Picture credit: A data collector facilitating a women focus group discussion during an endline survey in Bwaise III, Kampala, August 2025. Photo by Peter Mwambu , ACTogether, Uganda.

RESURGENCE.

Ministry of Water and Environment (MWE)

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WISER
Weather and Climate Information Services

DARAJA

Kampala

Endline Report

August 2025

Outline

1. Objectives
2. Description of settlements
3. Methods
4. Key findings
5. Summary

Suggested Citation: Resurgence, ACTogether & Uganda Meteorological Service Department (2025) *Kampala Endline Report- Transforming Urban Weather and Climate Information Services in the East Africa Region through DARAJA*.

In-Text Citation: (Resurgence, ACTogether and Uganda Meteorological Service Department, 2025)

List of Acronyms

DARAJA	Developing Risk Awareness through Joint Action
FGD	Focus Group Discussions
IEM	Information Ecosystem Mapping
KCCA	Kampala Capital City Authority
KII	Key Informant Interview
PWD	People Living with Disabilities
OPM	Office of the Prime
UDMS	Uganda Department of Meteorological Service
WCI	Weather and Climate Information
WISER	Weather and Climate Information Services

Objectives

To understand the climate hazards faced by target communities and the impact of the DARAJA project on access, understanding and use of weather and climate information services (WCIS).

1. To understand the impact of the DARAJA project on access, understanding and use of WCIS by the target communities

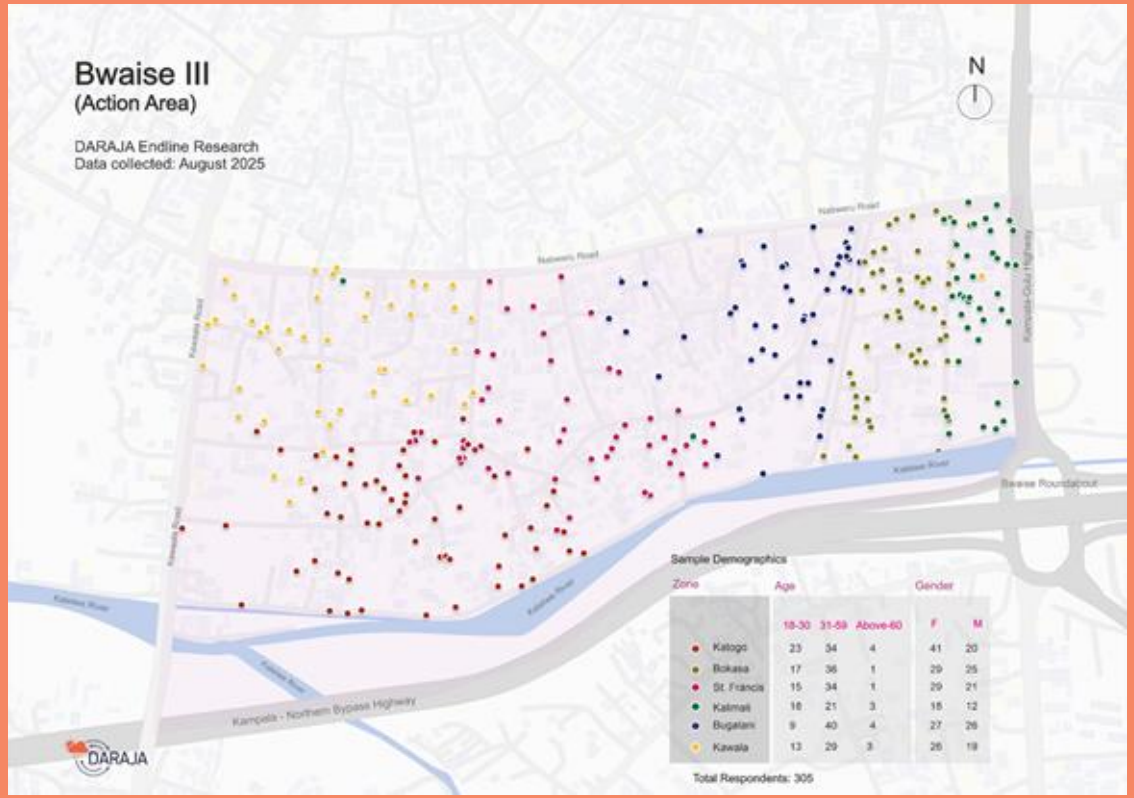
2. To assess the project's impact against key indicators

Settlements

Project Area: Bwaise III

- ➔ An informal settlement in Kawempe Division, Kampala
- ➔ Comprised of 6 zones (St Francis, Bugalani, Katoogo, Bukasa, Kalimali and Kawaala)
- ➔ Estimated population across all project implementation settlements: 52 208
- ➔ Inadequate infrastructure and drainage systems makes the area most affected by flooding

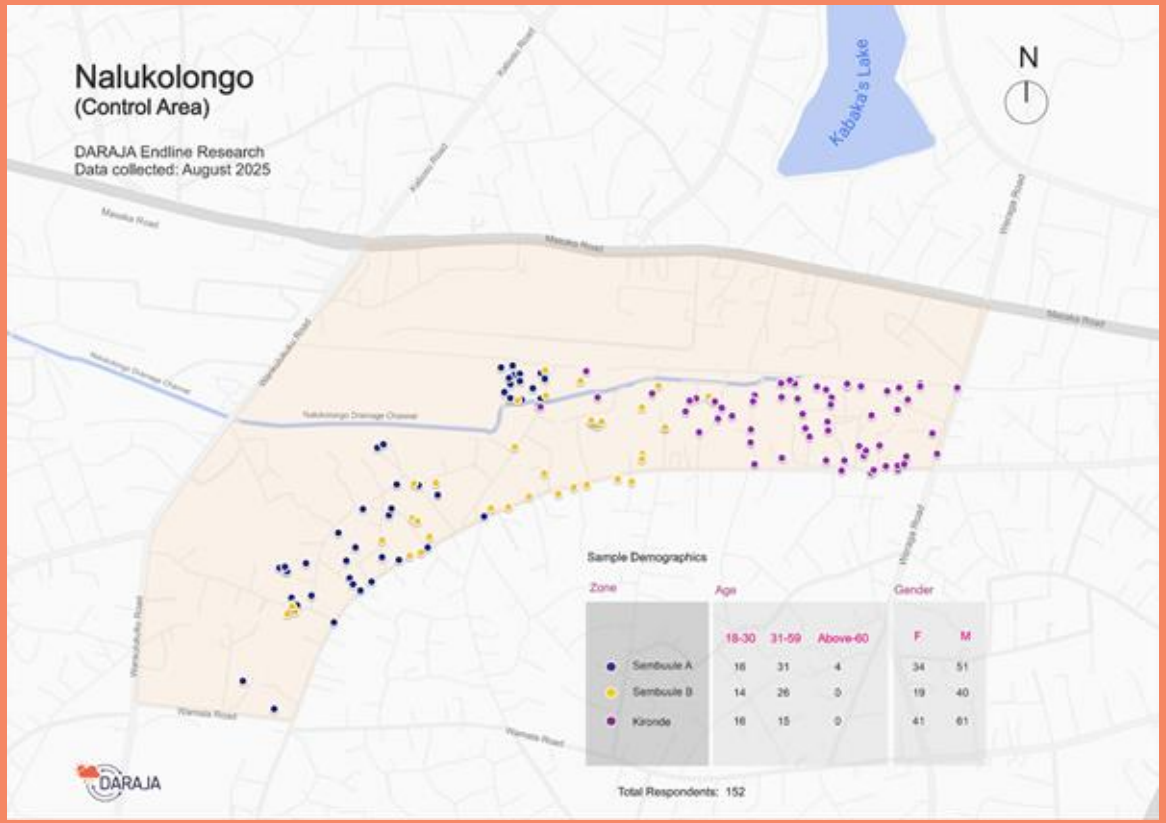
"Bwaise is an informal settlement adjacent to one of the biggest drainage channels in the country. This makes it vulnerable and prone to floods whenever it rains." - [One of the Youth FGD participant]



Settlements

Control Area: Nalukolongo

- ➔ Popularly known as Nalukolongo due to the ever-flooding Nalukolongo drainage channel
- ➔ Highly populated area with an estimated population of 25,000 people
- ➔ Low-lying area and poor infrastructure



Data collection & analysis methods

Household Survey	Focus Group Discussions	Key Informant Interviews
457 respondents (305 from the project area; 152 from the control area)	**72 participants** 9 participants per group across 8 groups (5 from the project area; 3 from the control area)	**9 key informants**
Male, Female, 18 yrs to 60+ yrs, and People with disabilities	Local leaders, Women, People with disabilities, Business community and Youth	Data provider, Media, and Decision makers

Collaborative analysis sessions were held with all partners to validate and contextualise the findings, thereby reducing the risk of misinterpretation. These sessions also fostered a shared understanding of the results, their implications, and the way forward.

Quantitative data analysis

Descriptive statistics,
Probit regression model

Qualitative data analysis

Thematic analysis

Key Indicators

% Access

In what ways do people regularly access/ receive weather & climate information (E.g. weather forecasts or warnings)

% Preference

Which channels do respondents prefer to receive weather & climate information

% Understanding

How well the respondents are able to understand the weather & climate information (e.g. forecast)? *(technical details, impacts)*

% Use

How do people use the information they get through different channels i.e. which are the most common preparatory/anticipatory actions taken

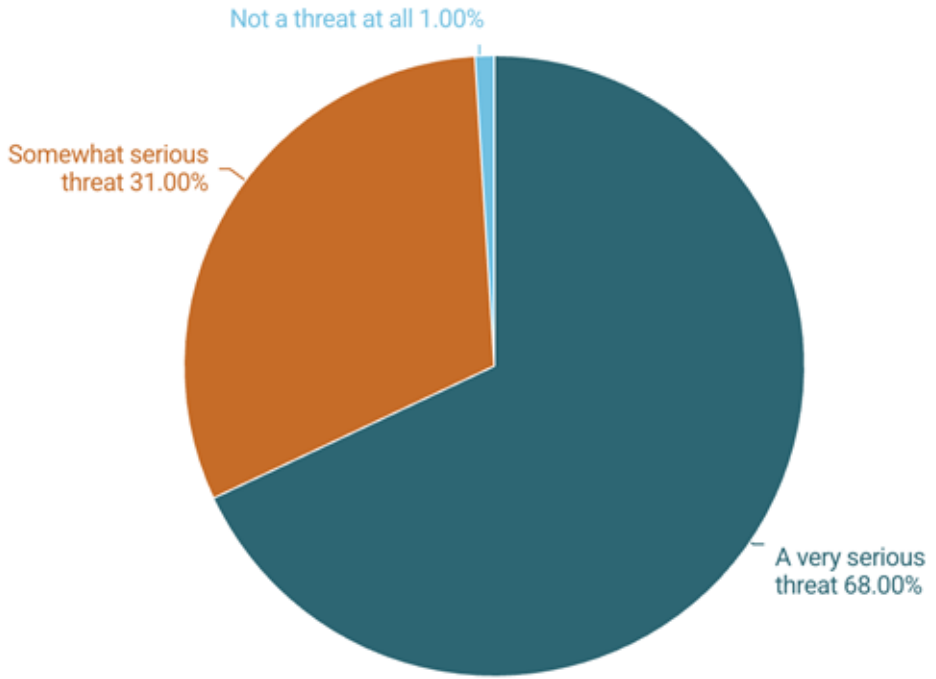
Key Findings

Demographic characteristics of respondents

- Female respondents constituted 59% of the total sample, while male respondents comprised 41%, compared to 67% and 33%, respectively, at baseline.
- 96% respondents do not have any form of disability, while 4% have some difficulties.
- The age group of most respondents is 31-59 years (65%), followed by 18-30 years (31%) and 60 years and above (4%).
- 92% of respondents have at least a primary level of education, indicating that most respondents are literate.
- Just like at the baseline survey, the average household size is 4 members.
- The average monthly income for most respondents is between 100,000 and 200,000 Ugandan Shillings (27%).
- Most respondents derive their incomes from casual labour (37%), operating a shop (25%) and kiosk or roadside vending (23%).

% of total respondents **[457]**

Climate Change a Threat in the Community



Note: Not captured during the baseline survey

- Nearly all respondents (99%) perceived climate change as a threat, with 68% considering it a **very serious threat** to their community

% of total respondents **[457]**

Hazards

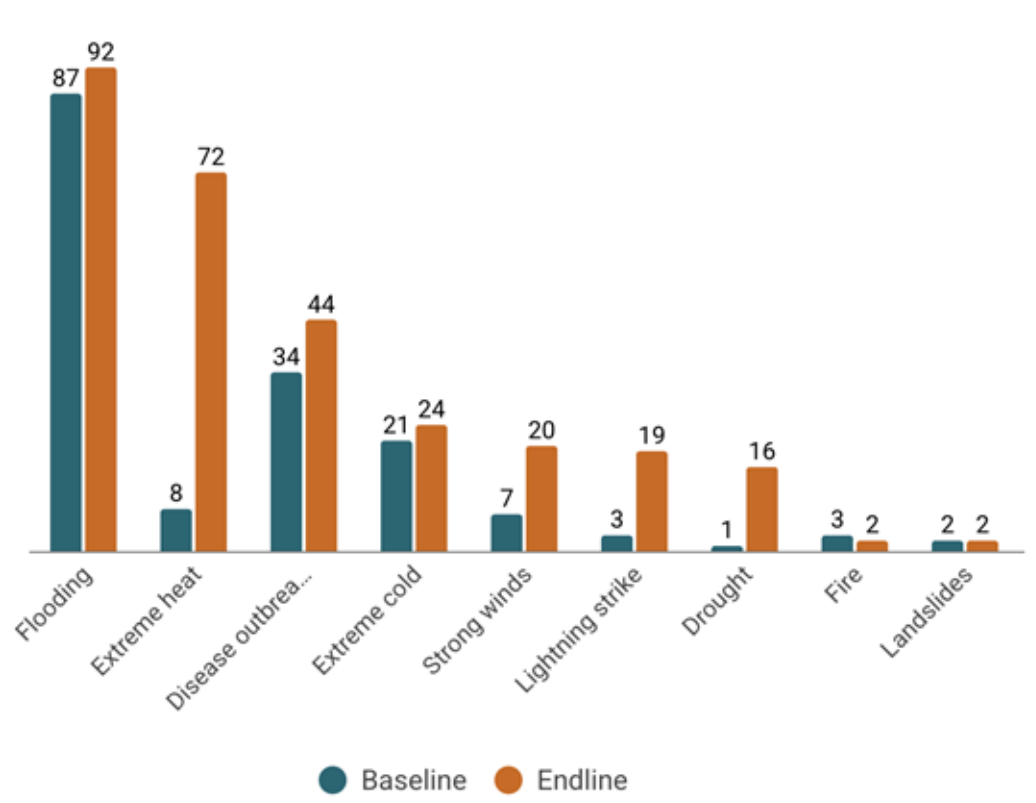
Flooding remains the top climate risk, with perceptions rising slightly from **87%** to **92%**.

Extreme heat stands out: Its dramatic increase, jumping from **8%** at baseline to **72%** at endline, highlights a changing climate reality that people are experiencing directly

Overall, risk awareness generally broadened

Communities now recognise a broader range of climate-related hazards beyond flooding, with notable increases in the perception of extreme heat, drought, strong winds, and lightning.

Major weather and climate hazards (%)



To better support communities and households in managing the impacts of climate change, most respondents called for the improvement and cleaning of the drainage system

% of total respondents **[449]- Baseline**
% of total respondents **[457]- Endline**

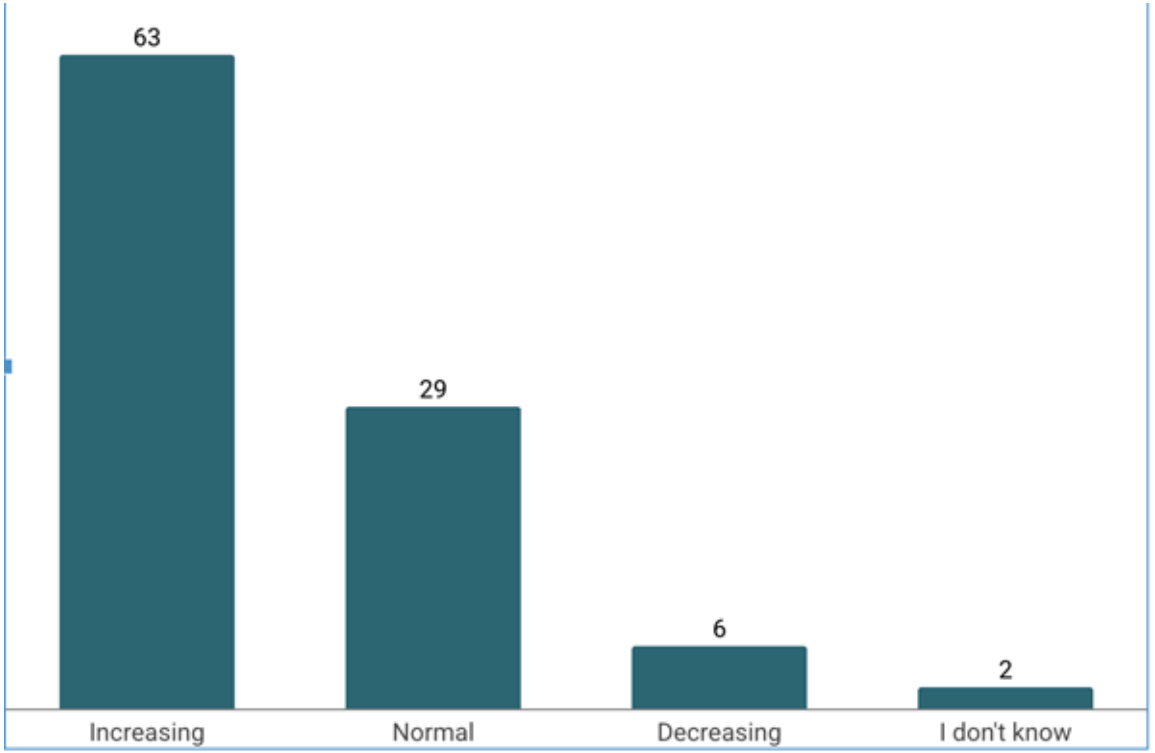
Flooding experience

Generally, most respondents (**63%**) reported that flooding in Kampala has increased over the past five years with **94%** of respondents reported experiencing flooding in the past 12 months.

Among respondents who experienced flooding in the past 12 months, the majority (57%) reported that it occurred in **March**.

