



College of Health Sciences  
School of Public Health

# UNDERSTANDING AND PREVENTING DROWNING IN UGANDA

Final Dissemination Report for Stakeholders



2020





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## Partners

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## Dean's Foreword

**D**rowning is the third leading cause of unintentional injury death; accounting for 7% of all injuries. Over 90% of the estimated 322,000 annual global drowning deaths occur in low-and middle-income countries. Although the burden of drowning is believed to be highest in the WHO-African region, data collection and surveillance for drowning in African countries is limited. Drowning prevention strategies require adequate data on the burden and circumstances of drowning to help ensure data-driven prevention efforts. The World Health Organization recommends that all countries take steps to improve drowning data so that prevention strategies can be context-specific.

This report presents findings of a two-phased study that was conducted in 60 districts of Uganda for a period of 2.5 years (from January 1st, 2016 to June 30th, 2018). In the first phase, records concerning 1,435 drowning cases were found in the 60 study districts. Other than stating that the individual had drowned, there was very little information that could potentially guide prevention efforts.

The second phase was limited to only 14 of the initial 60 districts. In the 14 districts, a total of 2,066 drowning cases were identified by community health workers and confirmed through individual interviews with witnesses/family members/friends and survivors of drowning. Most (1,332; 64%) of these were deaths. Using the community approach, as opposed to official records, revealed more than three times the number of drowning deaths in the same 14 districts. Almost half of all people who drowned were engaged in an occupational activity at the time of the incident.

These results show that drowning is a major cause of premature death in Uganda, especially among young adults whose livelihoods depend on water activities. However, most drownings are preventable through policies and regulations that reduce exposure to drowning risk, and institution of interventions to ensure safety around water. Drowning is a multisectoral issue, and all stakeholders (local and national government, water transport, water sport, education, fishing, health, and law enforcement) should coordinate to develop a national water safety strategy and action plan. The strategy could address matters of leadership coordination, funding, advocacy, awareness raising, prioritization, target setting, and monitoring and evaluation.



**Dr Rhoda Wanyenze**  
**Professor and Dean,**  
**Makerere University School of Public Health**

## Executive Summary

**Background:** It is estimated that drowning death rates in the WHO African region are the highest globally. Although the burden of drowning is believed to be high in this region, the true size and extent of the problem are not well understood because data on drowning in African countries is limited. Drowning prevention strategies require adequate data on the burden and circumstances of drowning to help ensure data-driven prevention efforts. No previous study has comprehensively assessed the circumstances of drowning in both lakeside and non-lakeside districts<sup>1</sup> in Uganda. Therefore, this study sought to improve understanding of the types and circumstances of drowning in Uganda.

**Objectives:** The study had three overarching objectives:

**Objective one:** To establish the availability of drowning data in district-level sources and understand the reporting of and record keeping on drowning in Uganda.

**Objective two:** To describe the burden and circumstances of drowning in select districts in Uganda.

**Objective three:** To identify potential contextually-appropriate interventions for drowning prevention in select districts in Uganda.

**Methods:** Data on drowning cases that occurred between January 1, 2016 and June 30, 2018 were collected in two phases:

- **Phase one** data collection occurred from October to December 2018. In phase one, we abstracted data on drowning cases from records in district-level sources (district police offices, marine police detachments, fire/rescue brigade detachments, and the largest mortuaries) in 60 districts.

- **Phase two** data collection occurred from March to July 2019. In phase two, we contacted health assistants, village health teams (VHTs) and their coordinators, and local councilors to identify all cases of drowning in 14 districts. When drowning cases were identified, we conducted individual interviews with witnesses/family members/friends and survivors of drowning. We also conducted interviews with records officers about data collection and focus group discussions with community members about ways drowning could be prevented.

### Findings:

#### Objective one:

- ❖ During the two-and-a-half-year study period (January 1, 2016 to June 30, 2018) a total of 1,435 drowning cases were recorded in the district police offices, marine police detachments, fire/rescue brigade detachments, and the largest mortuaries in 60 districts. This is an underreporting of the true number of drownings that occurred in the districts.
- ❖ The availability of information on the characteristics of the person who drowned, and the circumstances of the drowning incident, varied by source.
- ❖ There was a high degree of missing information about key circumstances (e.g. what type of water body the person drowned in and what they were doing at the time) in district-level administrative records. This information is necessary for designing drowning prevention strategies.
- ❖ Interviews with records officers revealed that many people do not report cases of drowning to

<sup>1</sup> "Lakeside districts" border one of the four major lakes in Uganda (Lake Victoria, Lake Albert, Lake Edward, and Lake Kyoga). "Non-lakeside districts" do not border one of the four major lakes; however, they include many other bodies/sources of water such as smaller lakes, rivers, ponds, ditches, and pits (such as pit latrines).



authorities, and that there are many challenges associated with keeping good records on drowning.

## Objective two:

- ❖ During the two-and-a-half-year study period (January 1, 2016 to June 30, 2018), a total of 2,066 cases of drowning were identified by VHTs and confirmed through individual interviews with witnesses/family members/friends and survivors of drowning in 14 districts. Through this intensive search, we found more than three times the number of drowning deaths than were recorded in the district-level sources in the same 14 districts.
- ❖ The majority of cases were drowning deaths (1,332; 64% of cases). The number of drowning deaths identified per district ranged from 30 to 287 in lakeside districts and from 47 to 123 in non-lakeside districts.
- ❖ The circumstances of drowning varied by district. Overall, young adults and males were at the highest risk of drowning in Uganda. In lakeside districts, drowning most frequently occurred in lakes. In non-lakeside districts, drowning most frequently occurred in rivers. Overall, boating was the most common activity associated with drowning, followed by collecting water or watering cattle. Almost half of all people who drowned were engaged in an occupational activity at the time of the incident.

## Objective three:

- ❖ Individual interview respondents and focus group participants identified several potential interventions such as increasing the safety of boaters through lifejacket provision, safer boats, and increased sensitization on

safe boating practices, and reducing drowning in small water bodies such as wells, ditches, and ponds, through environmental modifications within communities.

**Recommendations:** Drowning is a major cause of premature death, especially among young adults living and working on or near water in Uganda. It threatens livelihoods and devastates families and communities. Most drownings are preventable through policies and regulations that reduce exposure to drowning risk, and the institution of interventions to ensure safety around water.

Drowning is a multisectoral issue, and all stakeholders (including but not limited to local and national government, water transport, water sport, education, fishing, health, and law enforcement) should coordinate to develop a ***national water safety strategy and action plan***. The strategy could address matters of leadership coordination, funding, advocacy, awareness raising, prioritization, target setting, and monitoring and evaluation.

The following specific recommendations could be considered broadly in the strategy, and more specifically in the action plan:

- ❖ Prioritize making water transport and fishing safer for both large and small boat users by:
  - Setting and enforcing safe boating regulations.
  - Improving detection and dissemination of information about the weather.
  - Ensuring boats are fit for purpose.
  - supporting increased availability and use of lifejackets, and increasing sensitization about safe boating practices.
- ❖ Support environmental

modifications that prevent unintended access to water by, where appropriate.

- creating physical barriers around wells and dams.
  - Providing communities with safe water sources such as boreholes and pumps, and
  - sensitizing community officials on the importance of providing and regulating the creation of safe pit latrines and ditches.
- ❖ Improve data collection on drowning incidents by;
- Encouraging the public to report drowning incidents to authorities,
  - Instituting and supporting record keeping systems where they are lacking, particularly in districts with high rates of drowning, and
  - Providing training and equipment to records officers.





The background is an underwater scene with a hand reaching up towards the surface. The water is a deep blue, and light rays are visible filtering down from the surface. A bright blue geometric shape, resembling a stylized 'L' or a corner bracket, is positioned behind the text.

## **BACKGROUND**

Why study  
drowning in  
Uganda?

## BACKGROUND – Why study drowning in Uganda?

Drowning is the third leading cause of unintentional injury death globally; an estimated 322,000 people die from drowning each year, and over 90% of these deaths occur in low- and middle-income countries.<sup>1,2</sup> It is estimated that drowning death rates in the WHO African region are the highest in the world (8 per 100,000 population).<sup>2</sup> Although the burden of drowning is believed to be high in this region, data collection and surveillance for drowning in African countries are limited.



Each year  
**322,000**  
people die from  
drowning worldwide.



Drowning death rates in  
**Africa are the  
highest** in the world.

Drowning prevention strategies require adequate data on the burden and circumstances of drowning to help ensure data-driven prevention efforts. The World Health Organization (WHO) recommends that all countries take steps to improve drowning data so that prevention strategies can be tailored to local circumstances and high-risk groups.<sup>2</sup>

Information related to the epidemiology of drowning in Sub-Saharan Africa, including Uganda, is limited, and most of the existing information is based on estimates using limited data, or on small regional studies.<sup>2-9</sup> Previous studies that aimed to capture information on drowning in Uganda faced challenges. In a 1998 study of 4,359 injury patients in five Kampala hospitals, no drowning deaths or injuries were captured.<sup>10</sup> A five-month study in 2008 among 556 pediatric injury patients (1–12 years of age) in the National Referral Hospital of Kampala also did not register any drowning cases.<sup>11</sup>

In 2001, the results of a general injury survey in one rural community and one urban community found drowning to be one of the leading causes of injury death in the rural community, but did not identify any drowning cases in the urban community.<sup>12</sup> A study that aimed to determine the drowning burden in four lakeside communities in Uganda found a very high drowning rate of 502 per 100,000 population per year.<sup>3</sup> However, that study only examined drowning in communities residing directly on the lake; the burden of drowning in communities near other Ugandan water bodies such as rivers, ponds, wells, flood waters, and valley dams is unknown.

No previous study has comprehensively assessed the circumstances of drowning in both lakeside and non-lakeside districts in Uganda. Therefore, this study sought to improve the understanding of the types and circumstances of drowning in Uganda. In this document, we report on the study findings based on our three overarching objectives.



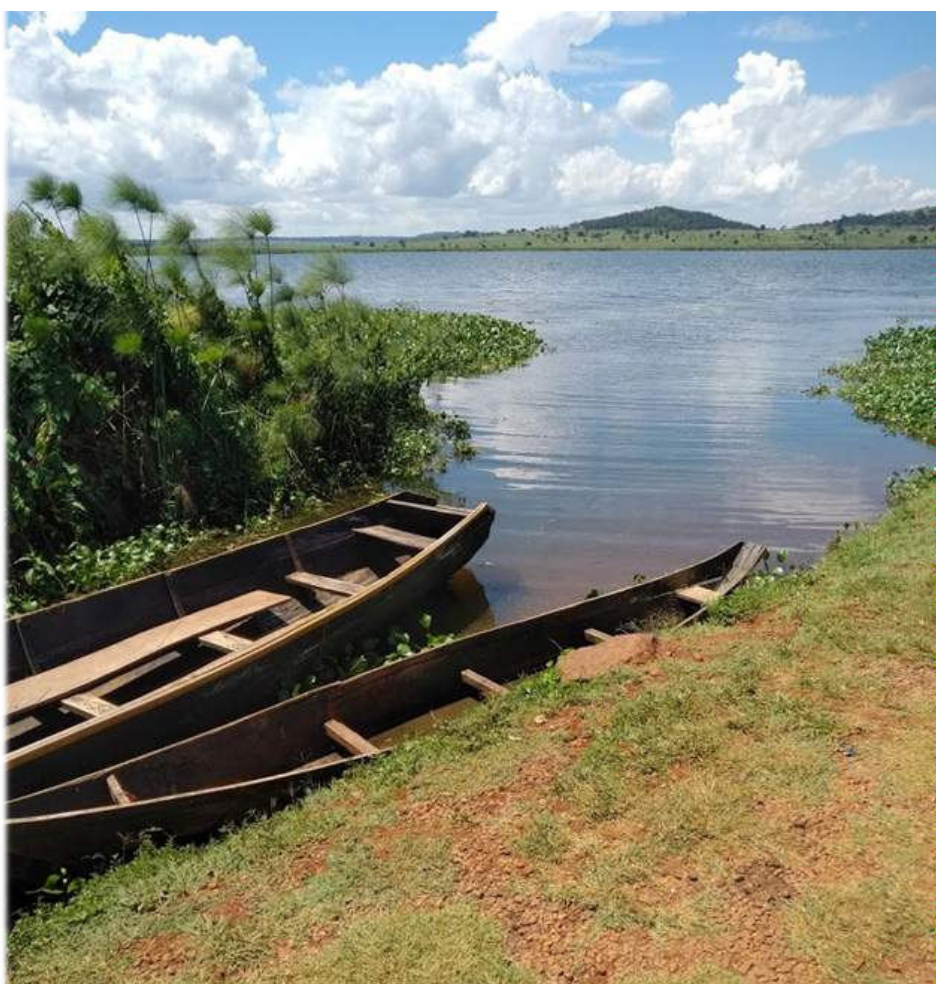
## OBJECTIVES – What did we set out to achieve?

The study had three overarching objectives:

**Objective one:** To establish the availability of drowning data in district-level sources and understand the reporting of and record keeping on drowning in Uganda.

**Objective two:** To describe the burden and circumstances of drowning in select districts in Uganda.

**Objective three:** To identify potential contextually-appropriate interventions for drowning prevention in select districts in Uganda.



*"In a year, we lose about 18 people to drowning [in this area]. In the past three weeks, we buried three people which is a damning statistic." – Focus group participant, Rakai district*



The background of the slide is a photograph of a person in a red life preserver floating in the ocean. The person's head and shoulders are visible above the water, while their body is submerged. The water is a deep blue, and the sky is a lighter blue. The person is wearing a red life preserver with a white rope. The overall mood is calm and serene.

## **METHODS**

How did we  
collect this  
information?



## METHODS – How did we collect this information?

Data collection occurred in two main phases:

- **Phase one** data collection occurred from October to December 2018. In phase one, we abstracted data on drowning cases from records in district-level sources (district police offices, marine police detachments, fire/rescue brigade detachments, and the largest mortuaries) in 60 districts.
- **Phase two** data collection occurred from March to July 2019. In phase two, we contacted health assistants, village health team coordinators, village health teams, and local councilors to identify all cases of drowning in 14 districts. When drowning cases were identified, we conducted individual interviews with witnesses/family members/friends and survivors of drowning. We also conducted interviews with records officers about data collection and focus group discussions with community members about ways drowning could be prevented.

In both phase one and phase two, data were collected for drowning cases that occurred during a two-and-a-half-year period (between January 1, 2016 and June 30, 2018).

**Definition of drowning:** Drowning is the process of experiencing respiratory impairment from submersion/immersion in any liquid – most commonly water.

Drowning might or might not result in death. In this study, we included both fatal drownings (**drowning deaths**) and non-fatal drownings (**survivors of serious drowning incidents**).

In this report, a person is called a **survivor** if they experienced a non-fatal drowning (respiratory impairment occurred but they survived). Individuals who experienced a water-related incident, such as falling out of a boat, but who did not experience respiratory impairment, were not included in the study.

### Phase one data collection methods

#### *District selection – Where did phase one data collection occur?*

We selected 60 districts<sup>2</sup> (approximately half of the districts in Uganda) for phase one of the study.<sup>3</sup>

**Lakeside districts:** Districts that border one of the four major lakes in Uganda: Lake Victoria, Lake Albert, Lake Edward, or Lake Kyoga.

**Non-lakeside districts:** Districts that do not border one of the four major lakes. The districts might include other bodies/sources of water and liquids such as smaller lakes, rivers, ponds, ditches, and pits (such as pit latrines).

