPASA	93.9%	93.9%	87.9%
MTAKUJA	93.3%	100%	93.3%
MWINZA	73.3%	60%	78.6%
NG'ANGA	20%	40%	66.7%
NTANGANYIKA	92.3%	100%	92.9%
TUNDU	40%	70%	77.8%
WAMPEMBE	77.8%	77.8%	83.7%

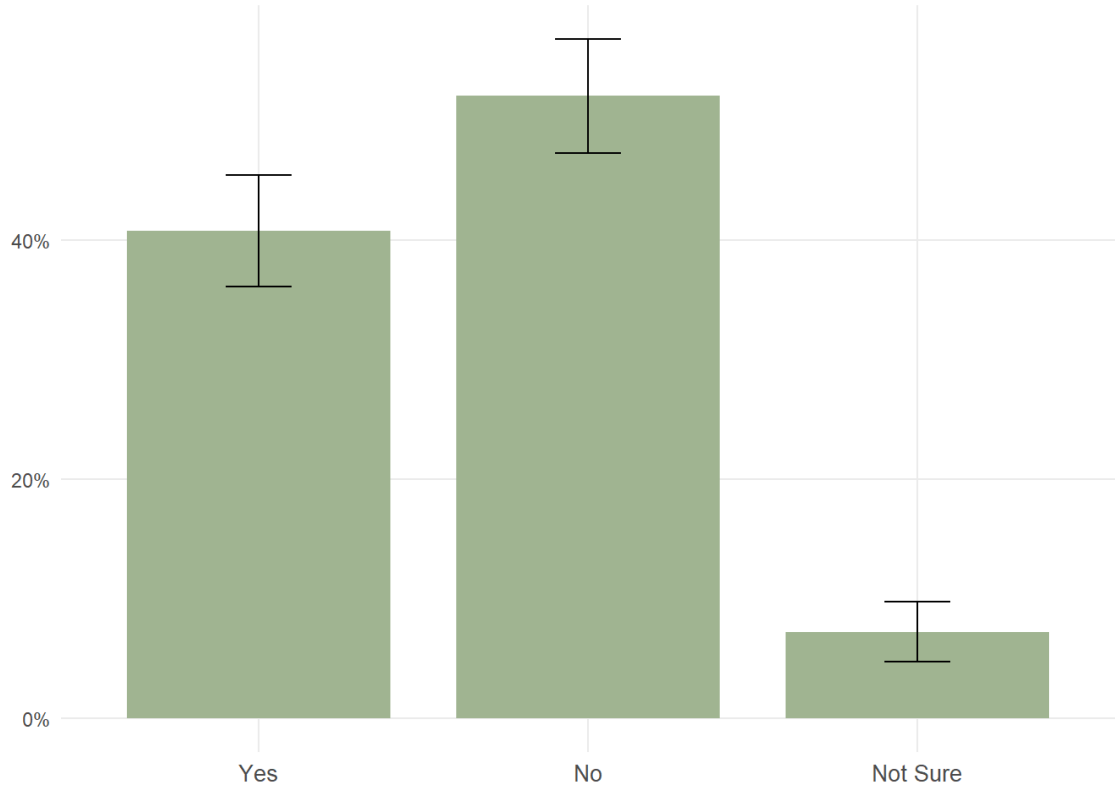


Figure 16: At the moment, do you think the current number of fish in the lake is sufficient to meet the fishing, food, and livelihood needs of the community?

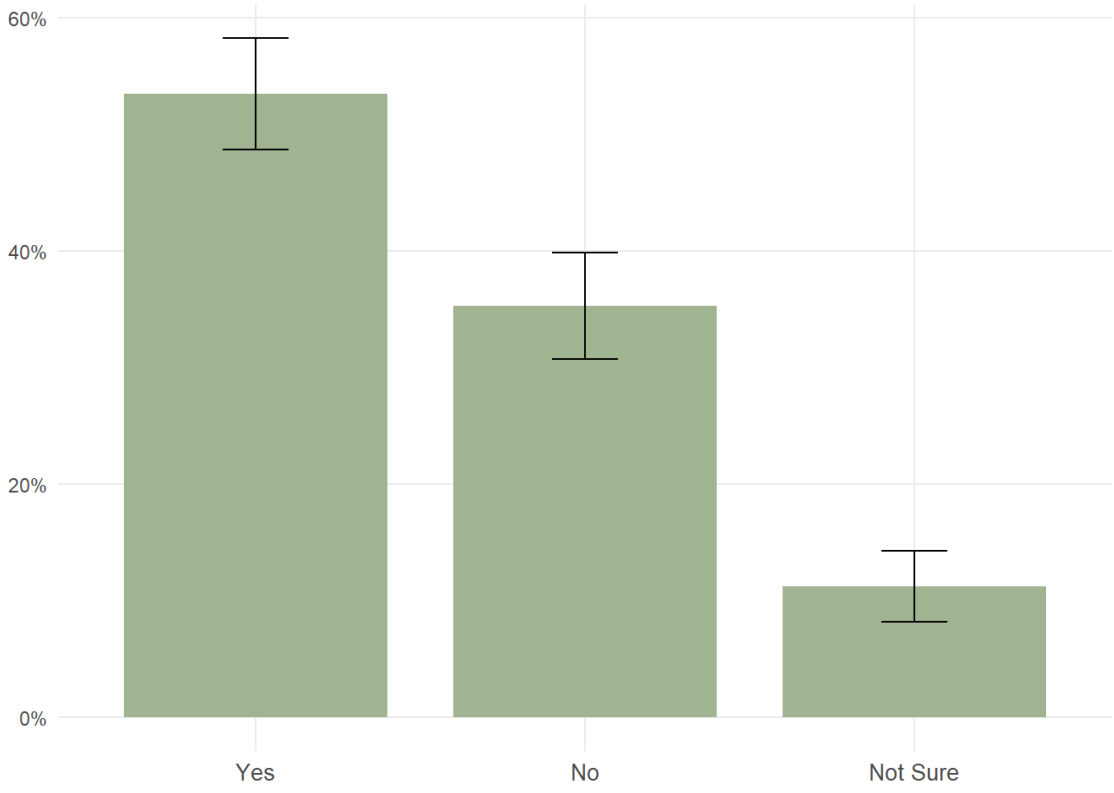


Figure 17: In the future, do you think there will be sufficient fish for the communities