"Bwaise, a flood-prone area, experiences flooding every year; this year, the worst occurred in March." - [One of the Business Group FGD participant - Bwaise III]

Flooding experience over the past 5 years (%)



Month	Ja	Fe	Ma	Apr	Ma	Jun	Jul	Aug	Sep	Oct	Nov	Dec
%	16	11	57	36	16	14	9	5	5	11	22	10

% of total respondents **[457]- Endline**

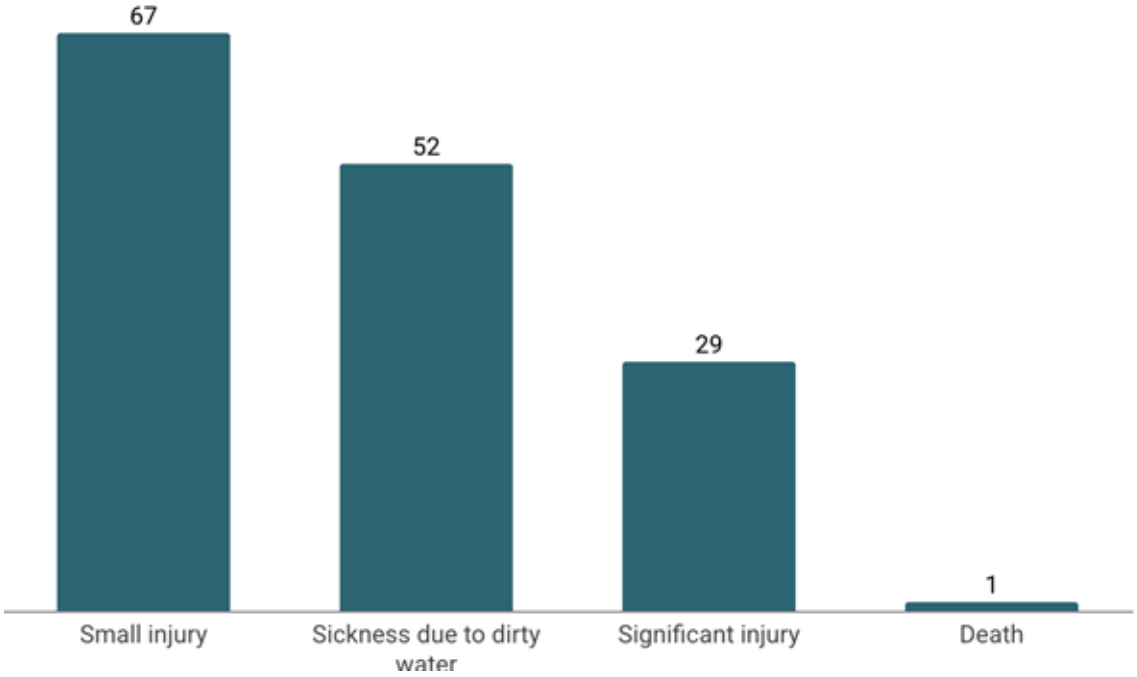
Impact of flooding (1/5)

81% of the respondents indicated that their households have been affected by flooding

The most affected were females (**74%**), with the age group most affected being those under 18 years (**56%**).

While 91% of people without disabilities reported being affected, **8%** of those with some disabilities and **1%** of those with a lot of disabilities were affected.

How household members were affected by flooding (%)



In general, the respondents highlighted the need to improve and clean drainage systems to better manage flooding impacts

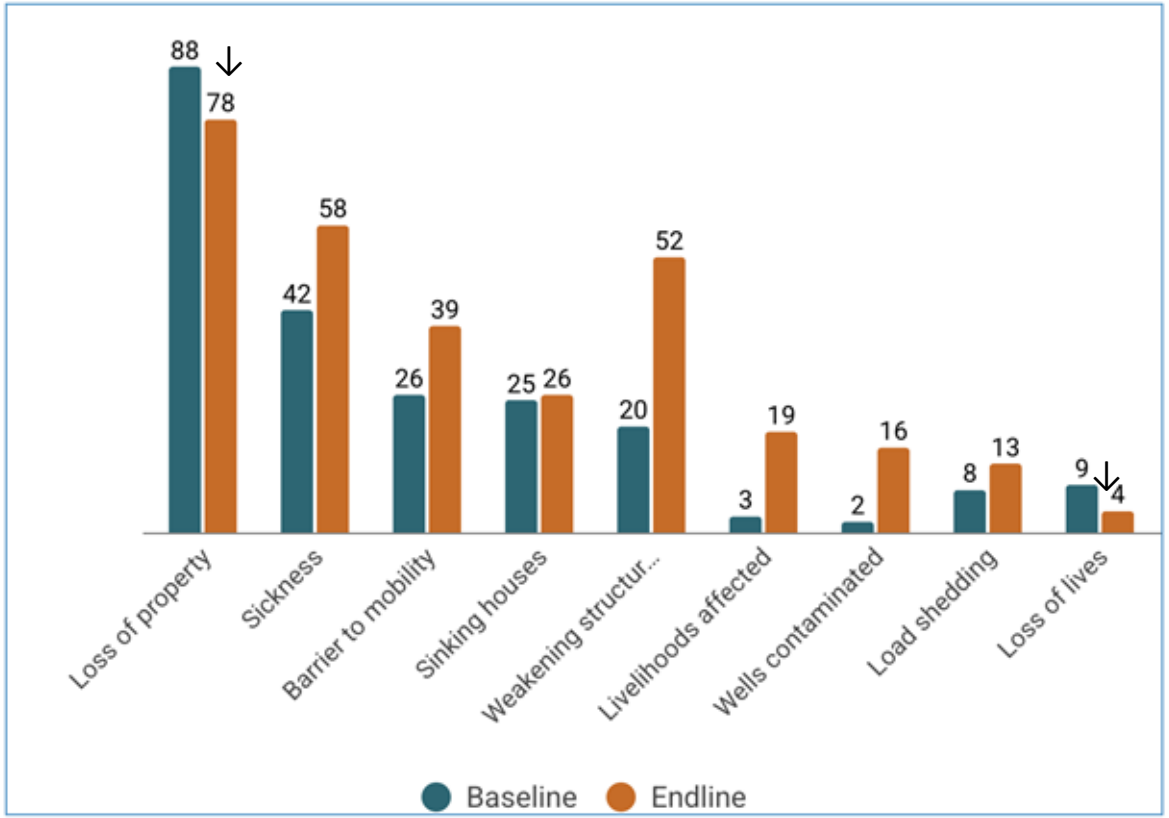
% of respondents affected **[429]**

Impacts of flooding (2/5)

Severe impacts reduced: Loss of property (↓88%→78%) and loss of lives (↓9%→4%) declined, suggesting improved preparedness due to the DARAJA project and hence preventing the most critical loss and damage.

Awareness of indirect impacts increased, such as sickness and mobility barriers, suggesting increased recognition of a broader spectrum of disaster impacts. This may be linked to project-driven awareness campaigns.

Impacts of flooding on household property, assets and livelihoods (%)



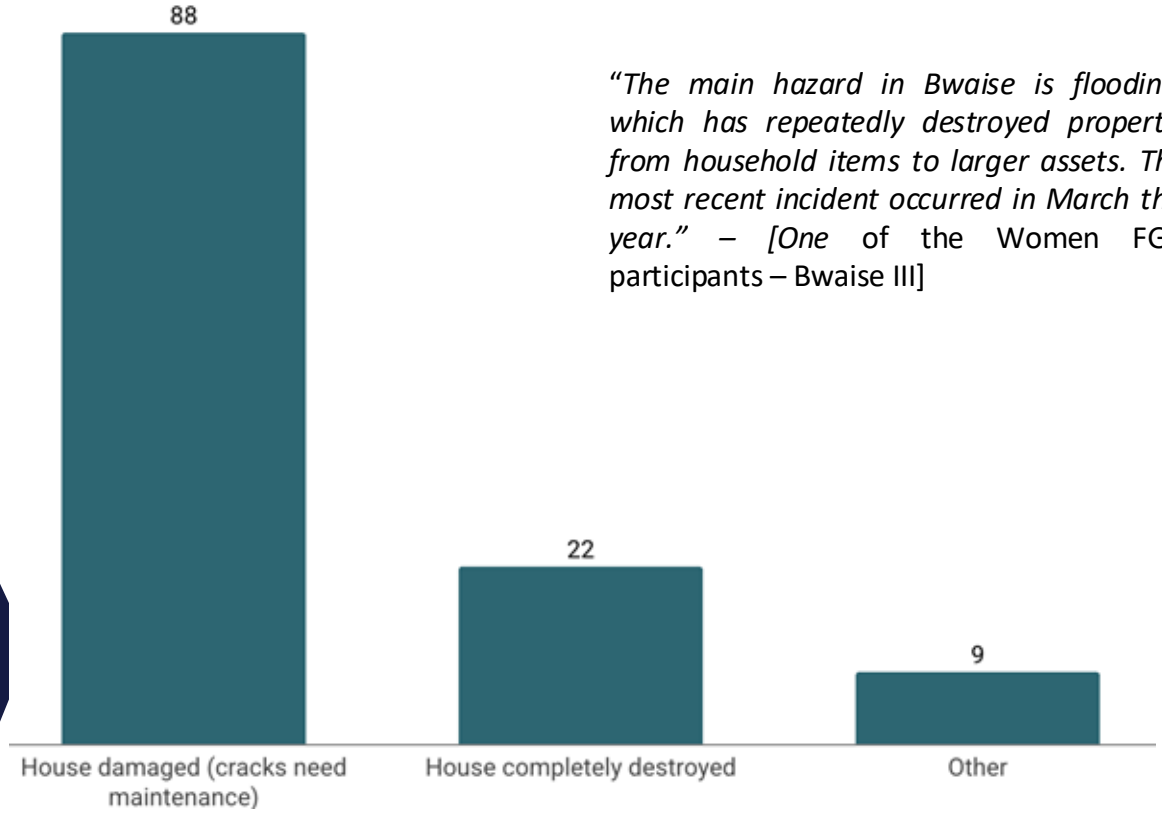
% of respondents affected **[429]**

Impacts of flooding (3/5)

Among households that reported property damage and weakening structures, 88% said their houses were damaged, and 22% indicated their houses were completely destroyed

Other reported effects included rotting timber, peeling paint, and damage to house pathways.

How properties were affected by flooding (%)



"The main hazard in Bwaise is flooding, which has repeatedly destroyed property, from household items to larger assets. The most recent incident occurred in March this year." – [One of the Women FGD participants – Bwaise III]

% of respondents with houses affected **[349]**

Impacts of flooding (4/5)

Most households lost furniture, mattresses, television sets and kitchen utensils.

Assets lost due to flooding (%)

Asset	Baseline	Endline
Furniture	67	64
Mattress	57	61
Television	51	43
Utensils	25	38
Radio	32	25
Mobile phone	20	19
Savings	2	13
Land	1	12
Fridge	10	9
Computer	0.4	2

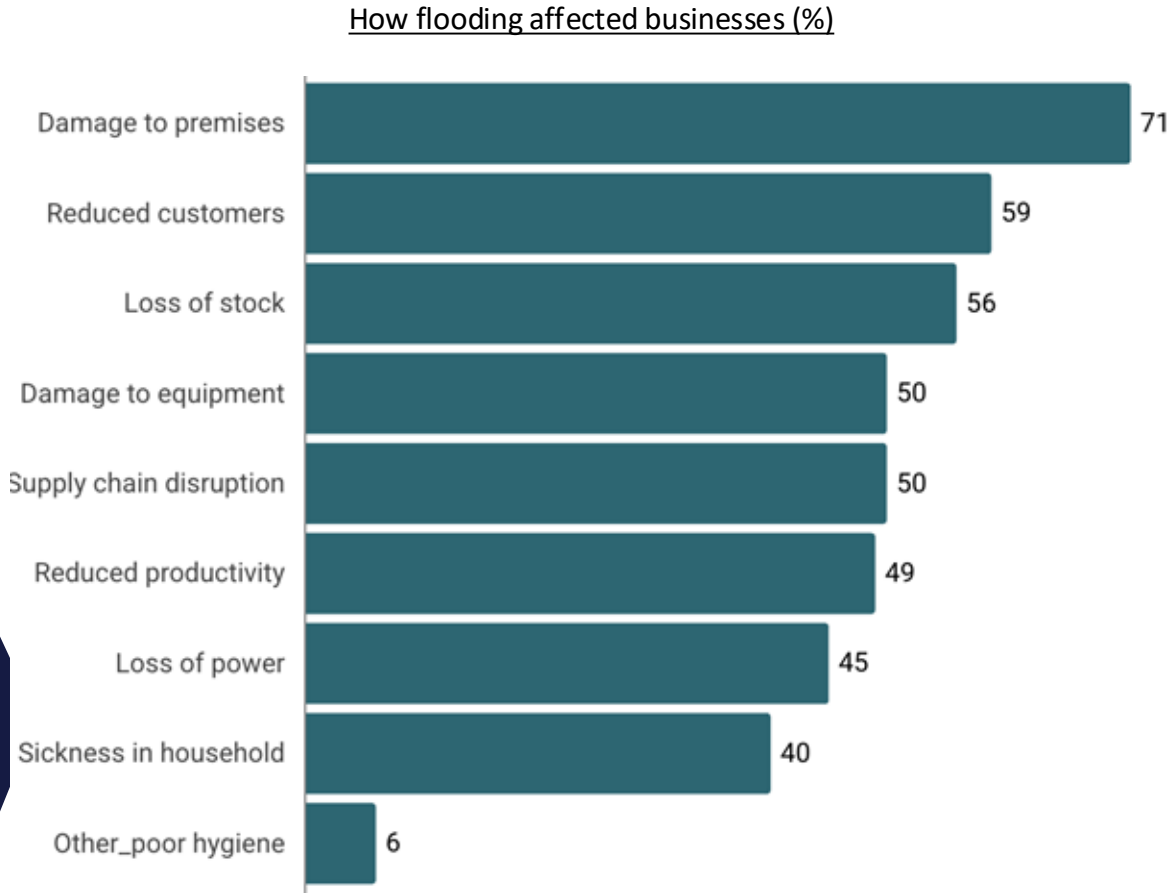
% of respondents affected **[429]**

Impacts of flooding on work and business (5/5)

Among affected respondents, most (88%) reported that flooding caused them to arrive late for work, and 71% said it stopped them from going to work altogether.

Among affected households with businesses in the settlement, 84% reported that their businesses were disrupted by flooding

"Power blackouts always happen, and those selling items that require refrigeration incur losses because some products spoil." - [One of the Youth FGD participant– Bwaise III]



% of respondents with business affected **[133]**

Business losses attributed to flooding

Most business owners affected reported losses valued between 20,000 and 40,000 Uganda Shillings due to flooding

Value of business losses due to flooding- %

Cost (Ugandan Shilling)	Percent
Below 20,000	2
20,000 - 40,000	44
40,001 - 60,000	17
60,001 - 80,000	11
80,001 - 100,000	12
100,001 and above	13
None	1

% of respondents with business affected **[133]**

Cost of cleaning

Most respondents incurred costs between 20 000 and 40 000 Uganda Shilling to clean the house after flooding

"Bwaise faces multiple climate hazards—floods, heat, cold spells during the rainy season, and even lightning. The most concerning aspect is that people with disabilities are disproportionately affected, yet often overlooked. For instance, during floods, those without wheelchairs struggle greatly to move to safety." - [PWD Key informant - Bwaise III]

Cost of cleaning a house after flooding- %

Cost (Ugandan Shilling)	Baseline	Endline
Below 20,000	50	29
20,000 - 40,000	25	36
40,001 - 60,000	9	12
60,001 - 80,000	5	5
80,001 - 100,000	3	3
100,001 and above	0	5
None	8	10

98% of the respondents indicated that flooding was experienced in the wider community

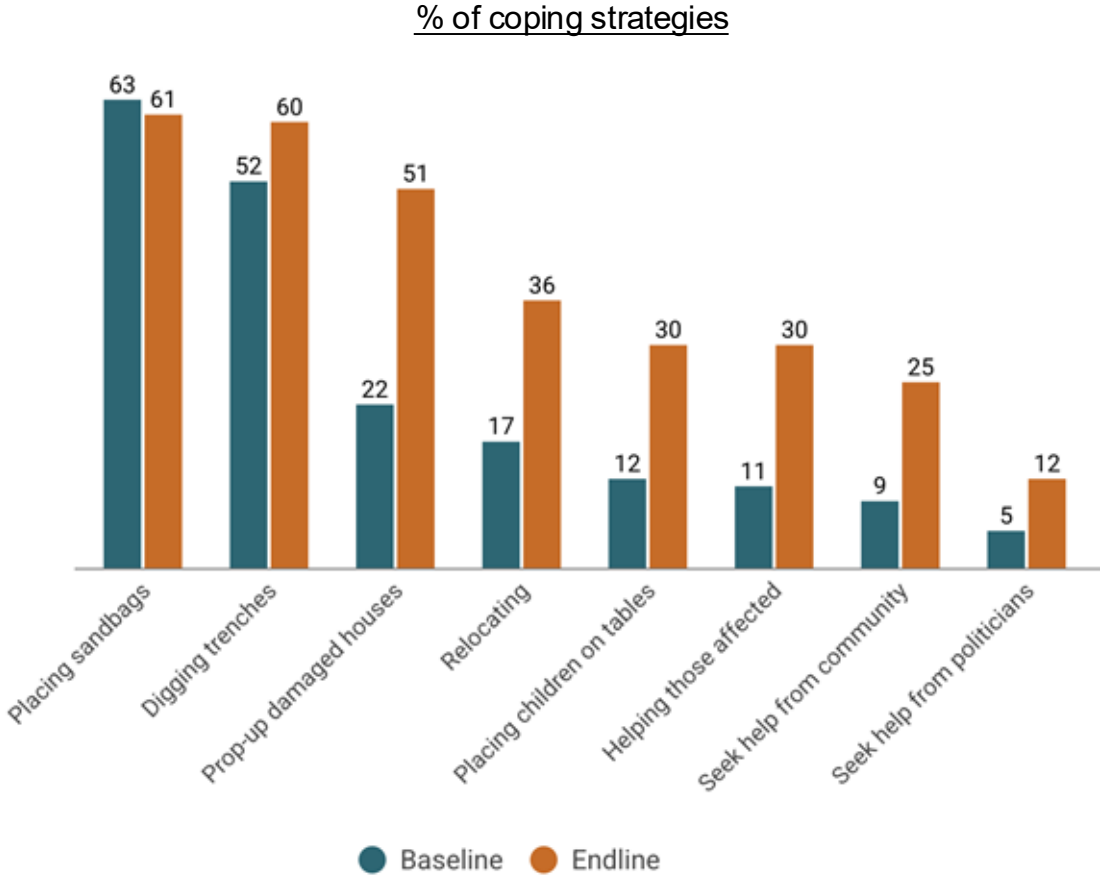
% of respondents with houses affected **[349]**

Coping strategies – Household level

At the household level:
More households are reinforcing houses (22% → 51%) and relocating to safe places (17% → 36%) instead of relying solely on sandbags.

Improved risk awareness – Protecting children by placing them on tables rose from 12% → 30%, reflecting heightened sensitivity to household safety during floods.

Helping affected households grew from 11% → 30%, and seeking community support from 9% → 25%, showing greater reliance on collective action and solidarity



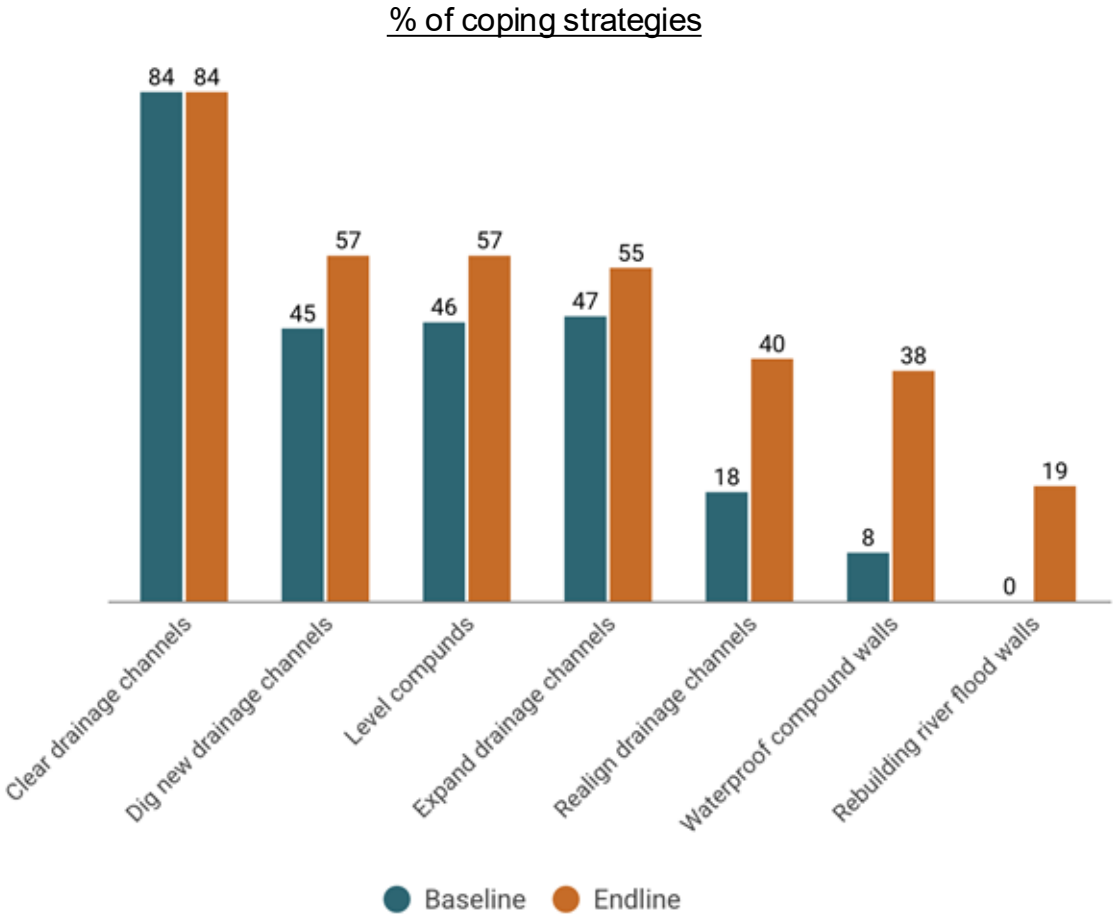
% of respondents affected **[429]**

Coping strategies – Community level

At the community level: as at baseline, most respondents indicated that people usually clear drainage channels (84%).

