SOCIAL ACCOUNTABILITY FOR SAFE AND SUSTAINABLE DOMESTIC WATER PROVISION IN DAR ES SALAAM AND MOROGORO

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2018

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ISBN 978 997653 55 01

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Online version.

Abstract

This paper reports the full results of a baseline survey on access to water for domestic use and social accountability in four districts of Dar es Salaam, Tanzania's largest city, and Morogoro, a provincial town around 200 kilometres west of Dar. From 7th to 29th March 2018, the survey team interviewed 2,154 adults about their access to water, perceptions of water quality, sanitation and hygiene facilities, readiness to pay for water services, social accountability for water provision, civic engagement and social demographics. The survey included core questions developed by the WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply, Sanitation and Hygiene, as well as questions on social accountability and civic engagement developed in previous rounds of the Afrobarometer, Asian Barometer, European Social Survey and Twaweza's SzW survey programmes. Details of sampling procedures are provided at the end of the report.

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This research was made possible by support from the Scottish Funding Council grant number SFC/AN/12/2017.

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INTRODUCTION

According to the Tanzanian National Bureau of Statistics National Panel Survey of 2014-15 (NBS 2016, p.37ff), only 66% (standard error, s.e., 3.7%) of Dar es Salaam households have access to safe drinking water during the rainy season, and 82% (s.e. 3.4%) have access during the dry season. Across the country, 44% (s.e. 1.9%) have access during the wet season and 55% (s.e. 2.1%) during the dry season. Safe drinking water in the NBS survey is defined as water from tube wells/boreholes, protected dug wells, piped water or bottled water.

One study described water provision in Dar es Salaam as 'unjust, inequitable and uneven' (Smiley 2016, p.1320). Those who do not have access to 'safe' water must rely on unprotected wells, many of which are contaminated by sewerage, industrial pollution or sea water, or else buy water from kiosks, which is costly. Partly, the reasons for inequitable access are historical: colonial rulers did not build infrastructure to meet the needs of the poor, and rapid urbanisation overwhelmed post-independence governments (Dill & Crow 2014, p.198). Although Dar es Salaam will have around 5.1 million people by 2020 (AFDB 2014, p.9), it still lacks a complete water infrastructure to meet the basic needs of all its citizens. In Morogoro, a town of 316,000 some 200 km west of Dar, only 46.6% of households have access to piped water according to official statistics (MORUWASA, 2016, p.3).

The NBS surveys provide basic information on water access, but do not provide information on social accountability and the factors which influence individuals' capabilities to assert agency in relation to sustainable water supplies. Our baseline survey demonstrates how to combine water access and social accountability in one study, allowing researchers, policy-makers and NGOs to understand both as part of a single problem. It aims to establish: a) levels of access to safe and sustainable water for domestic use; and b) capabilities to hold water governance institutions accountable for such provision.

We conducted interviews with 2,154 respondents from 7th-29th March 2018, covering the four mainly residential districts of Dar es

Salaam—Ubungo, Kinondoni, Ilala, and Temeke—and, for comparison, the urban area of Morogoro. Kigamboni district in Dar es Salaam was excluded because of its low residential population and because it is not supplied with water by DAWASCO, instead relying mostly on dug wells. The surveyed area has a total population of about 5.888 million people.

The survey was the outcome of a pilot research project led by Dr Neil Munro at the School of Social and Political Sciences, University of Glasgow and Dr Opportuna Kweka, Department of Geography, University of Dar es Salaam (UDSM). We benefited greatly from the technical and theoretical expertise of our Co-Investigators at Glasgow (in alphabetical order): Dr Nai Rui Chng, Social and Political Sciences, Dr Stephanie Connelly, School of Engineering, Dr Claire Miller, School of Mathematics and Statistics, Professor Marian Scott, Mathematics and Statistics, and Dr Marta Vignola, Engineering. We also benefited from the practical and policy-relevant advice of our non-academic partners, Ing. Herbert Kashililah, Chair of Shahidi wa Maji (SwM), Morogoro, and Dr Nick Hepworth, Director, Water Witness International (WWI), Edinburgh. Initial results from two districts were presented at a global think-shop and collaborative planning forum organised by WWI, SwM, University of Glasgow, Oxfam, Water Aid and the Water Integrity Network in Dar es Salaam from 27th to 29th of March.

This paper presents the full results of the survey including answers to all questions. A report on the sample is at the end of the paper. When indicators are derived by combining answers to several questions, we explain the procedures in footnotes. Results are presented by district using the following abbreviations as headers: UB: Ubungo; KI: Kinondoni; IL: Ilala; TE: Temeke; MO: Morogoro. Percentages are reported to the nearest whole number and may not add to 100% due to rounding; 0% is used for percentages less than 0.5; a hyphen (-) means no responses. Readers are asked to pay attention to filter questions which select sub-groups of respondents. Conditions applying through filtering are indicated by underlining.

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
A. ACCESS TO WATER					
Number of persons in household:					
Mean	4.7	4.9	5.1	6.0	4.9
Standard deviation	2.4	2.6	2.4	2.8	2.3
A1. What are your main sources of water for:					
A1.1 Drinking					
Piped into dwelling	18%	16%	7%	9%	10%
Piped into compound, yard or plot	13%	31%	17%	11%	46%
Piped to neighbour	34%	34%	8%	20%	17%
Public tap/standpipe	0%	3%	1%	3%	8%
Tube well, borehole	4%	0%	41%	40%	4%
Protected dug well	1%	0%	3%	4%	2%
Unprotected dug well	0%	2%	1%	0%	-
Protected spring	-	-	2%	-	-
Rainwater collection	0%	-	1%	-	1%
Tanker-truck	15%	7%	9%	-	1%
Cart with small tank/ drum	3%	2%	6%	7%	1%
Water kiosk		2%	1%	1%	1%
Surface water (river, stream, dam, lake, pond, canal, irrigation ditch)	-	-	-	0%	8%
Bottled water	10%	4%	5%	4%	-
Other	1%	0%	-	-	1%
A1.2 Cooking					
Piped into dwelling	19%	17%	8%	11%	10%
Piped into compound, yard or plot	17%	30%	18%	11%	46%
Piped to neighbour	34%	32%	6%	13%	16%
Public tap/standpipe	0%	3%	1%	2%	7%
Tube well, borehole	6%	4%	48%	55%	5%
Protected dug well	3%	1%	7%	6%	2%

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Unprotected dug well	1%	2%	2%	0%	-
Protected spring	-	0%	-	1%	-
Rainwater collection	0%	-	0%	-	1%
Tanker-truck	13%	7%	7%	-	-
Cart with small tank/ drum	5%	1%	2%	1%	1%
Water kiosk	-	1%	1%	1%	1%
Surface water (river, stream, dam, lake, pond, canal, irrigation ditch)	0%	0%	-	-	11%
Bottled water	0%	-	0%	-	
Other	1%	1%	-	-	1%
A1.3 Bathing					
Piped into dwelling	18%	17%	8%	10%	10%
Piped into compound, yard or plot	17%	30%	16%	9%	44%
Piped to neighbour	32%	29%	6%	10%	15%
Public tap/standpipe	0%	2%	1%	2%	5%
Tube well, borehole	8%	9%	50%	58%	8%
Protected dug well	4%	1%	9%	8%	3%
Unprotected dug well	2%	3%	2%	1%	-
Protected spring	-	0%	-	1%	-
Rainwater collection	0%	-	0%	-	1%
Tanker-truck	9%	5%	6%	-	-
Cart with small tank/ drum	5%	1%	1%	0%	1%
Water kiosk	-	1%	1%	1%	1%
Surface water (river, stream, dam, lake, pond, canal, irrigation ditch)	2%	1%	-	0%	13%
Bottled water	0%	-	-	-	-
Other	1%	1%	-	-	-

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
A1.4 Washing					
Piped into dwelling	18%	17%	8%	9%	10%
Piped into compound, yard or plot	16%	30%	16%	9%	44%
Piped to neighbour	32%	29%	6%	11%	15%
Public tap/standpipe	1%	2%	1%	2%	5%
Tube well, borehole	8%	8%	49%	58%	8%
Protected dug well	4%	1%	9%	9%	3%
Unprotected dug well	2%	3%	3%	1%	-
Protected spring	-	0%	-	1%	-
Rainwater collection	0%	-	0%	-	1%
Tanker-truck	9%	5%	6%	-	-
Cart with small tank/ drum	5%	1%	1%	0%	1%
Water kiosk	-	1%	1%	1%	1%
Surface water (river, stream, dam, lake, pond, canal, irrigation ditch)	2%	1%	-	0%	13%
Bottled water	0%	-	-	-	-
Other	1%	1%	-	-	-
Uses water for crops, animals or gardening for household consumption[1]	14	21	4	3	3
of which:					
Piped into dwelling	9%	18%	33%	10%	-
Piped into compound, yard or plot	19%	39%	19%	-	100%
Piped to neighbour	14%	10%	-	10%	-
Tube well, borehole	31%	7%	33%	60%	-
Protected dug well	3%	6%	14%	20%	-
Unprotected dug well	2%	8%	-	-	-
Rainwater collection	2%	1%	-	-	-

[1] Uses any type of water for these purposes.