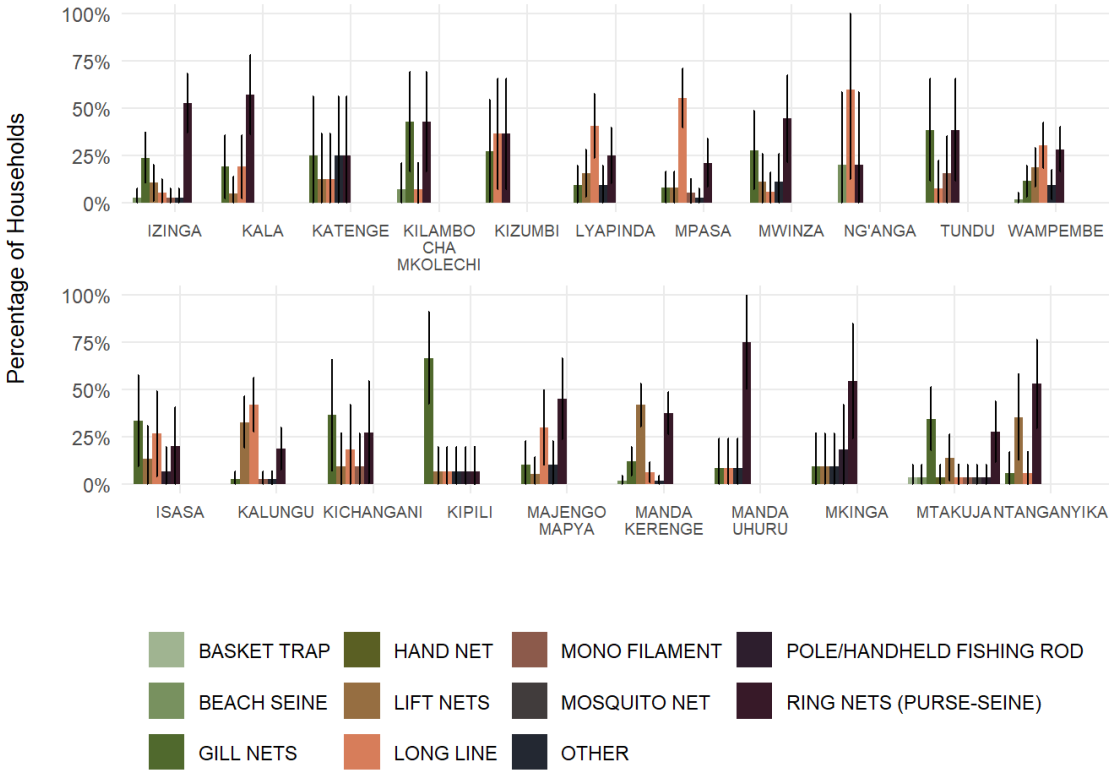


Figure 18: Type of fishing gear used at village level (%)

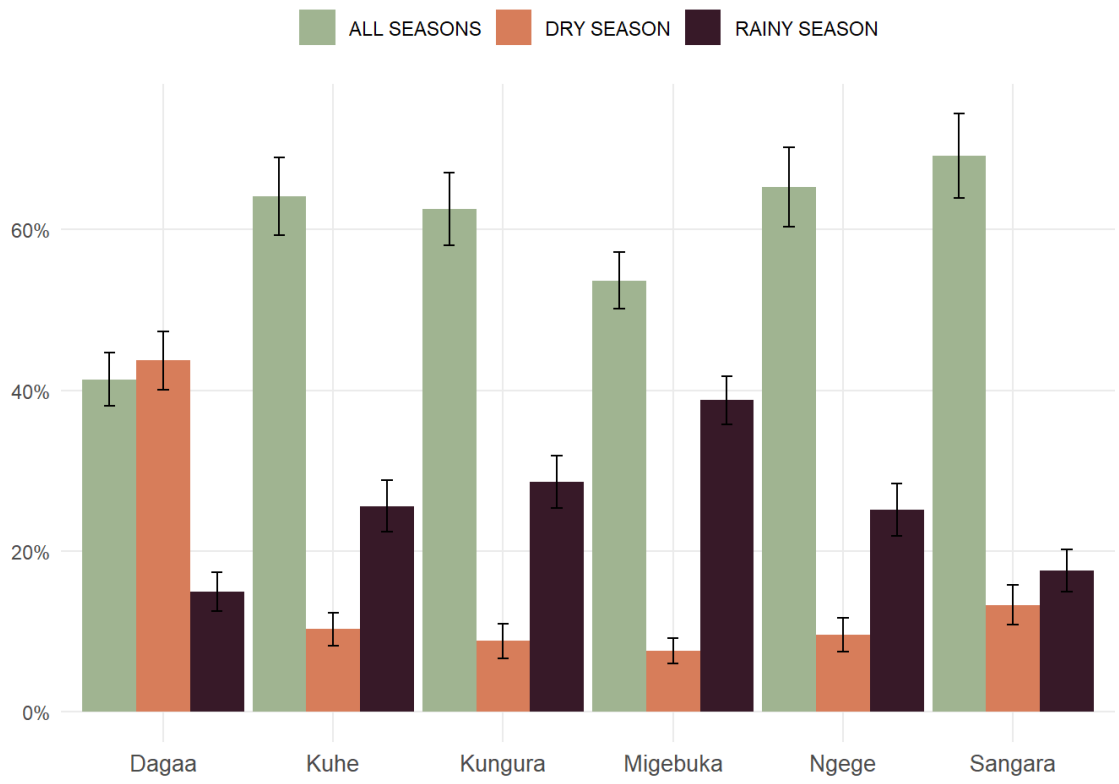


Figure 19: Seasonal targeting of fish species over the past five years

Response	Change in time needed to get to grounds compared to 5 years ago (%)	Change in average catch per trip compared to 5 years ago (%)
Decreased	29.6%	66.7%
Increased	29%	15%
Not Sure	1.8%	1.4%
No Change	39.6%	17%