Most of the respondents (84%) implemented these actions ahead of the rainy season, compared to 56% at baseline

"No, we don't have everything we need to stay safe during flooding. The government should also resettle us in secure places, just as they do for others." - [One of the PWD&Elderly FGD participants - Bwaise III]



% of respondents affected **[429]**

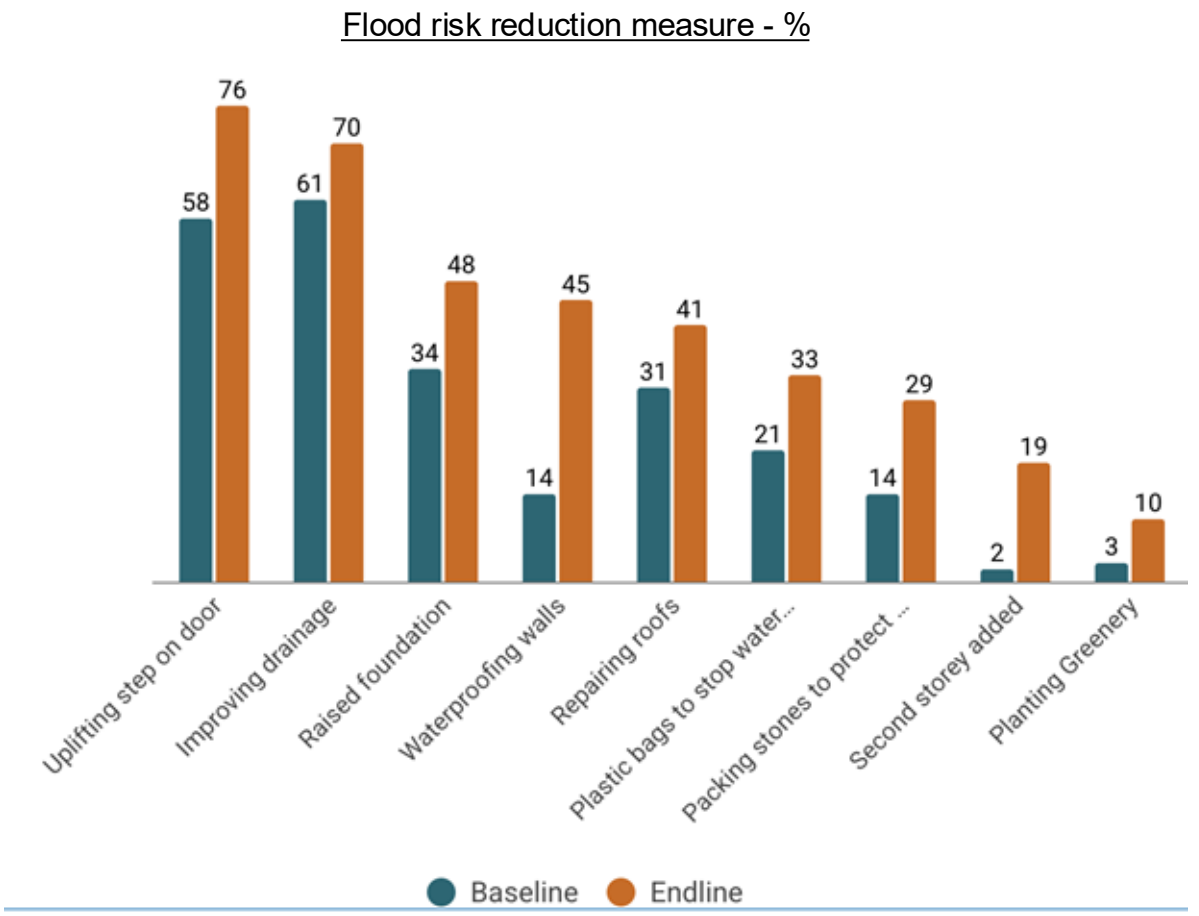
Flood risk reduction measure – household level

The proportion of households adopting flood risk reduction measures rose from 86% at baseline to 97% at endline.

Strengthened structural measures: Uplifting steps on doors (58% → 76%), improving drainage (61% → 70%), and raising foundations (34% → 48%).

Emerging measures: Households are adding second storeys (+17%) as safe refuges and planting greenery (+7%) as a nature-based flood protection measure

Overall, households are moving from temporary fixes toward long-term and structural risk reduction strategies



% of respondents implemented flood risk reduction measure **[337]**

Kampala Endline Survey Data Results-2025

Cost of flood risk reduction measure

Most respondents incurred costs between 100,000 and 300,000 Uganda Shilling to implement flood risk reduction measures

Cost of flood risk reduction measure implemented- %

Cost (Ugandan Shilling)	Percent
Below 100,000	20
100,000 - 300,000	53
300,001 - 500,000	12
500,001 and above	15

Most respondents (60%) reported that the flood risk reduction measures were retrofits, while the remainder were existing measures

% of respondents implemented flood risk reduction measure **[337]**

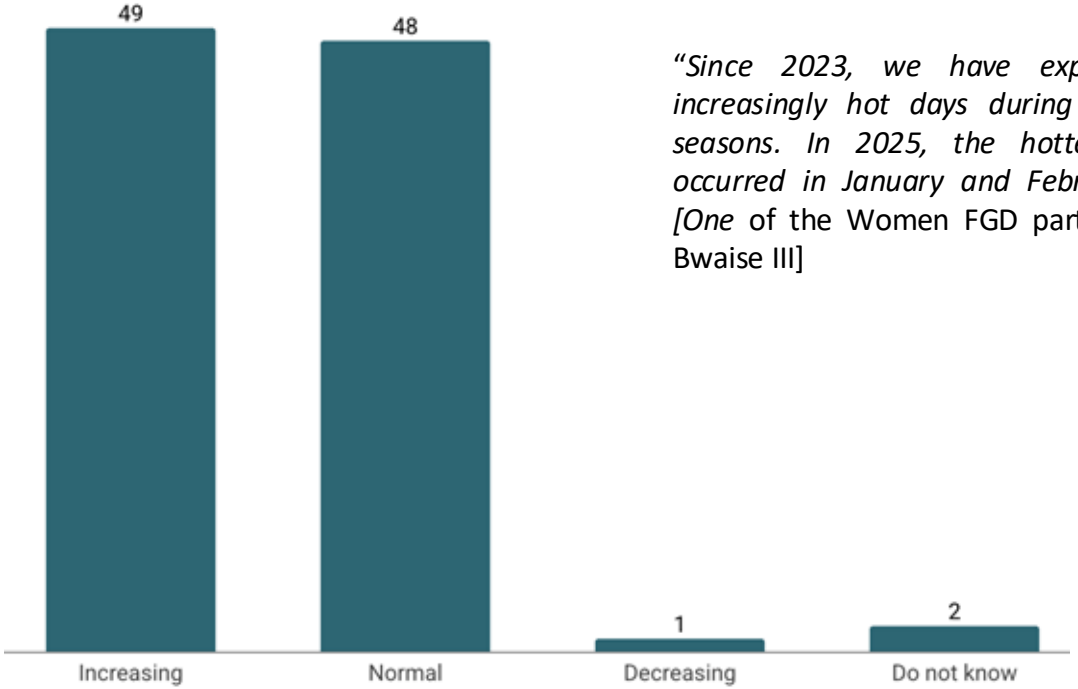
Heat experience

Nearly half of the respondents perceive worsening extreme heat over the past five years, with **70%** experiencing it during the past 12 months.

Among those who experienced heat in the past 12 months, most (59%) experienced it in January, followed by February (31%) and July (31%).

"In all dry seasons, just the months of January and February tend to be very hot compared to other months of the dry seasons." - [One of the Youth FGD participant - Bwaise III]

Heat experience over the past 5 years (%)



"Since 2023, we have experienced increasingly hot days during the dry seasons. In 2025, the hottest days occurred in January and February." – *[One* of the Women FGD participants-Bwaise III]

Month	Ja	Fe	Ma	Apr	Ma	Jun	Jul	Aug	Sep	Oct	Nov	Dec
%	59	31	8	15	16	16	31	18	1	2	1	2

% of total respondents **[457]- Endline**

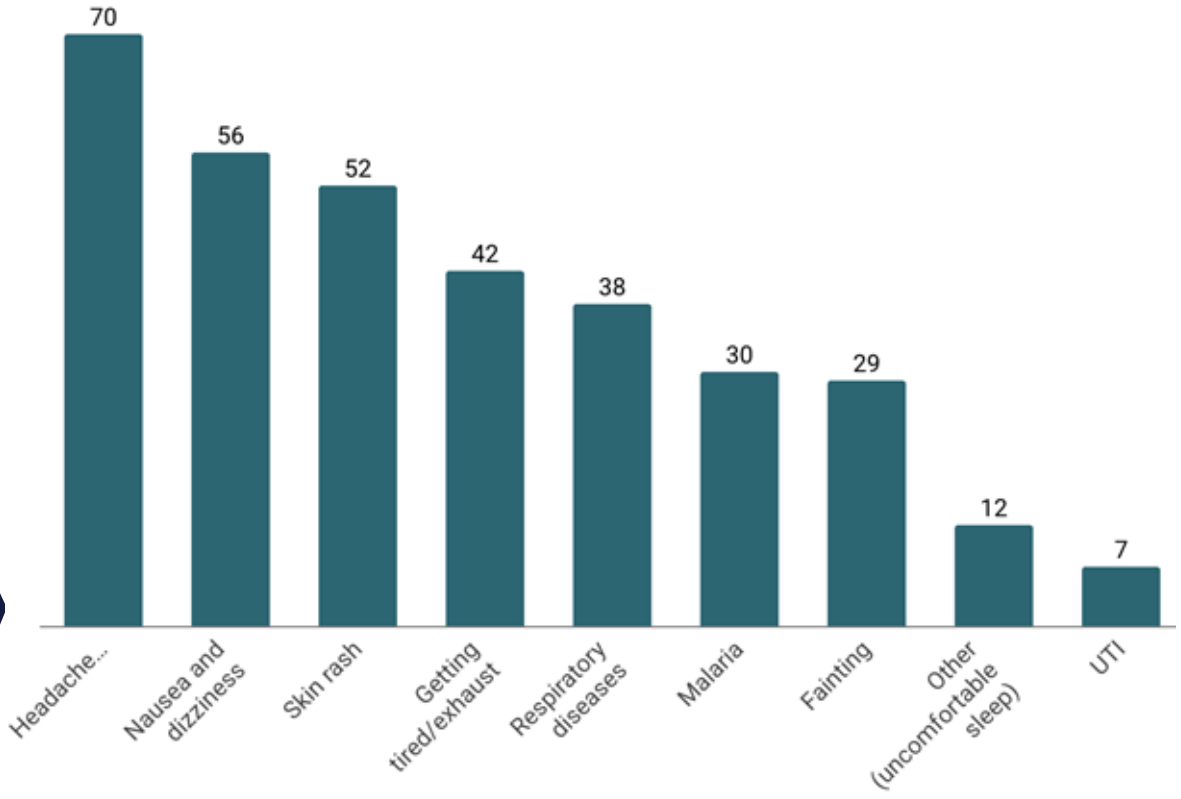
Impact of extreme heat (1/6)

Among those who experienced heat during the past 12 months, **70%** indicated that their households have been affected by heat

The most notable effects of heat among those affected were headaches, nausea and dizziness, as well as skin rash

"When the hot days come, the dust is too much, and many of us end up with flu and coughs." - [One of the Women FGD participants—Bwaise III]

How household members were affected by heat (%)



% of respondents affected by heat **[224]**

Impact of extreme heat (2/6)

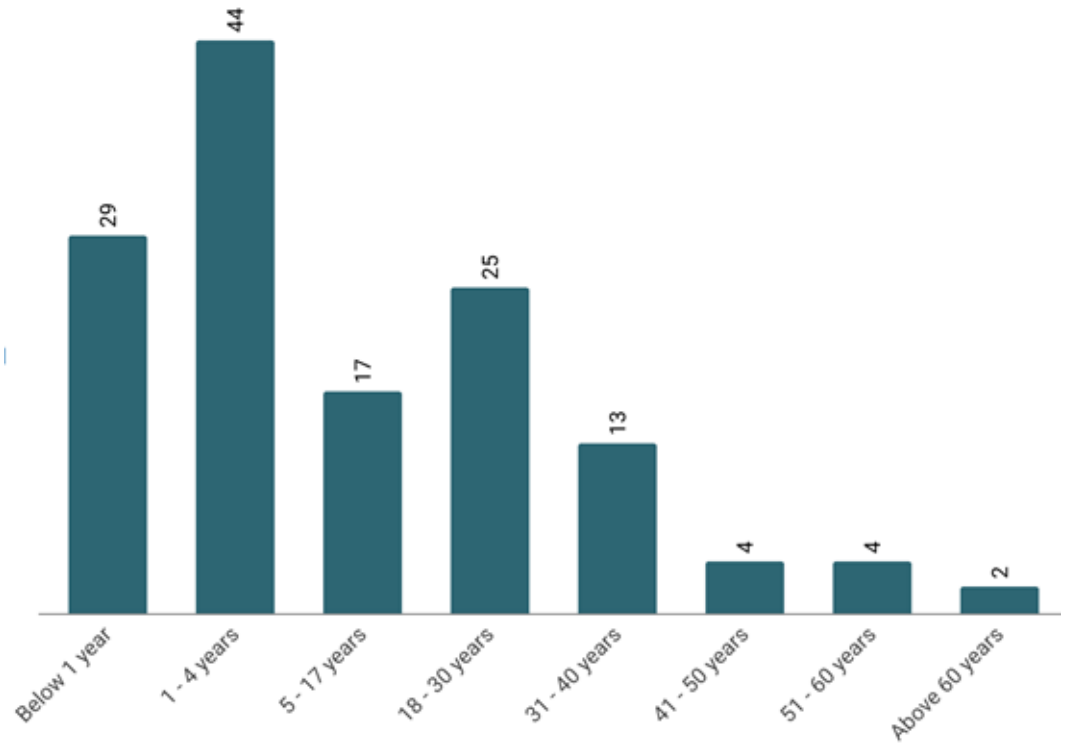
Young children (below 5 years) appear to be the most vulnerable to heat effects

Youth (18–30 years) also report relatively high exposure, likely due to outdoor activities, schooling, or work

In terms of gender, the most affected were females (**77%**)

While 94% of people without disabilities reported being affected, **6%** of those with some disabilities were also affected.

Age group most affected by heat (%)



Elderly people (60+) report fewer cases, but this might reflect a smaller proportion of households with elderly people in the sample, rather than lower vulnerability

% of respondents affected by heat **[224]**

Impact of extreme heat (3/6)

Among those affected by heat, **89%** incurred costs seeking medical treatment

Most respondents incurred costs below 100 000 Uganda Shillings

Cost incurred seeking medical attention or treatment because of heat (%)

Cost (Ugandan Shilling)	Percent
Below 100 000	54
100,000 - 200,000	31.5
200,001 - 300,000	12
300,001 - 400,000	2
400,001 - 500,000	0.5
500,001 - 600,000	0
Above 600,000	0

"We don't have all we need to stay safe in the heat, but planting more trees will make a big difference—and it's affordable too." – [One of the Local Leaders FGD participant - Bwaise III]

% of respondents affected by heat **[224]**

Impacts of extreme heat (4/6)

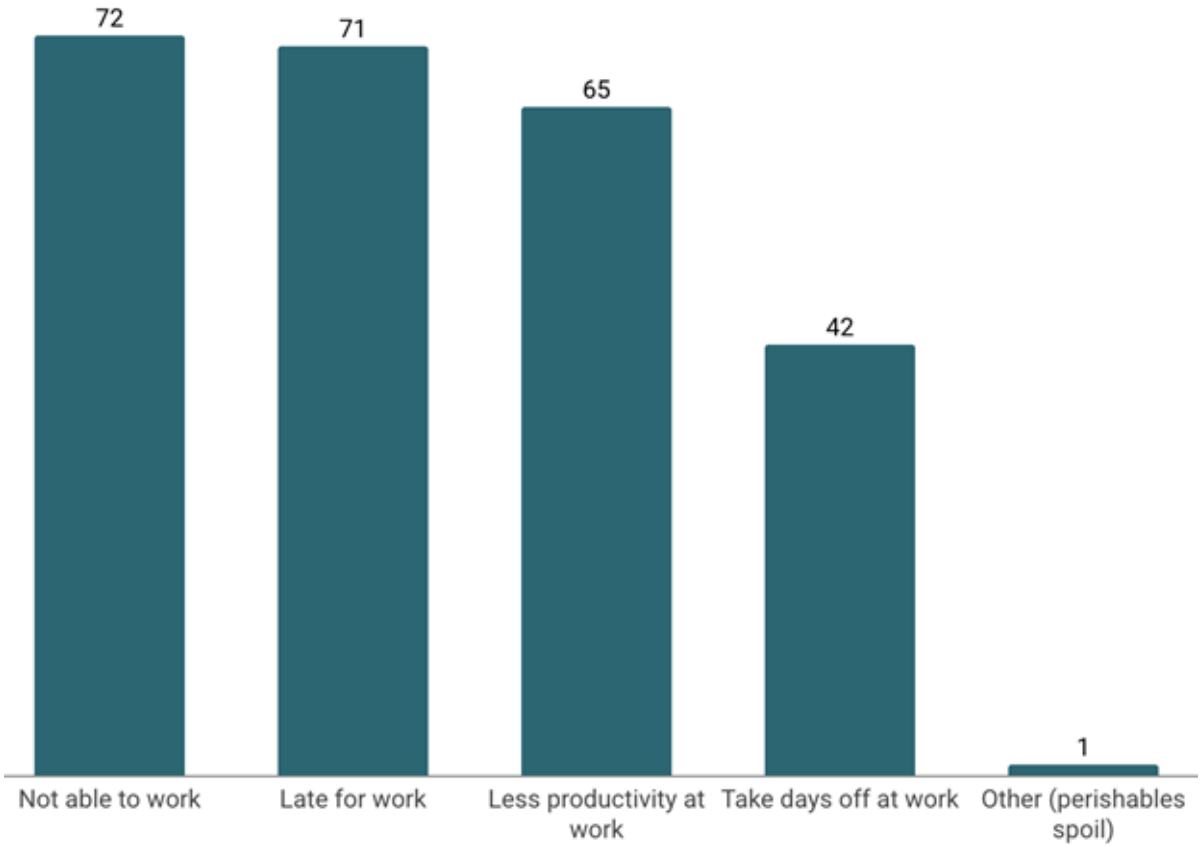
Among those affected, most respondents (62%) indicated that their ability to work was affected by the heat.