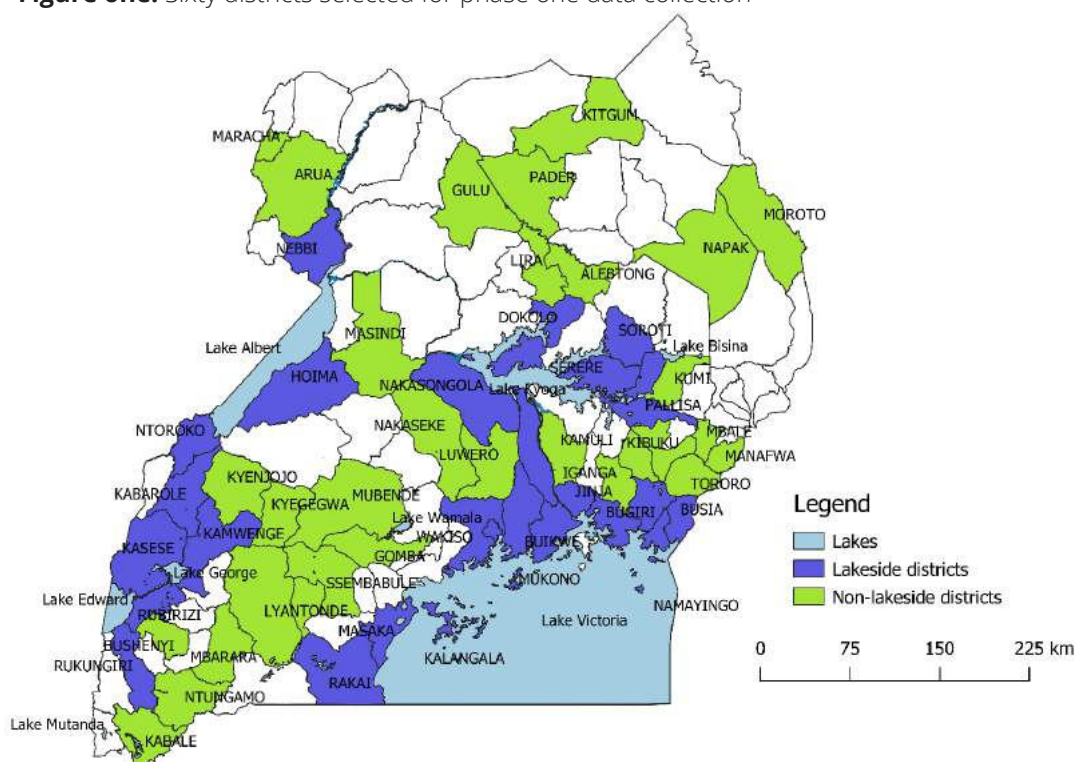
<sup>2</sup> Alebtong, Amolatar, Arua, Bugiri, Buikwe, Bushenyi, Busia, Butaleja, Dokolo, Gomba, Gulu, Hoima, Iganga, Jinja, Kabale, Kabarole, Kalangala, Kampala, Kamuli, Kamwenge, Kasese, Kayunga, Kibuku, Kiruhura, Kitgum, Kumi, Kyegegwa, Kyenjojo, Lira, Luwero, Lyantonde, Manafwa, Maracha, Masaka, Masindi, Mayuge, Mbale, Mbarara, Moroto, Mubende, Mukono, Nakaseke, Nakasongola, Namayingo, Namutumbe, Napak, Nebbi, Ngora, Ntoroko, Ntungamo, Pader, Pallisa, Rakai, Rubirizi, Rukungiri, Serere, Soroti, Ssembabule, Tororo, Wakiso.

<sup>3</sup> District selection was based on the 2014 census (which is the most recent census). There were 112 districts at the time of that census.

Districts were purposefully selected to ensure that both “lakeside” and “non-lakeside” districts were included, and that we included districts from each region (Central, Eastern, Northern, and Western). “Lakeside districts” were defined as those that border one of the four major lakes in Uganda (Lake Victoria, Lake Albert, Lake Edward, or Lake Kyoga). “Non-lakeside districts” were defined as those that do not border one of the four major lakes. We used this approach to ensure coverage of different types of environments to enable us to capture the range of drowning circumstances in Uganda.

**Figure one** shows the districts where phase one data collection occurred. Districts shaded dark blue or green were included in the study. Districts shaded in dark blue are those we defined as “lakeside districts” (n=28), while “non-lakeside districts” are shaded in green (n=32). Bodies of water are shaded in light blue, and districts not included in phase one are white.

**Figure one:** Sixty districts selected for phase one data collection



### Phase one data collection – How and where did we collect the information?

We developed a data abstraction tool to collect data from station diaries/case files and mortuary registers/post mortem reports from four types of data sources:

- District police offices
- Marine police detachments
- Fire/rescue brigade detachments
- The largest mortuary in each district



Experienced research assistants were trained and supervised by the study team to conduct the data collection. The research assistants were deployed in teams of two (and one team of three) to different districts to collect data. Data were collected using tablet computers with a customized version of Open Data Kit (ODK) software which can be used offline and uploaded to a secure server daily. Once a team completed data collection in one district, they moved on to the next district as instructed by the study coordinator.

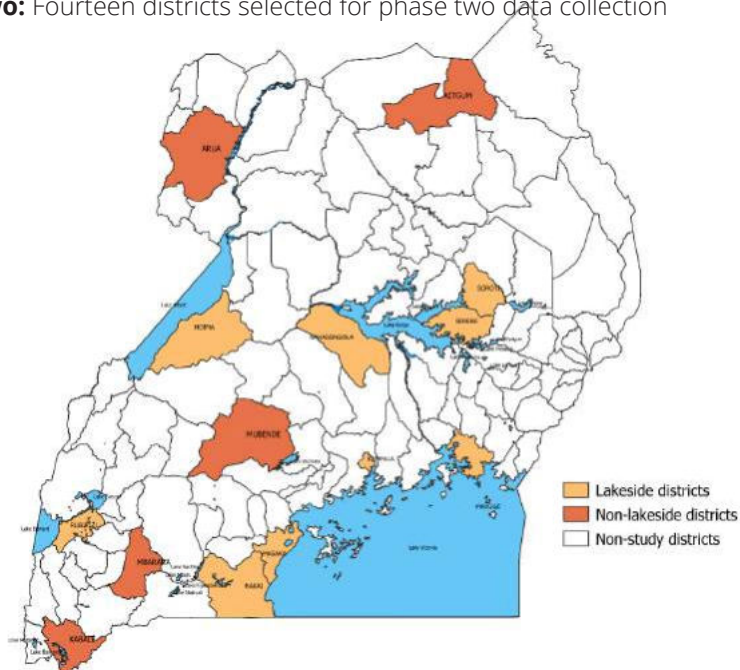
## Phase two data collection methods

### *District selection – Where did phase two data collection occur?*

We selected 14 districts<sup>4</sup> out of the 60 phase one districts to conduct phase two of the study. Similar to phase one, districts were purposefully selected to ensure that both “lakeside” and “non-lakeside” districts were included, and that we included districts from each region (Central, Eastern, Northern, and Western). When selecting phase two districts, we also considered how many cases were recorded in administrative data sources in each district in phase one. We selected districts where many cases were recorded in phase one, as well as districts where few cases were recorded. We used this approach so that we could determine whether the number of cases recorded in the administrative sources was representative of the true burden of drowning in the districts.

**Figure two** shows the districts where phase two data collection occurred. Districts shaded orange were included in the study. Districts shaded in dark orange are those we defined as “lakeside districts” (n=9), while “non-lakeside districts” are shaded in light orange (n=5). Bodies of water are shaded in light blue, and districts not included in phase two are white.

**Figure two:** Fourteen districts selected for phase two data collection



<sup>4</sup> Arua, Hoima, Kabale, Kampala, Kitgum, Masaka, Mayuge, Mbarara, Mubende, Nakasongola, Rakai, Rubirizi, Serere, Soroti.

## Phase two data collection – How and where did we collect the information?

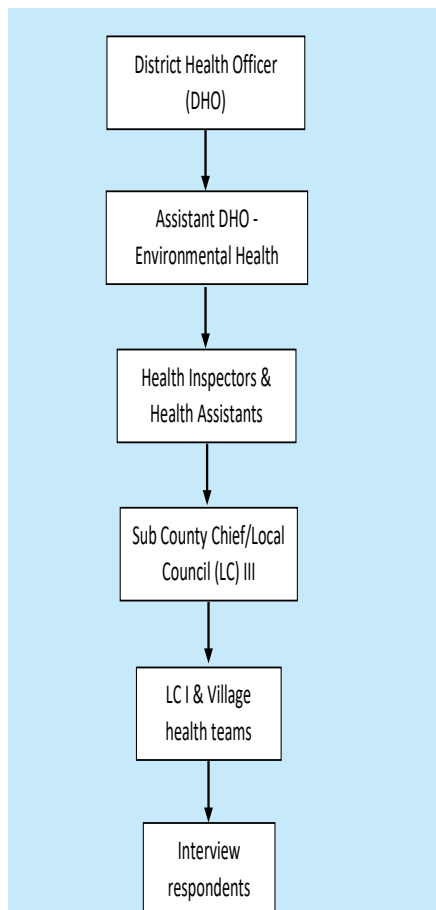
**Case identification:** Figure three shows the process for identifying cases of drowning in the communities. After obtaining all necessary permissions, we utilized existing health systems from the district level down to the village level to identify all cases of drowning that occurred in each district (including drowning cases that were not recorded in the district-level administrative sources).

- The District Health Officer (DHO) referred us to the Assistant DHO in charge of Environmental Health (ADHO-EH), who connected us to the Health Inspectors and Health Assistants.
- We worked with the district and sub-country administrative structures, including the Sub-county Chief and the Chairpersons Local Council three (LC III) to identify village health teams (VHTs) and VHT coordinators, who identified witnesses, family members, and friends of individuals who drowned as well as survivors of drowning incidents.
- Upon entry into every village, trained research assistants first reported to the Chairpersons Local Council One (LC I) in charge of the village. The LC I also knew households that were affected by drowning and therefore could lead the study team to interview respondents in those households.

**Individual interviews:** The research assistants conducted interviews with witnesses, family members, and friends of individuals who drowned, as well as survivors of drowning incidents. The research assistants used a structured questionnaire to collect information on the individual who drowned and the circumstances of the drowning incident. Data were collected using tablets with a customized version of Open Data Kit (ODK) software which can be used offline and uploaded to a secure server daily.

**Records officer interviews:** The research assistants interviewed one records officer in the office of the District Police Commander (DPC) in each district. The records officer is in charge of maintaining all records in the DPC's office. The purpose of these interviews was to understand the reporting of and record keeping on drowning incidents, and the management of drowning records across the different administrative sources in the district.

**Focus group discussions:** We conducted 10 focus group discussions to explore the



**Figure three:** Flow chart for identifying phase two cases



cultural and contextual factors of drowning in Uganda, beliefs surrounding drowning, and the feasibility/appropriateness of potential interventions. Focus group participants were selected based on high-risk populations for drowning as well as their willingness to share thoughts and experiences on drowning. We also considered levels of education, occupation, sex, and age when selecting focus group participants to ensure well-balanced groups. Focus group discussions were conducted in both lakeside and non-lakeside districts.

### **Ethical considerations**

For both phase one and phase two data collection, we obtained ethical approval from Makerere University School of Public Health Higher Degrees, Research and Ethics Committee (HDREC); with clearance from the Uganda National Council for Science and Technology (UNCST). All data were kept confidential. Written informed consent was obtained from all participants prior to every individual interview, records officer interview, and focus group discussion.





## **FINDINGS**

What did we  
learn about  
drowning in  
Uganda?



## FINDINGS – What did we learn about drowning in Uganda?

In this section, the findings of the study are summarized based on the three overarching objectives.

**Objective one:** Establish the availability of drowning data in district-level sources and understand the reporting of and record keeping on drowning in Uganda.

**Table one:** Number of drowning cases recorded in district-level administrative sources in 60 districts, Jan 1 2016 – Jun 30 2018\*

Source	Drowning Deaths	Drowning Survivors	Total
District Police	405	8	413
Mortuary	390	N/A	390
Marine Police	332	56	388
Fire/Rescue	165	63	228
<b>Total</b>	<b>1,292</b>	<b>127</b>	<b>1,435†</b>

\* Some drowning cases were recorded in more than one source. This table shows all eligible cases that were collected from each source; therefore, these totals include some duplicate cases.

† Includes 16 additional cases where survival status was unknown.

### *How many cases were recorded in district-level administrative sources in Uganda?*

During the two-and-a-half-year study period (January 1, 2016 to June 30, 2018), **1,435** drowning cases were recorded in the district police offices, marine police detachments, fire/rescue brigade detachments, and the largest mortuary in the 60 study districts (**Table one**). This is not the number of drowning cases that **occurred** during that time, but rather the number of drowning cases that were **recorded**. We learned from this study that many more cases of drowning happen that are never reported to or recorded in administrative sources.

The majority of the recorded cases were deaths (90%). Few cases where a person started drowning but survived the incident (9%) and cases for which survival status (died or survived) could not be determined (1%) were recorded. Of the 1,292 drowning deaths that were recorded, a similar number of cases were found in the district police (31%), mortuary (30%), and marine police (26%) records, with substantially fewer cases found in the fire/rescue brigade records (13%). A complete summary of the number of cases that were found in each source by study district can be found in **Appendix A**.

## *Were some drowning cases reported to district sources, but no records were kept?*

Table two: Number of drowning cases reported to district-level administrative sources according to individual interview respondents in 14 districts, Jan 1 2016 – Jun 30 2018

Source	Drowning Deaths	Drowning Survivors	Total
District Police	779	144	923
Mortuary	4	N/A	4
Marine Police	39	11	50
Fire/Rescue	0	1	1
<b>Total</b>	<b>822</b>	<b>156</b>	<b>978</b>

When we identified cases of drowning in the communities in phase two, we asked individual interview respondents whether or not they had reported the drowning incident to the authorities. In just the 14 districts where phase two data collection occurred, 779 drowning deaths were said to have been reported to the police. In contrast, 97 drowning deaths were recorded in district police records in those same 14 districts in phase one. **Table two** shows the number of drowning cases that individual interview respondents claim to have reported by source. This might indicate that in some instances drowning cases are reported to authorities but no record is kept.

## *When cases were recorded in district-level administrative sources, what types of information about drowning were available?*

The availability of information on the characteristics of the person who drowned, and the circumstances of the drowning incident, varied by source. **Table three** shows the number of cases where information was available for key variables. For drowning deaths:

- Age (90%) and sex (97%) of the victim were almost always available from mortuary records; however, mortuaries were typically less likely to include information about the circumstances of the drowning than other sources, such as district where the drowning occurred (49%), type of body of water (44%), and activity at the time of drowning (12%).
- Type of water body was most frequently available from marine police records (93%) and fire/rescue brigade records (90%). This makes sense given that these two agencies might be the most likely of the four sources to have responded to the scene of the drowning (to rescue individuals and/or recover bodies).
- Activity at the time of drowning was not frequently reported in any of the administrative sources; however, it was most likely to be available from the marine police records (47%) followed by the district police records (32%).





- An exact or estimated date of incident could usually be determined from each of the sources, ranging from 98% available in the district police records to 81% from the fire/rescue brigade records.

Drowning survivors were rarely recorded in the administrative sources. When survivors were recorded, the number of cases where information was available for key variables is also summarized in **Table three**.