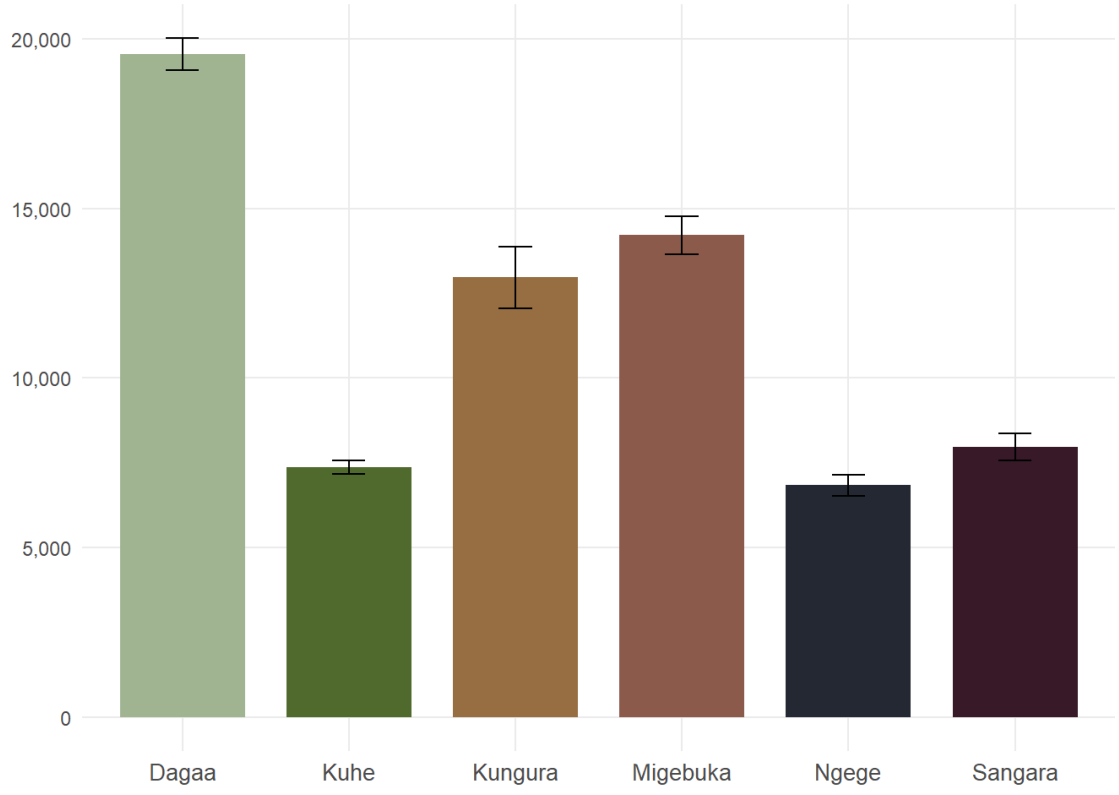


Figure 20: Highest sale prices (TSh) of fish species over the past five years

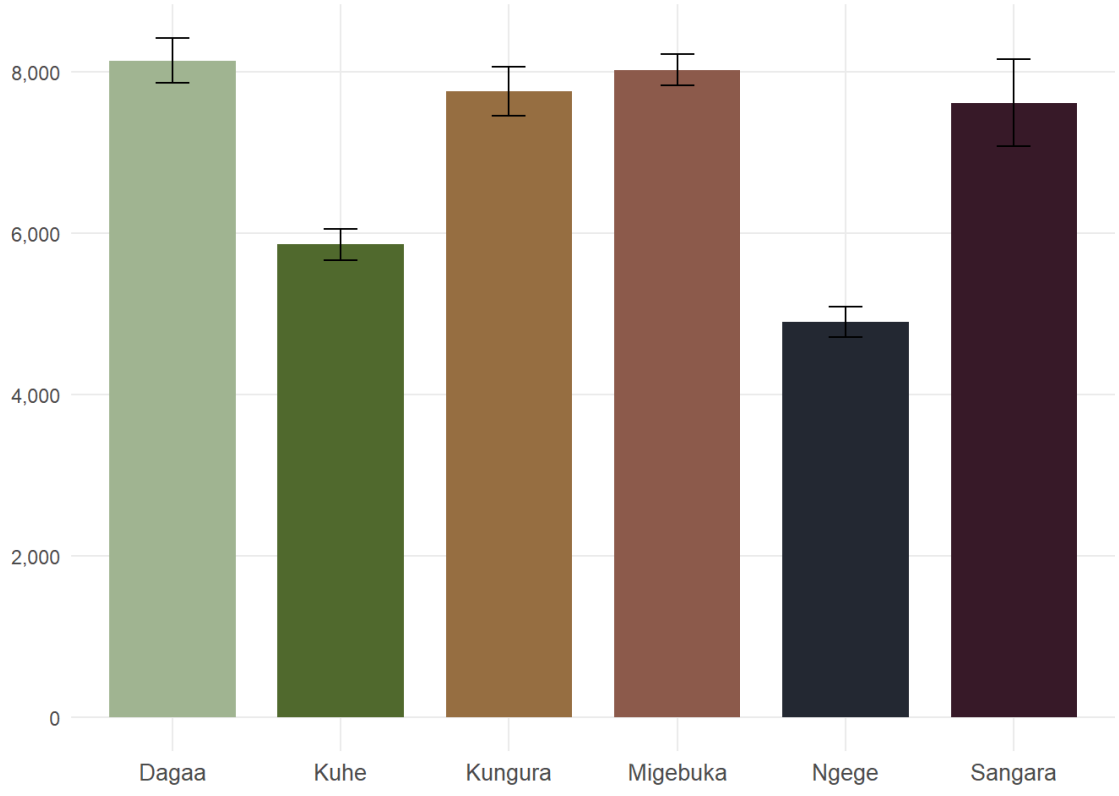


Figure 21: Lowest sale prices (TSh) of fish species over the past five years

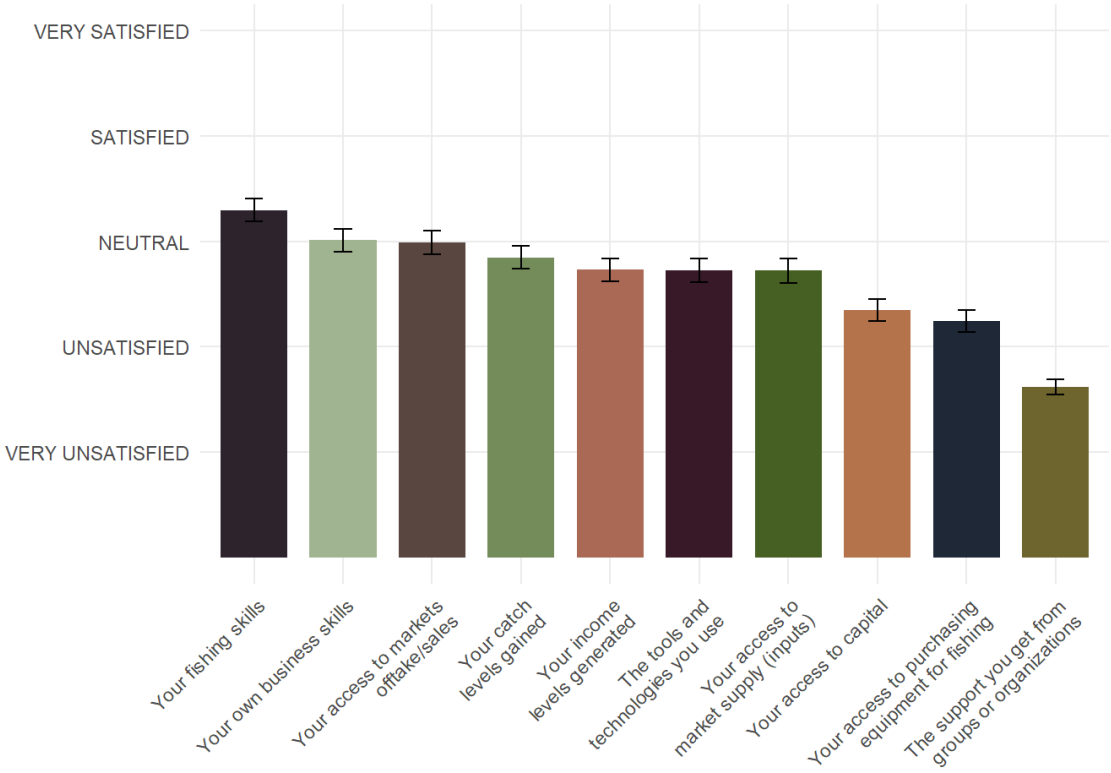
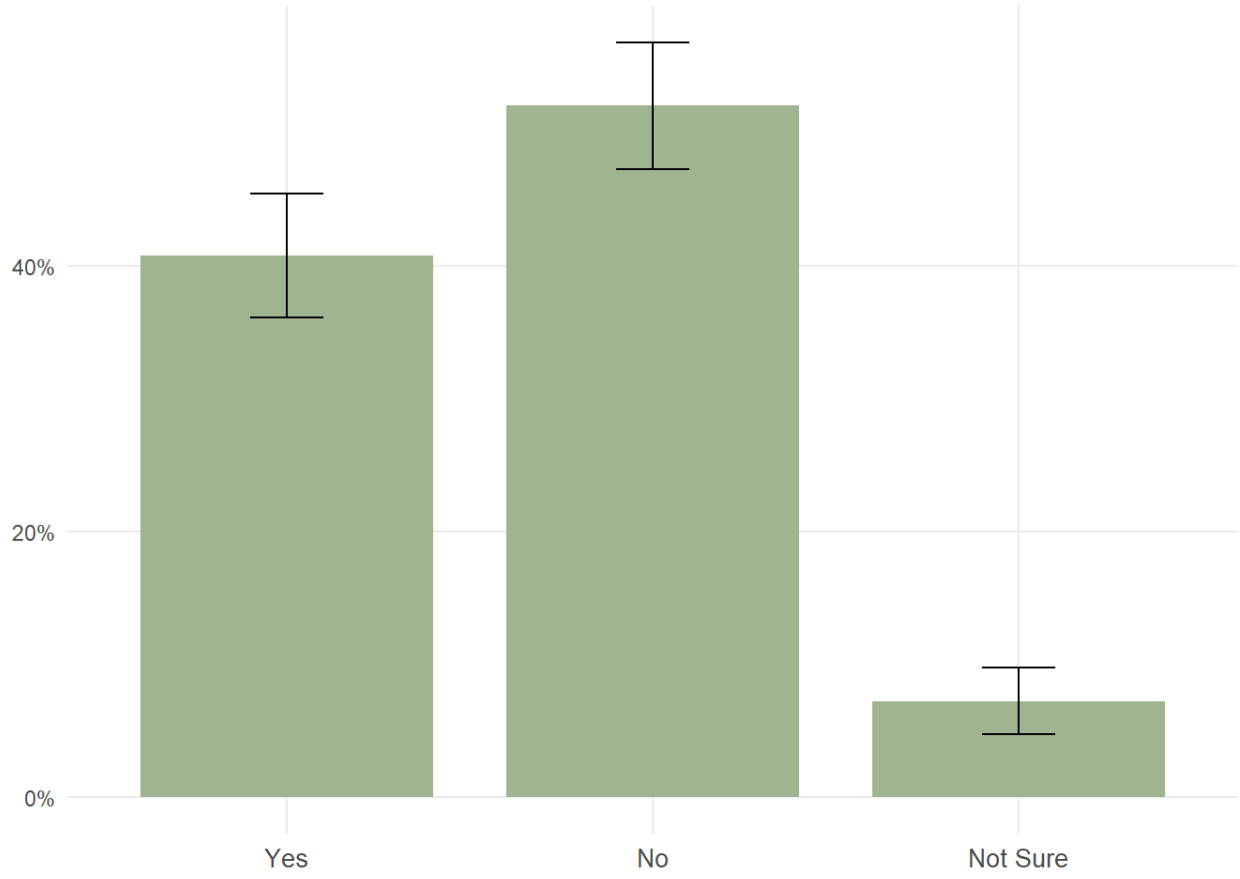