Severe disruptions: A very high proportion reported being unable to work (72%) due to heat, showing direct loss of labour time.

Work routine disturbances: 71% were late for work, suggesting heat also disrupts punctuality and daily schedules

Reduced productivity and days off: reduced people's performance and, in some cases, forced days off, affecting both immediate and longer-term effects on livelihoods and household income

How ability to work was affected by heat (%)



% of respondents who their ability to work was affected by heat **[139]**

Impacts of extreme heat (5/6)

Among respondents affected by heat, 96% indicated that they lost income due to the heat

Most of them experienced income loss of between 100 000 and 200 000 Uganda Shilling (51%)

Income lost due to heat effects (%)

Income (Ugandan Shilling)	Percent
Below 100 000	22
100,000 - 200,000	51
200,001 - 300,000	22
300,001 - 400,000	3
400,001 - 500,000	0
500,001 - 600,000	1
Above 600,000	1

"I wish we could get weather forecasts for hot days in a language we understand, not just numbers in degrees." – [One of the Local Leaders FGD participant - Nalukolongo]

% of respondents who lost income due to extreme heat **[133]**

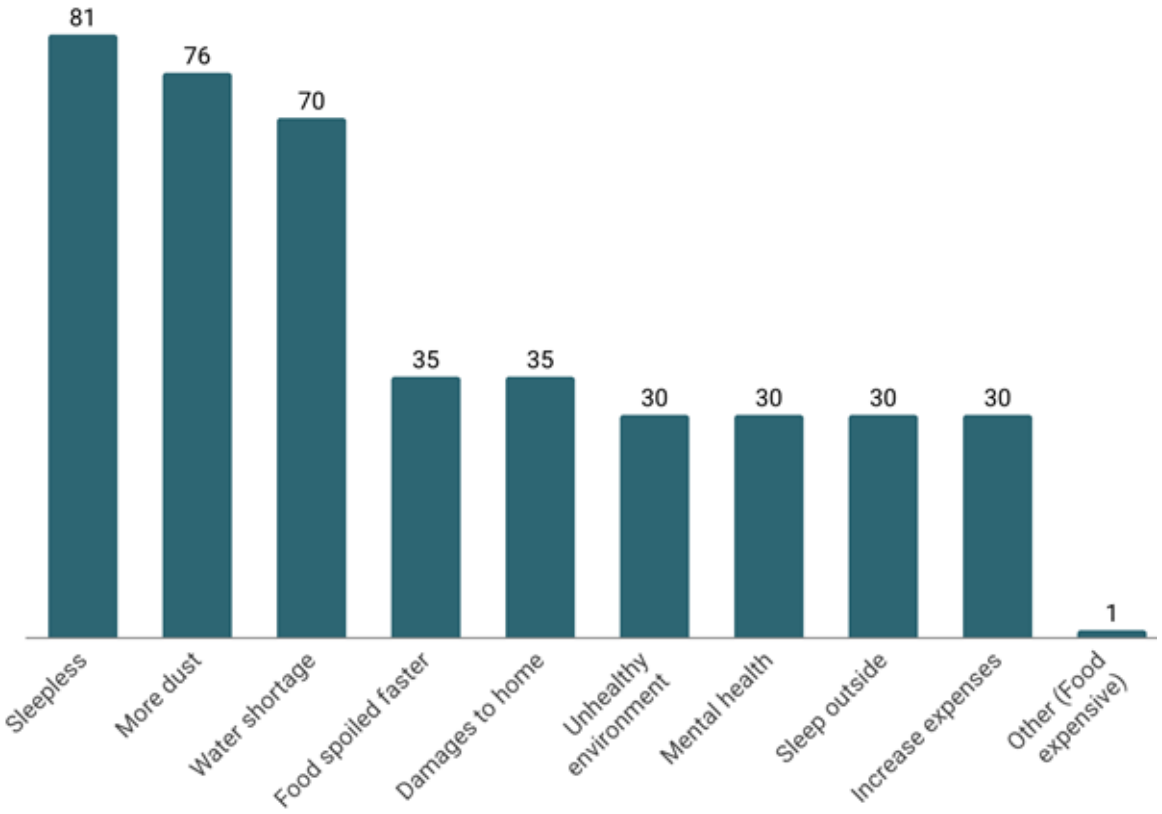
Impacts of extreme heat (6/6)

Daily life disruptions: widespread sleeplessness, more dust, and faster food spoilage directly affect comfort and household well-being.

Health and financial stress: mental health effects, unhealthy living environments and increased expenses

"Yes, during hot days I experience body weakness and headaches." - [One of the PWD&Elderly FGD participants - Bwaise III]

Other impacts of extreme heat (%)



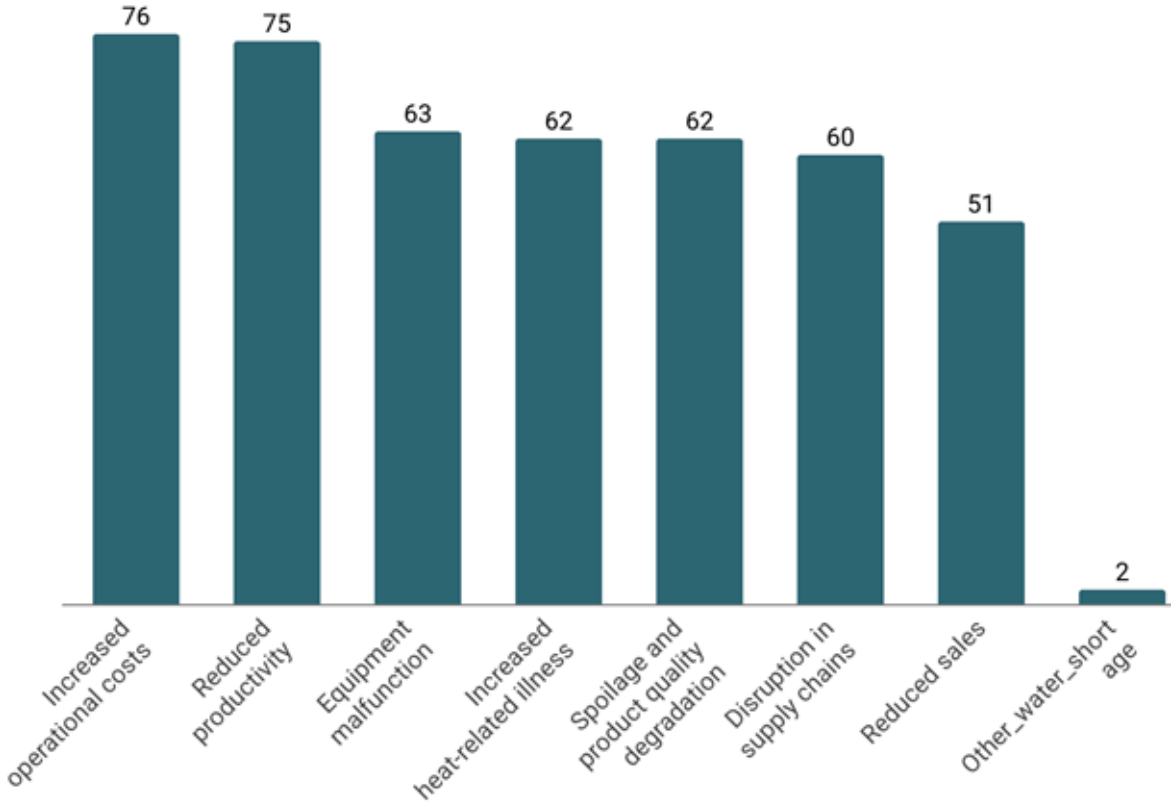
% of respondents affected by heat **[224]**

Impacts of extreme heat on businesses

Among business-owning households in the settlement, 60% reported disruptions from extreme heat, mainly due to higher cooling costs and reduced productivity from heat stress.

"I personally can't walk in the hot sun, so I wait until it cools. But by then, I've already lost valuable work time." - [One of the PWD&Elderly FGD participants - Bwaise III]

How extreme heat affected businesses (%)



% of respondents with business affected **[95]**

Extreme heat coping strategies

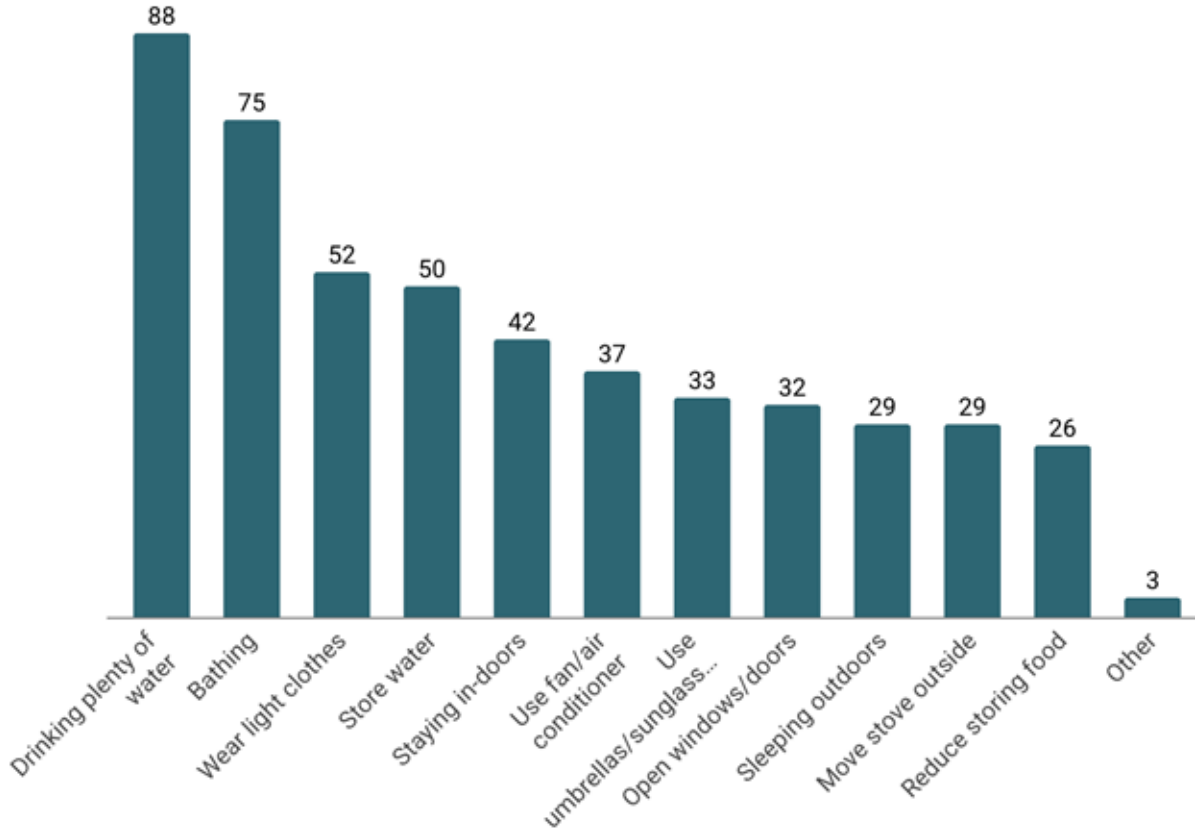
Main heat coping strategies:

- Drinking plenty of water, bathing, wearing light clothes and storing more water

In general, the respondents also suggested the need to plant trees and construct of shades and cooling facilities to strengthen extreme heat adaptation

In describing how extreme heat is affecting people in Nalukolongo, one of the youth FGD participants said, "*The months of January and February are so hot that I often have to bathe in the middle of the night.*"

How households are coping with extreme heat (%)



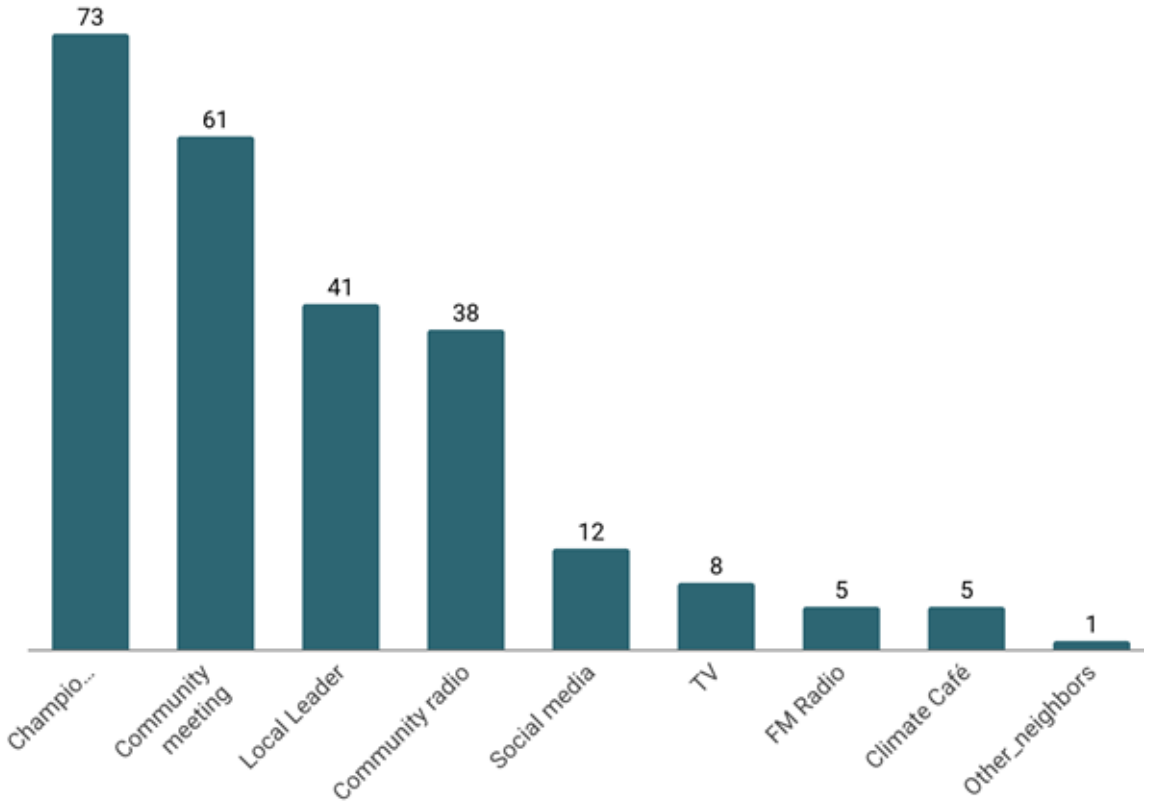
% of respondents affected by heat **[224]**

Access to WCI
Awareness of DARAJA

56% of respondents were aware of the DARAJA project in Kampala.

Most of them first heard about DARAJA from climate champions and community meetings

How respondents first heard about DARAJA (%)



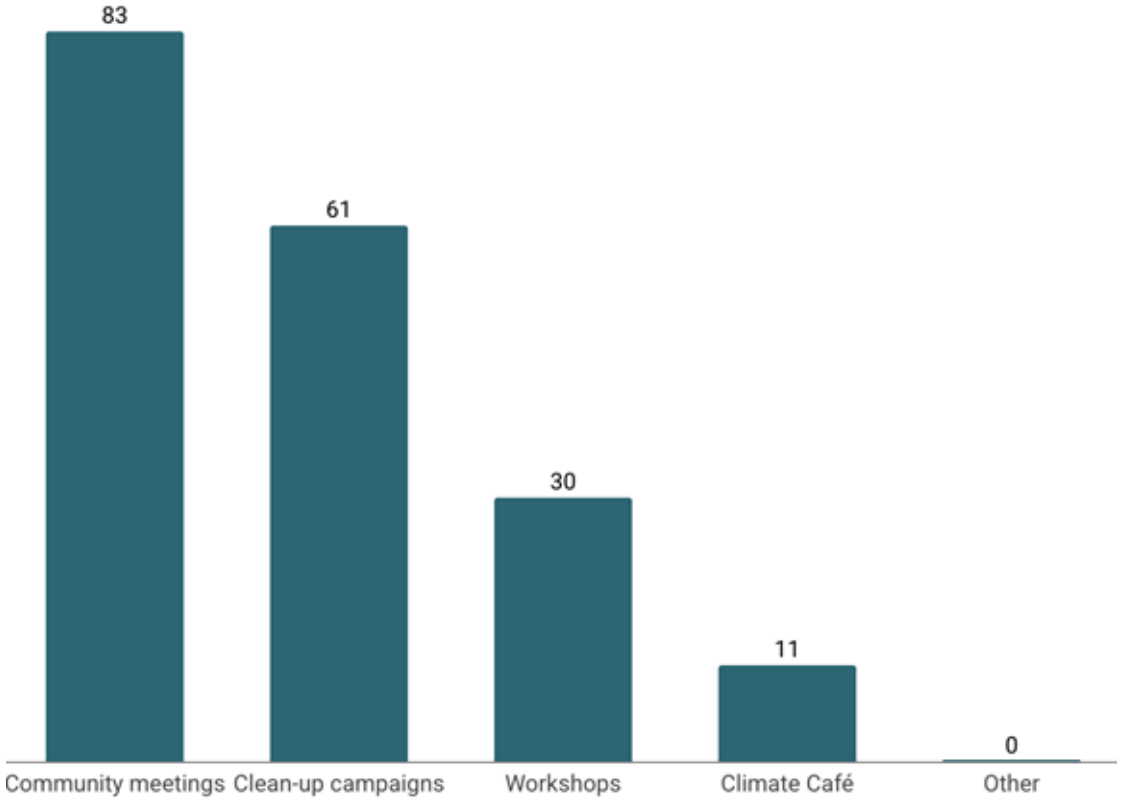
% of total respondents **[457 respondents]**

Access to WCI
Participation in DARAJA activities

Among those who were aware of DARAJA, **90%** participated in DARAJA activities.

Most of them participated in community meetings and cleanup campaigns.