**Table three:** Completeness of key variables for drowning cases by source in 60 districts, Jan 1 2016 – Jun 30 2018\*

	DROWNING DEATHS										DROWNING SURVIVORS									
	Total Fatal (n=1,292)		District Police (n=405)		Marine Police (n=332)		Fire/Rescue Brigade (n=165)		Mortuary (n=390)		Total Non-fatal (n=127)		District Police (n=8)		Marine Police (n=56)		Fire/Rescue Brigade (n=63)		Total Drowning Cases† (n=1,435)	
Age	952	74%	276	68%	200	60%	125	76%	351	90%	85	67%	8	100%	30	54%	47	75%	1,042	73%
Exact age known	722	56%	231	57%	163	49%	88	53%	240	62%	63	50%	8	100%	24	43%	31	49%	785	55%
Adult/child known	230	18%	45	11%	37	11%	37	22%	111	28%	22	17%			6	11%	16	25%	257	18%
Sex	1,155	89%	381	94%	287	86%	108	65%	379	97%	111	87%	8	100%	52	93%	51	81%	1,267	88%
Type of body of water	985	76%	357	88%	308	93%	148	90%	172	44%	116	91%	8	100%	46	82%	62	98%	1,113	78%
Activity	344	27%	130	32%	156	47%	13	8%	45	12%	55	43%	4	50%	38	68%	13	21%	402	28%
Date of incident	1,186	92%	395	98%	322	97%	134	81%	335	86%	111	87%	8	100%	56	100%	17	27%	1,310	91%
Exact date known	908	70%	356	88%	273	82%	34	21%	245	63%	65	51%	8	100%	40	71%	30	48%	975	68%
Date estimated	278	22%	39	10%	49	15%	100	61%	90	23%	46	36%			16	29%	16	25%	335	23%
District of incident	1,015	79%	388	96%	283	85%	153	93%	191	49%	121	95%	8	100%	54	96%	59	94%	1,145	80%

\* Some drowning cases were recorded in more than one source. This table shows all eligible cases that were collected from each source; therefore, these totals include some duplicate cases.

- The total drowning cases column includes 16 cases for which survival status (died or survived) was unknown.

In addition to the key variables summarized in **Table three**, we attempted to collect data on several other circumstances and/or potential risk factors for drowning; however, there was a high proportion of missing information across these other variables. For example, the district where the individual lived was missing for over half of all recorded drowning deaths (51%), and whether or not the activity was occupational could not be determined in 73% of cases. It was very difficult to find information on whether or not the drowning event had been witnessed (90% missing) and whether or not a rescue had been attempted (93% missing). Moreover, information related to known risk factors for drowning such as alcohol intoxication (96% missing) and lifejacket use (96% missing for cases where the activity was known to be boating) was rarely recorded in district-level administrative sources.

### What factors affect reporting of and record keeping on drowning in Uganda?

We interviewed the police officers in charge of records in each of the 14 phase two study districts to help us understand the factors that affect record keeping on drowning cases. These interviews identified the following key issues:

## People often do not report drowning cases to the authorities:

- Many people believe that drowning is an act of God and a natural death, and therefore individuals feel there is no reason to report it.
- In cases where a body is found in the water, and few details are known, witnesses sometimes feel like they do not have enough information to report the incident.
- Family members often fear that they will be asked to pay fees for transporting the body and/or for post mortem if they report the drowning.
- When a drowning occurs at or near home, family members sometimes fear being accused of negligence that caused the drowning, and therefore choose not to report it. Similarly, in drowning incidents where some individuals die and others survive, the survivors are sometimes reluctant to report the incident for fear of being implicated in those deaths.
- Traditional beliefs and practices in some communities require that the body of a person who has drowned must be buried immediately. As a result, they do not report the incident to avoid any delays in the burial process.
- There are logistical challenges associated with reporting drowning cases to authorities, such as lack of money for an individual to travel to the nearest office to report the case, and the need to travel long distances on poor quality roads, especially in rural and hilly areas.

*"They say 'why should we bother going into all this bureaucracy by informing the police. Let us retrieve our body and we go and bury. After all, we all know our person has died naturally according to God's will. There is no other outside force that has caused the death'." – Records officer*

## Administrative offices face challenges with keeping records:

- Sometimes records officers have little or no space within the office to keep the records well organized, or the space itself is not suitable for keeping records. For example, roofs leak during the rainy season, or are in disrepair and might blow away in heavy winds, and paper records are sometimes destroyed by rodents and insects.
- Limited funding inhibits record keeping on drowning cases. For example, record keeping cannot be done electronically/digitally due to lack of funding for computers, and limited funding contributes to a shortage of stationary for keeping hard copy records.

*"Our offices are so vulnerable that the roofs and the entire structure could be blown away by strong winds at any time. We are always given the smallest office around or the oldest unimportant which makes our work difficult." – Records officer*

*"Some of our records are destroyed by rats and cockroaches, so there are incidences when someone fails to obtain all the details about a particular case file because it was destroyed by the rats and insects." – Records officer*



## Record keeping on drowning cases could be improved:

- Record keeping on drowning cases could be improved if more resources were allocated to enable adequate space to store records where they could not get damaged and computers for digitization of records.
- Heightened sensitization of the community on the need to report all cases of unnatural death (including drowning) might increase the number of cases that get reported and recorded.
- Record keeping might improve if records officers were provided regular training on record keeping and data management.

*"We are still in the analogue phase in terms of record keeping yet the world has moved to digital era. We have to buy everything for ourselves—including notebooks, pens, and other stationery facilities we may need."* – Records officer

## Objective two: Describe the burden and circumstances of drowning in select districts in Uganda.

### How big of a problem is drowning in Uganda?

Burden refers to death and loss of health due to drowning. In this section of the report, we will describe the number of drowning deaths and the number of survivors of serious drowning incidents in select districts in Uganda. We will also compare how many drowning deaths were reported in each district to how many people live in each district to get population-based drowning death rates. Using these measures, as well as qualitative data from individual interview respondents and focus groups, we intend to shed light on the burden of this important public health issue.

*"Generally, life comes to a standstill. No weddings, no parties; not even football can be enjoyed here when there is a drowning case."* – Focus group participant, Rakai district

**Deaths from drowning** have a severe impact on the community. According to individual interview respondents and focus group participants in this study:

- Death by drowning is tragic and causes trauma to relatives and friends of the person who drowned, as well as community members.
- Drowning often results in the loss of the head of household and breadwinner, which makes it difficult for the family to afford basic needs such as food, medical care, shelter, and education. Drowning of a parent can also result in the orphaning of young children who are then unable to take care of themselves.
- When a drowning occurs in a fishing community, it often impacts the livelihood activities of the majority of the community members while they cease their usual fishing activities to assist with the search for the missing body.

*"Drowning breeds fear and anxiety in peoples' hearts. They start fearing water, yet their livelihoods are dependent on water. Such fear traumatizes people."* – Focus group participant, Kitgum district

**Surviving a drowning incident** also impacts both the individual who survived and the entire community:

*"A young man who survived drowning in a fish pond became handicapped after the incident and is now restricted to a wheelchair...he cannot do anything by himself. Worst of all, he is an orphan and only survives by the mercy of people who pass by and give him anything."*

– Focus group participant, Mbarara district

Table four: Number\* of drowning cases documented in district-level administrative sources in 60 districts, Jan 1 2016 – Jun 30 2018

LAKESIDE DISTRICTS			NON-LAKESIDE DISTRICTS		
District Where Reported	Drowning Deaths	Drowning Survivors	District Where Reported	Drowning Deaths	Drowning Survivors
Kalangala	124	16	Mbarara	62	3
Kampala	105	15	Mbale	33	1
Jinja	97	6	Iganga	26	2
Namayingo	71	9	Mubende	23	3
Kasese	40	8	Ssembabule	23	0
Mayuge	38	2	Kitgum	19	2
Buikwe	34	4	Lyantonde	19	0
Masaka	33	9	Nakaseke	16	0
Hoima	30	7	Kiruhura	15	0
Serere	30	5	Kyegegwa	15	0
Busia	22	9	Luwero	15	1
Ntoroko	21	4	Arua	14	3
Nakasongola	20	1	Kibuku	9	0
Rakai	20	1	Masindi	7	2
Wakiso	20	0	Butaleja	6	0
Bugiri	17	0	Kabale	6	0
Kayunga	11	0	Lira	6	4
Mukono	11	0	Tororo	5	0
Ngora	11	0	Alebtong	4	0
Soroti	11	3	Bushenyi	4	1
Kabarole	8	2	Kamuli	4	0
Kamwenge	6	0	Kyenjojo	4	0
Pallisa	6	0	Moroto	4	0
Rubirizi	6	0	Namutumba	4	0
Rukungiri	6	0	Ntungamo	4	0
Dokolo	3	0	Gulu	2	0
Amolatar	2	0	Kumi	2	0
Nebbi	1	0	Maracha	2	0
			Manafwa	1	0
			Napak	1	0
			Pader	1	0
			Gomba	0	0
<b>Total</b>	<b>804</b>	<b>101</b>	<b>Total</b>	<b>356</b>	<b>22</b>

\* Number of unique drowning cases documented (after systematic manual deduplication to remove cases recorded in more than one source).



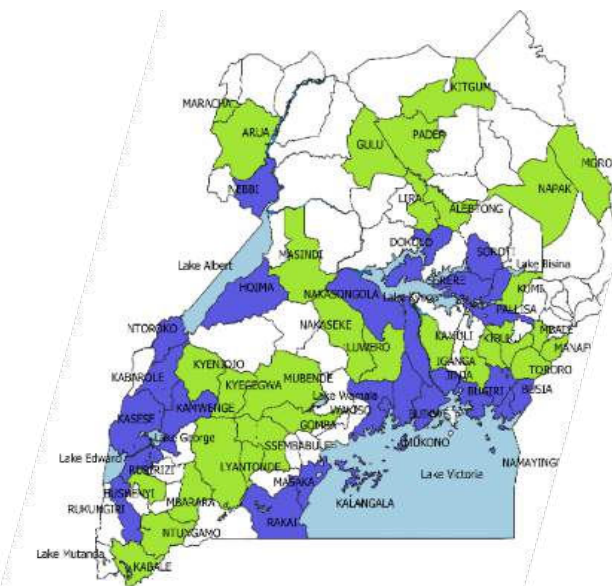


Table four shows the number of drowning cases recorded in each of the 60 phase one districts after we removed any duplicate records from cases that were recorded in more than one source. A total of 1,283 unique drowning cases were found in the district-level sources during the study period. The number of drowning deaths reported per district ranged from 1 to 124 in lakeside districts and 0 to 62 in non-lakeside districts.

Although a substantial number of drowning cases were recorded in the district-level sources in many districts, we know that these recorded cases only represent a small portion of the true burden of drowning based on phase two data collection and findings. For more accurate estimates of the burden of drowning, phase two data collection was needed.

During phase two data collection, we used existing health systems at the district, sub-county, and village level in 14 districts to identify all cases of drowning that occurred in the district, including those that were never recorded in a district-level administrative source. The first two columns of Table five show the number of drowning deaths and drowning survivors identified using health system personnel (such as Health Assistants and Village Health Teams) and confirmed through individual interviews in each of the 14 districts.

During the two-and-a-half-year study period (January 1, 2016 to June 30, 2018), a total of 2,066 cases of drowning were identified by health system personnel and confirmed through individual interviews with witnesses/family members/friends and survivors of drowning.

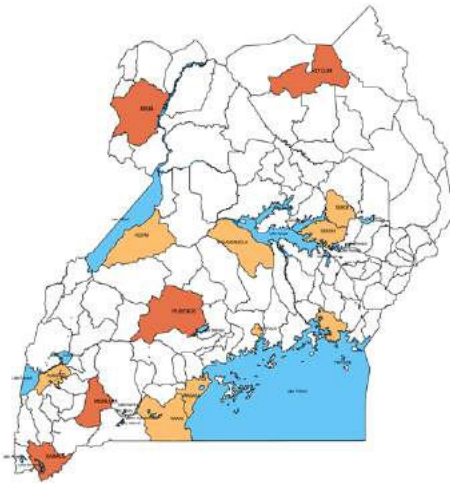
Table five: Number of drowning cases collected through individual interviews 14 districts, Jan 1 2016 – Jun 30 2018

LAKESIDE DISTRICTS				
District of Interview	Drowning Deaths	Drowning Survivors	Estimated Population*	Death rate per 100,000 pop / Year
Mayuge	287	218	473,239	24.3
Rakai	169	26	516,309	13.1
Serere	107	103	285,903	15.0
Hoima	87	69	572,986	6.1
Nakasongola	76	17	181,795	16.7
Masaka	71	3	297,004	9.6
Soroti	45	77	296,833	6.1
Rubirizi	30	20	129,149	9.3
<b>Total</b>	<b>872</b>	<b>533</b>	<b>2,753,218</b>	<b>12.7</b>
NON-LAKESIDE DISTRICTS				
District of Interview	Drowning Deaths	Drowning Survivors	Estimated Population*	Death rate per 100,000 pop / Year
Mbarara	123	27	472,629	10.4
Arua	121	38	782,077	6.2
Kitgum	56	15	204,048	11.0
Kabale	55	50	528,231	4.2
Mubende	47	16	684,348	2.7
<b>Total</b>	<b>402</b>	<b>146</b>	<b>2,671,333</b>	<b>6.0</b>
CAPITAL CITY				
	Drowning Deaths	Drowning Survivors	Estimated Population*	Death rate per 100,000 pop / Year
<b>Kampala</b>	<b>58</b>	<b>55</b>	<b>1,507,080</b>	<b>1.5</b>

\* Uganda Bureau of Statistics. The National Population and Housing Census 2014 – Main Report

We compared how many drowning deaths were reported in each district to how many people live in that district to get population-based drowning death rates. The last column of Table five shows the estimated drowning death rate per 100,000 population per year. These drowning death rates should be interpreted with caution. They are included to provide an estimate of how the number of cases found in each district compares to the estimated population of that district.





Note: Kampala is a lakeside district, but we report it separately in this section due to its unique characteristics (a very large and dense urban population).

Some key findings about the burden of drowning in Uganda based on 14 districts:

- The majority of cases were drowning deaths. A total of 1,332 people (64% of cases) died from drowning during the two-and-a-half-year study period (January 1, 2016 to June 30, 2018).
- However, a substantial number of drowning survivors were also found. A total of 734 people (36% of cases) were involved in a serious event where they began to drown but survived.
- The number of drowning deaths reported per district ranged from 30 to 287 in lakeside districts and from 47 to 124 in non-lakeside districts.
- On average, drowning death rates were higher in lakeside districts than in non-lakeside districts. However, relatively high rates were found in non-lakeside areas as well. For more information on drowning death rates, see the map of Uganda in Figure four.

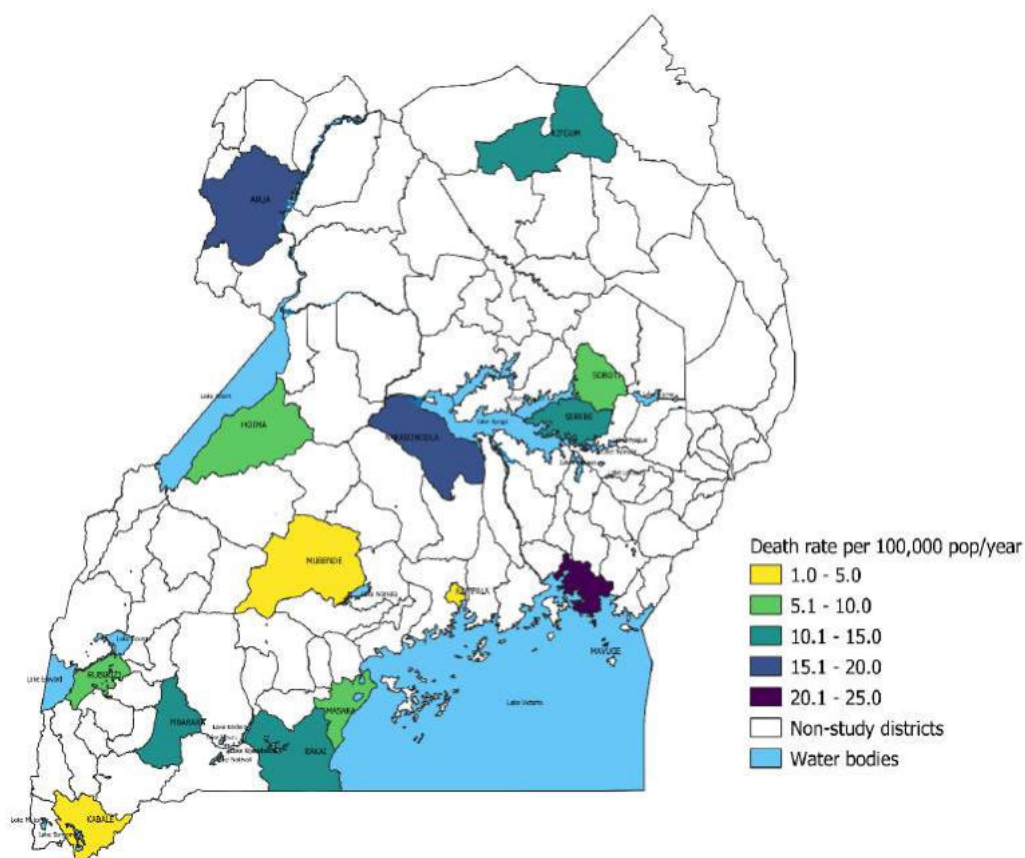


The map in Figure four shows the burden of drowning in 14 districts in Uganda based on death rates. The colour of the district on the map corresponds with the population-based drowning death rate in that district. Darker shaded districts have higher drowning death rates, and lighter shaded districts have lower death rates.