Figure 22: Satisfaction levels of fishers


40%
20%
0%
Yes
No
Not Sure

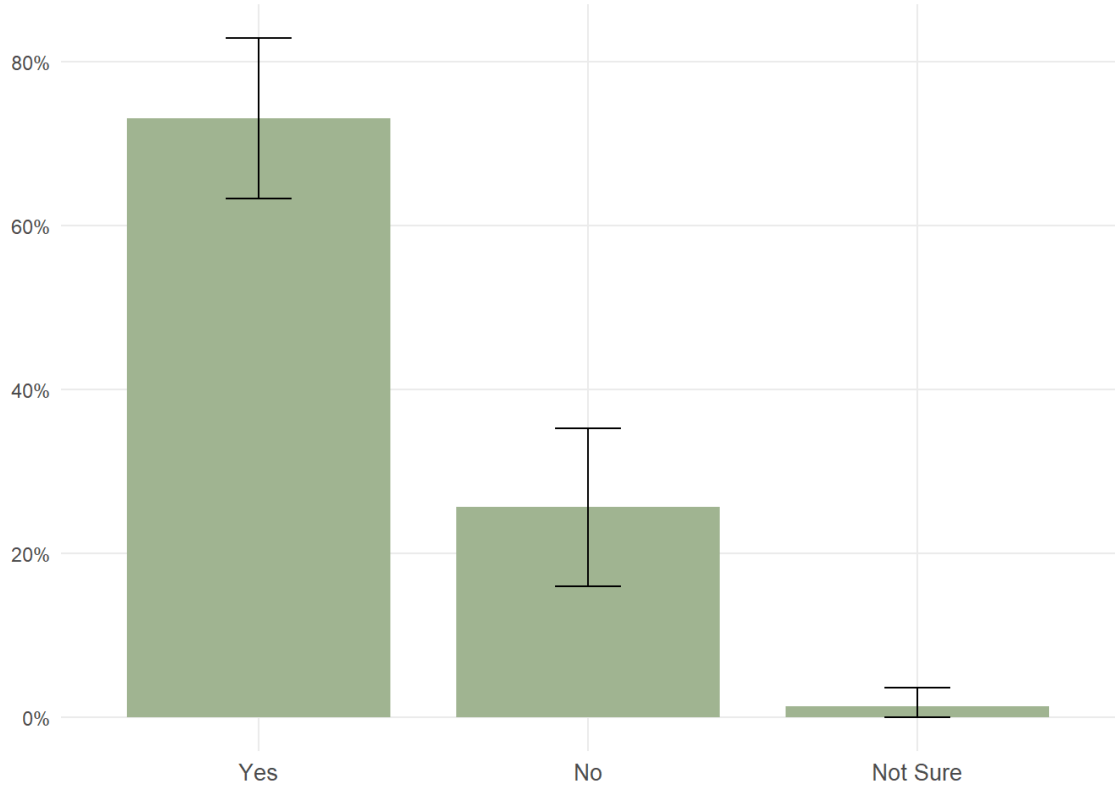


Figure 23: Do you think BMUs are helpful to improving your fishing practices?

Table 10: Group membership of fishers at village level (%)

Village	Cooperative/FICO	COCOBA or savigns group	Other group	Group is TNC supported	Group is helpful
ISASA	10%			100%	100%
IZINGA					
KALA					
KALUNGU	5.6%			100%	100%
KATENGE	14.3%			100%	100%
KICHANGANI	20%	10%	22.2%	100%	33.3%
KILAMBO CHA MKOLECHI					
KIPILI					
KIZUMBI					
LYAPINDA					
MAJENGO MAPYA					

Village	Cooperative/FICO	COCOBA or savigns group	Other group	Group is TNC supported	Group is helpful
MANDA KERENGE		15.3%	2.1%	80%	44.4%
MANDA UHURU	33.3%			100%	66.7%
MKINGA		9.1%		100%	100%
MPASA					
MTAKUJA	6.7%			100%	100%
MWINZA					
NG'ANGA					
NTANGANYIKA		7.1%		100%	100%
TUNDU					
WAMPEMBE		2.2%			100%