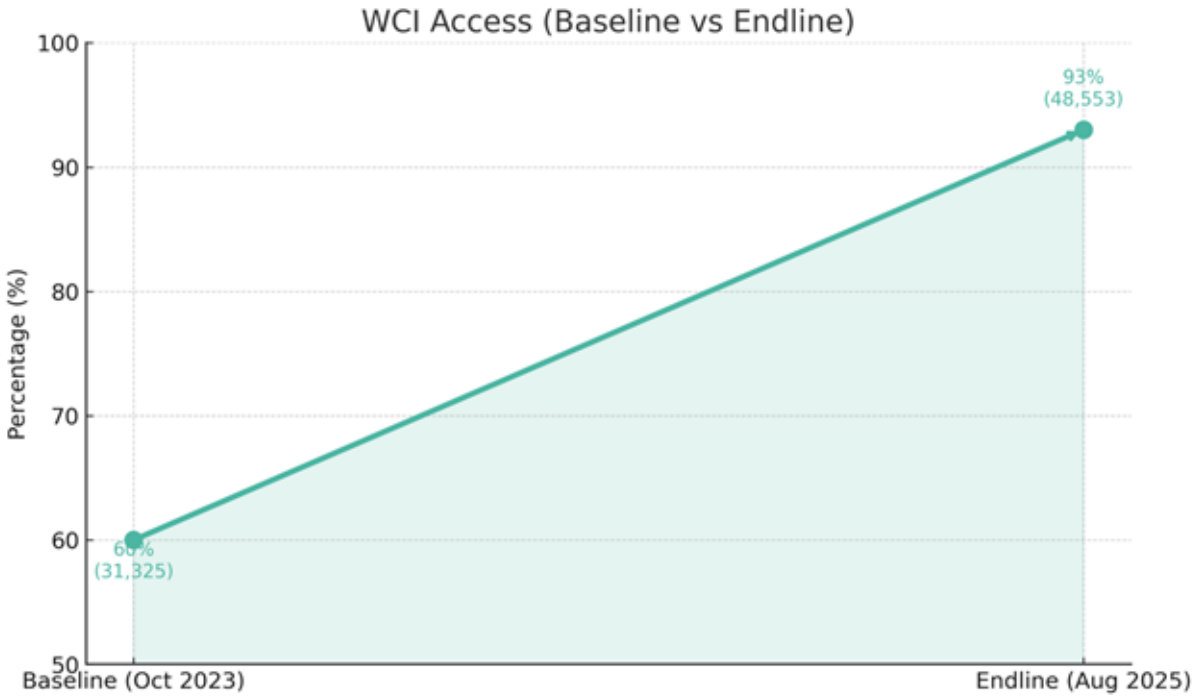
Which DARAJA activities have you participated in (%)



% of total respondents aware of DARAJA **[254 respondents]**

Access to WCI
Project area: Baseline vs Endline

Access to WCI in the project area (Bwaise III) rose sharply from 60% at baseline to **93%** at endline, while in the control area it collapsed from 57% to just **34%** — highlighting the project's strong impact in expanding access



() - population accessing WCI

% of total respondents **[305 respondents]**

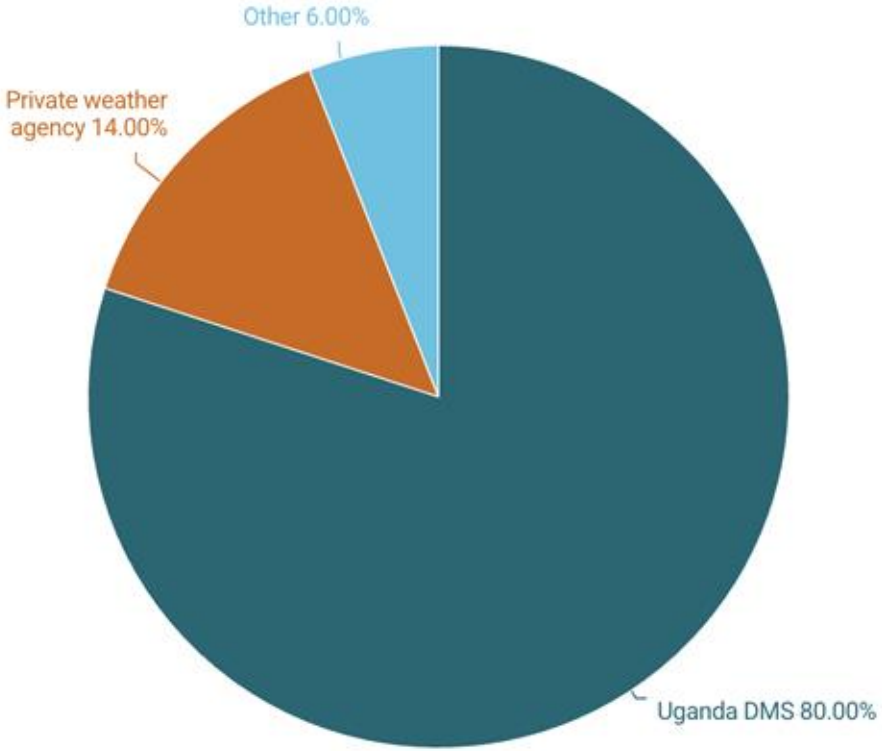
Access to WCI

Aware of the source

76% of the respondents with WCI access know the source compared to **29%** at baseline.

Among them **80%** indicated Uganda Meteorological Service Department (Uganda DMS) as the source compared to 29% at baseline while 14% indicated private weather agencies and the remaining (6%) indicated other sources including DARAJA

Source of WCI (%)



% of total respondents aware of the source **[253 respondents]**

Access to WCI: Factors affecting access to WCI (1/3)

Key factors that increase the likelihood of receiving WCI

- Located in the project area
- Awareness of DARAJA

For probit regression results, see Annex 5

Factors affecting access to WCI

Respondents in the project area (Bwaise) were more likely to access WCI compared to their counterparts in the control area

- Being located in the project area (Bwaise III) increased the likelihood of receiving WCI by 29%.
- This reflects the impact of the project in expanding WCI access

Awareness of DARAJA project in Kampala increases the probability of receiving WCI

- Awareness of DARAJA boosts access to WCI by 36%
- This suggests the project's effectiveness in bridging information gaps and its strong role in improving WCI reach.

Access to WCI: Factors affecting access to WCI (2/3)

Key factors that increase the likelihood of receiving WCI

- Access to a working television
- Number of years of living in the settlement

For probit regression results, see Annex 5

Factors affecting access to WCI

Ownership of a functional television set enhances the probability of receiving WCI	The likelihood of receiving WCI increases with the number of years spent living in the settlement
• Ownership of a television set increases the likelihood of receiving WCI by 10%. • As at baseline, most people watch television at night, and this increased the probability of accessing WCI	• One more year living in the settlement increases the probability of accessing WCI by 3% • Regular awareness and outreach programs and community engagement efforts were instrumental in expanding access to WCI

Access to WCI: Factors affecting access to WCI (3/3)

Key factors that increase the likelihood of receiving WCI

- Being a male resident

Negative

- Living with disability

For probit regression results, see Annex 5

Factors affecting access to WCI

Male residents are more likely to receive WCI compared to female counterparts

- Male residents are 7% more likely to access WCI compared to female residents, indicating a gender gap

Men more likely to access WCI due to:

- Higher radio ownership (81% vs. 77% women) – main WCI channel
- Greater awareness of DARAJA (59% vs. 53% women) and more men reside in project area (69% vs. 65% women)

- This highlight the need to strengthen alternative channels—such as savings groups to improve women's access to WCI going forward.

Living with disability decreases the probability of accessing WCI

- People with disabilities are 19% less likely to access WCI

- This suggests that while access has improved overall, going forward, the project needs to strengthen disability-inclusive approaches to ensure that WCI reach everyone equally.

Access to WCI

Channels for WCI

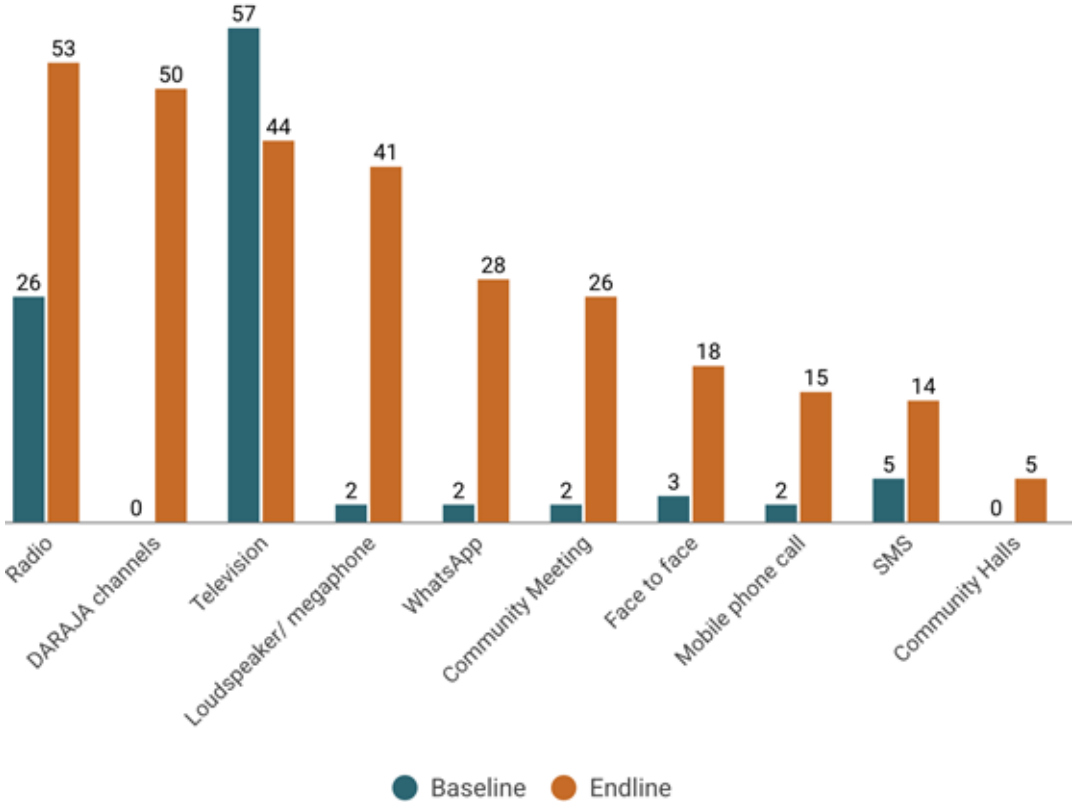
Radio **53%**

DARAJA channels **50%**

Television **44%**

"As part of our news menu, we provide forecasts as news updates and also host talk shows dedicated to climate information." - [UBC Key informant]

The most common channels used to receive WCI (%)



Other channels include newspaper, Facebook, X and website

% of total respondents who access WCI **[334 respondents]**

Access to WCI
DARAJA Channels

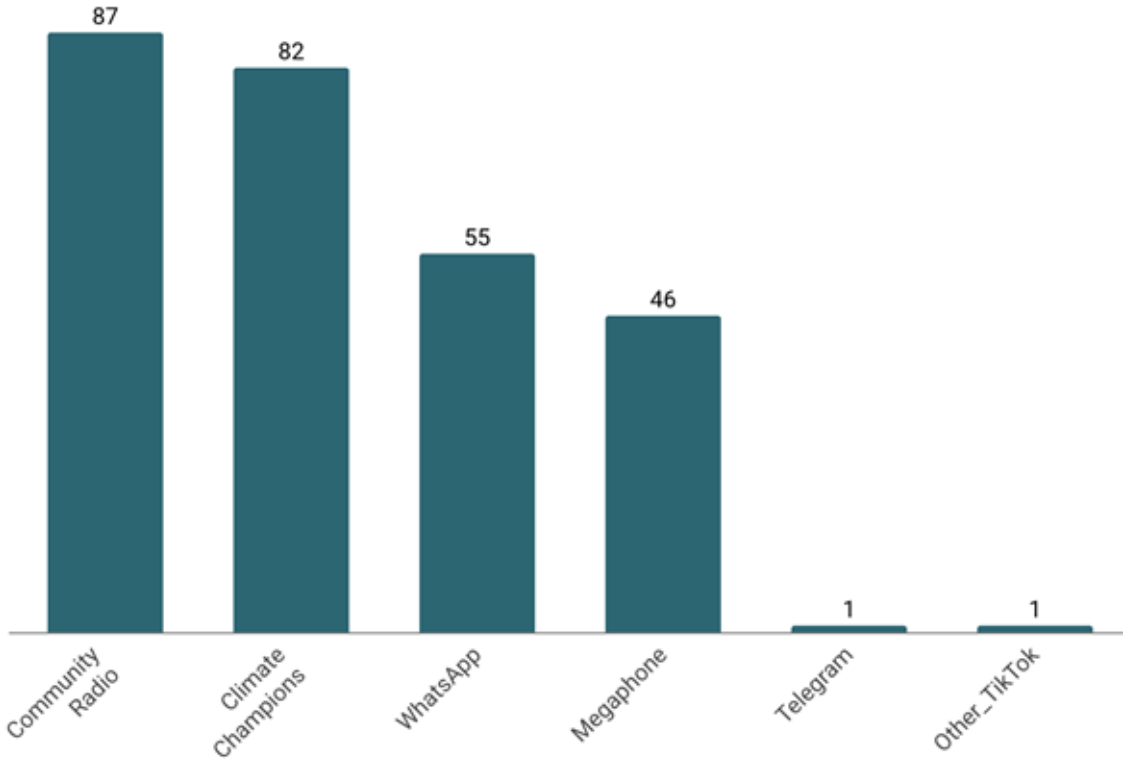
Community radio **87%**

Climate champions **82%**

WhatsApp **55%**

"Currently, a project called DARAJA is being implemented in Bwaise, focusing on weather and climate. Community radio is being used to share forecasts and run awareness campaigns." - [Community Radio Key informant - Bwaise III]

DARAJA channels used to receive WCI (%)



% of total respondents who access WCI through DARAJA channels **[167 respondents]**

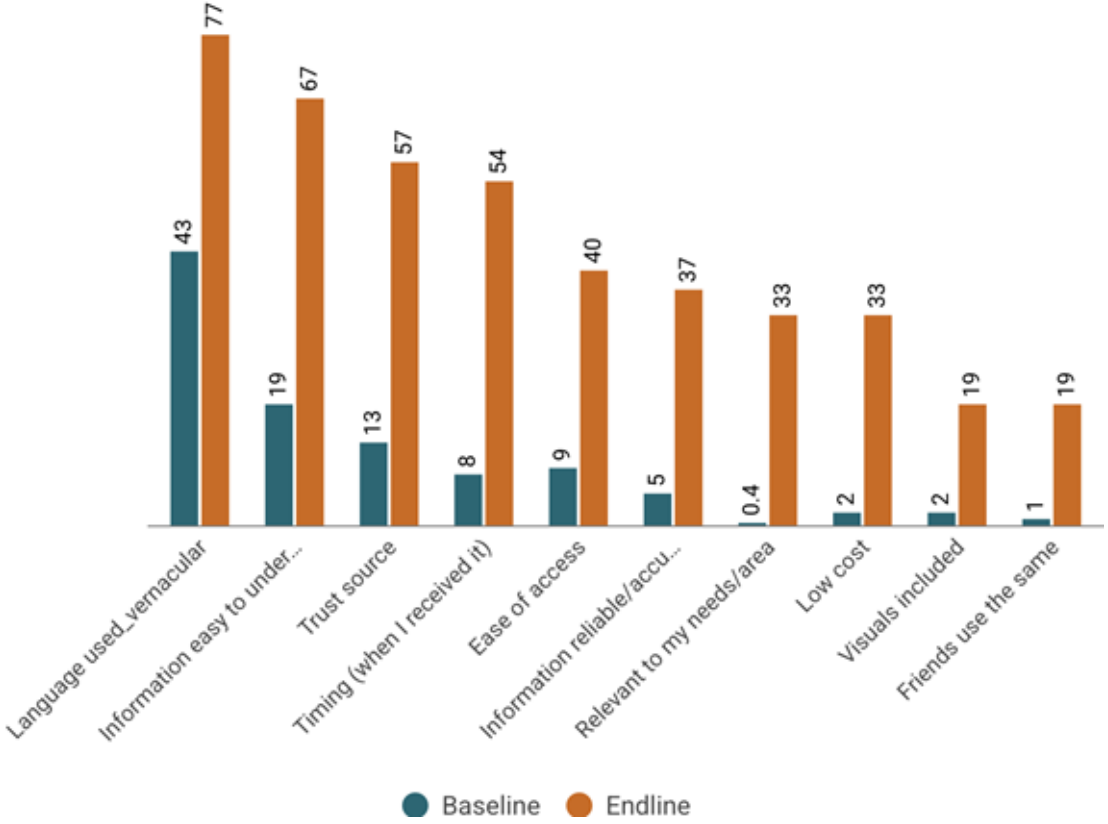
Access to WCI

Channels for WCI

The project enhanced the use of local dialect, ease of understanding, trusting the source, and timeliness, as these emerged as key reasons for choosing channels—all of which rose significantly from baseline

"I prefer community radio because the information is given in a language I understand. WhatsApp is also useful, as long as you have data, since it delivers the information on time." - [Outspan Primary School Key Informant]

Reasons for WCI channels used (%)



% of total respondents who access WCI **[334 respondents]**

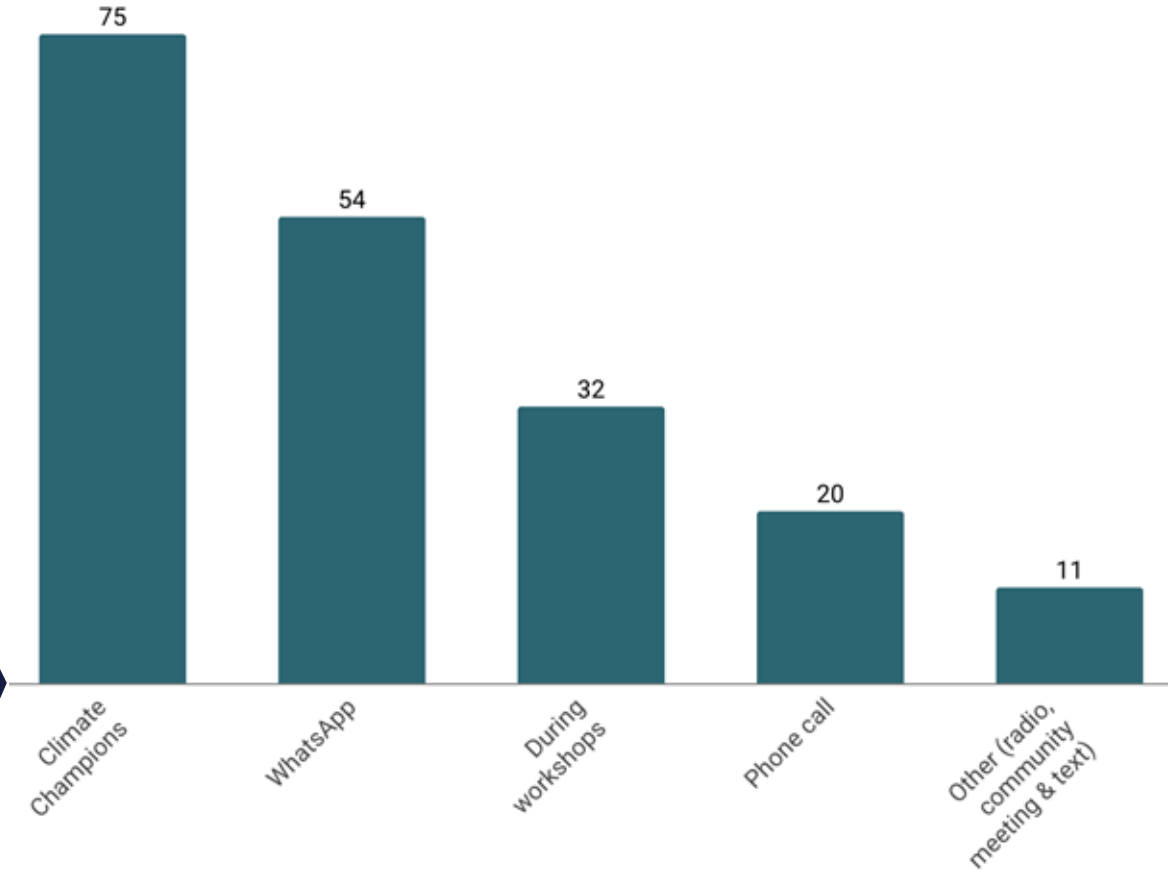
Access to WCI
Share feedback

Among those with access, **24%** indicated they share feedback to the source mainly through climate champions and WhatsApp compared to none at baseline.

Most feedback shared includes the need to share forecasts and warnings early, inclusion of heat information, sending forecasts in the local language, simplifying the weather symbols and improving accuracy.