- Lakeside districts: rates ranged from 6.1 drowning deaths per 100,000 people living in the district each year to 24.3 drowning deaths per 100,000 people living in the district each year.

- Non-lakeside districts: rates ranged from 2.7 drowning deaths per 100,000 people living in the district each year to 11.0 drowning deaths per 100,000 people living in the district each year.
- Kampala: the drowning death rate in Kampala was 1.5 drowning deaths per 100,000 people living in the district each year. However, this is likely an underestimate of the true burden of drowning which is impacted by the large population of Kampala, and difficulty finding interview respondents who could give us information about drowning cases.

**Figure four:** Drowning death rates by district in 14 districts, Jan 1 2016 – Jun 30 2018





***How does the number of cases we found in the district-level administrative records in phase one compare with the number of cases that we collected through individual interviews in the community in phase two?***

**Table six** shows the number of drowning deaths that we found in the district-level administrative records (at the district police, marine police, fire/rescue brigade, and mortuary) in the 14 districts where phase two data collection occurred. It also shows the number of drowning deaths we found when we used health system personnel at the district, sub-county, and village level in those same 14 districts to identify all cases of drowning deaths (both recorded and not recorded).

Overall, we found **3.2 times** the number of drowning deaths in the communities than were recorded in the district-level sources. The ratio was even higher in lakeside districts; we found **4.6 times** the number of drowning deaths in the communities in lakeside districts than were recorded in the district-level sources.

Table six: Number of drowning deaths collected through individual interviews compared with number of drowning deaths found in district-level records in 14 districts, Jan 1 2016 – Jun 30 2018

	District-level Records (phase one)		Individual Interviews (phase two)		Ratio
	Deaths	Death Rate per 100,000 pop/year	Deaths	Death Rate per 100,000 pop/year	
Overall (14 districts)	417	2.4	1,332	7.7	<b>3.2</b>
Lakeside Districts	188	2.7	872	12.7	<b>4.6</b>
Non-lakeside Districts	124	1.9	402	6.0	<b>3.2</b>
Kampala	105	2.8	58	1.5	<b>0.6</b>

Table seven shows the number of survivors of serious drowning incidents that we found in the district-level administrative records (at the district police, marine police, fire/rescue brigade, and mortuary) in the 14 districts where phase two data collection occurred. It also shows the number of drowning survivors we found when we used health system personnel at the district, sub-county, and village level in those same 14 districts to identify all cases of drowning survivors (both recorded and not recorded). Overall, we found 13.6 times the number of drowning survivors in the communities than were recorded in the district-level sources.

Table seven: Number of drowning survivors collected through individual interviews compared with number of drowning survivors found in district-level records in 14 districts, Jan 1 2016 – Jun 30 2018

	District-level Records (phase one)		Individual Interviews (phase two)		Ratio
	Survivors	Rate per 100,000 pop/ year	Survivors	Rate per 100,000 pop/ year	
Overall (14 districts)	54	0.3	734	4.2	13.6
Lakeside districts	28	0.4	533	7.7	19.0
Non-lakeside districts	11	0.2	146	2.2	13.3
Kampala	15	0.4	55	1.5	3.7

### What are the circumstances of drowning incidents in Uganda?

It is important to understand the circumstances of drowning, such as which age groups are most at risk of drowning, when and where people are most likely to drown, and what activities people are engaged in when they drown. This information is necessary to design and implement effective prevention strategies. In this section, we summarize the circumstances of drowning based on cases collected in 14 districts in Uganda. The circumstances of drowning differed by district. District-specific summaries can be found in Appendix B, at the end of this report.



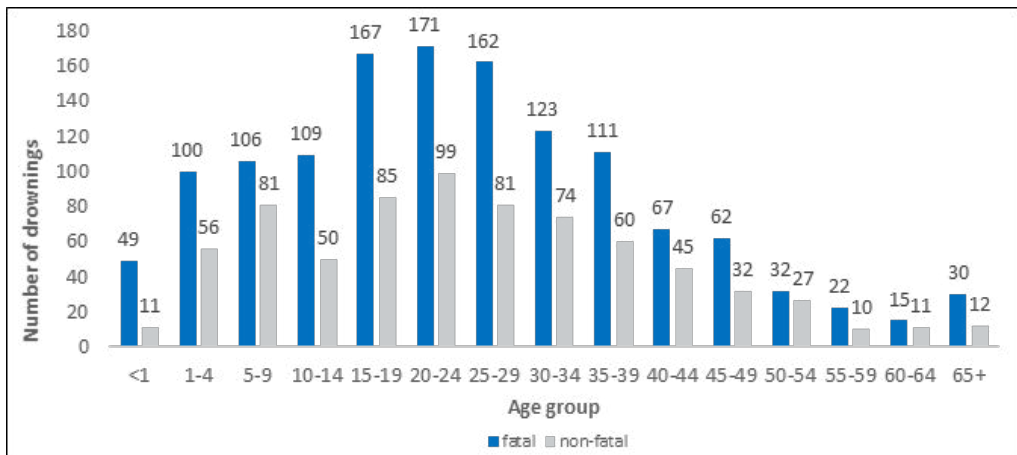
*“My son wasn’t alone in the boat. They were three people and they all died. There were many boats on the lake at that moment. As they were struggling to reach that floating island, they didn’t make it because the winds were so strong. The ones on the island watched them but couldn’t attempt to rescue them. The canoe they were on I believe is the major reason they drowned, because it’s too small and they had a heavy net in it already. So it couldn’t support them under that storm.”*

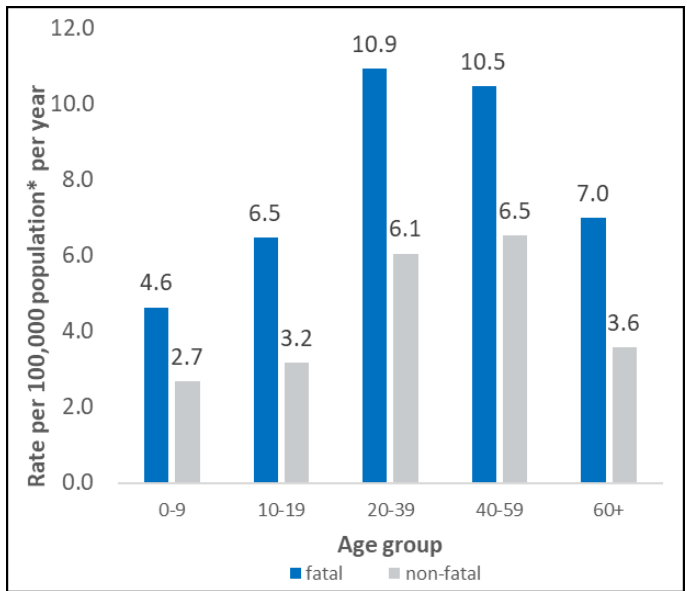
– Interview respondent, Nakasongola district

## Who drowns?

The number of drowning cases by [Age Group](#) is shown in **Figure five**, and drowning rates by [Age Group](#) are shown in **Figure six**.

**Figure five:** Number of drowning deaths and drowning survivors by age group in 14 districts, Jan 1 2016 – Jun 30 2018





- The highest number of drownings (both deaths and survivors) occurred among young adults 20-24 years of age.
- We compared how many drownings occurred in each age group with how many people of that age group live in the district to get age-specific drowning rates. The highest rates were found among adults 20-39 years of age and 40-59 years of age.
- Young adults are at the highest risk of drowning.

**Figure six:** Rates of drowning deaths and drowning survivors by age group in 14 districts, Jan 1 2016 – Jun 30 2018

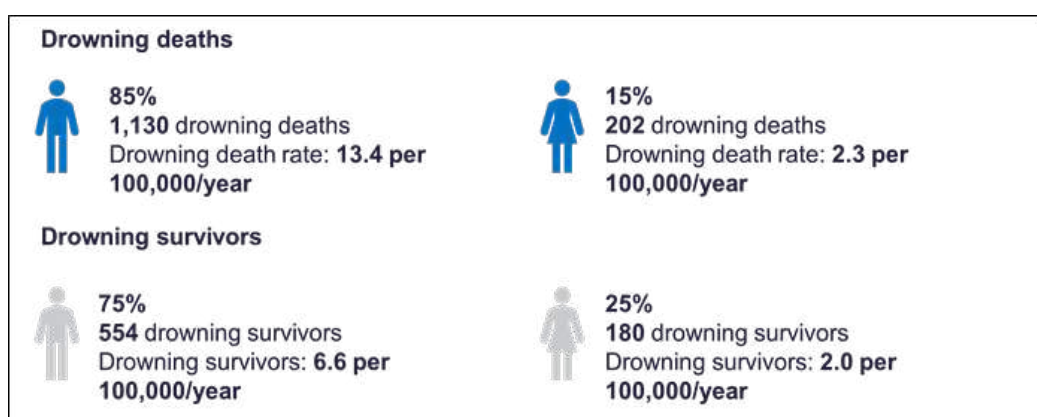
\*Population estimates by age group are from Uganda Bureau of Statistics. The National Population and Housing Census 2014



Drowning cases by [Sex](#) are shown in **Figure seven**.

- Males are at the highest risk of drowning.
- We compared how many drownings occurred among males and females with how many people of each sex live in the district to get sex-specific drowning rates. The highest rates for drowning deaths and for drowning survivors were found among males.
- Approximately 8 out of every 10 drowning victims were male.

**Figure seven:** Number and rates of drowning deaths and drowning survivors by sex in 14 districts, Jan 1 2016 – Jun 30 2018

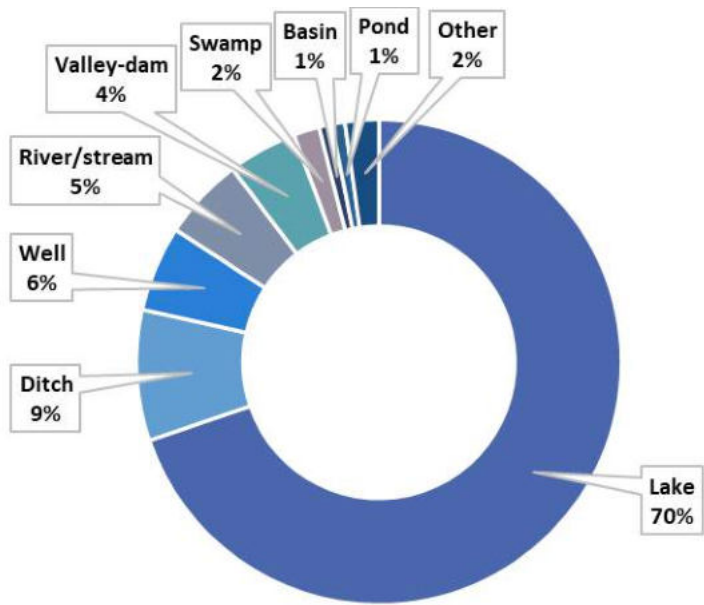


## Where do drowning events occur?

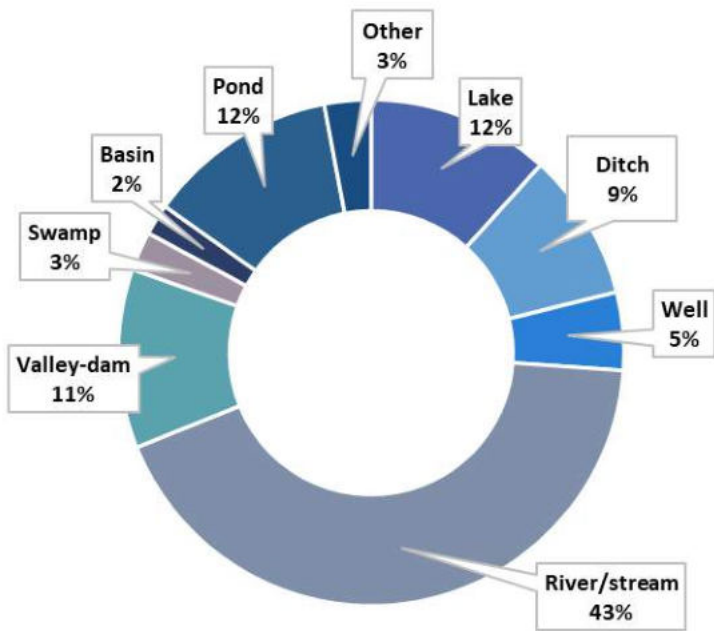
### Type of Water Body

- The type of water body where drowning most commonly occurred differed by district.
- In lakeside districts (Figure eight), drowning occurred most frequently in lakes (70%), followed by ditches (9%) including drainage channels.
- In non-lakeside districts (Figure nine), drowning occurred most frequently in rivers/streams (43%), followed by lakes (12%) and ponds (12%).

**Figure eight:** Type of body of water where drowning deaths occurred in the nine **lakeside** districts



**Figure nine:** Type of body of water where drowning deaths occurred in the five **non-lakeside** districts

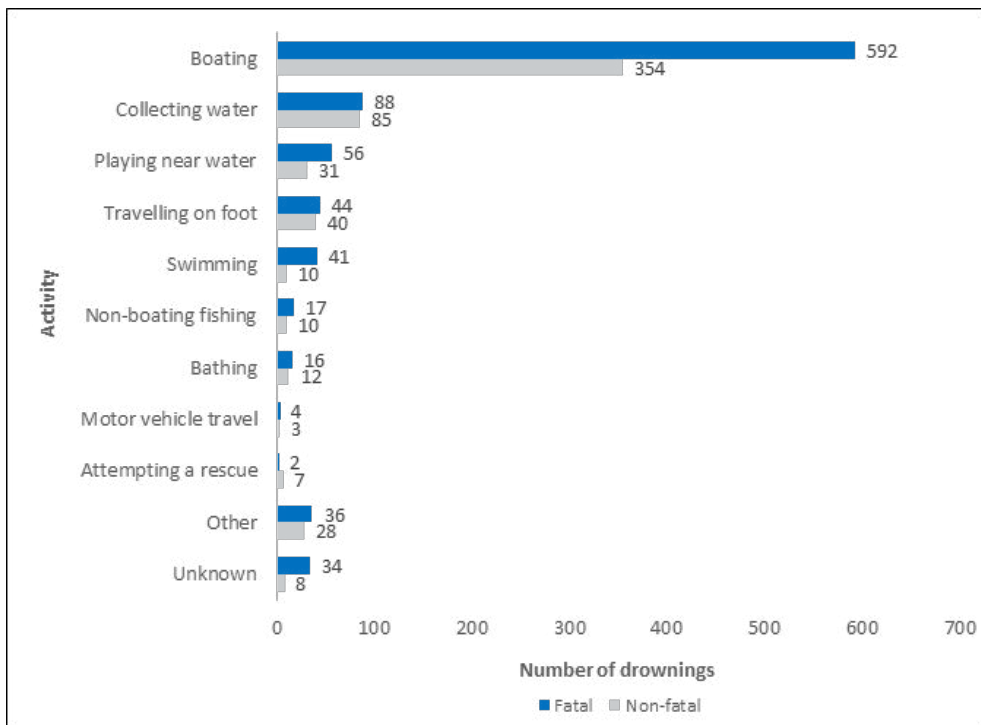


## What were people doing when they drowned?

[Activity](#) at the time of drowning in lakeside districts (**Figure ten**) and non-lakeside districts (**Figure eleven**) are shown and described below.