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Tanker-truck	16%	6%	-	-	-
Cart with small tank/ drum	3%	1%	-	-	-
Surface water (river, stream, dam, lake, pond, canal, irrigation ditch)	2%	1%	-	-	-
Other	-	2%	-	-	-
Uses water for other household needs[2]	60	28	10	27	5
of which:					
Piped into dwelling	15%	9%	7%	9%	33%
Piped into compound, yard or plot	22%	35%	-	4%	-
Piped to neighbour	30%	19%	-	11%	-
Public tap/standpipe	0%	2%	-	1%	-
Tube well, borehole	11%	14%	53%	61%	33%
Protected dug well	2%	1%	-	11%	-
Unprotected dug well	2%	9%	-	1%	33%
Rainwater collection	0%	-	4%	-	-
Tanker-truck	5%	5%	37%	-	-
Cart with small tank/ drum	7%	1%	-	-	-
Water kiosk	-	1%	-	2%	-
Surface water (river, stream, dam, lake, pond, canal, irrigation ditch)	3%	4%	-	-	-
Other	2%	2%	-	-	-

[2] Other household needs are purposes other than drinking, cooking, bathing, washing, and watering crops, animals or gardens.

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Has access to piped water[3]	71%	86%	36%	46%	82%

If respondent does not have access to piped water:

A2a. How much water do you need for household use in litres/ week? (*If respondent does not know answer in litres, ask in other units, e.g. buckets/jerry cans/trucks, and calculate litres per week*).

Mean	778	852	1,022	1,320	1,781
Standard deviation	790	1,242	571	2,140	4,894

A2b. Is the source in….?

Own dwelling	25%	25%	22%	24%	11%
Own yard/plot	17%	35%	35%	23%	56%
Elsewhere	58%	40%	43%	53%	33%

If respondent does not have water in own dwelling, yard or plot:

A2c. Who is usually responsible for getting water?

Adult man	21%	29%	20%	18%	33%
Adult woman	70%	63%	67%	68%	50%
Girl (<=15 years)	7%	6%	10%	8%	8%
Boy (<=15 years)	2%	2%	2%	6%	8%

A2d. And about how much time does it take to get to this water source, collect water and come back, including time spent queuing? (*time for one trip, not counting multiple trips in one day, in minutes*)

Mean	9	17	10	8	37
Standard deviation	7	34	8	7	44

A2e. How much time did that person spend collecting water in the last week? (*minutes*)

Mean	25	63	28	38	160

[3] Names as a source of water for any purpose water which is: piped into dwelling, piped into compound, yard or plot, piped to neighbour or public tap/standpipe.

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Standard deviation	41	127	41	90	461

A2f. About how far is it to the nearest water point?

Close by the house	66%	46%	50%	54%	15%
Not by the house but less than 50m away	21%	29%	31%	39%	10%
More than 50m but less than 100m away	5%	13%	8%	4%	10%
More than 100m but less than 1km	7%	9%	3%	2%	18%
More than 1km away	1%	2%	7%	-	46%

<u>All respondents:</u>

A3a. In the last month, has there been any time when your household did not have sufficient quantities of drinking water when needed?

Yes, at least once	44%	49%	59%	75%	59%
No, always sufficient	56%	51%	41%	25%	41%

A3b. What was the (main) reason that you were unable to access sufficient quantities of water when needed?

Water was not available from sources	91%	85%	73%	66%	80%
Water was too expensive	1%	2%	7%	5%	3%
Source not accessible	5%	5%	2%	4%	2%
Others	3%	8%	18%	24%	15%

A4a. Is water always available from your MAIN DRINKING WATER source [A1.1]?

Yes, always	18%	25%	42%	24%	43%
No, but it's available most of the time	63%	55%	48%	65%	31%
No, it's only available some of the time	18%	14%	10%	9%	24%
No, it's rarely available	1%	5%	0%	2%	3%

District:	*UB*	*KI*	*IL*	*TE*	*MO*
	%	%	%	%	%
A4b. How many hours per day is this water supplied on average? (*hours/day*)					
Mean	17.1	17.7	17.7	15.0	14.3
Standard deviation	6.3	7.5	7.3	7.7	7.7
A4c. In the past two weeks, was water from this source [A1.1] unavailable for at least 1 full day?					
Yes, it was	58%	60%	43%	67%	60%
<u>If water was unavailable:</u>					
How many days?					
Mean	3.4	4.0	2.5	2.3	4.6
Standard deviation	4.3	5.9	1.7	2.7	6.4
<u>All respondents:</u>					
A4d. In the past two weeks, has there been any time when drinking water from this source [A1.1] was not available when expected?					
Yes, there has been	50%	50%	40%	61%	50%
A4ei. What is your main source of drinking water in the wet season?					
Piped into dwelling	19%	17%	5%	9%	12%
Piped into compound, yard or plot	11%	30%	16%	11%	43%
Piped to neighbour	30%	29%	6%	15%	18%
Public tap/standpipe	0%	2%	1%	2%	9%
Tube well, borehole	1%	1%	29%	31%	4%
Protected dug well	0%	0%	3%	4%	2%
Unprotected dug well	-	0%	1%	0%	-
Protected spring	-	-	-	1%	-
Rainwater collection	23%	13%	23%	17%	4%
Tanker-truck	5%	3%	8%	-	-
Cart with small tank/ drum	3%	0%	4%	7%	1%
Water kiosk	-	1%	1%	-	1%

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Surface water (river, stream, dam, lake, pond, canal, irrigation ditch)	-	-	-	0%	7%
Bottled water	7%	3%	5%	4%	-
Other	1%	0%	-	-	-

A4eii. What is your main source of drinking water in the dry season?

Piped into dwelling	19%	17%	5%	8%	13%
Piped into compound, yard or plot	14%	31%	18%	12%	33%
Piped to neighbour	34%	31%	8%	19%	18%
Public tap/standpipe	0%	2%	1%	2%	8%
Tube well, borehole	4%	2%	42%	40%	5%
Protected dug well	1%	1%	5%	5%	3%
Unprotected dug well	1%	1%	1%	0%	-
Protected spring	-	-	-	1%	-
Rainwater collection	2%	2%	1%	1%	1%
Tanker-truck	15%	6%	8%	0%	-
Cart with small tank/ drum	3%	1%	4%	6%	1%
Water kiosk	-	1%	1%	1%	4%
Surface water (river, stream, dam, lake, pond, canal, irrigation ditch)	-	0%	-	0%	10%
Bottled water	7%	3%	5%	4%	1%
Other	1%	0%	-	-	2%

A5a. Does your household have a storage tank, well or reservoir?

Yes, we do	44%	49%	66%	47%	63%

<u>If household has a storage tank, well or reservoir:</u>

A5b. What type of a structure?

Well	1%	4%	4%	1%	3%
Reservoir	30%	45%	52%	55%	78%
Storage tank	57%	43%	30%	37%	17%
Others	12%	8%	14%	7%	3%

District:	*UB*	*KI*	*IL*	*TE*	*MO*
	%	%	%	%	%
A5c. What was the cost of the structure? (thousand Tz shillings)[4]					
Mean	213	192	163	148	47
Standard deviation	210	339	346	309	89
A5d. What is the size of the structure in terms of volume in litres?					
Less than 2000 litres	69%	76%	76%	75%	91%
2001-5000 litres	18%	18%	20%	21%	7%
5000 to 10000 litres	13%	4%	3%	4%	-
More than 10000 litres	-	2%	1%	1%	3%
<u>All respondents:</u>					
A5e. Do you take any steps to save water?					
Yes, we do	63%	67%	73%	73%	80%
<u>If takes steps to save water:</u>					
A5f. What exactly do you do? (*More than one answer possible*)					
Recycle/re-use water multiple times	1%	-	4%	6%	11%
Minimise consumption	93%	83%	69%	76%	56%
Use different kinds of water for different purposes	12%	22%	29%	21%	42%
Other	1%	0%	2%	1%	-

B. WATER QUALITY

<u>All respondents:</u>

B1. How do you assess the quality of the water you drink in terms of the following parameters?

B1a. Colour					
Transparent/clear	98%	93%	98%	98%	52%

[4] At the time of survey, one dollar equalled approximately 2,250 Tz shillings.

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Yellowish	-	0%	1%	2%	3%
Brownish	1%	4%	1%	0%	29%
Reddish	0%	1%	-	-	8%
Greenish	-	-	-	-	8%
Creamy	1%	1%	-	-	-
B1b. Taste					
No taste	96%	97%	85%	74%	85%
A bit salty	4%	2%	14%	24%	11%
Salty	-	0%	1%	2%	3%
B1c. Smell					
No smell	97%	97%	98%	96%	67%
Some smell	2%	3%	2%	4%	30%
Strong smell	0%	-	-	0%	3%
B2a. Is the drinking water supplied from your main source [A1.1] acceptable?					
Yes, it is acceptable	86%	83%	83%	84%	87%
No, it is not acceptable	14%	17%	17%	16%	13%
<u>If drinking water is unacceptable:</u>					
B2b. What is the main reason why you find the drinking water unacceptable?					
Taste	-	8%	59%	80%	21%
Colour	2%	18%	10%	1%	36%
Smell	-	5%	3%	3%	21%
It contains unacceptable materials	96%	61%	28%	16%	21%
Others	2%	8%	-	-	-
<u>All respondents:</u>					
B3a. Do you take ANY steps to make water safer to drink?					
Yes, we do	54%	60%	47%	42%	67%

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %

<u>If takes steps to make water safe to drink:</u>

B3b. What steps do you take? (*More than one answer possible*)

Strain it through a cloth or sieve	1%	4%	11%	8%	23%
Use a water filter (ceramic, sand, composite etc.)	2%	2%	1%	1%	4%
Boiling	68%	72%	74%	43%	53%
Chemicals (bleach, disinfectant or water guard)	10%	7%	10%	12%	24%
Leaving it to stand	7%	9%	10%	9%	29%
Solar disinfection (leaving it in the sun)	2%	-	-	0%	-
Other	-	-	-	2%	-

B3c. How often do you take the step(s) mentioned above?