"We don't have designated channels for dialogue with Uganda DMS; our only engagement happens during DARAJA meetings." - [KCCA Key informant]

Channel to send feedback (%)



% of total respondents who access WCI **[334 respondents]**

User preferences

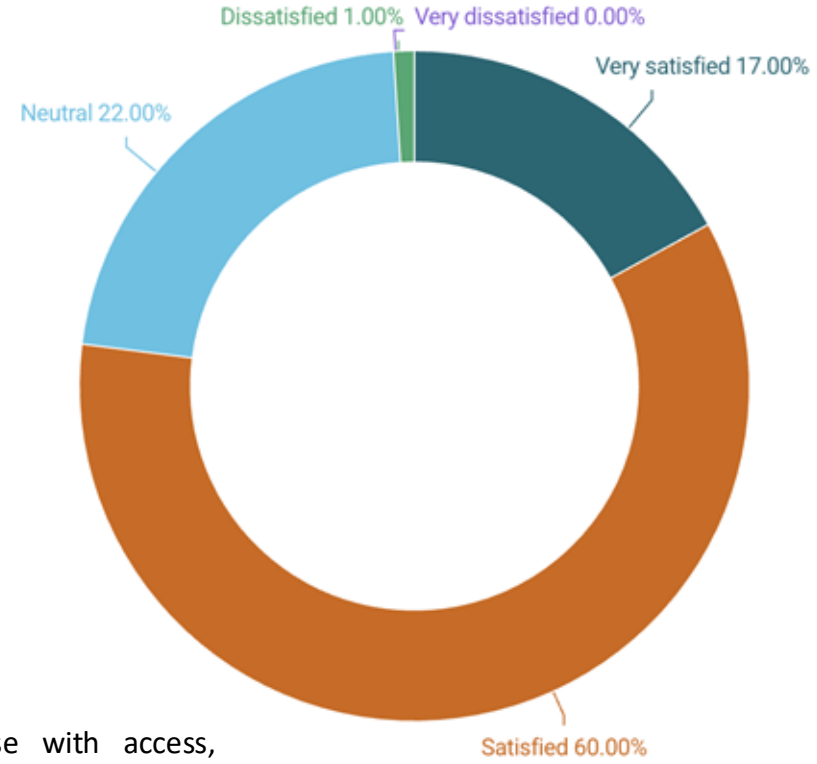
Level of satisfaction

Among respondents with access, most (77%) reported being satisfied with the WCI they receive, including 17% who were very satisfied.

Among those with access, 27% perceived WCI as very accurate and 70% as accurate, up from 21% and 56% at baseline, respectively

Note: Not captured at baseline

Level of satisfaction with WCI received (%)



Among those with access, 87% agreed that they received WCI in time to plan and take early actions.

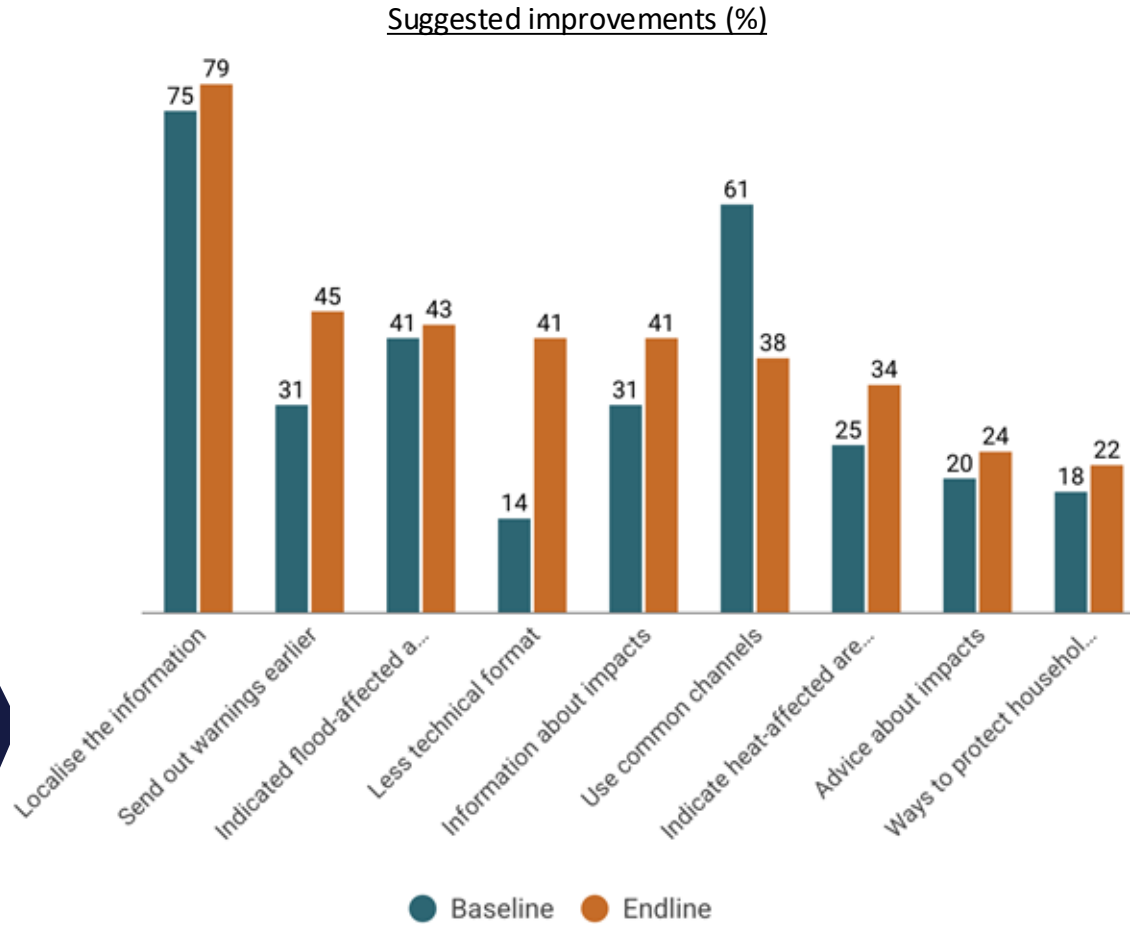
% of total respondents who access WCI **[334 respondents]**

User preferences

Suggested improvements (1/3)

While localisation remains the strongest priority, there is a growing emphasis on clarity, timeliness, and actionable content in weather forecasts.

"I can talk about the timing. The information usually comes at night around 10:00pm, when some people are already asleep. I wish it came at around 7:00pm, so people could go to bed knowing what to expect." - [Community Radio Key informant - Bwaise III]



% of total respondents who access WCI **[334 respondents]**

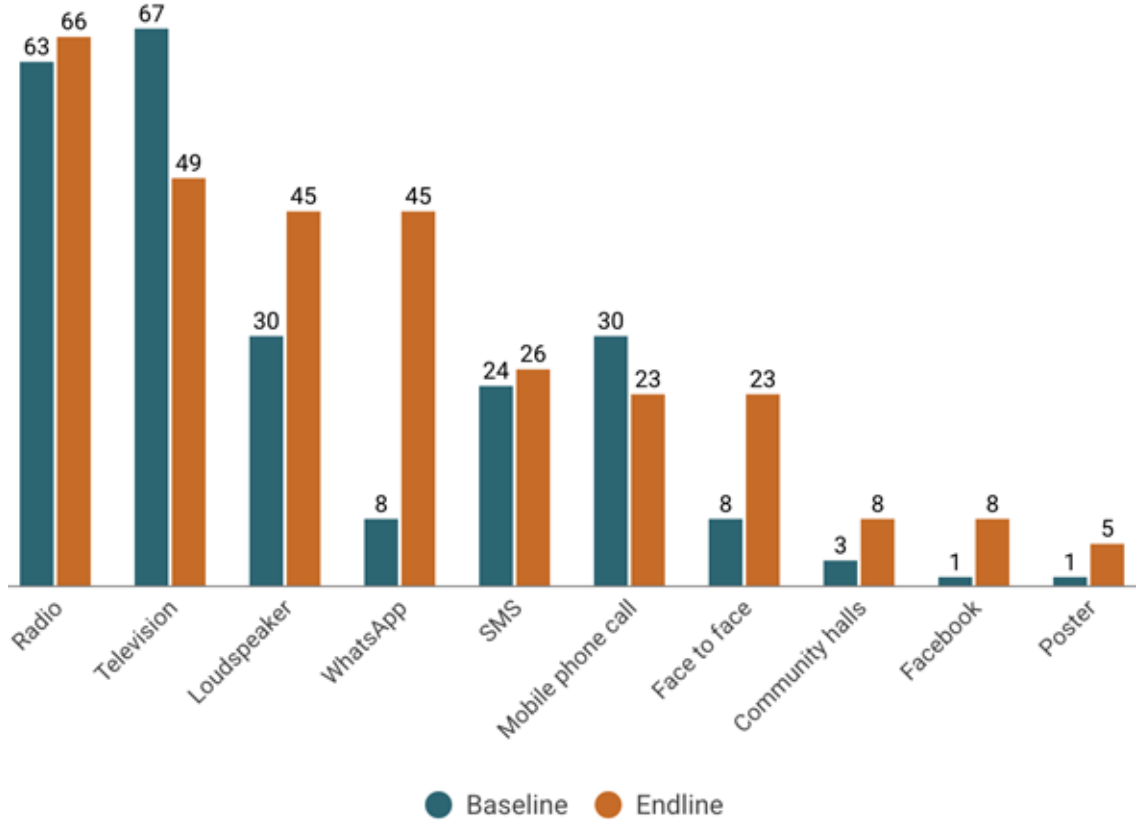
User preferences
Preferred channels

The project diversified the communication ecosystem for WCI, with preferences shifting away from television toward more community-based and digital channels that are interactive, accessible, and trusted

"Channels that are closer to people, like community radios, megaphones and community groups, would be the best." - [One of the Youth FGD participant - Bwaise III]

"Community radios are the best since they're right here with us and know our situation. They can guide us on what to do." - [One of the PWD&Elderly FGD participants - Bwaise III]

Preferred channels to receive WCI (%)



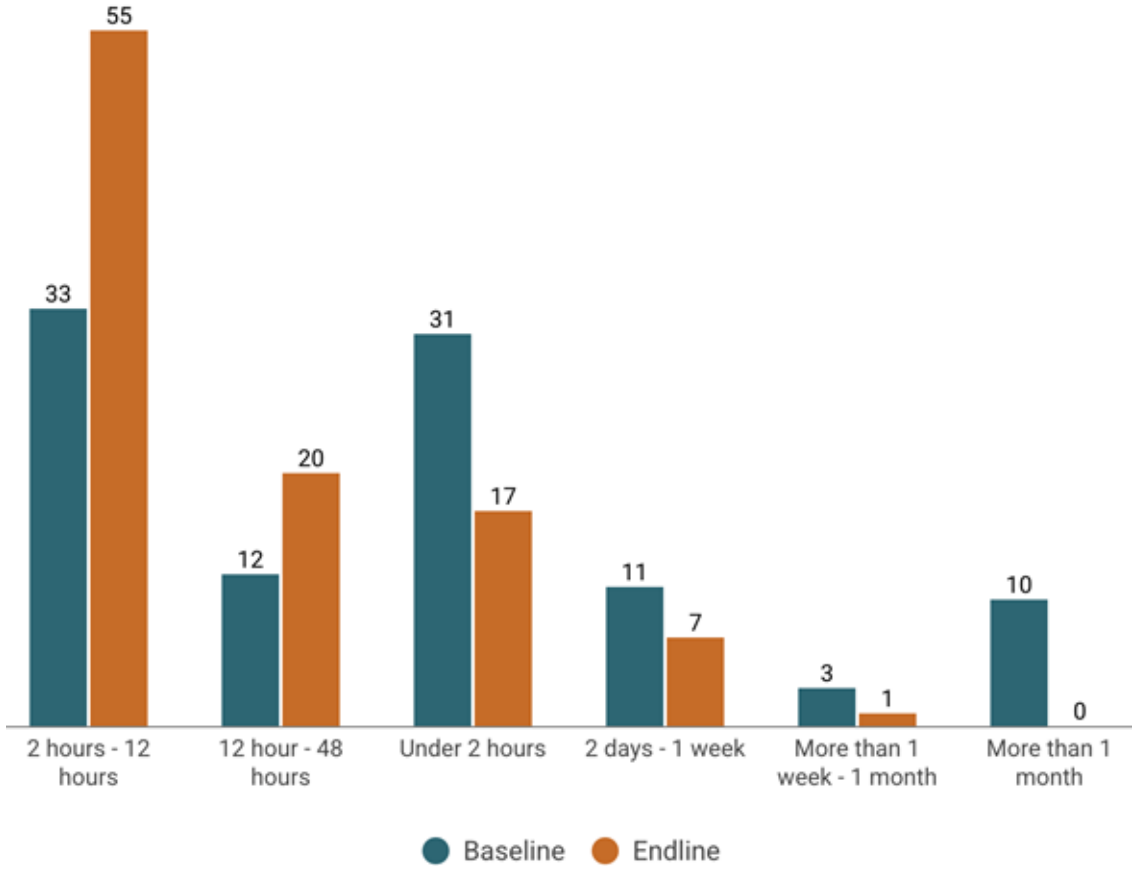
% of total respondents who access WCI **[334 respondents]**

User preferences
Preferred lead time for floods

The preferred lead time for flood warnings remained 2–12 hours, increasing from 33% at baseline to 55% at endline.

This short lead time is likely preferred because floods can occur rapidly, forecasts are more reliable closer to the event, and communities can take timely, practical actions

Preferred lead time for floods (%)



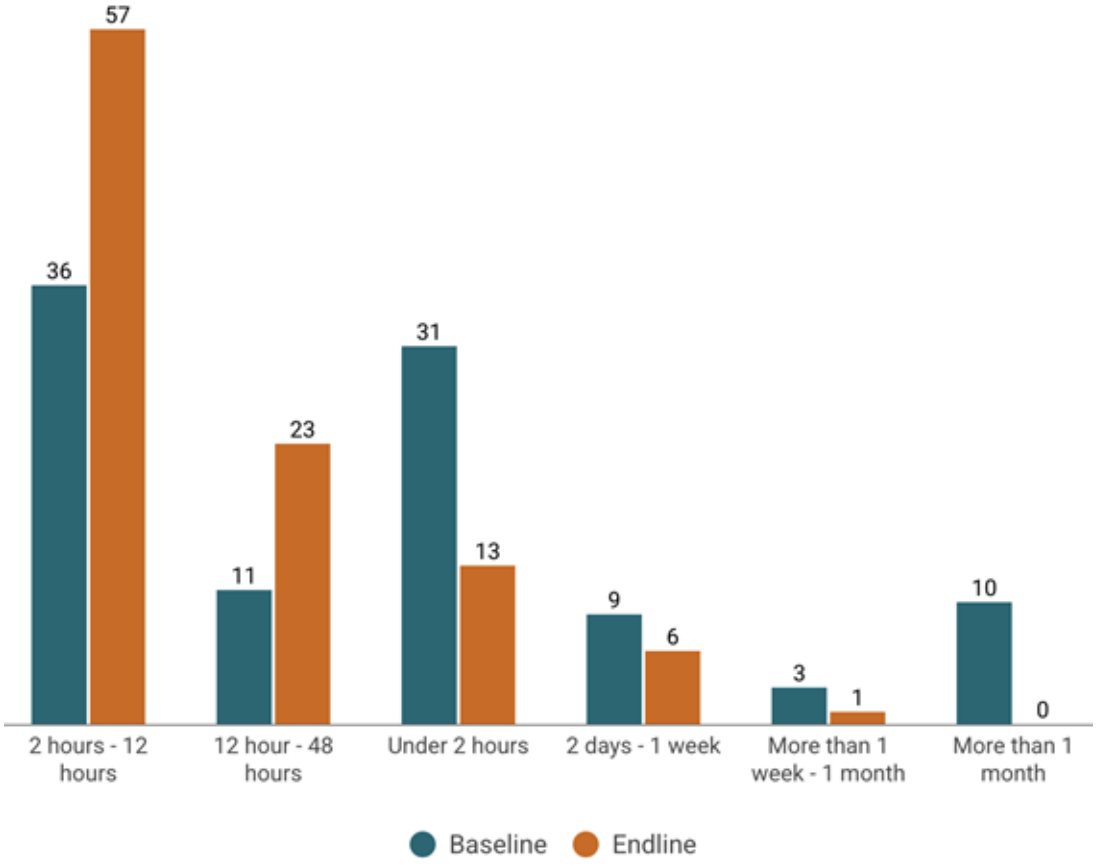
% of total respondents who access WCI **[334 respondents]**

User preferences
Preferred lead time for heat

The preferred lead time for heat warnings remained 2–12 hours, increasing from 36% at baseline to 57% at endline.

This short lead time is likely preferred because short-term forecasts are more reliable and allow people to take immediate, practical actions to protect their health.

Preferred lead time for heat (%)



% of total respondents who access WCI **[334 respondents]**

Understanding

Understanding of the WCI increased from 96% at baseline to **99%** at endline

In the project area, **99%** of respondents (up from 97% at baseline) understood the information, compared to **98%** in the control area (up from 94% at baseline)

However, when asked if they understood the information very well, **54%** of respondents in the project area said yes (up from 47% at baseline), compared to only **2%** in the control area (down from 37%)

Understanding of WCI

Percentage of respondents who:	Baseline	Endline
If access, **understand the weather information**	96%	99%
If understand: understanding the **WCI very well**	44%	46%
If understand: understanding **only parts of the information**	52%	53%

"I understand it well, and this is because we have been involved in many trainings, and I can easily interpret the forecast." - [Community Radio Key informant - Bwaise III]

% of total respondents who access WCI **[334 respondents]**

Key enablers to understanding the information

Use of vernacular language, improved clarity, and actionable advice were major drivers of understanding

"Since much of our audience has limited education, we simplify forecasts through radio talk shows, climate cafés, and farmer group visits. We also create stories to make the information relatable and share them across different platforms." - [Key informant - NECJOGHA]

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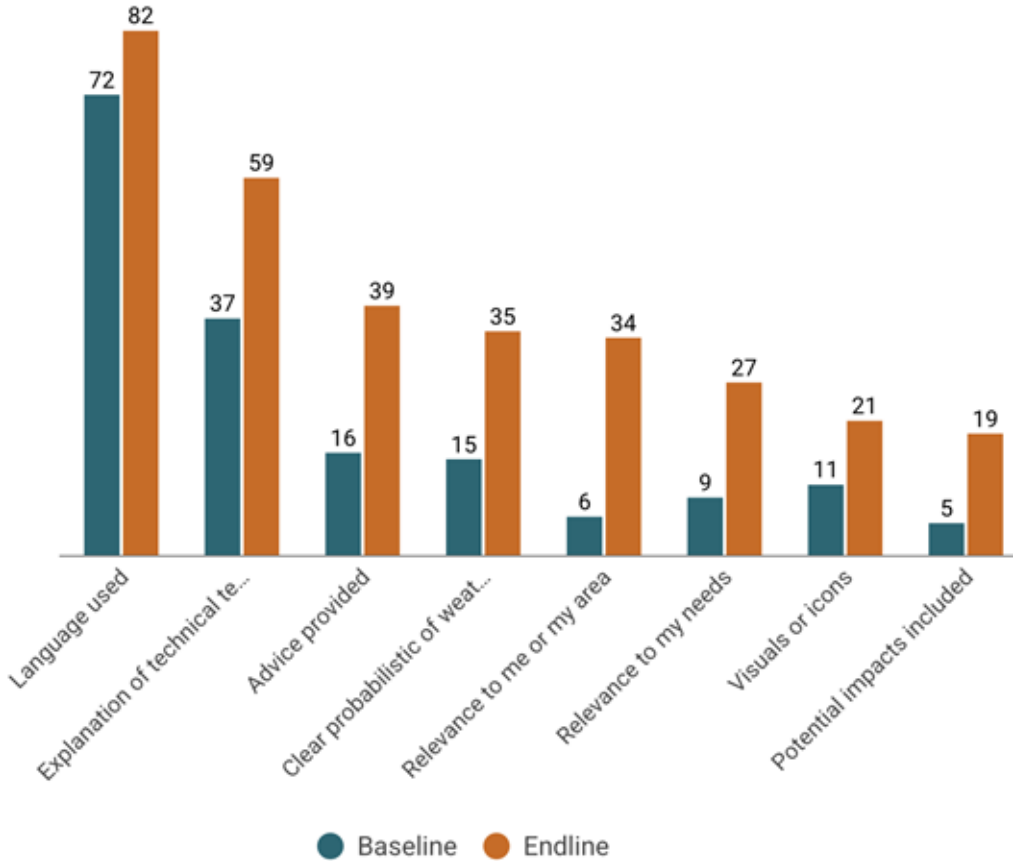
Enablers to understand WCI (%)