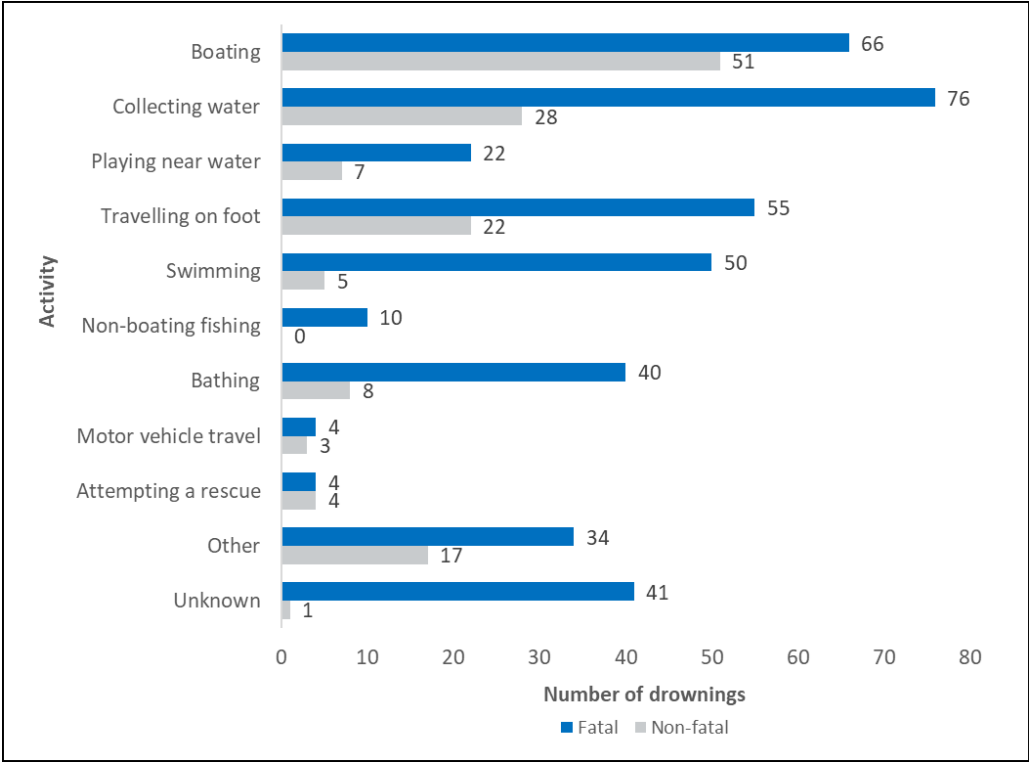
- Overall, boating was by far the most common activity that people were engaged in at the time of the drowning incident.
- Other common activities were collecting water/watering cattle and travelling on foot.
- The most common activities that people engaged in prior to drowning were similar in lakeside and non-lakeside districts. However, in non-lakeside districts, more drowning deaths occurred as a result of collecting water or watering cattle than as a result of boating in those districts.
- Almost half (48%) of all drownings occurred while the person was engaged in an occupational activity.

**Figure ten:** Number of drowning cases in the nine lakeside districts by type of activity at the time of the drowning, Jan 1 2016 – Jun 30 2018





**Figure eleven:** Number of drowning cases in the five **non-lakeside districts** by type of activity at the time of the drowning, Jan 1 2016 – Jun 30 2018





## Boating:

Since boating was the type of activity that was most commonly associated with drowning, we wanted to find out more information about the characteristics of boating incidents.

- More than two-thirds of boating-related drownings involved fishing.
- Almost half of the boating-related incidents involved a rowboat.
- Boating incidents most commonly occurred because the boat capsized or was swamped with water and then sank.

Most common boating activity	Most common type of boat	Most common type of boating incident
<ul style="list-style-type: none"> <li>• Fishing from boat: <b>69%</b></li> <li>• Travelling by boat: <b>25%</b></li> </ul>	<ul style="list-style-type: none"> <li>• Rowboat: <b>45%</b></li> <li>• Canoe: <b>28%</b></li> <li>• Fishing/transport boat with engine: <b>21%</b></li> </ul>	<ul style="list-style-type: none"> <li>• Capsized: <b>34%</b></li> <li>• Swamped/sank: <b>32%</b></li> <li>• Fell overboard: <b>21%</b></li> </ul>

Of the 1,063 people who died from boating-related drowning or suffered a severe boating-related drowning incident but survived, 1,007 **(95%) were not wearing a lifejacket at the time of the incident.**

*"I wanted that if there is way they could inspect and sensitize people that if you are a fisherman, check out whether the things you're using are safe and you're not drunk. That is what my heart desires so much and that the boats that you are using are safe, and also see to it that the weather is not bad because wind is one which capsizes boats."*

– Interview respondent, Kabale district



The following are factors\* that were commonly cited as having contributed to boating incidents:



**Bad weather**, such as high winds, rains, or rough water was involved in **58%** of boating cases.



In **20%** of boating related drownings the boat that was being used was **unseaworthy** or in disrepair.



**Overloading** of the boat with people or cargo was a factor in **12%** of boating cases.



**5%** of boating related drownings were associated with **fleeing a crime** such as illegal fishing.



**Animal attacks**, most commonly by hippos, contributed to **3%** of boating incidents.

\*More than one of these factors might contribute to a single boating incident.

*"... the thing that caused the canoe to have water inside of it was overloading the canoe; in case of a little wave, water would spontaneously enter the canoe because it was too close to the water level. The thing is, the canoe was small and because of much weight, the rear part of the canoe started letting in water because practically it was to the water level. What worsened the situation was the waves caused by the winds. Once it was full of water, it became too heavy and the next thing it started showing signs of sinking."* – Interview respondent, Kabale district

Individual interview respondents and focus group participants emphasized some of the same factors revealed in the data above as well as other factors when talking about the main reasons they believe that people drown in boating-related incidents. The key boating-related factors that are of concern to the community are:

- Overloading of boats and canoes with passengers, cattle, and luggage.
- Poor maintenance of boats and canoes by the owners and fishermen.
- Use of weak and small boats.
- Tensions between fishermen and officers enforcing the ban on illegal fishing.
- Drinking alcohol and other substance use by some fishermen and boat users.
- Crocodiles, hippos, and large snakes can threaten the safety of boaters.
- Lack of knowledge and experience about travelling on water or fishing.
- Unpredictable bad weather, and the refusal of some boaters to stay off of the water even when they are aware of severe weather conditions.

*"Some boats are not fit being in water and such boats can cause accidents anytime. There's a type of a boat called parachute and some people call it 'bawo tatu' it looks like a saucepan someone is seated on. There is a type of wind called bugondo and when it is angry, it can destroy a house in seconds. Now you, a person, how will it be? It can carry a boat from the middle there and throw it at the side of the lake."* – Interview respondent, Serere district



## Other circumstances of drowning

In addition to collecting specific information on the circumstances of drowning cases through structured interviews, we asked individual interview respondents and focus group participants to explain the main factors that contribute to drowning in their communities. Other important factors that were emphasized through those discussions were:

### Bathing in water bodies:

Study participants indicated that drowning sometimes occurs when people are bathing in lakes, ponds, swamps, and valley dams. People can unexpectedly slip into deep water from shallower areas or rocks.

### Epileptic seizures:

Participants sometimes stated that epileptic seizures were responsible for drowning.

*"When I finished bathing, he also removed his clothes and started bathing next to me. Since for me I had already finished bathing, I got out of the water and started putting on my clothing. He poured water on his body for the first time, second and he immediately got an attack of his sickness and fell into the water instantly."* – Interview respondent, Kitgum district

### Crossing flooded rivers and streams:

Attempting to cross flooded rivers and streams during the rainy season was another cause of drowning identified by study participants.

*"Currently, people cross from makeshift bridges such as that of round poles. When the river overflows, it covers them. So, you can't see them; so, you just start guessing: 'the pole might be here or there' and in case your guess is wrong, you automatically drown and you will be gone."* – Interview respondent, Kabale district

### Delayed rescue attempts:

Study participants identified the importance of timely rescue and resuscitation to prevent death from drowning. However, they also indicated that community members lack knowledge on how to rescue someone who is drowning.

*"...by the time fellow pupils who had rushed to inform old persons in the nearby trading centre returned, he had been swept by the river."* – Interview respondent, Kabale district

## Alcohol use:

Several participants identified alcohol use as a key risk factor for drowning. Participants stated that alcohol use is common, especially in fishing communities.

*“We have a problem with alcoholism. Many of our colleagues go to the waters when their minds are a bit twisted by the alcohol and on some occasions, this has caused accidents and some of them have drowned just like that.”* – Interview respondent, Nakasongola district

## Unsupervised children:

Lack of supervision of children was identified as a cause of drowning by many study participants. In some of the drowning cases, children had been sent to fetch water unsupervised, or drowned in basins when playing around the home unsupervised. In some cases, children drowned in flood waters when travelling to or from school without supervision.

*“A lady was bathing a child and after the bathe, she left her in a basin and went out for a while for some chores outside. As the lady went back to check on the child, she was already dead in the basin.”* – Interview respondent, Kampala district





### **Objective three: Identify potential contextually-appropriate interventions for drowning prevention.**

We asked individual interview respondents and focus group participants how drowning could be prevented. Those discussions revealed some potential interventions for drowning prevention in communities. Study participants suggested the following strategies for preventing drowning:

#### ***Boating***



- Provide affordable and high-quality lifejackets to all water transport users and fishing communities.
- Increase sensitization of fishermen and all water transport users on the importance of using lifejackets and avoiding alcohol while boating.
- Provide subsidies for large and motorized boats that can be used for safe water travel and fishing to replace small and low-quality boats that are currently in use.



- Inspect boats regularly to ensure they are in good travelling condition.
- Recruit and deploy more marine police units on all major water bodies to enhance security and quick response to drowning incidents.
- Install boat fenders (rubber and ropes tied to boat on all sides) to assist with the immediate rescue of individuals who are involved in a drowning incident.
- Provide frequent and safe ferry services to enable water travelers access to safe transportation across rivers and lakes.
- Avoid fishing during the moonlight periods to minimize hippopotamus attacks which are more frequent at that time.

*"I think these fishermen really need lifejackets for their work and also need to be sensitized on how to manage the engine of the boats that they use for their work. In most cases, these men just learn how to use these boats without having been trained first."* – Interview respondent, Rakai district

### Safer communities and homes

- Cover wells and pits in the community and empty water-filled basins around the home.
- Build high-quality bridges at frequent river crossing points to enable people to cross rivers safely.
- Provide tap and borehole water so that community members are not at risk of drowning in open water sources when collecting water.
- Increase awareness on the need to supervise young children, especially near water sources.

*"If the government has the ability to, they should provide tap and borehole water all though the villages so that people do not have to go to open water sources which create high risk of drowning."*

– Interview respondent, Kabale district

### Swimming and basic rescue skills

- Provide basic swimming lessons as part of school programs.
- Teach community members and fishermen basic rescue and resuscitation skills.

*"If person knows to swim and he drowns, he can survive but if he doesn't know swimming, there is no way he can survive, he can die."* – Interview respondent, Masaka district



## **STUDY LIMITATIONS**

Every study has limitations that might impact the findings. It is important to keep the following limitations in mind when interpreting the results that are presented in this report:

- The study districts were purposefully selected to ensure both lakeside and non-lakeside districts from each region of the country were represented. Because districts were not randomly selected, summary results are not necessarily representative of the entire country, and some characteristics might be overrepresented.
- The population-based rates that are presented in this report should be interpreted with caution for the following reasons:
  1. The population estimates are from the 2014 census, and the recorded cases occurred in 2016–2018.
  2. The number of drowning cases are those that were reported in the district; however, the population estimates refer to residents that live in the district.
- We believe that the method we used to find cases of drowning through health personnel in the communities was very effective. However, we cannot guarantee that every single case of drowning in the 14 districts was found.

## RECOMMENDATIONS

This study revealed high rates of drowning in both lakeside and non-lakeside districts. Based on these findings, future work on implementing policies, programs, and activities that prevent drowning events from occurring would be valuable in both lakeside and non-lakeside communities. Focusing proven interventions for those at greatest risk would aid prioritization of resources.

**Drowning is a multisectoral issue.** All stakeholders (including but not limited to local and national government, fishing, health, and law enforcement) should coordinate to **develop a national water safety strategy and action plan.** The strategy could address matters of leadership and coordination, funding, advocacy, awareness raising, prioritization, target setting, and monitoring and evaluation.



The following activities could be considered broadly in the strategy, and more specifically in the action plan:

**Water transport and fishing** could be made safer for both large and small boat users. Potential interventions could include:

- Setting and enforcing safe boating regulations.
- Providing incentives that encourage adherence to boating regulations related to not overloading transport boats and increasing enforcement of boating regulations.
- Ensuring boats are fit for purpose and increasing regular inspection of the seaworthiness of boats.
- Improving detection and dissemination of information about the weather.
- Supporting increased availability and use of lifejackets through subsidy, lifejacket loaner programs, and free lifejacket distribution programs.
- Increasing sensitization about safe boating practices, the importance of wearing lifejackets, and limiting alcohol and illicit drug use when boating.

Community members, especially **children**, are vulnerable to drowning in unsafe water sources such as **ditches, latrines, wells, and dams**. Potential interventions could include:

- Modifying access to wells and dams to prevent children or adults from falling in.
- Installing boreholes and pumps to enable community members to draw water safely.

- Sensitizing community officials on the importance of providing and regulating the creation of safe pit latrines and ditches.

**Rescue and resuscitation** have been shown to have less impact on reducing drowning than primary drowning prevention strategies, but can sometimes make a difference in individual drowning situations. Community members, especially those from fishing communities, identified the need for **training and equipment** to respond to drowning incidents. Potential interventions could include:

- Providing safe rescue and resuscitation training to community members and conducting refresher trainings.
- Developing and providing low-cost rescue equipment such as boat fenders (rubber and ropes tied to boat on all sides that can assist in the immediate rescue of individuals) and buoyant throwing aids.

To enable ongoing design, implementation, and evaluation of drowning prevention efforts, it is essential to collect data on drowning incidents. **Reporting of and record keeping on drowning** in Uganda should be improved. Potential interventions could include:

- Providing records officers with proper training, equipment, and appropriate storage facilities.
- Sensitizing the public on the importance of reporting all drowning cases to authorities.



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## 14. APPENDIX A: Number of Drowning Cases Reported in each District by Source

The table below shows the number of drowning cases recorded by source in the district police offices, marine police detachments, fire/rescue brigade detachments, and the largest mortuaries in the 60 phase one study districts. This is not the number of drowning cases that occurred during that time, but the number of drowning cases that were recorded. We learned from this study that many more cases of drowning happen that are never reported to or recorded in administrative sources.