Always	95%	79%	74%	68%	77%
Sometimes	4%	15%	16%	17%	12%
Occasionally	1%	6%	10%	13%	12%
Never	-	-	1%	2%	-

<u>If household has access to piped water [A1.1 to A1.6]:</u>

B3d. Is your piped water supplied from a large piped water network, a small community network, or a household scheme?

Large piped network managed by a utility	44%	57%	78%	71%	81%
Small piped network managed by the community	1%	5%	3%	6%	10%
Small piped network managed by the household	55%	38%	12%	21%	4%
Mixed supply	0%	1%	7%	2%	5%

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %

All respondents:

B3e. Have you ever asked the authorities to test the quality of your drinking water scientifically?

Yes, we have	2%	3%	5%	4%	4%
No, we have not	98%	97%	95%	96%	96%

If asked the authorities to test the quality of water:

B3f. What was the authority?

DAWASA/MORUWAS	100%	-	13%	77%	100%
Others	-	100%	88%	23%	-

B3g. What was the results of the quality test?

Safe to drink	67%	100%	78%	86%	67%
Probably safe	-	-	-	7%	-
Not very safe	33%	-	19%	7%	-
No result, they never told us the result	-	-	4%	-	33%

B4. (If tested) When was the last time you had your main drinking water tested for quality?

Last month	-	50%	-	-	-
Last year	67%	-	33%	36%	50%
Last five years	33%	50%	67%	64%	50%

If never had water quality tested:

B5. If never had water quality tested, why not?

Cost	4%	6%	4%	5%	3%
No need to test it	42%	33%	60%	41%	36%
Didn't know you could get it tested	51%	58%	33%	47%	58%
Other	3%	3%	4%	8%	3%

All respondents:

District:	*UB*	*KI*	*IL*	*TE*	*MO*
	%	%	%	%	%
B6a. Do you trust the authorities to test your water quality accurately?					
Yes, I do	89%	90%	98%	93%	81%
B6b. Over the past 12 months, how would you rate your physical health?					
Very good	52%	47%	46%	33%	65%
Good	41%	40%	50%	56%	18%
Average	8%	11%	4%	10%	14%
Poor	-	1%	0%	1%	-
Very poor	-	0%	-	-	3%
B7a. Has anyone in your household ever suffered illness which you attributed to poor quality water? *(More than one answer possible).*					
a. Self	6%	8%	6%	7%	17%
b. Children	2%	4%	5%	6%	10%
c. Other adults	1%	4%	2%	6%	11%
Number of types of people who suffered illness attributed to water[5]					
0	91%	89%	88%	86%	79%
1	8%	9%	11%	10%	12%
2	-	0%	1%	3%	3%
3	1%	2%	0%	1%	7%
If anyone in household has suffered illness attributed to water:					
B7b. What were the symptoms? *(More than one answer possible).*					
a. Stomach pain	37%	62%	73%	82%	96%
b. Skin Problems	20%	11%	10%	2%	6%
c. Loose bowels	44%	61%	53%	48%	71%
d. Infection (e.g. UTI)	6%	4%	13%	10%	47%
e. Any other symptom	15%	14%	3%	-	11%

[5] Self, children and other adults suffering illness attributed to water.

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %

B7c. How did you know that poor quality water caused the problem?

Advised by medical professional	44%	57%	54%	53%	86%
Own observation and experience	56%	41%	46%	44%	14%
Other	-	2%	-	3%	-

B7d. Has such illness ever been sufficiently severe to restrict normal activities such as the ability of children in the household to go to school or the ability of adults to go to work?

Yes, it has been	68%	65%	72%	71%	86%
<u>If yes: how for many days?</u>					
Mean	3.9	6.8	4.3	3.6	8.6
Standard deviation	3.5	6.2	2.8	2.6	8.9

C. SANITATION AND HYGIENE

<u>All respondents:</u>

C1a. What kind of toilet facility do members of your household usually use?

Flush to piped sewer system	9%	10%	1%	7%	11%
Flush to septic tank	30%	33%	42%	38%	49%
Flush to pit latrine	34%	30%	36%	38%	15%
Flush to open drain	1%	-	0%	1%	1%
Flush to don't know where	-	-	-	0%	-
Pit latrine with slab	24%	22%	20%	14%	18%
Pit latrine without slab/ open pit	1%	3%	1%	0%	5%
Twin pit with slab	0%	0%	-	-	-
Twin pit without slab	-	-	-	-	1%
Hanging toilet/ hanging latrine	0%	1%	-	0%	1%
No facility/bush/field	-	-	-	0%	-

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Others	-	0%	-	-	-

C1b. Do you share this facility with others who are not members of your household?

Yes, we do	52%	52%	33%	43%	35%

C2a. Where is this toilet facility located?

In own dwelling	62%	66%	57%	56%	46%
In own yard or plot	38%	33%	43%	43%	54%
Elsewhere	-	1%	-	0%	-

<u>If household uses on-site facilities such as pit latrine or septic tank:</u>

C3. Has your (pit latrine or septic tank) ever been emptied?

Yes, it has been	11%	20%	23%	35%	12%

<u>If pit latrine or septic tank has been emptied:</u>

C4. The last time it was emptied, where were the contents emptied to?

Removed using a truck/ tanker	83%	88%	89%	71%	58%
Removed using a non-motorised vehicle	6%	7%	9%	5%	8%
Buried in a covered pit	3%	5%	3%	21%	33%
An uncovered pit, open ground, water body or elsewhere	8%	-	-	3%	-

<u>All respondents:</u>

C5. Can you please show me where members of your household most often wash their hands?

Sink/tap in dwelling	10%	15%	13%	15%	14%
Sink/tap in yard/plot	4%	2%	2%	4%	15%
Bucket/jug/kettle	85%	78%	62%	70%	71%
No facilities in yard/plot	1%	5%	23%	10%	-
No permission to see	-	0%	0%	0%	-

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %

C6. Water observation. (*Interviewer to observe availability of water at the place for handwashing, and verify by checking the tap/pump, or basin, bucket, water container or similar objects for presence of water).*

Water is available	76%	81%	56%	65%	78%
Water is not available	24%	19%	44%	35%	22%

C7. Soap observation. (*Interviewer to observe availability of soap or detergent at the place for handwashing).*

Soap is available	46%	45%	44%	46%	73%
Soap is not available	54%	55%	56%	54%	28%

D. READINESS TO PAY FOR WATER SERVICES

D1. Do you pay for access to water? *(More than one answer possible)*

<u>Yes, we pay for water for:</u>					
a. Drinking	95%	95%	94%	93%	89%
b. Cooking	92%	93%	89%	90%	87%
c. Bathing (Personal hygiene)	88%	89%	85%	88%	81%
d. Washing clothes	85%	90%	85%	85%	78%
e. Growing crops for household consumption	39%	39%	76%	44%	67%
f. Other domestic uses	86%	68%	91%	68%	33%

D2. How much on average do you spend in a month on drinking water (thousand Tz shillings):

Mean	20.0	14.6	20.1	15.0	18.9
Standard deviation	38.1	15.7	25.1	17.6	37.8

D3. To what extent is water affordable for your household?

Easily affordable/we use as much as we want	11%	18%	39%	27%	70%
Usually affordable, if					

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
we are careful	45%	44%	22%	28%	13%
Sometimes causes difficulty	37%	34%	30%	35%	12%
Always difficulty	6%	5%	9%	9%	5%

E. SOCIAL ACCOUNTABILITY FOR WATER PROVISION

E1. Who manages your main source / sources of domestic water? *(More than one answer possible)*

DAWASCO/MORUWAS	12%	31%	27%	26%	66%
Local (district) government	0%	2%	4%	11%	2%
Street chairperson	0%	0%	5%	5%	5%
Local water committee	2%	1%	5%	4%	-
CSOs/NGOs	-	0%	-	1%	2%
Private vendors	51%	24%	54%	54%	6%
Central government	0%	0%	0%	4%	1%
Households manage it themselves	34%	36%	20%	14%	14%
No one manages it	1%	1%	1%	0%	3%
Ourselves (respondents)	4%	7%	17%	9%	8%

Number of agencies responsible for managing domestic water[6]:

0	4%	3%	1%	1%	1%
1	91%	89%	78%	78%	91%
2	5%	8%	14%	15%	7%
3 or more	-	0%	7%	6%	2%

E2. And of these, who do you think is MAINLY responsible for ensuring water provision in your area? (*Don't read out: note the first one the respondent mentions*)

[6] Count of number of organisations, persons or groups perceived to be responsible.