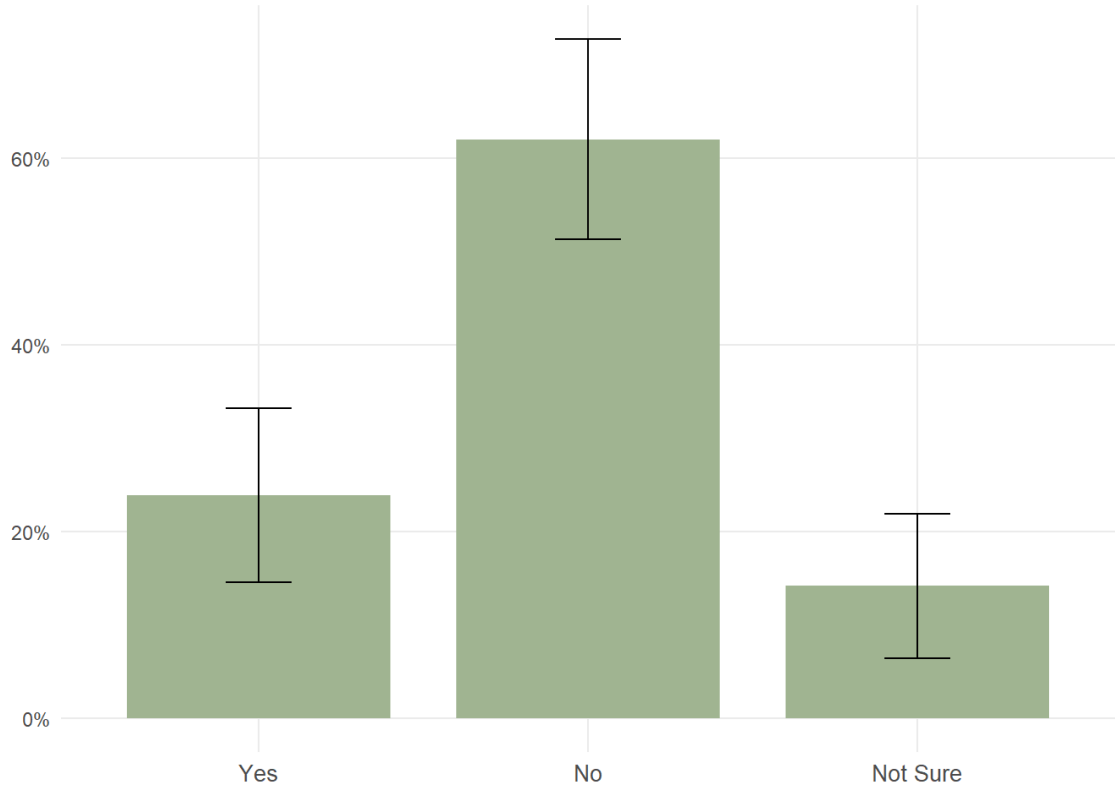


Figure 24: Do you think your current activities are likely to support your needs over the long term (next 5 - 10 years)?

Fish Trading

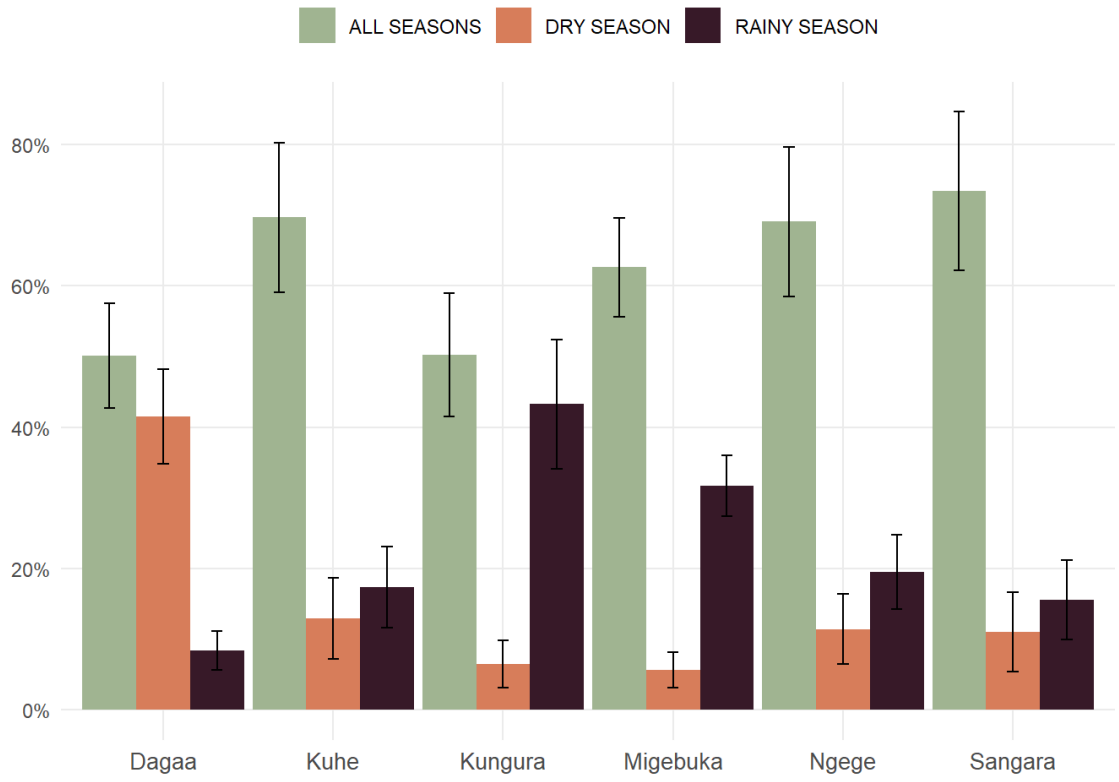


Figure 25: Seasonal trading of fish species over the past five years

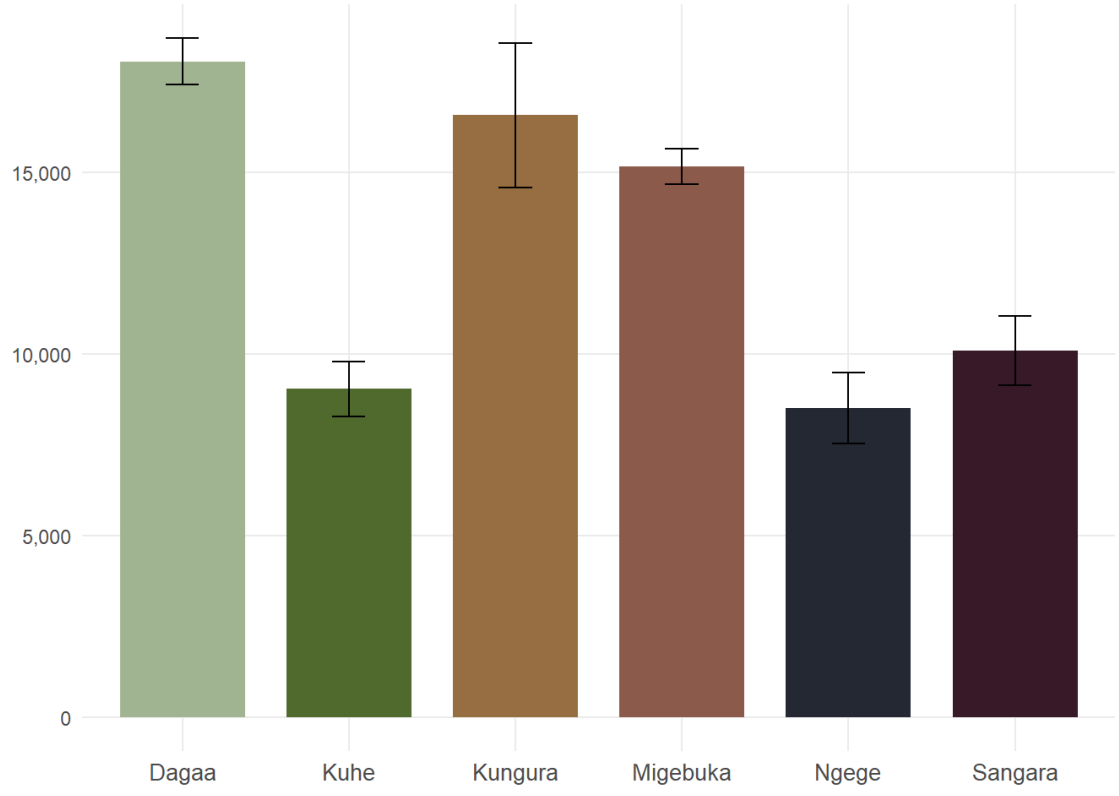


Figure 26: Highest sale prices (TSh) of fish species over the past five years for fish traders