Total number of drowning cases reported in each district by source, Jan 1 2016 – Jun 30 2018, Uganda\*

Lakeside Districts										
	FATAL DROWNING					NON-FATAL DROWNING				ALL
	Total Fatal Cases	District Police	Marine Police	Fire/Rescue Brigade	Mortuary	Total Non-fatal	District Police	Marine Police	Fire/Rescue Brigade	
Kalangala	165	86	69	0	10	16	1	15	0	181
Kampala	107	2	N/A	22	83	15	0	N/A	15	122
Jinja	110	8	28	30	44	6	0	4	2	116
Namayingo	74	17	57	N/A	0	9	0	9	N/A	83
Mayuge	43	13	30	N/A	0	6	0	6	N/A	49
Kasese	40	9	20	1	10	8	0	6	2	48
Masaka	36	8	N/A	4	24	9	0	N/A	9	47
Hoima	31	2	23	6	0	7	0	1	6	40
Buikwe	34	2	8	0	24	4	0	4	0	38
Serere	31	8	23	N/A	0	5	0	5	N/A	36
Busia	23	0	6	15	2	9	0	0	9	32
Wakiso	27	4	23	0	0	0	0	0	0	27
Ntoroko	21	2	19	N/A	0	4	0	4	N/A	25
Nakasongola	21	5	12	N/A	4	1	0	1	N/A	22
Rakai	21	4	13	N/A	4	1	0	1	N/A	22
Bugiri	19	7	N/A	0	12	0	0	N/A	0	19
Soroti	16	3	N/A	9	4	3	0	N/A	3	19
Kabarole	11	3	N/A	4	4	2	0	N/A	2	16
Ngora	13	10	N/A	N/A	3	0	0	N/A	N/A	13
Mukono	12	11	1	0	0	0	0	0	0	12
Kayunga	11	2	N/A	0	9	0	0	N/A	0	11
Rubirizi	6	6	N/A	N/A	0	0	0	N/A	N/A	7
Kamwenge	6	3	N/A	N/A	3	0	0	N/A	N/A	6
Pallisa	6	5	N/A	N/A	1	0	0	N/A	N/A	6
Rukungiri	6	5	N/A	0	1	0	0	N/A	0	6
Dokolo	3	3	N/A	0	0	0	0	N/A	0	3
Amolatar	2	1	N/A	N/A	1	0	0	N/A	N/A	2
Nebbi	1	0	N/A	N/A	1	0	0	N/A	N/A	1
<b>Total (Lakeside)</b>	<b>896</b>	<b>229</b>	<b>332</b>	<b>91</b>	<b>244</b>	<b>105</b>	<b>1</b>	<b>56</b>	<b>48</b>	<b>1,009</b>

† The total drowning cases column includes 16 cases where whether it was a fatal or non-fatal case could not be determined from the records. Some districts do not have marine police and/or fire/rescue brigade detachments. N/A indicates that the district does not contain the source.

Non-lakeside Districts										
	FATAL DROWNING					NON-FATAL DROWNING				ALL
	Total Fatal Cases	District Police	Marine Police	Fire/ Rescue Brigade	Mortuary	Total Non-fatal	District Police	Marine Police	Fire/ Rescue Brigade	Total Drowning Cases †
Mbarara	74	31	N/A	0	43	3	3	N/A	0	77
Mbale	34	9	N/A	5	20	1	0	N/A	1	35
Iganga	27	4	N/A	15	8	2	0	N/A	2	30
Kitgum	23	6	N/A	12	5	2	0	N/A	2	27
Mubende	23	4	N/A	15	4	3	0	N/A	3	27
Ssembabule	27	22	N/A	N/A	5	0	0	N/A	N/A	27
Lyantonde	23	7	N/A	N/A	16	0	0	N/A	N/A	23
Luwero	17	3	N/A	9	5	1	0	N/A	1	19
Arua	15	0	N/A	10	5	3	0	N/A	3	18
Nakaseke	17	13	N/A	0	4	0	0	N/A	0	17
Kiruhura	16	13	N/A	0	3	0	0	N/A	0	16
Kyegegwa	16	9	N/A	0	7	0	0	N/A	0	16
Masindi	10	2	N/A	6	2	2	0	N/A	2	15
Lira	7	5	N/A	2	0	4	3	N/A	1	11
Kibuku	9	9	N/A	N/A	0	0	0	N/A	N/A	9
Butaleja	6	4	N/A	0	2	0	0	N/A	0	6
Kabale	6	5	N/A	0	1	0	0	N/A	0	6
Bushenyi	4	4	N/A	0	0	1	1	N/A	0	5
Kamuli	5	3	N/A	N/A	2	0	0	N/A	N/A	5
Namutumba	5	5	N/A	N/A	0	0	0	N/A	N/A	5
Tororo	5	1	N/A	0	4	0	0	N/A	0	5
Alebtong	4	4	N/A	0	0	0	0	N/A	0	4
Kyenjojo	4	1	N/A	0	3	0	0	N/A	0	4
Moroto	4	1	N/A	0	3	0	0	N/A	0	4
Ntungamo	4	2	N/A	0	2	0	0	N/A	0	4
Gulu	3	3	N/A	0	0	0	0	N/A	0	3
Maracha	3	1	N/A	0	2	0	0	N/A	0	3
Kumi	2	2	N/A	N/A	0	0	0	N/A	N/A	2
Manafwa	1	1	N/A	N/A	0	0	0	N/A	N/A	1
Napak	1	1	N/A	N/A	0	0	0	N/A	N/A	1
Pader	1	1	N/A	0	0	0	0	N/A	0	1
Gomba	0	0	N/A	0	0	0	0	N/A	0	0
<b>Total (Non-lakeside)</b>	<b>396</b>	<b>176</b>	<b>N/A</b>	<b>74</b>	<b>146</b>	<b>22</b>	<b>7</b>	<b>N/A</b>	<b>15</b>	<b>426</b>

Combined Total for Lakeside and Non-lakeside Districts										
	FATAL DROWNING					NON-FATAL DROWNING				ALL
	Total Fatal Cases	District Police	Marine Police	Fire/ Rescue Brigade	Mortuary	Total Non-fatal	District Police	Marine Police	Fire/ Rescue Brigade	Total Drowning Cases †
<b>OVERALL TOTAL</b>	<b>1,292</b>	<b>405</b>	<b>332</b>	<b>165</b>	<b>390</b>	<b>127</b>	<b>8</b>	<b>56</b>	<b>63</b>	<b>1,435</b>



## **APPENDIX B: District-specific Data Summaries**

This section contains a one-page data summary for each of the 14 districts where we conducted phase two data collection: Arua, Hoima, Kabale, Kampala, Kitgum, Masaka, Mayuge, Mbarara, Mubende, Nakasongola, Rakai, Rubirizi, Serere, and Soroti.



## ARUA

Population<sup>1</sup>: 782,077 | Region: North

This report summarizes the information collected on drowning cases that occurred between 1 January 2016 and 30 June 2018 (2.5 years).



Total number of drowning deaths confirmed through community interviews in Arua: **121**

Estimated drowning death rate: **6.2 per 100,000** population<sup>2</sup> per year

### Key Characteristics Drowning Deaths

#### Age

Less than 5 years	17 (14%)
5 to 17 years	35 (29%)
18 years and older	69 (57%)

#### Sex

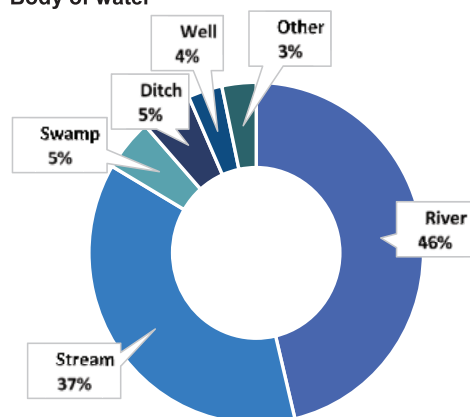


79%

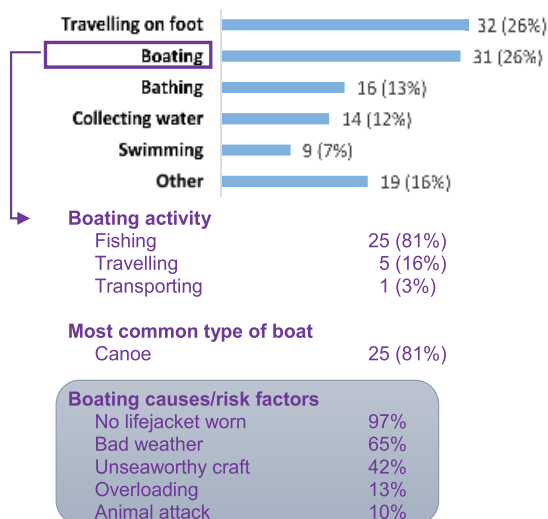


21%

#### Body of water



#### Activity



### Reporting/Recording of Drowning Deaths

Total number of drowning deaths recorded in district-level administrative sources<sup>3</sup>: **14**

Total number of community interview respondents who reported the death to an administrative source: **27**

### Non-fatal Drowning Cases

Although this report focuses on drowning deaths, an additional **38** cases of non-fatal drowning, when the person was drowning but managed to survive the incident, were confirmed through community interviews. Only **3** non-fatal drowning cases were recorded in district-level administrative sources.<sup>3</sup> Most non-fatal drownings occurred in rivers (58%) and streams (24%), and the most common activity was boating (42%).

*"I tried to rescue my brother but the winds were too strong, we were not wearing lifejackets otherwise he would have survived. Most people in this community do not own lifejackets." – Interview respondent from Arua*

<sup>1</sup> Uganda Bureau of Statistics. The National Population and Housing Census 2014 – Main Report.

<sup>2</sup> Death rates should be interpreted with caution: (1) the population estimates are from the 2014 census, and the drowning deaths occurred in 2016-2018; (2) the number of deaths are those that were identified in the district, however the population estimates refer to residents of the district.

<sup>3</sup> Police, fire and rescue brigade, or mortuary.



## HOIMA

Population<sup>1</sup>: 572,986 | Region: Western

This report summarizes the information collected on drowning cases that occurred between 1 January 2016 and 30 June 2018 (2.5 years).



Total number of drowning deaths confirmed through community interviews in Hoima: **87**

Estimated drowning death rate: **6.1 per 100,000** population<sup>2</sup> per year

### Key Characteristics of Drowning Deaths

#### Age

Less than 5 years	10 (12%)
5 to 17 years	8 (9%)
<b>18 years and older</b>	<b>68 (79%)</b>
Unknown age	1

#### Sex

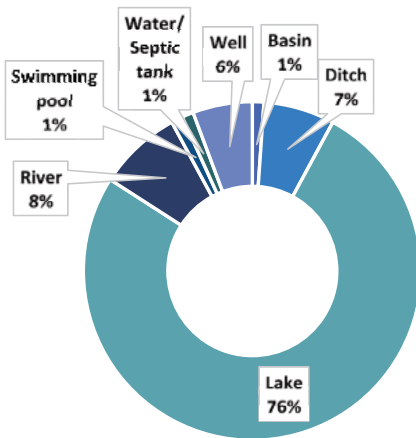


90%

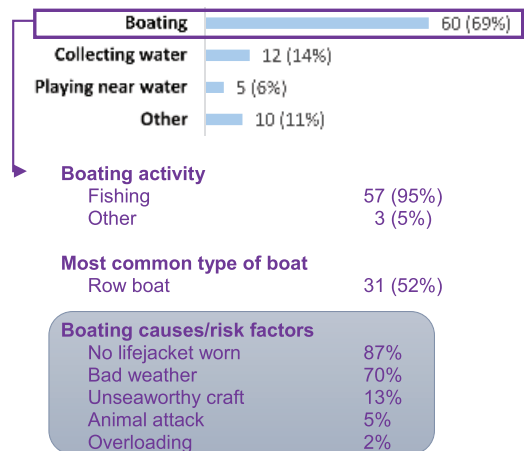


10%

#### Body of water



#### Activity



### Reporting/Recording of Drowning Deaths

Total number of drowning deaths recorded in district-level administrative sources<sup>3</sup>: **30**

Total number of community interview respondents who reported the death to an administrative source: **57**

### Non-fatal Drowning Cases

Although this report focuses on drowning deaths, an additional **69** cases of non-fatal drowning, when the person was drowning but managed to survive the incident, were confirmed through community interviews. Only **7** non-fatal cases were recorded in district-level administrative sources.<sup>3</sup> Most non-fatal drownings occurred in lake Albert (59%) and wells (33%), and the most common activity were boating (51%) and collecting water (32%).

**[To prevent drowning] "...the government may regulate overloading of the boats, and they can also enforce the mandatory use of life jackets while on the water" – Interview respondent from Hoima**

<sup>1</sup> Uganda Bureau of Statistics. The National Population and Housing Census 2014 – Main Report.

<sup>2</sup> Death rates should be interpreted with caution: (1) the population estimates are from the 2014 census, and the drowning deaths occurred in 2016-2018; (2) the number of deaths are those that were identified in the district, however the population estimates refer to residents of the district.

<sup>3</sup> Police, fire and rescue brigade, or mortuary.



## KABALE

Population<sup>1</sup>: 528,231 | Region: Western

This report summarizes the information collected on drowning cases that occurred between 1 January 2016 and 30 June 2018 (2.5 years).



Total number of drowning deaths confirmed through community interviews in Kabale: **55**

Estimated drowning death rate: **4.2 per 100,000** population<sup>2</sup> per year

### Key Characteristics of Drowning Deaths

#### Age

Less than 5 years	3 (6%)
5 to 17 years	9 (16%)
18 years and older	43 (78%)

#### Sex

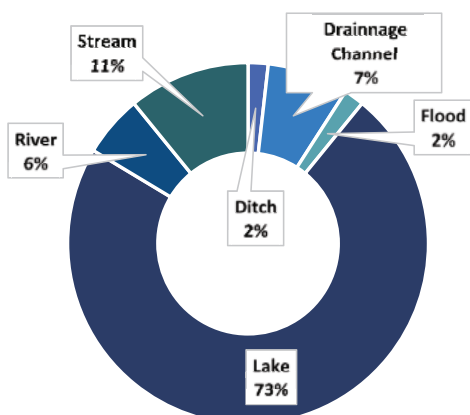


87%

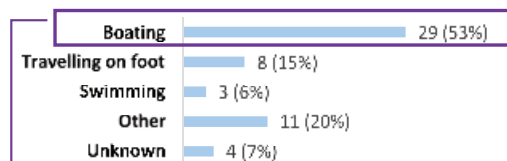


13%

#### Body of water



#### Activity



#### Boating activity

Travelling	24 (83%)
Fishing	3 (10%)
Other	2 (7%)

#### Most common type of boat

Canoe	27 (93%)
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#### Boating causes/risk factors

No lifejacket worn	100%
Bad weather	69%
Overloading	28%
Unseaworthy craft	10%
Other risks	21%

### Reporting/Recording Drowning Deaths

Total number of fatal drowning deaths recorded in district-level administrative sources<sup>3</sup>: **6**

Total number of community interview respondents who reported the death to an administrative source: **16**

### Non-fatal Drowning Cases

Although this report focuses on cases of fatal drowning, an additional **50** cases of non-fatal drowning, when the person was drowning but managed to survive the incident, were confirmed through community interviews. None of the non-fatal cases were recorded in district-level administrative sources.<sup>3</sup> Most non-fatal drownings occurred in lakes (78%) and the most common activity was boating (68%).

*"The thing is, the point where he drowned there was no bridge; you have to cross the stream with your bare feet. He was wearing boots and opted to jump over but unfortunately he fell back straight into the stream, and by the fact he was drunk, he couldn't lift himself out of the dangerous situation." – Interview respondent from Kabale*

<sup>1</sup> Uganda Bureau of Statistics. The National Population and Housing Census 2014 – Main Report.

<sup>2</sup> Death rates should be interpreted with caution: (1) the population estimates are from the 2014 census, and the drowning deaths occurred in 2016-2018; (2) the number of deaths are those that were identified in the district, however the population estimates refer to residents of the district.

<sup>3</sup> Police, fire and rescue brigade, or mortuary.



## KAMPALA

Population<sup>1</sup>: 1,507,080 | Region: Central

This report summarizes the information collected on drowning cases that occurred between 1 January 2016 and 30 June 2018 (2.5 years).