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
DAWASCO/ MORUWAS	42%	48%	21%	18%	57%
Local district government	1%	6%	17%	30%	3%
Street chairperson	0%	1%	2%	7%	8%
Local water committee	-	2%	1%	4%	3%
CSOs/NGOs	-	-	0%	1%	2%
Private vendors	23%	10%	32%	24%	3%
Central government	1%	5%	10%	6%	5%
Households manage it themselves	30%	22%	9%	7%	10%
No one manages it	1%	1%	0%	0%	2%
Ourselves (respondents)	2%	5%	9%	4%	7%

E3a. People have different problems with their water supply. What are the main water problems affecting this household? (*More than one answer possible)*

a. Distance from water source	10%	14%	23%	11%	43%
b. Cleanliness of water/ water polluted	13%	18%	18%	17%	44%
c. Water has a bad taste or smell	8%	6%	31%	39%	18%
d. Water source not working/ dry /no pressure	27%	22%	5%	8%	28%
e. Price of water is too high	65%	52%	43%	40%	22%
f. There are long queues to get water	5%	12%	3%	9%	13%
g. Incorrect bills	10%	15%	9%	6%	23%
h. Repairs are not being made	9%	5%	9%	12%	11%
i. Any other problem	29%	11%	22%	8%	31%

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Number of water problems affecting household[7]:					
0	50%	36%	40%	34%	19%
1	36%	39%	40%	43%	40%
2	10%	18%	12%	15%	20%
3	2%	6%	6%	7%	13%
4 or more	0%	1%	2%	1%	8%
If names at least one problem with water:					
E3b. Of these problems you have named, which ones affect you the most severely? *(More than one answer possible)*					
Distance from water source	5%	10%	11%	6%	37%
Cleanliness of water/ water polluted	9%	16%	12%	12%	33%
Water has a bad taste or smell	6%	5%	22%	35%	13%
Water source not working/ dry/ no pressure	21%	19%	3%	6%	23%
Price of water is too high	49%	46%	40%	33%	15%
There are long queues	4%	5%	2%	4%	9%
Incorrect bills	6%	15%	8%	2%	13%
Repairs are not being made	10%	6%	6%	10%	5%
Any other problem	35%	11%	20%	6%	28%
E4a. In the past year, did you talk to anyone who you thought could help to fix the (main problems identified in E3b)?					
Yes, we did	34%	34%	27%	26%	51%
No, we did not	66%	66%	73%	74%	49%

[7] Number of water supply problems affecting the household (E3a).

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
<u>If respondent talked to anyone to help fix problems identified in E3b:</u>					
E4b. Who did you talk to? (*More than one answer possible*)					
Head teacher	4%	-	-	-	-
Water committee	-	11%	4%	9%	4%
Village/street executive officer (VEO)	38%	22%	7%	10%	17%
Village/street chairperson	10%	26%	20%	19%	50%
Other local government official	15%	15%	11%	8%	14%
Business person	4%	1%	8%	23%	-
Faith leader	-	2%	1%	-	-
Friend/family/ neighbour	14%	12%	7%	28%	7%
Other	68%	44%	46%	24%	77%
<u>Number of different types of persons consulted to fix problems:</u>[8]					
0	75%	71%	74%	77%	56%
1	24%	26%	26%	23%	36%
2	0%	2%	-	1%	7%
E5. What happened because of your talking to someone?					
Problem was solved completely	5%	6%	21%	7%	11%
Problem was resolved but then it returned	15%	15%	5%	7%	11%
Problem was partly resolved	-	23%	8%	6%	9%
Respondent was promised problem will be resolved, but not yet resolved	37%	31%	33%	33%	43%

[8] Excluding those who did not identify any water problems affecting the household (E3a).

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Problem was not resolved and no faith that it will be resolved in future	42%	25%	32%	42%	28%
Other	2%	-	1%	4%	-

<u>If problem was at least partly resolved in E5:</u>

E6. What exact action did they take? (*More than one answer possible*)

a. Repairs to pipes	92%	38%	30%	16%	33%
b. Installation of new pumps or water points	13%	12%	-	8%	36%
c. Reduction of pollution	-	25%	15%	16%	25%
d. Reduction of charges	-	9%	19%	5%	8%
e. More accurate billing	20%	32%	38%	8%	29%
f. Holding meetings to discuss the problem	20%	-	-	3%	18%
g. Other	-	-	4%	5%	43%

<u>Number of actions taken by authorities to resolve problem[9]:</u>

0	86%	68%	73%	78%	65%
1	14%	21%	26%	18%	28%
2	-	11%	1%	4%	7%

E7a. Did your household have to pay anything extra to get your complaint resolved?

Yes, we did	6%	8%	16%	7%	13%

<u>If did not speak to anyone about problems identified in E3b:</u>

E8. What restricts you from raising water issues with others? (*More than one answer possible*).

Lack of time	6%	5%	9%	14%	18%
Cost	1%	1%	0%	2%	7%

[9] Excluding those who did not identify any water problems affecting the household (E3a).

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Don't believe they will help	79%	56%	68%	61%	68%
Prefer to leave it to others	32%	18%	21%	21%	18%
Others	14%	20%	3%	4%	12%

<u>If names at least one problem with water:</u>

E9. Have you ever taken any other action to address the (main problem) besides talking to those mentioned?

Yes, we have.	37%	20%	24%	16%	25%

E10. Did your household take any action yourselves to resolve the problem? (*More than one answer possible*).

a. Paid for a new connection	1%	2%	4%	4%	1%
b. Paid private vendors to deliver water	34%	10%	27%	26%	16%
c. Dug or repaired a well	5%	2%	1%	4%	3%
d. Installed pumps	2%	2%	0%	1%	-
e. Installed a rainwater harvesting tank	22%	9%	4%	3%	1%
f. Bought bottled water	2%	14%	10%	7%	4%
g. Participated in the activities of a CSO	-	-	1%	-	-
h. Contacted local MP	-	1%	-	-	4%
i. Seen a lawyer	-	1%	0%	-	-
j. Moved home	27%	21%	4%	23%	17%

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Number of additional actions to deal with water problems:[10]					
0	41%	59%	65%	52%	68%
1	53%	39%	27%	43%	30%
2	6%	2%	7%	5%	2%
All respondents:					
E11. Is there a water committee in your village or neighbourhood?					
Yes	4%	11%	15%	18%	18%
No	78%	49%	34%	40%	55%
Don't know	18%	40%	52%	41%	27%
If respondent knows there is a water committee:					
E12. In your opinion, how does the water committee function?					
Very well	17%	23%	16%	7%	32%
Adequately	67%	45%	55%	68%	42%
Very poorly	17%	32%	29%	25%	26%
E13. Do you participate in this committee?					
Yes, I do	42%	27%	12%	18%	43%
E14. Does the committee collect fees to support the operations and maintenance of public water points?					
Yes, it does	38%	14%	48%	53%	60%
E15. Have you contributed any additional funds to this committee (beyond paying for buckets of water) in the past year?					
Yes, I have	20%	2%	10%	16%	26%
E16. When a water source point breaks down in your community, does the committee do any of the following? *(More than one answer possible)*					
a. Use collected funds					

[10] All actions other than contacting someone (E4a).

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
to repair the problem	50%	33%	51%	52%	70%
b. Take up new collection of funds to repair the problem	50%	3%	26%	24%	80%
c. Contact the district water engineer	50%	34%	13%	8%	25%
d. Contact other local officials	50%	44%	9%	32%	60%

E17. Do you ever receive income and expenditure information from the water committee?

Yes, I do	17%	18%	16%	36%	30%

E18. How well is the money being utilized?

Very well	-	5%	2%	6%	29%
Adequately	-	32%	65%	49%	47%
Very poorly	100%	63%	33%	45%	24%

<u>All respondents:</u>

E19. Have you received any information about water source functionality in the last 12 months, either in your own community, another community or Tanzania in general via: *(More than one answer possible; tick all that apply)*.

a. Mobile phone	19%	18%	11%	8%	2%
b. Radio	51%	32%	30%	28%	21%
c. Newspaper	5%	7%	2%	6%	2%
d. Television	53%	34%	34%	19%	19%
e. Religious or community group meetings	6%	2%	11%	15%	11%
f. Pamphlet or poster	-	1%	0%	0%	1%
g. Relative/ neighbour/ word of mouth	61%	42%	42%	45%	32%
h. Social media, such as Facebook or Twitter	1%	2%	3%	1%	2%

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
i. Internet (apart from social media)	1%	2%	0%	0%	2%
Number of information sources about water source functionality:					
0	19%	17%	33%	28%	51%
1	37%	54%	33%	43%	30%
2	23%	20%	19%	21%	16%
3	16%	8%	11%	7%	2%
4 or more	5%	1%	4%	2%	2%

E20. Have you received any information about the price of water in the last 12 months, either in your own community, another community or Dar Es Salaam in general via: *(More than one answer)*?

a. Mobile phone	28%	29%	15%	8%	-
b. Radio	33%	12%	18%	19%	7%
c. Newspaper	2%	5%	2%	4%	-
d. Television	23%	19%	7%	4%	10%
e. Religious or community group meetings	3%	3%	5%	8%	6%
f. Pamphlet or poster	0%	1%	1%	0%	9%
g. Relative/ neighbour/ word of mouth	65%	40%	38%	43%	18%
h. Social media, such as Facebook or Twitter	1%	3%	2%	1%	2%
i. Internet (apart from social media)	-	3%	0%	-	2%
Number of sources of information about water price[11]:					
0	19%	21%	46%	37%	65%
1	57%	64%	37%	51%	28%
2	16%	10%	10%	9%	5%
3	9%	5%	6%	3%	2%

[11] Count of number of different sources mentioned in E20.