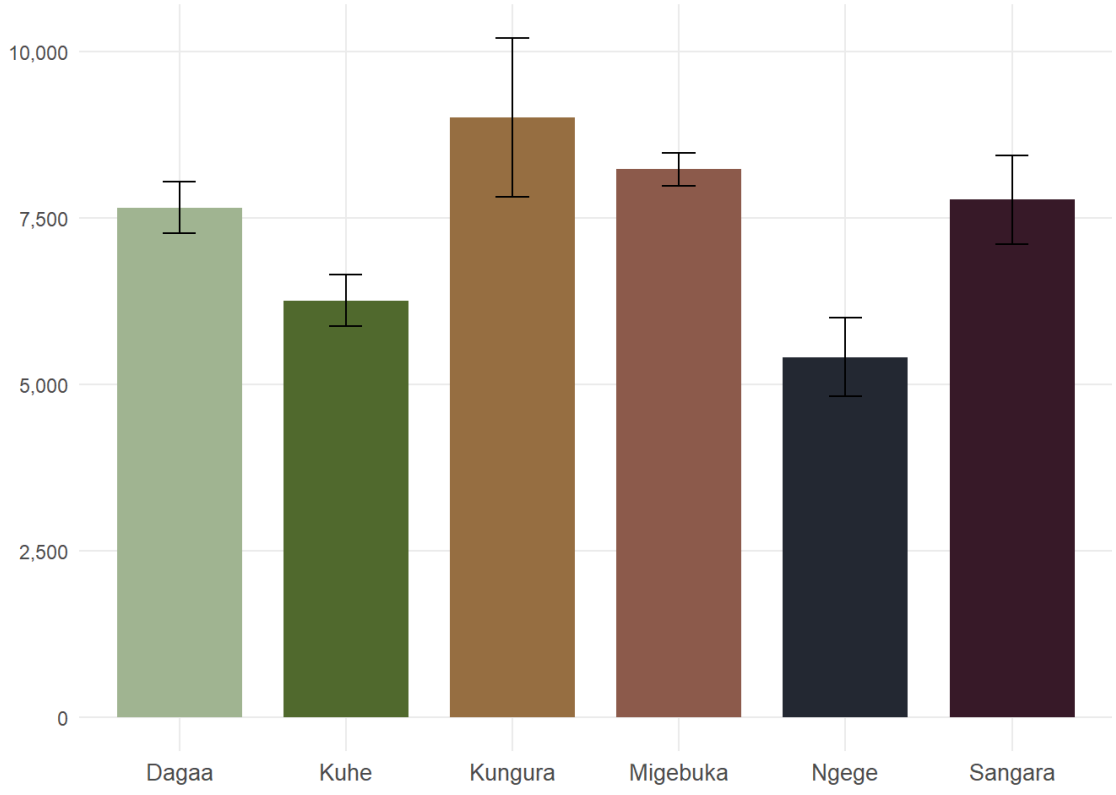


Figure 27: Highest sale prices (TSh) of fish species over the past five years for fish traders

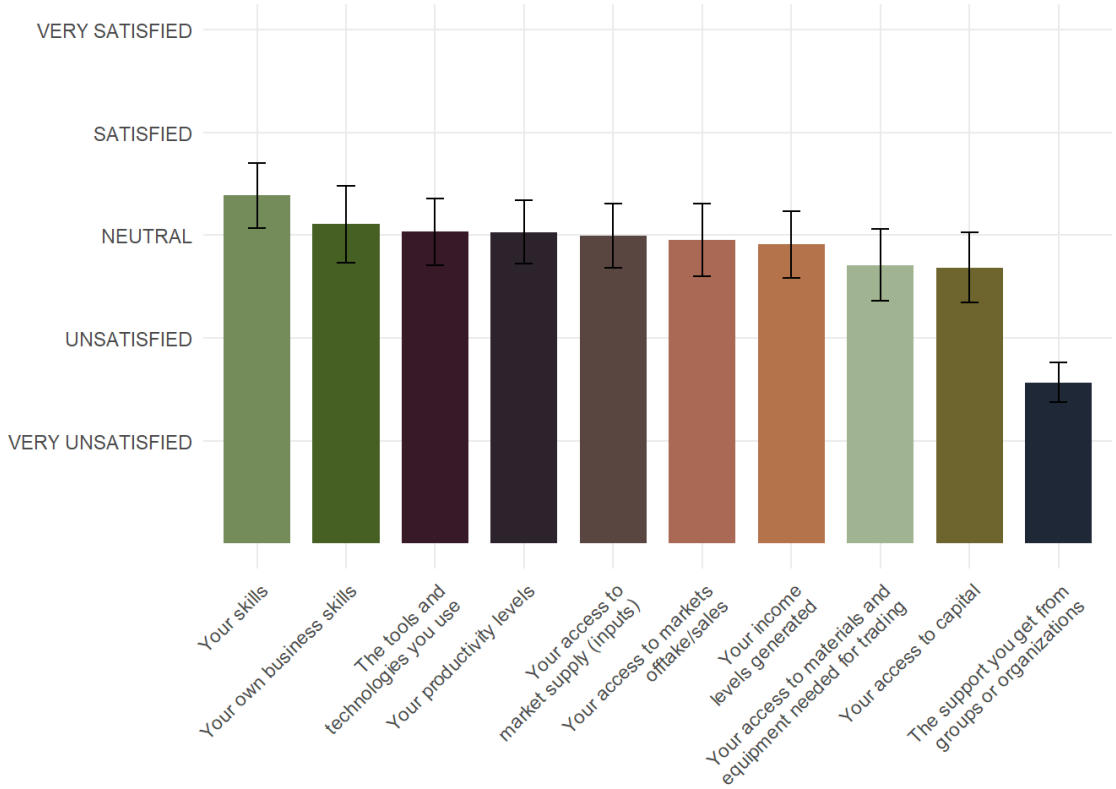


Figure 28: Satisfaction of fish traders

Table 11: Group membership of fishers at village level (%)

Village	Cooperative/FICO	COCOBA or savigns group	Other group	Group is TNC supported	Group is helpful
ISASA		22.2%	11.1%	33.3%	100%
IZINGA					
KALA					
KALUNGU	27.3%	9.1%	9.1%	100%	100%
KATENGE					
KICHANGANI		14.3%		100%	100%
KILAMBO CHA MKOLECHI					
KIPILI	9.1%		9.1%	50%	100%
KIZUMBI					
LYAPINDA					
MAJENGO MAPYA	100%			100%	100%
MANDA KERENGE		5.3%		100%	
MANDA UHURU	50%			100%	50%
MPASA					
MTAKUJA	33.3%	16.7%	8.3%	80%	60%
MWINZA					
NG'ANGA					
NTANGANYIKA					
WAMPEMBE			20%		100%