Total number of drowning deaths confirmed through community interviews in Kampala: **58**

Estimated drowning death rate: **1.5 per 100,000** population<sup>2</sup> per year

### Key Characteristics of Drowning Deaths

#### Age

Less than 5 years	13 (22%)
5 to 17 years	8 (14%)
18 years and older	37 (64%)

#### Sex

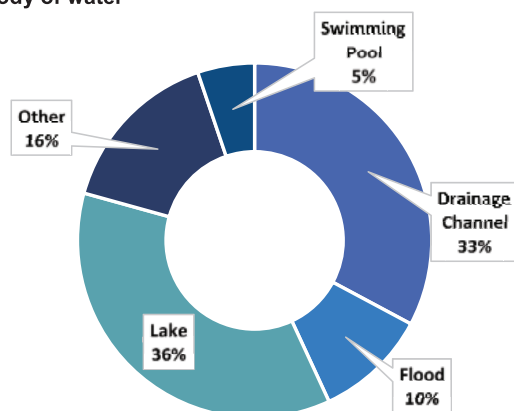


78%

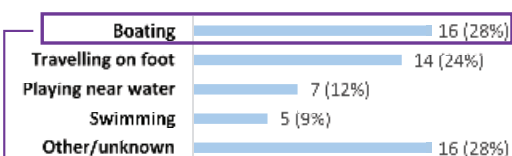


22%

#### Body of water



#### Activity



#### Boating activity

Fishing	13 (81%)
Travelling	3 (19%)

#### Most common type of boat

Row Boat	11 (69%)
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#### Boating causes/risk factors

No lifejacket worn	94%
Bad weather	56%
Unseaworthy craft	50%

### Reporting/Recording Drowning Deaths

Total number of drowning deaths recorded in district-level administrative sources<sup>3</sup>: **105**

Total number of community interview respondents who reported the death to an administrative source: **36**

### Non-fatal Drowning Cases

Although this report focuses on drowning deaths, an additional **55** cases of non-fatal drowning, when the person was drowning but managed to survive the incident, were confirmed through community interviews. Only 15 non-fatal cases were recorded in district-level administrative sources.<sup>3</sup> Most non-fatal drownings occurred in drainage channels (67%) and the most common activity was travelling on foot (49%).

*"When it comes to children, it's very tricky, very tricky indeed. Like on that day when she drowned, I was around and she was with me. Then in a flash of moments, I heard her cry. So, children are fluid; you can't be in total control all the time. They can sneak out of your sight in a second" – Interview respondent from Kampala*

<sup>1</sup> Uganda Bureau of Statistics. The National Population and Housing Census 2014 – Main Report.

<sup>2</sup> Death rates should be interpreted with caution: (1) the population estimates are from the 2014 census, and the drowning deaths occurred in 2016-2018; (2) the number of deaths are those that were identified in the district, however the population estimates refer to residents of the district.

<sup>3</sup> Police, fire and rescue brigade, or mortuary.

## KITGUM

Population<sup>1</sup>: 204,048 | Region: North

This report summarizes the information collected on drowning cases that occurred between 1 January 2016 and 30 June 2018 (2.5 years).



Total number of drowning deaths confirmed through community interviews in Kitgum: **56**

Estimated drowning death rate: **11.0 per 100,000** population<sup>2</sup> per year

### Key Characteristics of Drowning Deaths

#### Age

Less than 5 years	8 (15%)
5 to 17 years	22 (40%)
<b>18 years and older</b>	<b>25 (45%)</b>
Unknown age	1

#### Sex

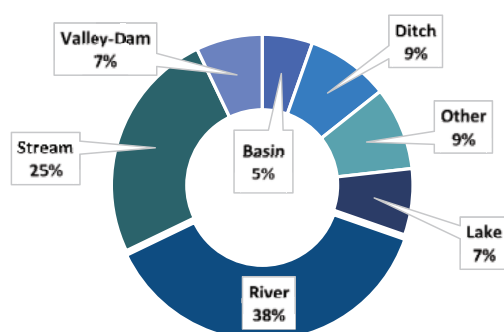


77%

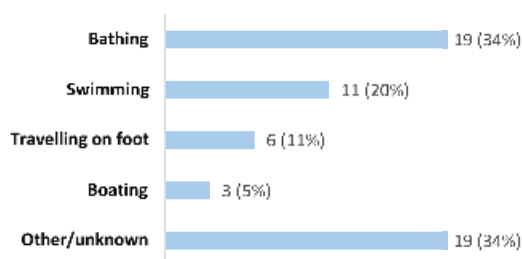


23%

#### Body of water



#### Activity



### Reporting/Recording Drowning Deaths

Total number of drowning deaths recorded in district-level administrative sources<sup>3</sup>: **19**

Total number of community interview respondents who reported the death to an administrative source: **32**

### Non-fatal Drowning Cases

Although this report focuses on drowning deaths, an additional **15** cases of non-fatal drowning, when the person was drowning but managed to survive the incident, were confirmed through community interviews. Only **2** non-fatal cases were recorded in district-level administrative sources.<sup>3</sup> Most non-fatal drownings occurred in rivers (60%) and streams (33%), and the most common activity was Bathing (40%).

*"He had this disease epilepsy, if only he was listening to us because we had warned him never to cross to river Pager for the rest of his life. He would be alive up to now. – Interview respondent from Kitgum"*

<sup>1</sup> Uganda Bureau of Statistics. The National Population and Housing Census 2014 – Main Report.

<sup>2</sup> Death rates should be interpreted with caution: (1) the population estimates are from the 2014 census, and the drowning deaths occurred in 2016-2018; (2) the number of deaths are those that were identified in the district, however the population estimates refer to residents of the district.

<sup>3</sup> Police, fire and rescue brigade, or mortuary.



## MASAKA

Population<sup>1</sup>: 297,004 | Region: Central

This report summarizes the information collected on drowning cases that occurred between 1 January 2016 and 30 June 2018 (2.5 years).



Total number of drowning deaths confirmed through community interviews in Masaka: **71**

Estimated drowning death rate: **9.6 per 100,000** population<sup>2</sup> per year

### Key Characteristics of Drowning Deaths

#### Age

Less than 5 years	6 (9%)
5 to 17 years	10 (14%)
<b>18 years and older</b>	<b>54 (77%)</b>
Unknown age	1

#### Sex

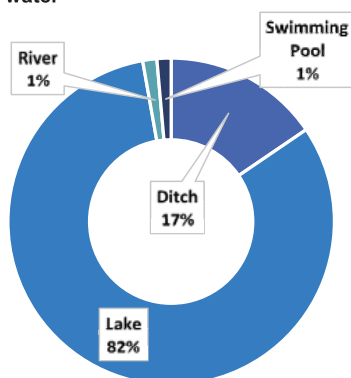


96%

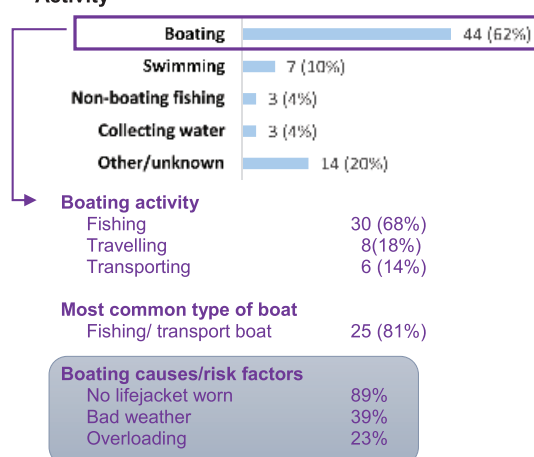


4%

#### Body of water



#### Activity



### Reporting/Recording Drowning Deaths

Total number of drowning deaths recorded in district-level administrative sources<sup>3</sup>: **33**

Total number of community interview respondents who reported the death to an administrative source: **49**

### Non-fatal Drowning Cases

Although this report focuses on drowning deaths, an additional **3** cases of non-fatal drowning, when the person was drowning but managed to survive the incident, were confirmed through community interviews. These occurred in ditches, latrines and swimming pools.

*"The one thing that really hurts me is the way our bosses have failed to provide us with life jackets. They should ensure that they give us these jackets because they are what keep us safe on the lake. That is the most important thing, there is nothing else. The work is good, but there are no life jackets" – Interview respondent from Masaka*

<sup>1</sup> Uganda Bureau of Statistics. The National Population and Housing Census 2014 – Main Report.

<sup>2</sup> Death rates should be interpreted with caution: (1) the population estimates are from the 2014 census, and the drowning deaths occurred in 2016-2018; (2) the number of deaths are those that were identified in the district, however the population estimates refer to residents of the district.

<sup>3</sup> Police, fire and rescue brigade, or mortuary.

## MAYUGE

Population<sup>1</sup>: 473,239 | Region: Eastern

This report summarizes the information collected on drowning cases that occurred between 1 January 2016 and 30 June 2018 (2.5 years).



Total number of drowning deaths confirmed through community interviews in Mayuge: **287**

Estimated drowning death rate: **24.3 per 100,000** population<sup>2</sup> per year

### Key Characteristics of Drowning Deaths

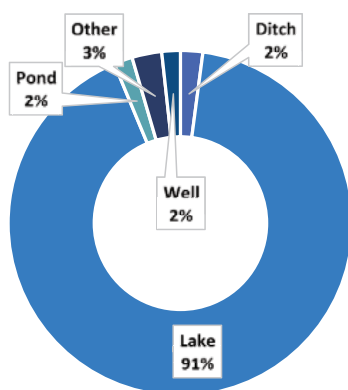
#### Age

Less than 5 years	11 (4%)
5 to 17 years	39 (14%)
18 years and older	235 (82%)
Unknown age	2

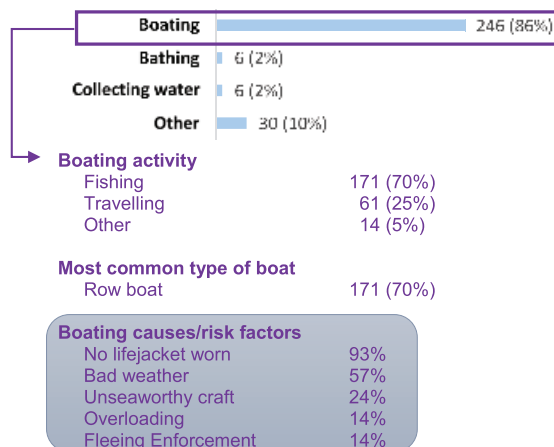
#### Sex



#### Body of water



#### Activity



### Reporting/Recording Drowning Deaths

Total number of drowning deaths recorded in district-level administrative sources<sup>3</sup>: **38**

Total number of community interview respondents who reported the death to an administrative source: **191**

### Non-fatal Drowning Cases

Although this report focuses on drowning deaths, an additional **218** cases of non-fatal drowning, when the person was drowning but managed to survive the incident, were confirmed through community interviews. Only 2 non-fatal cases were recorded in district-level administrative sources.<sup>3</sup> Most non-fatal drownings occurred in the lake (88%) and the most common activity was boating (84%).

*"What I know is that if there is wind, the wind can be much and if someone has no life jacket and it finds him in a dangerous place, he can drown. Even the boats that are not recommended on water cause people to drown."*

*-Interview respondent from Mayuge*

<sup>1</sup> Uganda Bureau of Statistics. The National Population and Housing Census 2014 – Main Report.

<sup>2</sup> Death rates should be interpreted with caution: (1) the population estimates are from the 2014 census, and the drowning deaths occurred in 2016-2018; (2) the number of deaths are those that were identified in the district, however the population estimates refer to residents of the district.

<sup>3</sup> Police, fire and rescue brigade, or mortuary.





## MBARARA

Population<sup>1</sup>: 472,629 | Region: West

This report summarizes the information collected on drowning cases that occurred between 1 January 2016 and 30 June 2018 (2.5 years).



Total number of drowning deaths confirmed through community interviews in Mbarara: **123**

Estimated drowning death rate: **10.4 per 100,000** population<sup>2</sup> per year

### Key Characteristics of Drowning Deaths

#### Age

Less than 5 years	21 (17%)
<b>5 to 17 years</b>	<b>54 (44%)</b>
18 years and older	48 (39%)

#### Sex

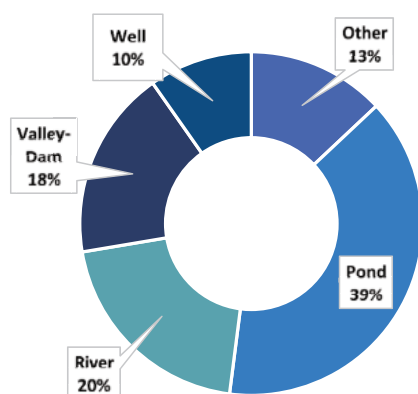


75%

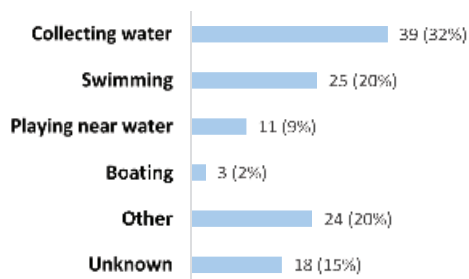


25%

#### Body of water



#### Activity



### Reporting/Recording Drowning Deaths

Total number of drowning deaths recorded in district-level administrative sources<sup>3</sup>: **62**

Total number of community interview respondents who reported the death to an administrative source: **71**

### Non-fatal Drowning Cases

Although this report focuses on drowning deaths, an additional **27** cases of non-fatal drowning, when the person was drowning but managed to survive the incident, were confirmed through community interviews. Only **3** non-fatal cases were recorded in district-level administrative sources.<sup>3</sup> Most non-fatal drownings occurred in ponds (37%) and drainage channels and valley dams (30%), and the most common activity was collecting water/ watering cattle (44%).

*"The government should organize sensitization because most children have drowned in Rwizi. Those who are in school usually go to Rwizi for swimming on their way home, so government should put sensitization programs in school about ponds and rivers, that these shouldn't be used for swimming– Interview respondent from Mbarara"*

<sup>1</sup> Uganda Bureau of Statistics. The National Population and Housing Census 2014 – Main Report.

<sup>2</sup> Death rates should be interpreted with caution: (1) the population estimates are from the 2014 census, and the drowning deaths occurred in 2016-2018; (2) the number of deaths are those that were identified in the district, however the population estimates refer to residents of the district.

<sup>3</sup> Police, fire and rescue brigade, or mortuary.

## MUBENDE

Population<sup>1</sup>: 684,337 | Region: Central

This report summarizes the information collected on drowning cases that occurred between 1 January 2016 and 30 June 2018 (2.5 years).



Total number of drowning deaths confirmed through community interviews in Mubende: **47**

Estimated drowning death rate: **2.7 per 100,000** population<sup>2</sup> per year

### Key Characteristics of Drowning Deaths

#### Age

Less than 5 years	7 (15%)
5 to 17 years	17 (36%)
18 years and older	23 (49%)

#### Sex

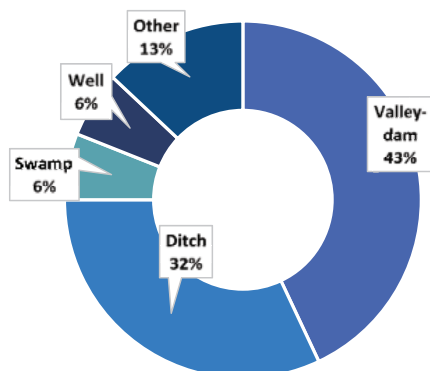


70%

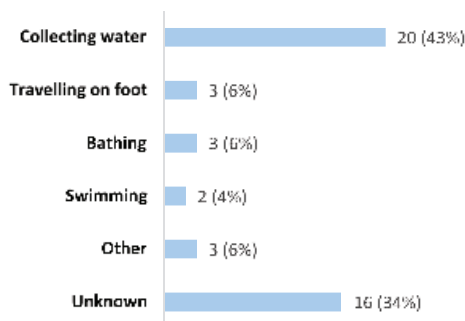


30%

#### Body of water



#### Activity



### Reporting/Recording Drowning Deaths

Total number of drowning deaths recorded in district-level administrative sources<sup>3</sup>: **23**

Total number of community interview respondents who reported the death to an administrative source: **35**

### Non-fatal Drowning Cases

Although this report focuses on drowning deaths, an additional **16** cases of non-fatal drowning, when the person was drowning but managed to survive the incident, were confirmed through community interviews. Only **3** non-fatal cases were recorded in district-level administrative sources.<sup>3</sup> All non-fatal drownings occurred in either wells (69%) or valley dams (31%) and the most common activity was collecting water/ watering cattle.