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %

E21. Have you ever seen a map that shows all the water points in this area, including those that are not currently working?

Yes, I have	0%	2%	8%	10%	7%

E22. Do you know which number to call or text to complain about non-functional water points?

Yes, I do	7%	8%	22%	8%	18%

E23. If a water point is not-functional, who is the first responsible for making sure it functions again?

National government/ parastatal	5%	24%	30%	27%	39%
District municipal council	-	0%	2%	9%	4%
Village	0%	3%	3%	1%	12%
Individual/company	34%	21%	46%	41%	28%
Water committee	-	5%	2%	9%	6%
We citizens	47%	42%	9%	8%	6%
Other	14%	4%	8%	5%	5%

E24. If a water point is charging prices that are higher than they are supposed to charge, who is responsible for making them reduce their prices?

National government/ parastatal	5%	36%	17%	23%	50%
District municipal council	-	1%	3%	5%	-
Village	8%	4%	3%	3%	11%
Individual/company	25%	16%	42%	32%	22%
Water committee	-	4%	1%	7%	6%
We citizens	44%	34%	27%	26%	7%
Other	18%	5%	8%	5%	3%

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %

E25. If some people in this area/village found out that members of the water committee were misusing money, which of the following sounds more likely to you?

People would be upset, but they would feel that they are not powerful enough to fix this problem	25%	36%	24%	31%	18%
People would be upset and they would take action to fix the problem	75%	64%	76%	69%	82%

F. CIVIC ENGAGEMENT

F1. Please tell me how satisfied or dissatisfied you are with the following aspects of your life:

a. Job/or main occupation					
Very dissatisfied	15%	33%	15%	29%	12%
Somewhat dissatisfied	25%	17%	20%	17%	15%
Neither satisfied nor dissatisfied	36%	23%	18%	15%	21%
Somewhat satisfied	24%	22%	41%	30%	34%
Very satisfied	2%	4%	7%	9%	18%
b. Health care					
Very dissatisfied	17%	31%	11%	12%	10%
Somewhat dissatisfied	31%	18%	18%	19%	13%
Neither satisfied nor dissatisfied	16%	16%	18%	17%	15%
Somewhat satisfied	34%	29%	47%	44%	35%
Very satisfied	3%	6%	7%	8%	27%

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
c. Educational opportunities					
Very dissatisfied	14%	12%	5%	4%	11%
Somewhat dissatisfied	26%	22%	17%	17%	6%
Neither satisfied nor dissatisfied	21%	22%	19%	19%	15%
Somewhat satisfied	34%	37%	54%	49%	39%
Very satisfied	4%	8%	5%	11%	29%
d. Condition of the environment					
Very dissatisfied	5%	7%	2%	3%	3%
Somewhat dissatisfied	17%	16%	7%	13%	8%
Neither satisfied nor dissatisfied	32%	23%	29%	27%	14%
Somewhat satisfied	38%	37%	54%	52%	38%
Very satisfied	8%	18%	7%	5%	37%
e. Housing					
Very dissatisfied	3%	4%	1%	3%	3%
Somewhat dissatisfied	6%	10%	6%	10%	5%
Neither satisfied nor dissatisfied	22%	23%	23%	27%	13%
Somewhat satisfied	63%	51%	64%	53%	38%
Very satisfied	6%	12%	6%	7%	41%
f. Neighbours					
Very dissatisfied	0%	2%	-	1%	-
Somewhat dissatisfied	1%	1%	2%	6%	3%
Neither satisfied nor dissatisfied	7%	11%	12%	13%	9%
Somewhat satisfied	62%	56%	65%	60%	31%
Very satisfied	29%	30%	21%	20%	57%
g. Life in general					
Very dissatisfied	21%	30%	5%	3%	8%
Somewhat dissatisfied	19%	13%	10%	12%	5%

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Neither satisfied nor dissatisfied	21%	14%	30%	22%	13%
Somewhat satisfied	38%	37%	52%	59%	45%
Very satisfied	2%	6%	3%	5%	29%

Satisfaction with personal circumstances:[12]

Mean	2.8	2.7	3.3	3.2	3.6
Standard deviation	0.9	1.0	0.8	0.9	0.9

Satisfaction with social and physical environment:[13]

Mean	3.7	3.7	3.7	3.6	4.2
Standard deviation	0.6	0.8	0.5	0.7	0.8

Box 1. Principal component analysis: sources of satisfaction (F1)

Factor loadings:	F1	F2
Health care	.76*	.13
Educational opportunities	.75*	.20
Job	.73*	.11
Life in general	.73*	.15
Neighbours	-.07	.82*
Housing	.30	.75*
Condition of the environment	.43	.66*
Eigen values:	3.09	1.17
% Variance explained:	44.0	16.7

* Conventionally, measures with loadings above .60 on a common factor may be used to form a multi-item scale.

[12] Mean of satisfaction with health care, educational opportunities, job, life in general, on a scale from one for least satisfied to four for most satisfied.

[13] Mean of satisfaction with neighbours, housing and condition of the environment, on a scale from one for least satisfied to four for most satisfied.

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %

F2. To what extent do you agree with the following statements?

a. The government has the ultimate responsibility to guarantee my wellbeing as a citizen.

Strongly disagree	1%	7%	7%	15%	8%
Somewhat disagree	10%	12%	9%	9%	5%
Agree	36%	33%	33%	35%	27%
Strongly agree	53%	47%	51%	41%	61%

b. If you are patriotic, you should point out problems in your country if you notice them.

Strongly disagree	0%	2%	3%	3%	2%
Disagree	1%	1%	5%	9%	3%
Agree	34%	37%	41%	45%	31%
Strongly agree	65%	60%	50%	43%	65%

c. Everyone has a right to clean and safe water and sanitation.

Strongly disagree	0%	1%	0%	2%	3%
Disagree	0%	1%	1%	4%	-
Agree	23%	23%	23%	35%	23%
Strongly agree	76%	76%	77%	58%	74%

d. Government officials care about what people like me think.

Strongly disagree	32%	38%	16%	15%	8%
Disagree	19%	20%	19%	23%	11%
Agree	31%	27%	31%	37%	42%
Strongly agree	17%	15%	33%	26%	38%

F3. If you found out about a problem in your community that you wanted to do something about (for example poor drainage, erratic water supply, non-collection of garbage) how well do you think you would be able to do each of the following?

a. Call someone on the phone that you had never met before and get their help with the problem.

Definitely can't	39%	40%	45%	42%	26%

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Probably can't	12%	10%	14%	21%	5%
Probably can	24%	26%	32%	28%	21%
Definitely can	26%	23%	10%	9%	48%

b. Identify individuals and/or groups to help with the problem.

Definitely can't	39%	37%	31%	26%	29%
Probably can't	16%	11%	17%	24%	6%
Probably can	20%	27%	32%	35%	26%
Definitely can	25%	24%	20%	16%	39%

c. Get other people to care about the problem.

Definitely can't	40%	41%	33%	25%	31%
Probably can't	14%	10%	18%	21%	9%
Probably can	20%	29%	33%	39%	25%
Definitely can	26%	20%	16%	15%	35%

d. Organize people within your community to address the problem.

Definitely can't	41%	48%	29%	21%	33%
Probably can't	13%	16%	18%	20%	8%
Probably can	20%	21%	34%	38%	27%
Definitely can	25%	15%	18%	21%	32%

e. Write an opinion letter to a local newspaper.

Definitely can't	77%	75%	56%	51%	54%
Probably can't	6%	7%	15%	20%	3%
Probably can	9%	12%	20%	20%	19%
Definitely can	7%	6%	9%	9%	24%

f. Call an elected official about the problem.

Definitely can't	39%	45%	13%	13%	18%
Probably can't	17%	6%	11%	17%	3%
Probably can	22%	26%	33%	34%	24%
Definitely can	22%	23%	42%	36%	55%

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Capacity for engagement scale:[14]					
Mean	2.2	2.1	2.3	2.4	2.7
Standard deviation	1.0	0.9	0.8	0.7	1.1

Box 2. Principal components analysis: capacity for engagement (F3)

	Single factor loading
Get other people to care about the problem	.90*
Identify individuals and/or groups to help	.88*
Organise people within your community	.86*
Call someone you had never met before	.78*
Write an opinion letter to a local newspaper	.59
Call an elected official about the problem	.54
Eigen value	3.57
% Variance explained	59.5%

* Conventionally, measures with loadings above .60 on a common factor may be used to form a multi-item scale.

F4. To what extent do you think the following groups or organisations look after the needs of your community for safe and sustainable water?

a. DAWASCO/MORUWAS					
Not at all	19%	18%	57%	25%	15%
Not much	16%	19%	13%	23%	11%
To some extent	42%	32%	14%	33%	15%
All the time	23%	32%	16%	19%	59%
b. District Council					
Not at all	40%	43%	45%	17%	15%
Not much	36%	28%	32%	36%	19%

[14] Mean capacity to get other people to care, identify individuals or groups to help, organise people and call someone respondent has never met before, on a scale from one for least capacity to four for most capacity.