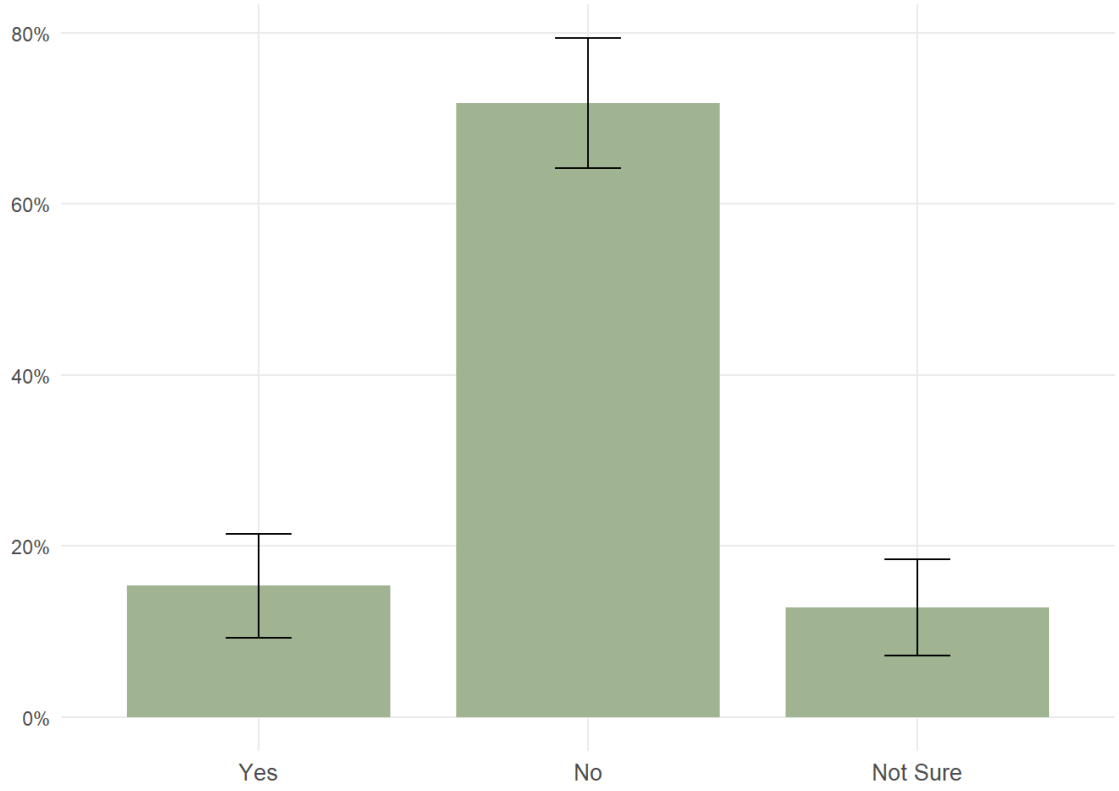


Figure 29: Do you think your current trading activities are likely to support your needs over the long term (next 5 - 10 years)?

Fish Processing

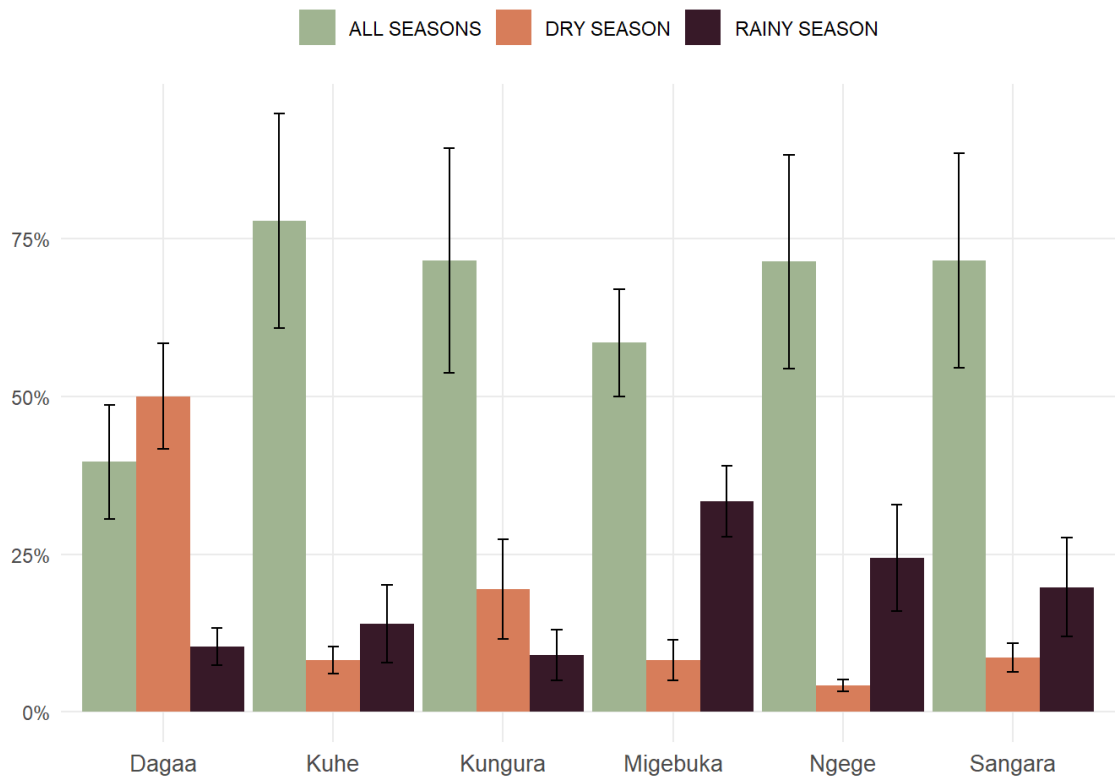


Figure 30: Seasonal processing of fish species over the past five years

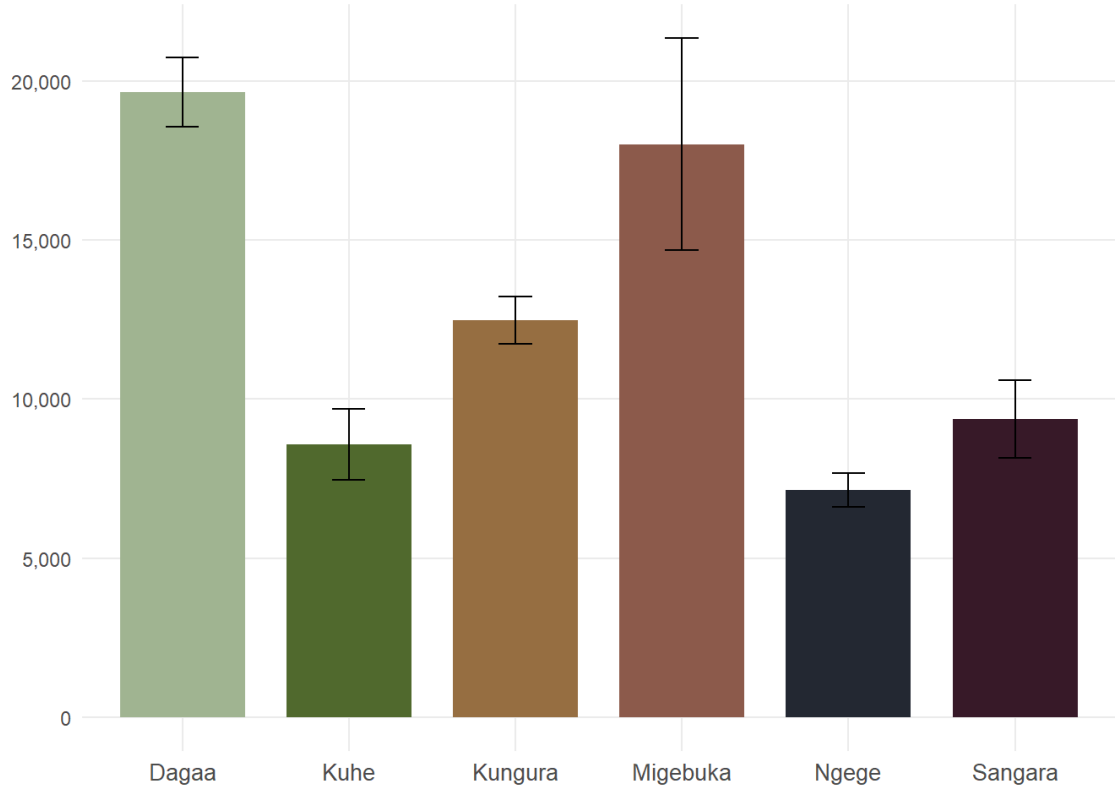


Figure 31: Highest sale prices (TSh) of fish species over the past five years for fish processors