*"I think that dam was not dug well because it is built in a sloping manner and the area around it is slippery. If it wasn't for the way the dam was built and if it was fenced off, my boy wouldn't have fallen into the water."*

*– Interview respondent from Mubende*

<sup>1</sup> Uganda Bureau of Statistics. The National Population and Housing Census 2014 – Main Report.

<sup>2</sup> Death rates should be interpreted with caution: (1) the population estimates are from the 2014 census, and the drowning deaths occurred in 2016-2018; (2) the number of deaths are those that were identified in the district, however the population estimates refer to residents of the district.

<sup>3</sup> Police, fire and rescue brigade, or mortuary.



## NAKASONGOLA

Population<sup>1</sup>: 181,799 | Region: Central

This report summarizes the information collected on drowning cases that occurred between 1 January 2016 and 30 June 2018 (2.5 years).



Total number of drowning deaths confirmed through community interviews in Nakasongola: **76**

Estimated drowning death rate: **16.7 per 100,000** population<sup>2</sup> per year

### Key Characteristics of Drowning Deaths

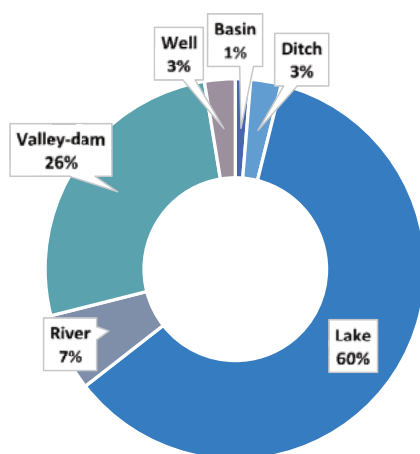
#### Age

Less than 5 years	6 (8%)
5 to 17 years	19 (25%)
<b>18 years and older</b>	<b>50 (67%)</b>
Unknown age	1

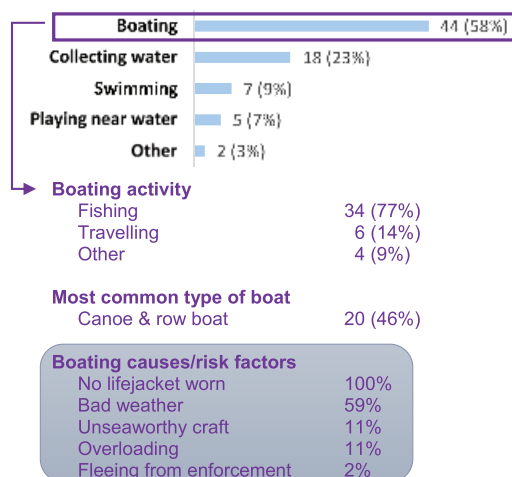
#### Sex



#### Body of water



#### Activity



### Reporting/Recording Drowning Deaths

Total number of drowning deaths recorded in district-level administrative sources<sup>3</sup>: **20**

Total number of community interview respondents who reported the death to an administrative source: **58**

### Non-fatal Drowning Case

Although this report focuses on drowning deaths, an additional **17** cases of non-fatal drowning, when the person was drowning but managed to survive the incident, were confirmed through community interviews. Only **1** non-fatal case was recorded in district-level administrative sources.<sup>3</sup> Most non-fatal drownings occurred in lakes and rivers (35%) and swamps (29%) and the most common activity was boating (64%).

*"You have not managed to reach the landing site but even the boats are in poor condition, old and rotten but they are still being used. We have lost several people due to those small boats." -Interview respondent from Nakasongola*

<sup>1</sup> Uganda Bureau of Statistics. The National Population and Housing Census 2014 – Main Report.

<sup>2</sup> Death rates should be interpreted with caution: (1) the population estimates are from the 2014 census, and the drowning deaths occurred in 2016-2018;

(2) the number of deaths are those that were identified in the district, however the population estimates refer to residents of the district.

<sup>3</sup> Police, fire and rescue brigade, or mortuary.

## RAKAI

Population<sup>1</sup>: 516,309 | Region: Central

This report summarizes the information collected on drowning cases that occurred between 1 January 2016 and 30 June 2018 (2.5 years).



Total number of drowning deaths confirmed through community interviews in Rakai: **169**

Estimated drowning death rate: **13.1 per 100,000** population<sup>2</sup> per year

### Key Characteristics of Drowning Deaths

#### Age

Less than 5 years	21 (12%)
5 to 17 years	40 (24%)
18 years and older	108 (64%)

#### Sex

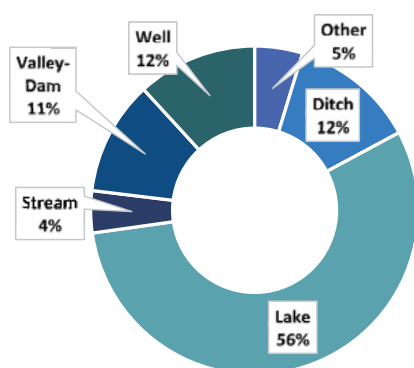


83%

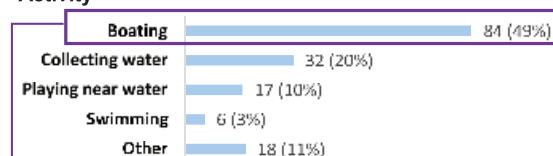


17%

#### Body of water



#### Activity



#### Boating activity

Fishing	64 (76%)
Travelling	16 (19%)
Other	4 (5%)

#### Most common type of boat

Rowboat	52 (62%)
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#### Boating causes/risk factors

No lifejacket worn	94%
Bad weather	48%
Animal attack	13%
Overloading	10%
Unseaworthy craft	4%

### Reporting/Recording Drowning Deaths

Total number of drowning deaths recorded in district-level administrative sources<sup>3</sup>: **20**

Total number of community interview respondents who reported the death to an administrative source: **82**

### Non-fatal Drowning Cases

Although this report focuses on drowning deaths, an additional **26** cases of non-fatal drowning, when the person was drowning but managed to survive the incident, were confirmed through community interviews. Only **1** non-fatal case was recorded in district-level administrative sources.<sup>3</sup> Most non-fatal drownings occurred wells/ditches (54%) or a lake (39%) and the most common activities were boating (27%) and collecting water/watering animals (31%).

*"If the boat was big and had an engine my friend would not have died and I would not have gotten such a problem. But because the beginning was not good and the boat was small that is why we got the accident."*

– Interview respondent from Rakai

<sup>1</sup> Uganda Bureau of Statistics. The National Population and Housing Census 2014 – Main Report.

<sup>2</sup> Death rates should be interpreted with caution: (1) the population estimates are from the 2014 census, and the drowning deaths occurred in 2016-2018; (2) the number of deaths are those that were identified in the district, however the population estimates refer to residents of the district.

<sup>3</sup> Police, fire and rescue brigade, or mortuary.



## RUBIRIZI

Population<sup>1</sup>: 129,149 | Region: West

This report summarizes the information collected on drowning cases that occurred between 1 January 2016 and 30 June 2018 (2.5 years).



Total number of drowning deaths confirmed through community interviews in Rubirizi: **30**

Estimated drowning death rate: **9.3 per 100,000** population<sup>2</sup> per year

### Key Characteristics of Drowning Deaths

#### Age

Less than 5 years	2 (6%)
5 to 17 years	11 (37%)
18 years and older	17 (56%)

#### Sex

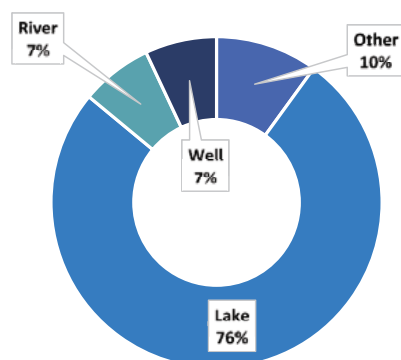


93%

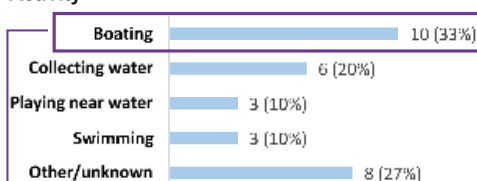


7%

#### Body of water



#### Activity



#### Boating activity

Fishing	9 (90%)
Working on boat	1 (10%)

#### Most common type of boat

Canoe	8 (80%)
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#### Boating causes/risk factors

No lifejacket worn	100%
Bad weather	40%
Animal attack	30%
Fleeing enforcement	10%

### Reporting/Recording Drowning Deaths

Total number of drowning deaths recorded in district-level administrative sources<sup>3</sup>: **6**

Total number of community interview respondents who reported the death to an administrative source: **18**

### Non-fatal Drowning Cases

Although this report focuses on drowning deaths, an additional **20** cases of non-fatal drowning, when the person was drowning but managed to survive the incident, were confirmed through community interviews. None of the non-fatal cases were recorded in district-level administrative sources.<sup>3</sup> Most non-fatal drownings occurred the lake (70%) and rivers (15%) and the most common activity was collecting water/ watering cattle (65%).

*"That lake has very bad animals. I cannot expect that they bring these bigger steel boats which are well built, if we stay with these ones of ours, wooden, these things will keep happening because these animals that are there are heavier than these boats." – Interview respondent from Rubirizi*

<sup>1</sup> Uganda Bureau of Statistics. The National Population and Housing Census 2014 – Main Report.

<sup>2</sup> Death rates should be interpreted with caution: (1) the population estimates are from the 2014 census, and the drowning deaths occurred in 2016-2018; (2) the number of deaths are those that were identified in the district, however the population estimates refer to residents of the district.

<sup>3</sup> Police, fire and rescue brigade, or mortuary.



## SERERE

Population<sup>1</sup>: 285,903 | Region: East

This report summarizes the information collected on drowning cases that occurred between 1 January 2016 and 30 June 2018 (2.5 years).



Total number of drowning deaths confirmed through community interviews in Serere: **107**

Estimated drowning death rate: **6.2 per 100,000** population<sup>2</sup> per year

### Key Characteristics of Drowning Deaths

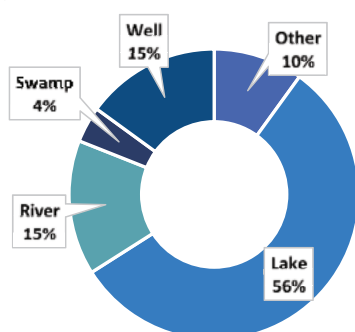
#### Age

Less than 5 years	18 (17%)
5 to 17 years	16 (15%)
18 years and older	73 (68%)

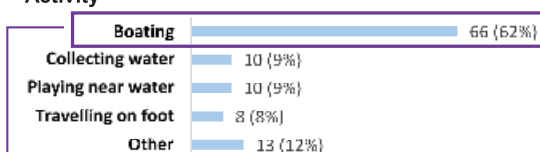
#### Sex



#### Body of water



#### Activity



#### Boating activity

Fishing	54 (82%)
Travelling	11 (17%)
Other	1 (1%)

#### Most common type of boat

Fishing/ transport boat	25 (81%)
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#### Boating causes/risk factors

No lifejacket worn	97%
Bad weather	62%
Unseaworthy craft	18%
Overloading	6%

### Reporting/Recording Drowning Deaths

Total number of drowning deaths recorded in district-level administrative sources<sup>3</sup>: **30**

Total number of community interview respondents who reported the death to an administrative source: **80**

### Non-fatal Drowning Cases

Although this report focuses on cases of drowning deaths, an additional **103** cases of non-fatal drowning, when the person was drowning but managed to survive the incident, were confirmed through community interviews. Only **5** non-fatal cases were recorded in district-level administrative sources.<sup>3</sup> Most non-fatal drownings occurred in lakes (60%) and rivers (14%) and the most common activity was boating (70%).

*"There is no access and since I went to the landing site to see the fishermen from there as I went to look for some fish, I have never found any fisherman having lifejackets for protection in water so that when you fall in water you cannot drown." – Interview respondent from Serere*

<sup>1</sup> Uganda Bureau of Statistics. The National Population and Housing Census 2014 – Main Report.

<sup>2</sup> Death rates should be interpreted with caution: (1) the population estimates are from the 2014 census, and the drowning deaths occurred in 2016-2018;

(2) the number of deaths are those that were identified in the district, however the population estimates refer to residents of the district.

<sup>3</sup> Police, fire and rescue brigade, or mortuary.



## SOROTI

Population<sup>1</sup>: 296,833 | Region: East

This report summarizes the information collected on drowning cases that occurred between 1 January 2016 and 30 June 2018 (2.5 years).



Total number of drowning deaths confirmed through community interviews in Soroti: **45**

Estimated drowning death rate: **6.2 per 100,000** population<sup>2</sup> per year

### Key Characteristics of Drowning Deaths

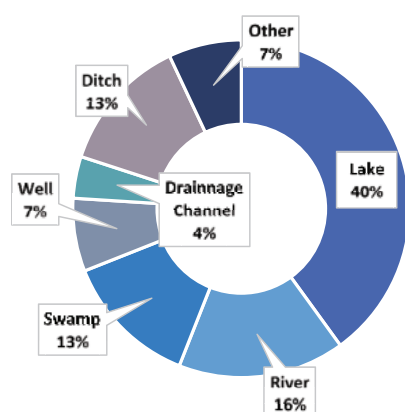
#### Age

Less than 5 years	6 (14%)
5 to 17 years	10 (22%)
18 years and older	29 (64%)

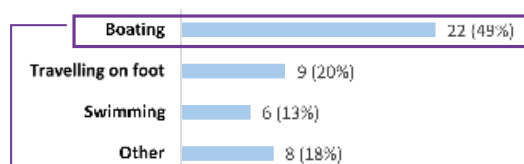
#### Sex



#### Body of water



#### Activity



#### Boating activity

Fishing	15 (68%)
Travelling	7 (32%)

#### Most common type of boat

Fishing/ transport boat	13 (59%)
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#### Boating causes/risk factors

No lifejacket worn	100%
Bad weather	55%
Overloading	23%
Unseaworthy craft	9%

### Reporting/Recording Drowning Deaths

Total number of drowning deaths recorded in district-level administrative sources<sup>3</sup>: **11**

Total number of community interview respondents who reported the death to an administrative source: **27**

### Non-fatal Drowning Cases

Although this report focuses on drowning deaths, an additional **77** cases of non-fatal drowning, when the person was drowning but managed to survive the incident, were confirmed through community interviews. Only **3** non-fatal cases were recorded in district-level administrative sources.<sup>3</sup> Most non-fatal drownings occurred lakes (38%) and rivers (18%) and the most common activity was boating (53%).

*"The first thing is that we needed lifejackets, but there was nothing and also the boat was small and could not navigate through the winds. Surely if all of us had lifejackets even my friends were not going to die." – Interview respondent from Soroti*

<sup>1</sup> Uganda Bureau of Statistics. The National Population and Housing Census 2014 – Main Report.

<sup>2</sup> Death rates should be interpreted with caution: (1) the population estimates are from the 2014 census, and the drowning deaths occurred in 2016-2018; (2) the number of deaths are those that were identified in the district, however the population estimates refer to residents of the district.

<sup>3</sup> Police, fire and rescue brigade, or mortuary.













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