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
To some extent	16%	22%	17%	42%	27%
All the time	8%	6%	7%	6%	39%
c. Street chairperson					
Not at all	15%	29%	19%	13%	6%
Not much	19%	23%	22%	26%	12%
To some extent	29%	32%	42%	43%	17%
All the time	36%	16%	17%	19%	65%
d. Local water committee					
Not at all	84%	54%	32%	33%	18%
Not much	4%	18%	30%	28%	10%
To some extent	5%	20%	26%	28%	19%
All the time	7%	8%	11%	11%	53%
e. CSOs/NGOs					
Not at all	68%	62%	48%	22%	16%
Not much	25%	16%	30%	29%	26%
To some extent	5%	18%	18%	44%	11%
All the time	3%	4%	5%	5%	48%
f. Private vendors					
Not at all	8%	17%	4%	8%	10%
Not much	5%	9%	7%	8%	16%
To some extent	21%	31%	40%	39%	12%
All the time	66%	43%	48%	45%	62%
g. Central government					
Not at all	47%	48%	38%	13%	11%
Not much	30%	20%	32%	32%	16%
To some extent	18%	21%	22%	46%	19%
All the time	5%	12%	7%	8%	54%
h. Residents of this community					
Not at all	19%	28%	15%	8%	10%

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Not much	22%	10%	16%	16%	14%
To some extent	20%	29%	38%	51%	29%
All the time	39%	33%	31%	26%	48%
i. EWURA					
Not at all	49%	46%	47%	21%	14%
Not much	43%	29%	32%	34%	23%
To some extent	7%	20%	19%	42%	12%
All the time	2%	6%	2%	3%	51%
j. Ministry of water					
Not at all	41%	43%	43%	14%	8%
Not much	32%	26%	22%	25%	15%
To some extent	25%	20%	27%	52%	19%
All the time	2%	11%	8%	9%	58%

Box 3. Principal component analysis: trust in institutions (F4)

Factor loadings:	F1	F2
Ministry of Water	.85*	.15
District Council	.83*	-.07
EWURA	.82*	.21
Central government	.81*	.18
CSOs/NGOs	.65*	.34
DAWASCO/MORUWAS	.64*	-.44
Street chairperson	.49	.30
Local water committee	.47	.41
Private vendors	-.06	.72*
Residents of this community	.38	.64*
Eigen values:	4.45	1.34
% Variance explained:	44.5	13.4

* Conventionally, measures with loadings above .60 on a common factor may be used to form a multi-item scale.

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Trust in institutions responsible for safe and sustainable water[15]:					
Mean	1.9	2.0	1.9	2.4	3.1
Standard deviation	0.6	0.8	0.8	0.7	0.9
F5. Generally speaking, would you say that most people can be trusted or that you must be very careful in dealing with people?					
Most people can be trusted	2%	7%	11%	15%	44%
Must be very careful	98%	93%	89%	85%	56%
F6. How well is the current government providing water and sanitation services?					
Very badly	4%	18%	15%	12%	-
Fairly badly	26%	18%	19%	16%	-
Fairly well	37%	48%	51%	58%	75%
Very well	34%	16%	15%	15%	25%

G. SOCIAL DEMOGRAPHICS

G1. Age (years)					
Mean	34.1	34.6	34.9	35.0	37.5
Standard deviation	11.8	12.2	11.9	12.5	12.9
G2. Gender					
Male	48%	49%	49%	49%	49%
Female	52%	51%	51%	51%	51%
G3. Education level					
No formal schooling	0%	2%	2%	3%	2%

[15] Mean trust in Ministry of Water, District Council, EWURA, Central government, CSOs/NGOs and DAWASCO/MORUWAS, on a scale from one for not at all to four for all the time.

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Informal schooling only (including koranic)	0%	0%	1%	0%	-
Some primary schooling	2%	4%	3%	5%	2%
Primary completed	43%	44%	46%	42%	62%
Some secondary school	17%	17%	11%	13%	10%
Secondary completed	12%	15%	22%	23%	13%
Technical college	16%	10%	5%	5%	5%
Some university	5%	4%	4%	5%	3%
University completed	5%	4%	5%	3%	3%
Post-graduate	-	0%	1%	-	1%
G4. Type of settlement					
Surveyed	55%	56%	28%	50%	60%
Unsurveyed	45%	44%	72%	50%	40%
G5a. Construction materials of house:					
Brick & cement	99%	98%	98%	96%	57%
Burnt brick	0%	0%	2%	3%	38%
Mud	0%	2%	0%	1%	5%
G5b. Floor of house:					
Earth	4%	6%	2%	3%	5%
Tiles	22%	16%	18%	16%	20%
Cement	74%	78%	81%	81%	75%
G5c. Roof of house:					
Grass or mud	-	0%	0%	-	-
Concrete	0%	1%	0%	1%	-
Iron	94%	95%	98%	98%	100%
Tiles	6%	4%	2%	1%	-
G5d. Why do you choose to live in this area? Any other reasons? (*More than one answer possible*)					
a. It's what we can afford (money reasons etc.)	59%	58%	32%	26%	52%

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
b. It's convenient for work/business	26%	17%	13%	13%	50%
c. To be close to our relatives/friends	17%	7%	8%	12%	36%
d. Good infrastructure (water, electricity etc.)	2%	6%	5%	10%	40%
e. Good public services (education, health etc.)	2%	4%	2%	5%	47%
f. Good environment (clean air, green space)	12%	14%	29%	14%	54%
g. We are used to it (have always lived here etc.)	20%	17%	31%	38%	53%
h. We like the house/ building	9%	6%	13%	15%	43%
i. Peace and quiet, safety (less crime, fewer problems with neighbours etc.)	17%	12%	11%	8%	30%
j. Other	1%	5%	7%	3%	12%

G6. Is your housing: …

Rented: shared with others	41%	42%	29%	30%	24%
Rented with own front door	5%	6%	4%	4%	1%
Owner occupied on a mortgage	0%	0%	0%	0%	1%
Owner occupied: own outright	54%	52%	66%	66%	74%

G7. During the last 12 months, what has been your main activity?

Unemployed	3%	7%	6%	14%	11%
Self-employed on farm/ fishing/forestry	1%	2%	5%	4%	16%
Self-employed own business	48%	54%	56%	50%	52%

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Wage employee in private enterprise: labourer	8%	7%	9%	5%	5%
Wage employee in private enterprise: white collar/office worker	10%	4%	2%	4%	3%
Wage employee with Government/parastatal	7%	5%	6%	6%	3%
In education/training	6%	5%	5%	6%	3%
Home maker	15%	13%	9%	9%	6%
Other	3%	2%	2%	2%	1%

G8a. What industry or sector do you work in / (*OR if not working*) did you last work in?

Agriculture, forestry and fishing	2%	3%	2%	6%	22%
Mining and quarrying	0%	2%	-	0%	2%
Manufacturing	4%	7%	4%	7%	11%
Electricity, gas, steam and air conditioning	0%	1%	0%	1%	-
Sewage, waste management, remediation activities	-	0%	0%	-	2%
Construction	3%	6%	3%	1%	5%
Wholesale and retail trade; repair of motor vehicles and motorcycles	18%	13%	23%	27%	13%
Transportation/ storage	1%	4%	2%	1%	4%
Accommodation and food services	9%	10%	8%	9%	9%
Information and communication	0%	2%	1%	1%	2%
Financial and insurance	1%	1%	2%	1%	5%
Real estate activities	0%	1%	0%	1%	-

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Professional, scientific and technical activities	11%	3%	4%	2%	1%
Administrative and support service activities	0%	1%	1%	1%	1%
Public administration and defence; compulsory social security	1%	1%	2%	2%	1%
Education	6%	4%	4%	1%	5%
Human health and social work activities	1%	2%	2%	2%	2%
Arts, entertainment and recreation	0%	1%	2%	1%	1%
Other service activities	23%	17%	15%	11%	8%
Never worked	17%	21%	22%	24%	8%

G8c. Please look back over the past 5 years. Have you ever been unemployed (that is, not working but looking for work) during this time?

Yes, I have	20%	26%	12%	24%	12%

<u>If respondent has been unemployed in last five years:</u>

G8d. How many times?

Mean	4.8	4.8	5.6	6.0	3.2
Standard deviation	2.5	4.1	5.6	4.6	1.9

G8e. Has any of these periods lasted for 6 months or more?

Yes, they have	91%	59%	81%	55%	86%

<u>All respondents:</u>

G9. Can you read, write and speak English well enough to write a letter?

Yes, I can	42%	43%	41%	35%	36%

G10. Can you read, write and speak Swahili well enough to write a letter?