% of total respondents who understood WCI **[155 respondents]**

Understanding potential impacts

Understanding of the potential impacts warnings to households or community increased from 93% at baseline to **99%** at endline

In the project area, **100%** of respondents understood the potential impacts, compared to only **96%** in the control area

Understanding of potential impacts

Percentage of respondents who:	Baseline	Endline
If access, **understand the weather information**	93%	99%
If understand: understanding the **WCI very well**	40%	44%
If understand: understanding **only parts of the information**	53%	55%

"What we mainly do is to translate the information into different languages so that most of the audience understands the information." - [UBC Key informant]

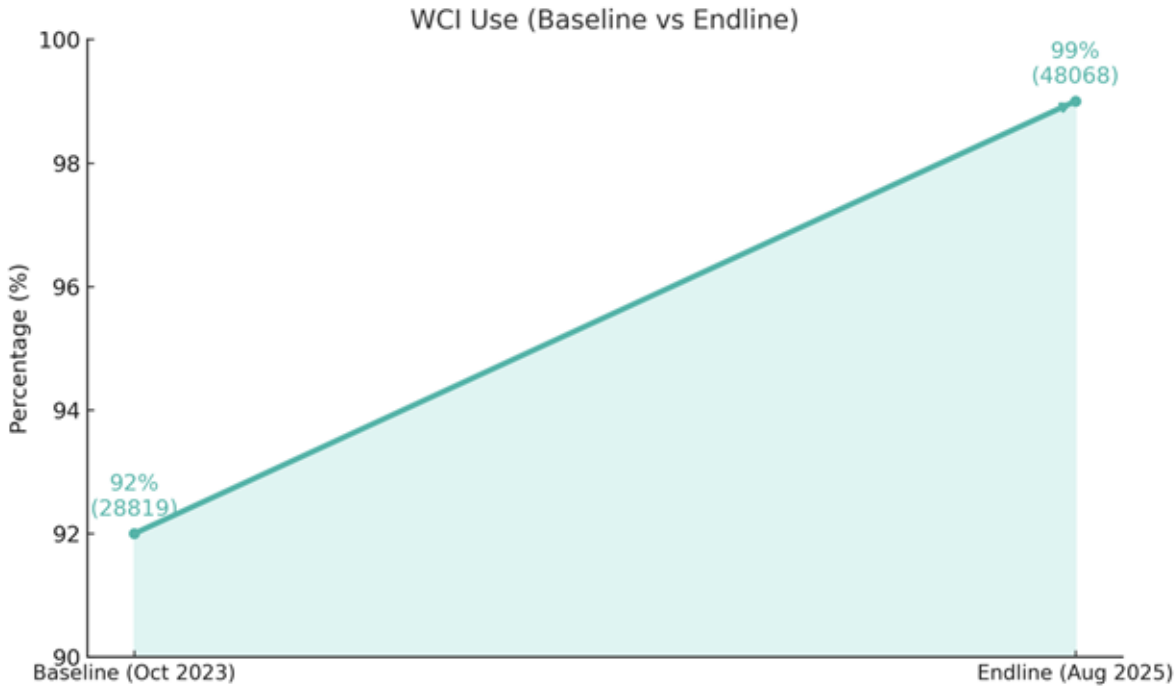
% of total respondents who access WCI **[334 respondents]**

Use

Project area: Baseline vs Endline

In the project area, **99%** of respondents reported using WCI (up from 92% at baseline), whilst in the control area, **98%** used WCI (up from 97%). However, consistent use ('all the time') was far higher in the project area [45% (unchanged from baseline)] than in the control (2%), where it dropped sharply from 33% at baseline.

"This information is very important to us and guides many actions. We regulate our movements and avoid hotspot areas, and at home, we secure valuable items in safe places to prevent damage." - [PWD Key informant - Bwaise III]



() - population using WCI

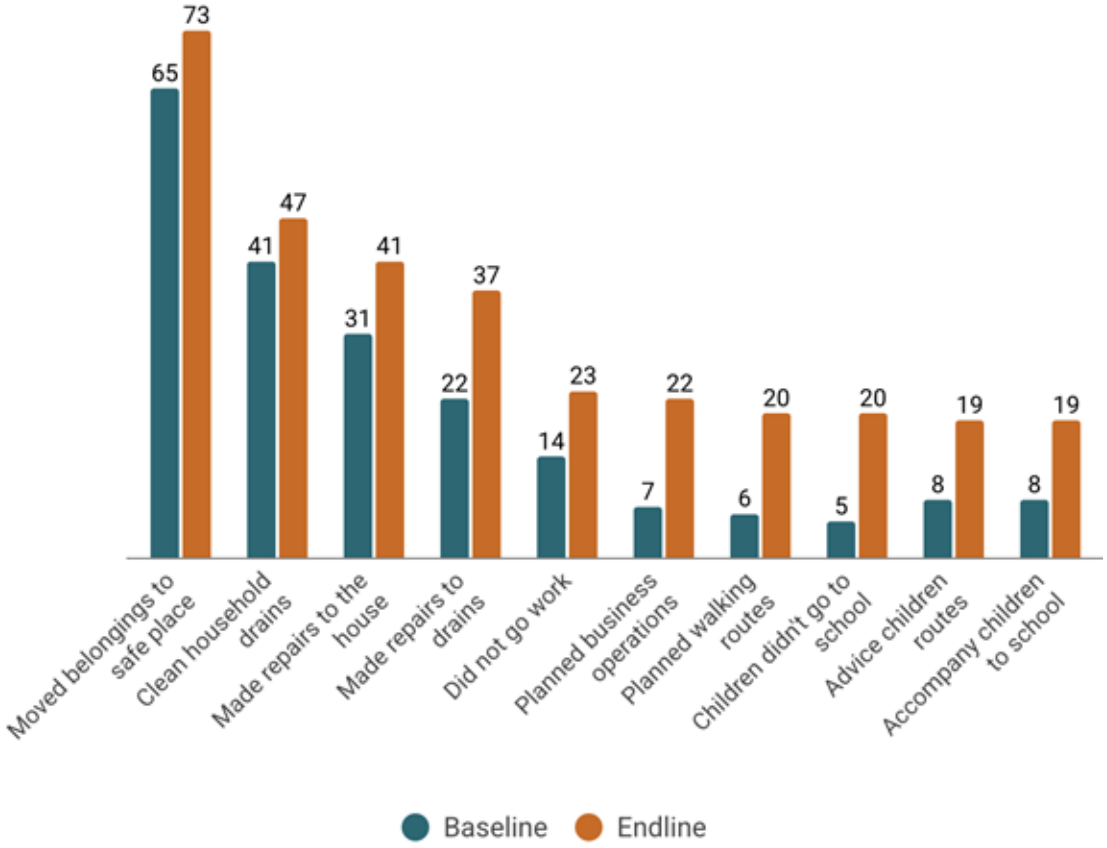
% of total respondents who access WCI **[283 respondents]**

Use
Early actions for floods

Moved belongings to safe areas: **73%** vs 65% → still the most common action, showing households prioritise protecting assets

"Because my house is small, some of my belongings have to stay outside. When I know it's going to rain, I either squeeze them inside the house or cover them with waterproof tarpaulin" – [One of the Local Leaders FGD participant - Bwaise III]

Early actions implemented for floods (%)



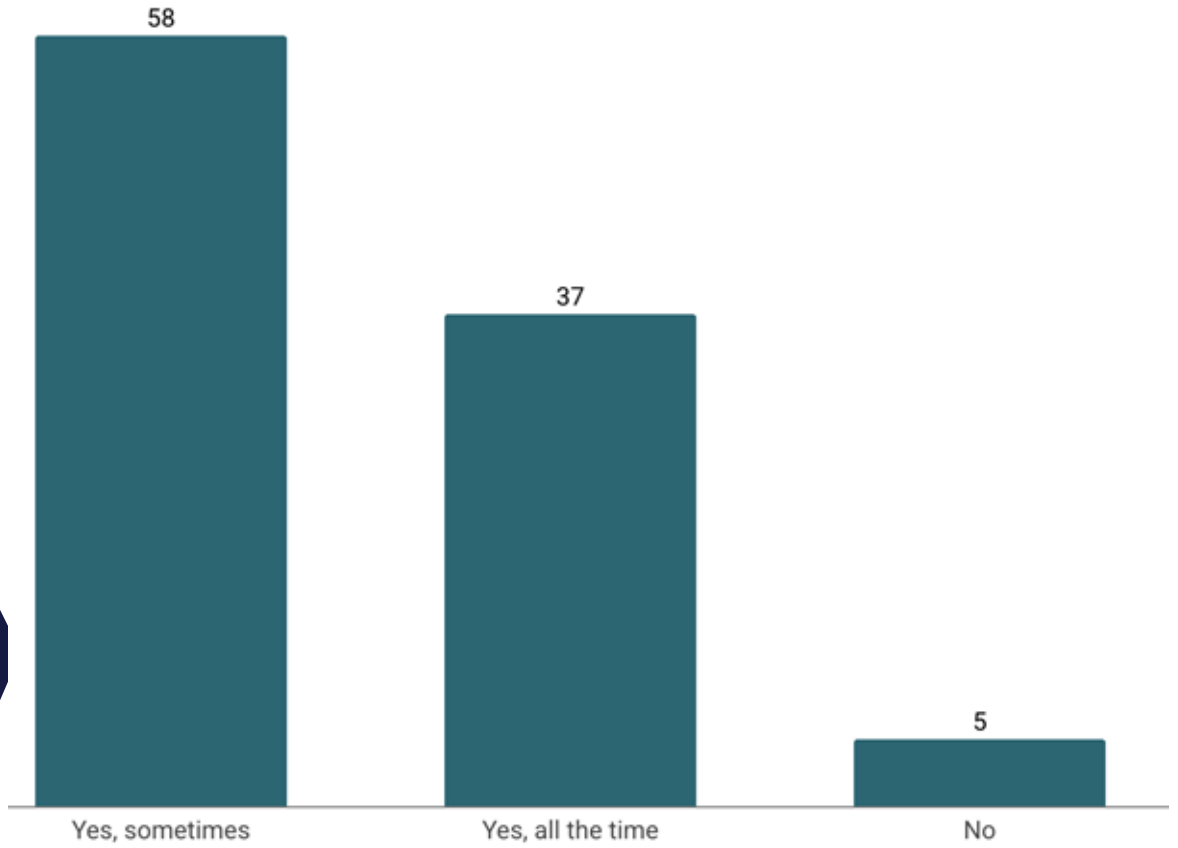
% of total respondents who use WCI all the time **[128 respondents]**

Use
To implement heat early actions

95% of respondents used heat forecast information to implement early actions for heat.

Note: Not captured at baseline

Use of WCI to take early/anticipatory actions for heat (%)



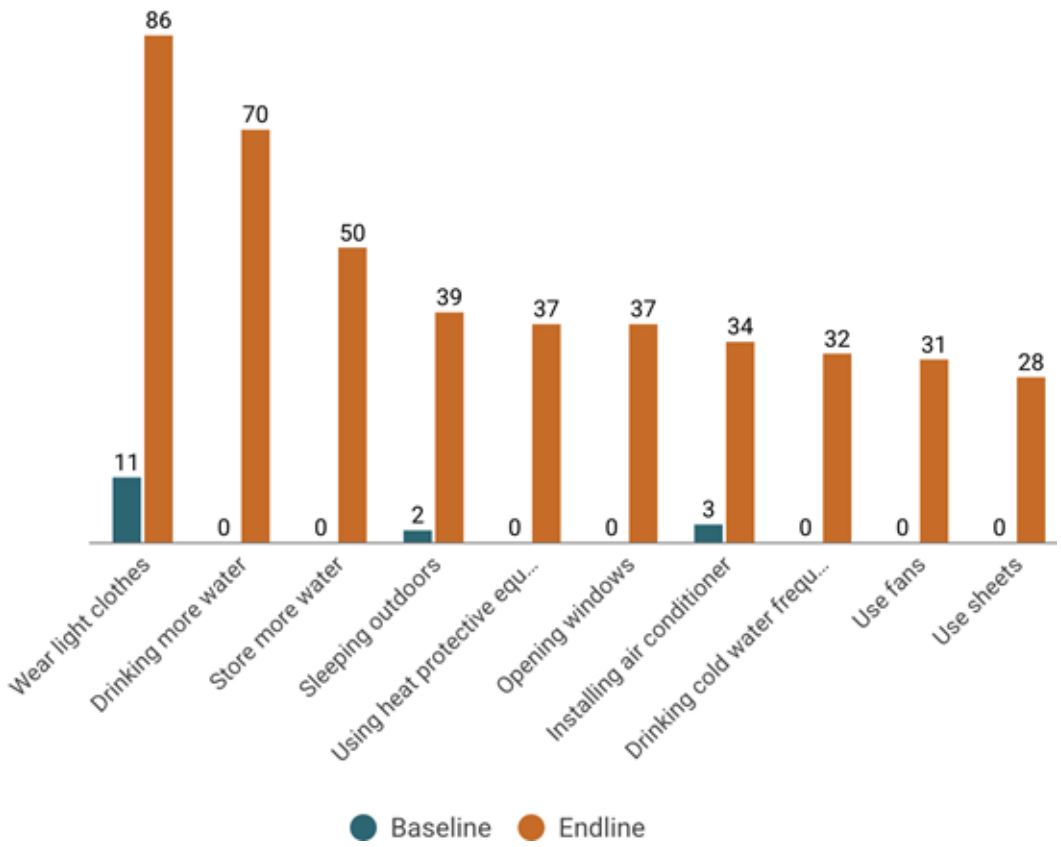
% of total respondents who access heat forecast information **[278 respondents]**

Use
Heat early actions

Most respondents used heat forecasts to wear light clothing, drink and store more water.

Other actions included using sheets instead of blankets at night and bathing more frequently

Heat early actions implemented (%)



% of total respondents who use heat forecast information all the time **[103 respondents]**

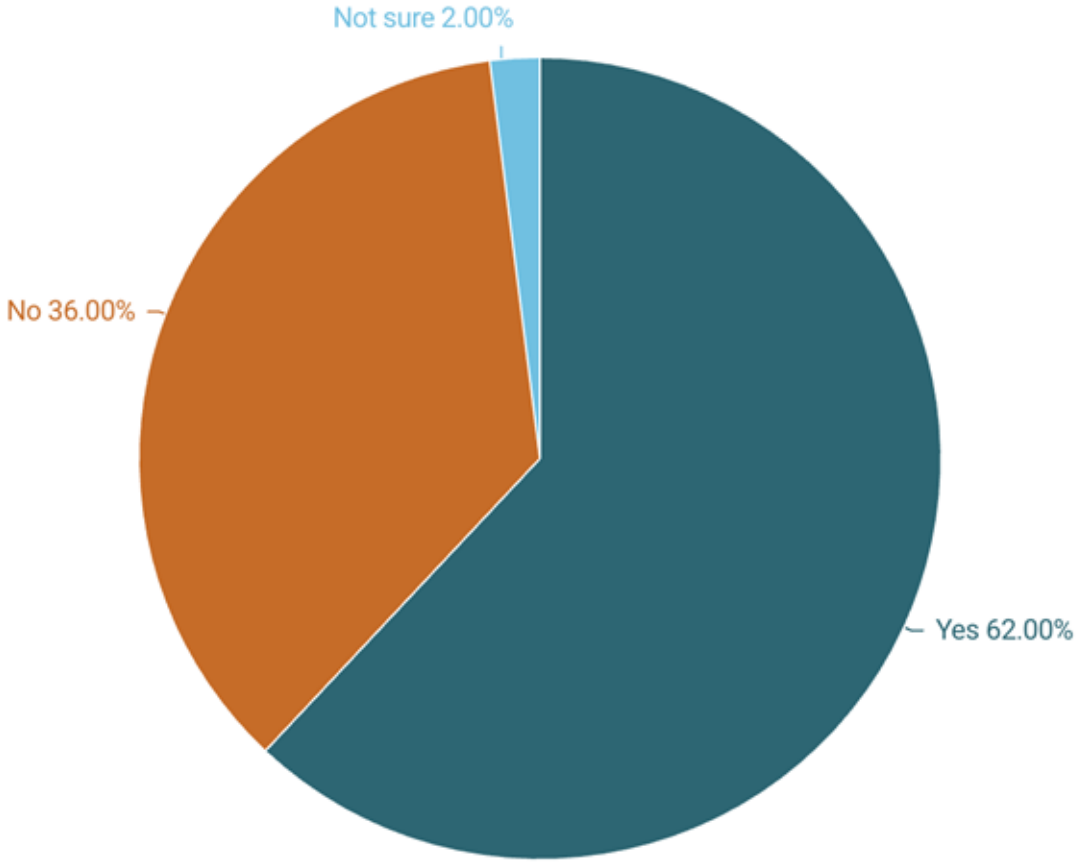
Use
Feel prepared

Among respondents with WCI access, **86%** felt the information helped them protect their livelihoods or assets ahead of weather events.

Overall, **62%** of all respondents reported having a household plan for future floods or extreme heat, known to all members

"The issue of floods is sometimes beyond our reach, and we need the government to work with us, for example, fixing roads and drainage channels." - [One of the Youth FGD participant - Bwaise III]

Have a plan for future flooding or extreme heat events known by household members (%)



Note: Not captured at baseline

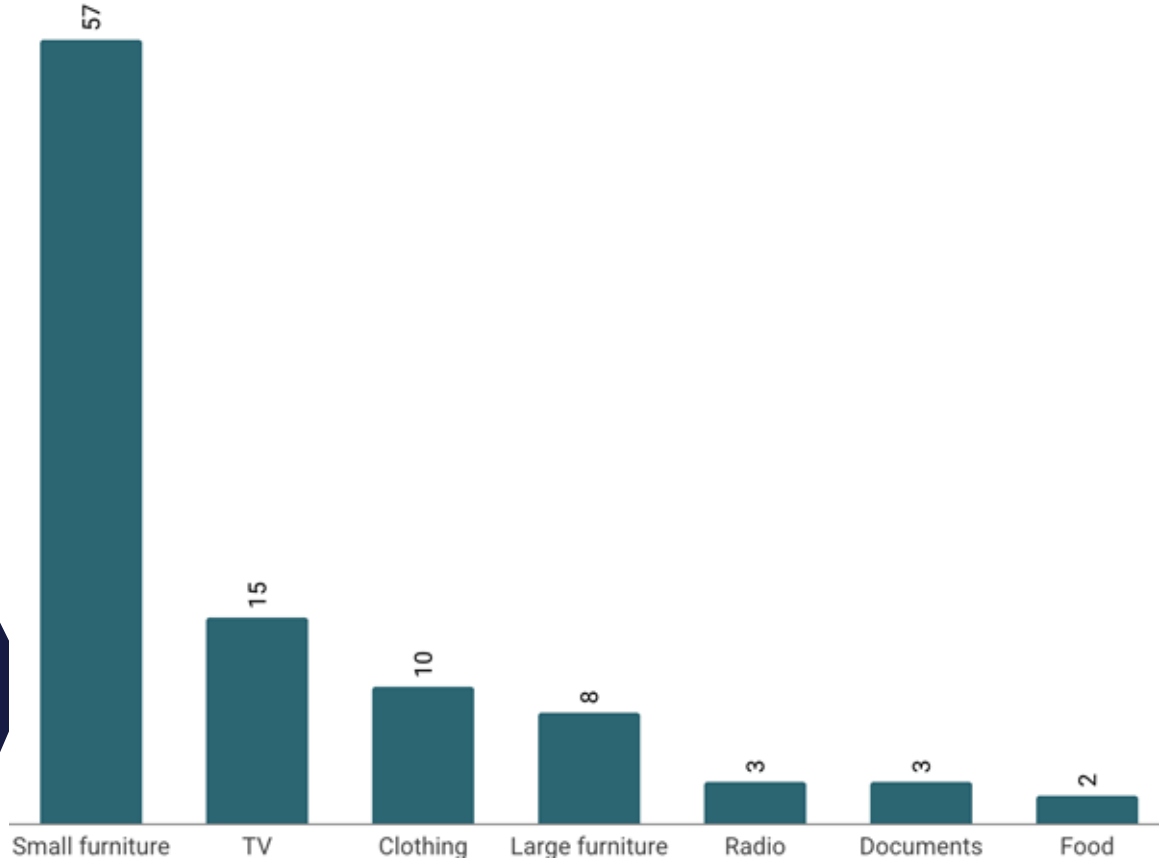
% of total respondents who access WCI **[334 respondents]**

Use
Assets saved

By implementing early actions ahead of flooding, most respondents saved small furniture, televisions and clothes

Note: Not captured at baseline

Assets saved by taking early action (%)



% of total respondents **[457 respondents]**

Remaining gaps
For residents to use WCI

Among WCI recipients who did not act on the information, the primary reasons were:

"The biggest challenge is accuracy, as it determines confidence in weather and climate information. If a forecast fails, people may dismiss future ones, even if correct, creating a trust gap that is hard to rebuild." - [Key informant - NECJOGHA]

% of total respondents who do use WCI **[5]**

Costs and money saved

Flood early actions

In implementing flood early actions, most respondents (**57%**) incurred costs of 100,000–300,000 Ugandan Shillings.