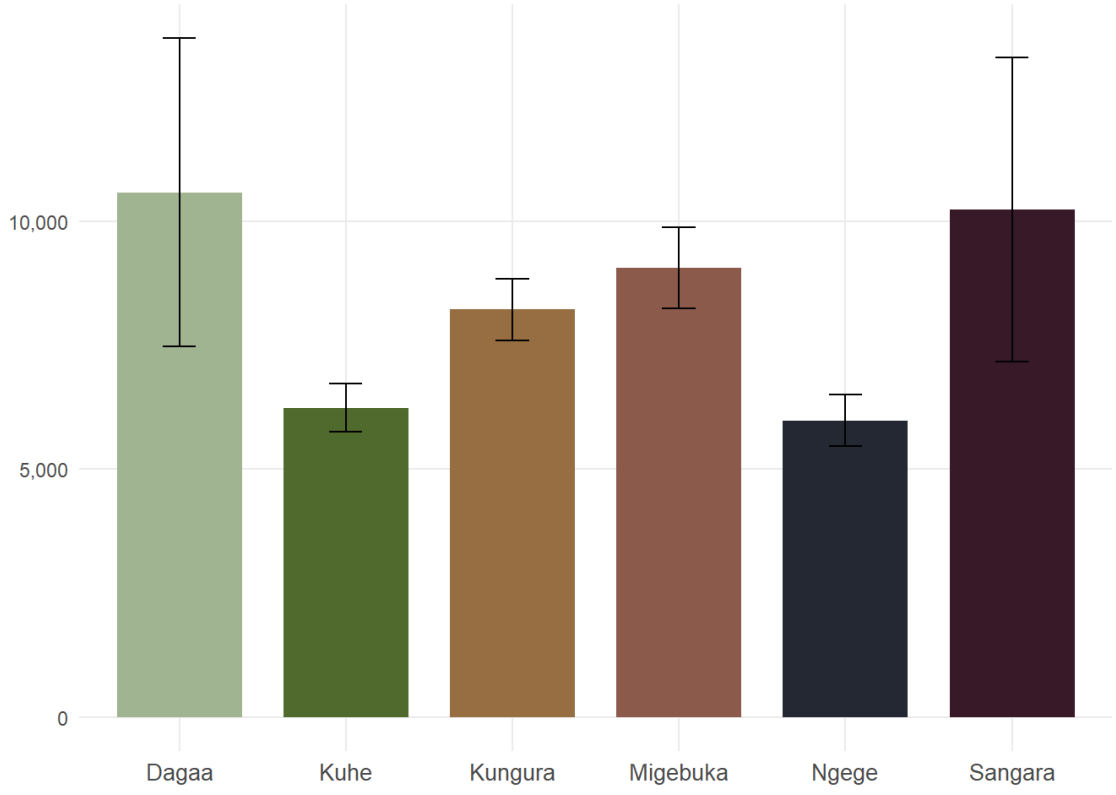


Figure 32: Highest sale prices (TSh) of fish species over the past five years for fish processors

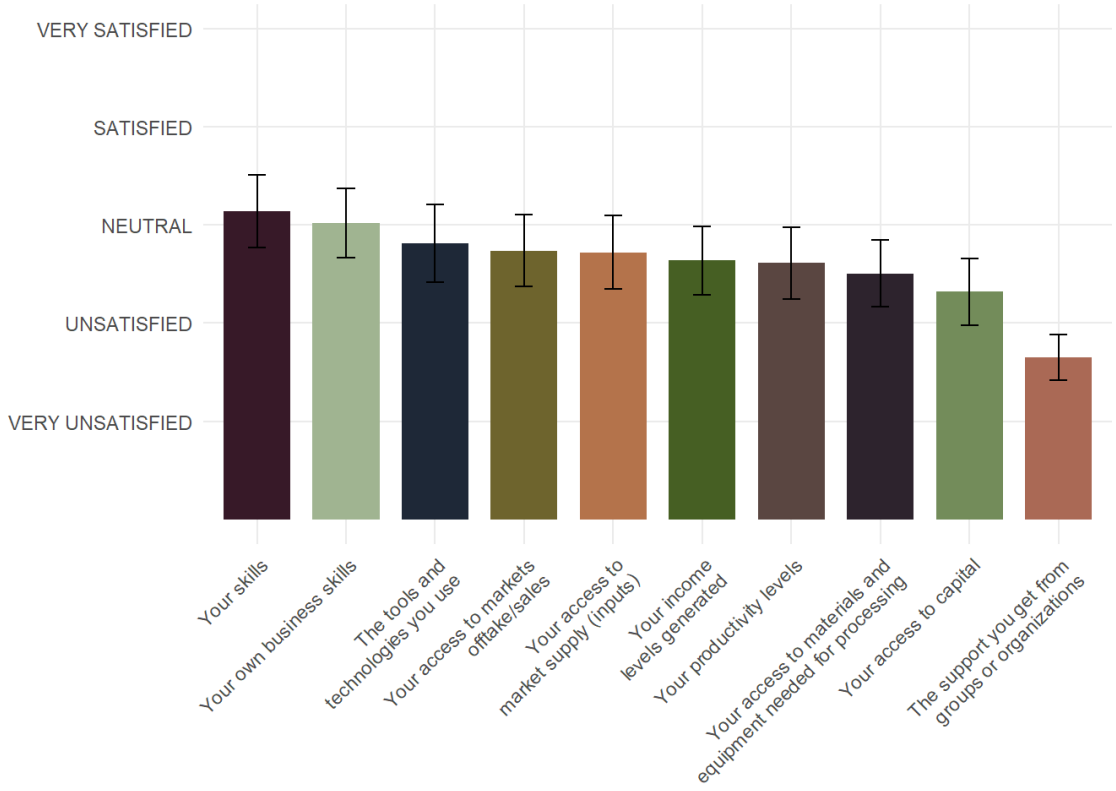


Figure 33: Satisfaction of fish traders

Table 12: Group membership of fish processors at village level (%)

Village	Cooperative/FICO	COCOBA or savigns group	Other group	Group is TNC supported	Group is helpful
ISASA					
IZINGA					
KALA					
KALUNGU	22.2%	11.1%		100%	66.7%
KILAMBO CHA MKOLECHI					
KIPILI					
KIZUMBI					
LYAPINDA					
MAJENGO MAPYA					
MANDA KERENGE		25%	6.2%	40%	20%
MANDA UHURU					
MKINGA					
MPASA					
MTAKUJA			33.3%		100%
NG'ANGA					
NTANGANYIKA	14.3%	14.3%		50%	100%
TUNDU					
WAMPEMBE			16.7%		100%

Bibliography

R Core Team. 2019. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. https://www.R-project.org.

Wickham, Hadley. 2022. *Stringr: Simple, Consistent Wrappers for Common String Operations*. https://CRAN.R-project.org/package=stringr.

Xie, Yihui. 2014. “Knitr: A Comprehensive Tool for Reproducible Research in R.” In *Implementing Reproducible Computational Research*, edited by Victoria Stodden, Friedrich Leisch, and Roger D. Peng. Chapman; Hall/CRC.

———. 2015. *Dynamic Documents with R and Knitr*. 2nd ed. Boca Raton, Florida: Chapman; Hall/CRC. https://yihui.org/knitr/.

———. 2023. *Knitr: A General-Purpose Package for Dynamic Report Generation in r*. https://yihui.org/knitr/.