Yes, I can	77%	86%	96%	94%	97%

District:	*UB*	*KI*	*IL*	*TE*	*MO*
	%	%	%	%	%
G11. Please estimate your family's average monthly income from all sources (including all household members' salaries, bonuses, subsidies, dividends, interest, insurance payments, pensions, commercial profit, rent, interest, gifts etc) (Tz shillings)?					
None	10%	10%	8%	12%	4%
1-300,000	44%	61%	50%	52%	59%
300,001-1 million	41%	27%	39%	32%	33%
Above 1 million	4%	3%	3%	4%	4%
G12a. How long have you lived in Dar Es Salaam/Morogoro? (years)					
Mean	18.2	20.3	20.1	22.6	26.0
Standard deviation	13.4	13.6	12.9	14.9	16.8
G12b. What region do you come from originally?					
Arusha	1%	1%	3%	2%	2%
Dar es Salaam	7%	10%	11%	16%	3%
Dodoma	4%	7%	3%	4%	-
Geita	0%	1%		1%	1%
Iringa	3%	5%	5%	4%	3%
Kagera	4%	5%	4%	2%	2%
Katavi	1%	1%	0%	2%	-
Kigoma	3%	4%	5%	5%	2%
Kilimanjaro	14%	12%	11%	5%	12%
Lindi	4%	4%	3%	7%	1%
Mara	1%	1%	3%	2%	1%
Manyara		0%	2%	1%	2%
Mbeya	8%	3%	4%	3%	3%
Morogoro	12%	10%	7%	6%	52%
Mtwara	3%	3%	4%	7%	1%
Mwanza	4%	4%	5%	3%	2%
Njombe	2%	1%	2%	1%	3%
Pwani	8%	4%	8%	15%	1%
Rukwa	1%	2%	1%	-	-
Ruvuma	5%	5%	4%	3%	2%
Singida	6%	3%	3%	2%	3%

District:	*UB* %	*KI* %	*IL* %	*TE* %	*MO* %
Shinyanga	1%	2%	0%	0%	-
Simiyu	-	-	0%	-	-
Tabora	3%	2%	2%	2%	2%
Tanga	5%	10%	9%	7%	4%
Zanzibar	0%	1%	2%	1%	-

G13. Does your household have any of the following in working order?

a. Radio	67%	78%	83%	83%	82%
b. TV	71%	68%	74%	76%	66%
c. Computer (laptop or desktop)	15%	18%	12%	13%	10%
d. Internet access	25%	25%	30%	26%	31%
e. Mobile phone	93%	92%	95%	95%	93%
f. Refrigerator	46%	39%	52%	53%	45%

Number of consumer goods owned[16]:

Mean	2.9	2.9	3.1	3.2	3.0
Standard deviation	1.2	1.3	1.2	1.2	1.2

G14. How often do you use the internet?

Daily	29%	31%	32%	30%	15%
Once or twice a week	11%	5%	7%	6%	14%
Less often	19%	15%	14%	15%	19%
Never	41%	49%	48%	50%	51%

G15. Over the past year, how often, if ever, have you or anyone in your family gone without enough clean water for home use?

Never	61%	45%	9%	22%	9%
Just once or twice	18%	16%	32%	22%	19%
Several times	12%	27%	38%	49%	37%
Many times	9%	12%	21%	7%	35%

[16] From list of six: radio, TV, computer, mobile phone, fridge.

SAMPLE REPORT

Survey target. This survey aimed to establish: a) levels of access to safe and sustainable water for domestic use; and b) capabilities to hold water governance institutions accountable for such provision. It focused on the four mainly residential districts of Dar es Salaam--Kinondoni, Ilala, Temeke and Ubungo—and, for comparison, the urban area of Morogoro, a town around 200 kilometres distant from Dar es Salaam. Kigamboni district in Dar es Salaam was excluded because of its low residential population and because it is not supplied with water by DAWASCO, instead relying mostly on dug wells. The surveyed area has a total population of about 5.888 million people. The initial target was to collect data from 2100 households, including 1750 households from Dar es Salaam and 350 households from Morogoro.

Developing the questionnaire. After several discussions involving all members of the project team, the PI (Munro) drafted a questionnaire in English, drawing on past surveys including those conducted by TWAWEZA in Tanzania, the Afrobarometer, Asia Barometer, Asian Barometer, European Social Survey and "Core questions on water, sanitation and hygiene for household surveys" by the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene. The English questionnaire was translated into Swahili by the UDSM Co-I (Kweka), who also discussed the draft with her students and colleagues at the Centre for Population Studies and Research at UDSM.

Piloting the questionnaire. The UDSM Co-I and several enumerators then conducted a pilot in eight wards with 29 respondents residing in both urban and peri-urban and reliant on a mix of water sources in December 2017. The pilot focused on whether the questionnaire appeared relevant to the respondents, adequately covered the subject matter, flowed logically, and could be completed within 30-40 minutes.

Sampling procedures. Population was the first criterion for selection of wards to conduct the study. To get a mix of high population and low population wards for each district, the

population average for all wards was calculated using data from the 2012 census (NBS, 2013a). In Dar es Salaam, the average for the four districts included in the study was 42,653. Therefore, all wards with population above 42,653 were categorized as having a high population, and all wards with population below 42,653 were categorized as low population wards. For Morogoro, the average was 10,770. Therefore, all wards with population above 10,770 were categorized as the high population wards and the wards with population below 10,770, categorized as low population wards.

Water source was the second criterion for selection of wards to conduct the study. Technically DAWASCO is expected to supply tap water in Dar es Salaam region and part of the coastal region, but there are variations in supply by households. In the case of Morogoro MOROWASA is the authority responsible for provision of water. However, many other sources of water are available and not all households are connected and use tap water and some households mix their sources for different domestic uses. After consulting with DAWASCO, and looking at the results from the pilot, areas dominated by either one of the three major water sources in the two urban areas were identified. These are the tap, well and other water sources (river, dams etc.). We categorized wards into three corresponding categories: those supplied by DAWASCO with tap water, those reliant mainly on wells and other areas. The enumerators were asked to confirm if a ward had many households using the water type it was sampled for before they proceeded with the questionnaire filling.

The final criterion was proximity to qualifying wards. We started with the ward with the lowest population for each main water type in the district, and the ward with the highest population for each main water type in the district, and then selected the next closest qualifying ward.

In the highly populated wards of Ilala, Kinondoni and Temeke the respondents visited every 10th household in a street and in low population wards they visited every 5th household. Where no one was at home, enumerators proceeded to the next house. At each household, an individual was selected for interview using a Kish

table. Fieldwork was hampered by the fact that the rainy season had started which made it difficult and expensive to conduct call backs. For that reason, if the person selected was not at home, a substitution was made, again using the Kish table. A 98.9 response rate was achieved. Fieldwork took place from March 7th to 29th 2018. A total of 2154 respondents were interviewed in 36 wards across the four districts of Dar es Salaam and Morogoro, as detailed below.

Districts	Main water sources by wards	Population size by ward	Selected wards	No. of streets	No. of house-holds
TEMEKE	Tap 4	High 2	Miburani	5	60
			Sandali	10	60
		Low 2	Temeke	4	61
			Chang'ombe	4	52
	Well 2	High 1	Chamazi	6	60
		Low 1	Kibonde maji	4	60
	Others 2	High 1	Mbagala kuu	5	60
		Low 1	Keko	6	64
Subtotal	8	8		44	477
KINONDONI	Tap 2	High 1	Mwananyamala	6	61
		Low 1	Kinondoni	4	61
	Well 2	High 1	Kigogo	3	60
		Low 1	Magomeni	6	61
	Others 4	High 2	Wazo	8	67
			Bunju	6	59
		Low 2	Mabwepande	5	58
			Mbezi juu	9	58
Subtotal	8	8		47	485
ILALA	Tap 2	High 1	Tabata	5	61
		Low 1	Ilala	5	61
	Well 4	High 2	Kimanga	5	59
			Gongolamboto	4	61
		Low 2	Bonyokwa	3	60
			Kipunguni	4	58
	Others 2	High 1	Majohe	5	62
		Low 1	Kitunda	4	61
Subtotal	8	8		48	483

Districts	Main water sources	Population size by ward	Selected Wards	No. of Streets	No. of households
UBUNGO	Tap 2	High 1	Mabibo	5	60
		Low 1	Sinza	5	60
	Well 2	High 1	Mbezi	3	34
		Low 1	Mburahati	3	60
	Others 2	High 1	Goba	4	61
		Low 1	Kibamba	5	61
Subtotal	6	6		25	336
MOROGORO URBAN AREA	Tap 2	High 1	Mwembesongo	6	49
		Low 1	Mjimpya	6	55
	Well 2	High 1	Kihonda Magorofani	6	56
		Low 1	Mindu	6	84
	Others 2	High 1	Kilakala	6	57
		Low 1	Bigwa	6	59
Subtotal	6	6		36	360

Quality checks. The checking of the completed questionnaires for errors was conducted each day. Enumerators were told in advance to correct some common errors and questionnaires with excessive numbers of errors were excluded.

Post-stratification weighting. The fact that substitutions were allowed produced a sample biased towards women. Even when available, men frequently told the enumerators to speak to the women because of the perception that water issues are women's issues. Women over thirty years old were more likely to take part than younger women. To correct this, we conducted post-stratification weighting in two stages. At the first stage, we sought to match the distribution of the population by five age groups and gender *within* each district. (Because there had been some boundary changes in Dar es Salaam, leading to the creation of two new districts, we used the three districts of Dar es Salaam existing at the time of the 2012 census (NBS 2013b). Because the Morogoro sample had very few young men, we used only three age groups: 18-39, 40-59 and 60+). At

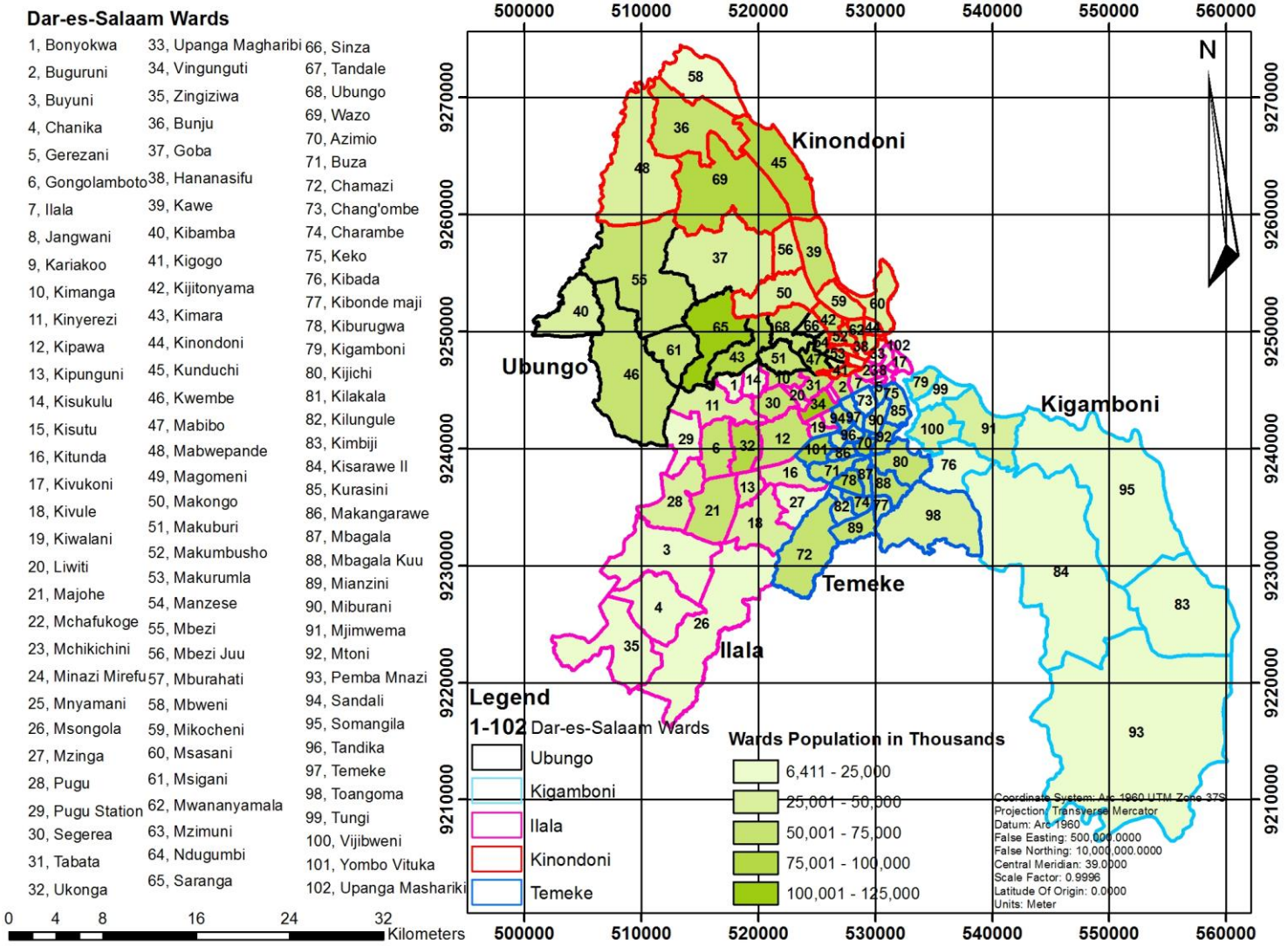
the second stage, we sought to match the 2017 distribution of the population by gender *between* the current districts of Dar es Salaam, as well as Morogoro, according to official projections (NBS 2013c). The weight variable, w, is thus designed to ensure that the data is representative of the adult population of the surveyed districts. (This weight is suitable when the focus of research is individual characteristics. Researchers interested in household characteristics should consider alternative weighting schemes). The results of the two-stage weighting procedure are shown in the two tables below.

Stage 1. Weighting to Match Distribution of Population by Age and Gender

2012	Age	Unweighted		Weighted		Census 2012	
districts	group	Male	Female	Male	Female	Male	Female
Kinondoni	18-29	8.7%	19.0%	21.6%	26.2%	21.6%	26.2%
	30-39	10.0%	19.1%	13.6%	13.3%	13.8%	13.1%
	40-49	10.2%	12.6%	7.1%	6.4%	7.2%	6.4%
	50-59	6.3%	5.6%	3.5%	2.9%	3.6%	2.9%
	60+	4.5%	3.8%	2.8%	2.5%	2.8%	2.5%
	Subtotal	39.8%	60.2%	48.7%	51.3%	48.9%	51.1%
Ilala	18-29	6.9%	16.6%	20.8%	25.2%	20.8%	24.9%
	30-39	10.0%	18.7%	13.6%	13.4%	13.7%	13.3%
	40-49	10.8%	15.2%	7.6%	6.7%	7.6%	6.7%
	50-59	5.4%	6.0%	3.9%	3.0%	3.9%	3.1%
	60+	6.2%	4.2%	3.0%	2.9%	3.0%	2.9%
	Subtotal	39.3%	60.7%	48.8%	51.2%	49.2%	50.8%
Temeke	18-29	6.8%	14.6%	21.0%	24.4%	21.2%	25.0%
	30-39	7.2%	23.4%	13.6%	13.1%	13.6%	13.3%
	40-49	7.4%	15.9%	7.4%	7.4%	7.5%	6.8%
	50-59	4.7%	9.8%	3.8%	3.8%	3.9%	2.9%
	60+	5.3%	4.9%	3.1%	2.6%	3.1%	2.7%
	Subtotal	31.4%	68.6%	48.8%	51.2%	49.2%	50.8%
Morogoro	18-39	7.0%	30.5%	34.2%	36.7%	32.9%	37.7%
urban area	40-59	11.2%	26.0%	12.0%	10.2%	11.3%	10.5%
	60+	11.8%	13.4%	3.4%	3.4%	3.7%	3.8%
	Subtotal	30.0%	70.0%	49.6%	50.4%	47.9%	52.1%

Stage 2. Weighting to Projected Populations of Men and Women by District, 2017

2017 districts	Unweighted		Weighted		2017 population projections			
	Male	Female	Male	Female	Male		Female	
	%	%	%	%	Persons	%	Persons	%
Ubungo	6.6%	10.4%	9.2%	9.8%	541,986	9.2%	577,844	9.8%
Kinondoni	9.0%	13.3%	10.2%	10.7%	598,289	10.2%	633,227	10.8%
Ilala	8.6%	13.3%	13.4%	14.0%	789,405	13.4%	827,496	14.1%
Temeke	7.0%	15.1%	13.3%	14.0%	778,714	13.2%	818,765	13.9%
Morogoro	5.0%	11.7%	2.7%	2.8%	158,405	2.7%	163,580	2.8%
Total	36.2%	63.8%	48.7%	51.3%	2,866,799		3,020,912	


Dar-es-Salaam Wards
1, Bonyokwa
2, Buguruni
3, Buyuni
4, Chanika
5, Gerezani
6, Gongolamboto
7, Ilala
8, Jangwani
9, Kariakoo
10, Kimanga
11, Kinyerezi
12, Kipawa
13, Kipunguni
14, Kisukulu
15, Kisutu
16, Kitunda
17, Kivukoni
18, Kivule
19, Kiwalani
20, Liwiti
21, Majohe
22, Mchafukoge
23, Mchikichini
24, Minazi Mirefu
25, Mnyamani
26, Msongola
27, Mzinga
28, Pugu
29, Pugu Station
30, Segerea
31, Tabata
32, Ukonga
33, Upanga Magharibi
34, Vingunguti
35, Zingiziwa
36, Bunju
37, Goba
38, Hananasifu
39, Kawe
40, Kibamba
41, Kigogo
42, Kijitonyama
43, Kimara
44, Kinondoni
45, Kunduchi
46, Kwembe
47, Mabibo
48, Mabwepande
49, Magomeni
50, Makongo
51, Makuburi
52, Makumbusho
53, Makurumla
54, Manzese
55, Mbezi
56, Mbezi Juu
57, Mburahati
58, Mbweni
59, Mikocheni
60, Msasani
61, Msigani
62, Mwananyamala
63, Mzimuni
64, Ndugumbi
65, Saranga
66, Sinza
67, Tandale
68, Ubungo
69, Wazo
70, Azimio
71, Buza
72, Chamazi
73, Chang'ombe
74, Charambe
75, Keko
76, Kibada
77, Kibonde maji
78, Kiburugwa
79, Kigamboni
80, Kijichi
81, Kilakala
82, Kilungule
83, Kimbiji
84, Kisarawe II
85, Kurasini
86, Makangarawe
87, Mbagala
88, Mbagala Kuu
89, Mianzini
90, Miburani
91, Mjimwema
92, Mtoni
93, Pemba Mnazi
94, Sandali
95, Somangila
96, Tandika
97, Temeke
98, Toangoma
99, Tungi
100, Vijibweni
101, Yombo Vituka
102, Upanga Mashariki
0 4 8 16 24 32
Kilometers
500000 510000 520000 530000 540000 550000 560000
9270000 9260000 9250000 9240000 9230000 9220000 9210000
N
Kinondoni
Ubungo
Kigamboni
Temeke
Ilala
Legend
1-102 Dar-es-Salaam Wards
Ubungo
Kigamboni
Ilala
Kinondoni
Temeke
Wards Population in Thousands
6,411 - 25,000
25,001 - 50,000
50,001 - 75,000
75,001 - 100,000
100,001 - 125,000
Coordinate System: Arc 1960 UTM Zone 37S
Projection: Transverse Mercator
Datum: Arc 1960
False Easting: 500,000.0000
False Northing: 10,000,000.0000
Central Meridian: 39.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter

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