Among those implement early actions, **95%** reported that these actions helped them save money

"Maybe over UGX 2,000,000. This is because I am looking at almost all my household items." - [One of the Youth FGD participant - Bwaise III]

Costs incurred to implement flood early actions (%)

Amount of money (Ugandan Shilling)	How much did taking this action cost you?	How much money saved by taking early action?
Below 100 000	37%	25%
100 000 - 300 000	57%	52%
300 001 – 500 000	5%	16%
Above 500 000	1%	7%

Notably, 16% saved between 300,001 and 500,000 Ugandan Shillings (compared to 5% who incurred such costs), and 7% saved over 500,000 Ugandan Shillings (compared to only 1% who incurred these costs.

% of total respondents who use WCI all the time **[128]**

Costs and money saved

Heat early actions

Most respondents (**61%**) spent 100,000–300,000 Ugandan Shillings on early actions for heat.

Among those implemented heat early actions, **94%** reported that these actions helped them save money

Note: Not captured at baseline

Costs incurred to implement heat early actions (%)

Amount of money (Ugandan Shilling)	How much did taking this action cost you?	How much money saved by taking early action?
Below 100 000	36%	23%
100 000 - 300 000	61%	60%
300 001 – 500 000	1%	15%
Above 500 000	2%	2%

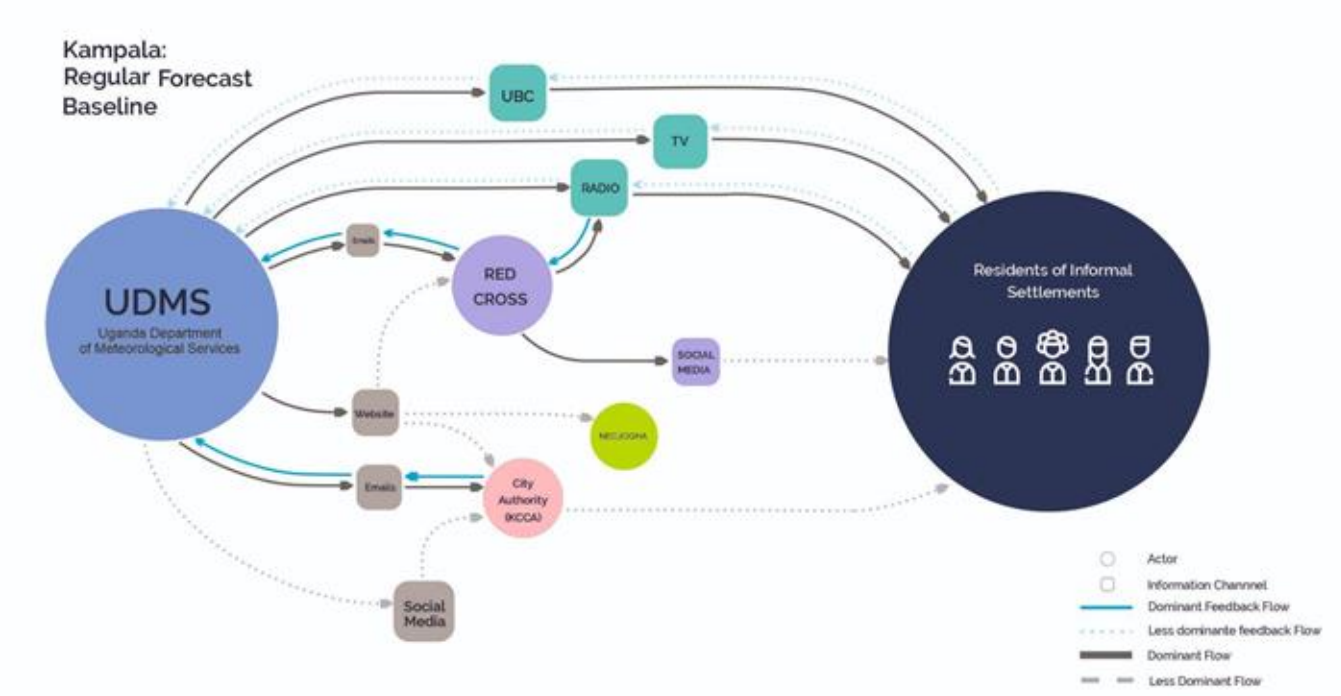
Notably, 15% saved between 300,001 and 500,000 Uganda Shillings, compared to only 1% who incurred costs in this range.

Overall, early actions: small costs, big savings, and reduced financial and heat-related health risks

% of total respondents who use heat forecasts all the time **[103]**

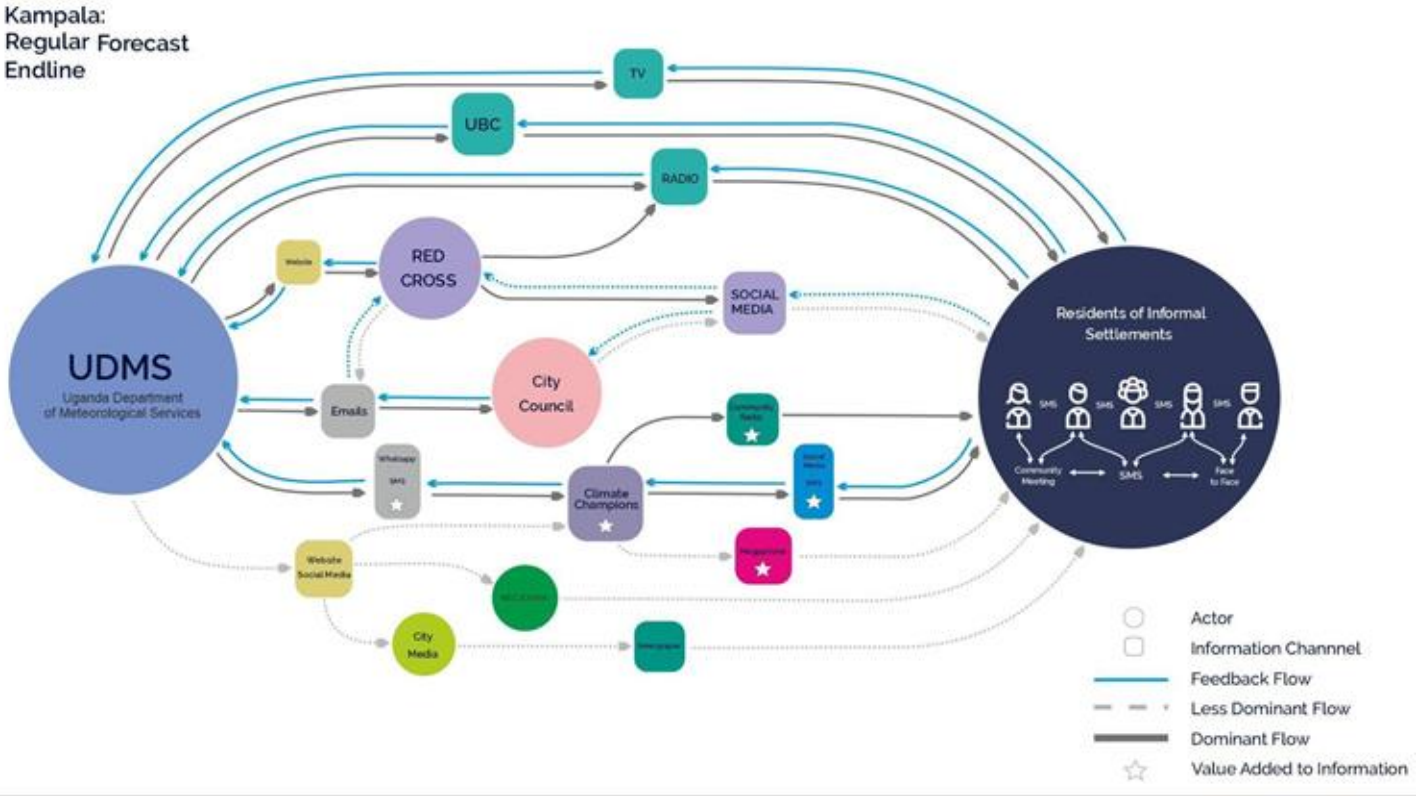
Information Ecosystem Mapping

Information Ecosystem Mapping - Baseline



Information Ecosystem Mapping

Information Ecosystem Mapping – Endline



Summary

- Respondent sample snapshot:
  - Gender: 59% F, 41% M
  - Ability: 96% no difficulty, 4% have some difficulties
  - Age: Majority 31-59 years, followed by 18-30 years
  - Most respondents have at least a primary level of education
  - Monthly household Income: between 100,000 and 200,000 Ugandan Shillings (27%)
- Flooding remains the top climate risk, with perceptions rising slightly from 87% to 92%
  - Extreme heat stands out: Its dramatic increase, jumping from 8% at baseline to 72% at endline, highlights a changing climate reality that people are experiencing directly
- Flooding resulted mainly in the loss of property and furniture and the disruption of business activities
  - Nevertheless, severe impacts reduced: Loss of property (↓88%→78%) and loss of lives (↓9%→4%) declined, suggesting improved preparedness
- Flood coping strategies include
  - Flooding: more households are reinforcing houses (22% → 51%) and relocating to safe places (17% → 36%) instead of relying solely on sandbags and drainage cleaning
  - Most respondents (84%) implemented these actions ahead of the rainy season, compared to 56% at baseline

Summary

- Extreme heat effects:
  - 70% indicated that their households have been affected by heat during the past 12 months
  - The most notable effects of heat among those affected were headaches, nausea and dizziness and skin rash
  - Young children (below 5 years) appear to be the most vulnerable to heat effects
  - Among those affected by heat, 89% incurred costs (below 100,000 Uganda Shillings) seeking medical treatment
- Effects on business and work
  - A very high proportion of respondents also reported being unable to work (72%) due to the heat
  - Most respondents affected by heat also reported experiencing income loss of between 100,000 and 200,000 Uganda Shillings (51%)
  - Faster food spoilage and increased operational costs, such as rising utility bills due to higher cooling and energy demand
  - Most business owners affected reported losses valued between 20,000 and 40,000 Uganda Shillings due to extreme heat
- Heat coping strategies include
  - Drinking plenty of water, bathing, wearing light clothes and storing more water

Summary

- Awareness and participation in DARAJA project: 56% were aware
  - Most of them first heard about DARAJA from climate champions and community meetings
  - Among them, 90% participated in DARAJA, mainly community meetings and cleanup campaigns
- WCI access: 73% compared to 59% at baseline
  - In the project area (Bwaise III) access rose sharply from 60% at baseline to 93%, while in the control area it collapsed from 57% to just 34%
  - Among those with WCI access, 76% knew the source (up from 29% at baseline), and 24% provided feedback to it
  - Being located in the project area and having awareness of DARAJA increased the likelihood of accessing WCI by 29% and 36%, respectively.
  - Access to television, longer residence in the settlement, and being male increase the likelihood of accessing WCI, while people with disabilities are less likely to access it
  - Radio, DARAJA Channels (*community radio, climate champions & WhatsApp*), and television are the most popular ways to access WCI
  - The use of local dialect, ease of understanding, trusting the source, and timeliness emerged as key reasons for choosing channels—all of which rose significantly from baseline

Summary

- ➔ Preferences
  - ◆ Channels: Radio, television, loudspeaker and WhatsApp
  - ◆ Forecast information: Issue location-specific information, send warnings early and indicate areas to be affected
  - ◆ Lead time: short lead time of 2-12 hours is preferred for both floods and heat, likely because forecasts are more reliable closer to the events
- ➔ Understanding
  - ◆ Among those with access, understanding of WCI rose from 96% at baseline to 99% at endline
  - ◆ In the project area, 99% of respondents (up from 97% at baseline) understood the information, compared to 98% in the control area (up from 94% at baseline)
  - ◆ However, 54% of respondents in the project area understood the information very well (up from 47% at baseline), compared to only 2% in the control area (down from 37%)
- ➔ Enablers of better understanding:
  - ◆ Language used (vernacular)
  - ◆ Explanation of technical terms (improved clarity)
  - ◆ Advice provided (actionable advice)

Summary

- ➔ Feel prepared and having a plan
  - ◆ Among those with WCI access, 86% felt the information helped them protect their livelihoods or assets ahead of weather events
  - ◆ Overall, 62% of respondents reported having a household plan for future floods or extreme heat, known to all members.
- ➔ Use of WCI for early flood actions
  - ◆ WCI use for flood early actions increased to 98%, up from 94% at baseline
  - ◆ In the project area, 99% of respondents reported using WCI (up from 92% at baseline), whilst in the control area 98% used WCI (up from 97%).
  - ◆ However, consistent use (‘all the time’) was far higher in the project area [45% (same as baseline)] than in the control (2%), where it dropped sharply from 33% at baseline
  - ◆ Most common early actions for floods were moving belongings to safe areas (73% vs. 65% at baseline) and cleaning household drains (47% vs. 41%)
  - ◆ Assets saved by taking early action: saved small furniture, televisions and clothes
- ➔ Use of WCI for heat early actions
  - ◆ 95% of respondents used heat forecasts to implement early actions
  - ◆ Most common heat early actions: wearing light clothes, drinking, and store more water

Summary

- ➔ Remaining gaps for residents to implement early actions
  - ◆ Among those who did not act on the information, the main reasons were difficulty understanding it and lack of relevance to their areas
- ➔ Costs of flood early actions and savings
  - ◆ Most respondents (57%) spent 100,000–300,000 Ugandan Shillings on flood early actions, and 95% reported that these actions helped them save money
  - ◆ Notably, 16% saved 300,001–500,000 Ugandan Shillings (vs. 5% who incurred such costs), and 7% saved over 500,000 Ugandan Shillings (vs. only 1% who incurred them)
- ➔ Costs of heat early actions and savings
  - ◆ Most respondents (61%) spent 100,000–300,000 Ugandan Shillings on early heat actions, and 94% said these actions helped them save money.
  - ◆ Notably, 15% saved 300,001–500,000 Ugandan Shillings, compared to just 1% who incurred costs in this range
- ➔ Overall, early actions for floods and heat are highly cost-effective: households spend modest amounts but achieve substantially higher savings, protecting livelihoods, assets and well-being

Annexes

Annex 1: Questionnaire design and deployment

The survey questionnaires (household survey tool, focus group discussion guide and key informant guide) were co-designed with local implementing partners (Uganda Meteorological Service Department and ACTogether) to ensure that all the questions are customised to local context. The household questionnaire included variables designed to collect household information, climate hazards faced, access, understanding and use of weather and climate information services as well as their preferences. Inputs from WISER on key variables to conduct socio-economic benefit analysis were also incorporated in the household survey tool. Furthermore, inputs from Atlantic Council to comprehensively capture the impacts and actions implemented to reduce the effects of heat were also incorporated into the survey tools before data collection.

The questionnaire was deployed using Kobo Collect, a mobile data collection platform that proved essential for efficiently capturing data both in online and offline mode. Kobo Collect's offline capabilities and user-friendly interface made it particularly suitable for use in settlements with poor internet connectivity, ensuring seamless data collection despite internet access challenges as enumerators were able to upload the data once reach areas with strong internet connection.

Annex 2: Sampling and data collection methods

The data were primarily collected using a random selection across all the settlements. Three data collection methods were employed: a household survey to gather quantitative data from 457 households, while the qualitative data were collected through focus group discussions (FGDs) and key informant interviews (KIIs). Face-to-face interviews were employed to collect data from all the sampled households. This allowed in-person interactions, allowing enumerators to build trust and offer opportunities for probing to gather detailed responses. A total of 8 FGDs and 9 KIIs were conducted.

Before data collection, the approval was granted by the Kampala Capital City Authority (KCCA). The KCCA is now the only entity authorised to approve data collection activities in Kampala.

Annex 3: Sample size

For the household survey, a total of 457 households were interviewed. This sample size was calculated using a statistical power analysis approach in STATA. This approach helped to estimate the minimum required sample size to detect the impact of the DARAJA project on residents' access to WCI and be able to conclude that an observed change in WCI access would not have occurred by chance.

The minimum detectable change was set at a 28% increase in WCI access, based on the average regional impact observed during the WISER 2 programme. The power (the probability of detecting a true effect) was set at 0.8 i.e. 80%. The sample size ratio between the treatment and control groups was set at 2, as we anticipated engaging twice as many participants from the project area compared to the control area. This gave a sample size of 453. To compensate for the potential loss of observations during analysis, an additional 1% of the sample size was added, resulting in a total sample size of 457.

Settlement	Area	Sample size
Bwaise III	Katoogo	61
	Bukasa	54
	Bugalani	53
	St Francis	50
	Kawaala	45
	Kalimali	42
Nalukolongo	Kironde	61
	Sembuule A	51
	Sembuule B	40
Total		457

Annex 4: Training of data collectors

Before data collection, Resurgence conducted a training of trainers (data collection coordinators within ACTogether) to ensure common understanding of data collection approaches, the survey questions, ethical considerations and risk management strategies during data collection period. After the training of trainers' session, ACTogther subsequently trained data collection enumerators. The data collection team was comprised of 11 enumerators (7 male and 4 female). ACTogether engaged these enumerators and were independent of project implementation. Before data collection, these enumerators were introduced to the DARAJA project in Kampala and trained on the endline survey objectives, as well as data collection skills, including the use of Kobo on smartphones. The enumerator training was conducted over two days in July to ensure that all enumerators had a comprehensive understanding of the survey tools and procedures for data collection, including ethical considerations such as informed consent, voluntary participation, and confidentiality. A review and pilot test of a household data collection tool programmed on Kobo Collect were conducted to ensure that any prevailing inconsistencies and skip logic in the questionnaire were identified and rectified before actual data collection, and that all questions were well understood and easy to ask.

Annex 5
Factors affecting access to WCI

Factors affecting access to WCI

Independent variables	Marginal effects	Robust Standard Errors
Project settlement_ Bwaise III (1= Yes, 0 = control area)	**0.29**	**0.22*** **
Years in Settlement (count)	**0.03**	**0.06** **
Gender (1=Female, 0 = otherwise)	**0.07**	**0.17***
Access to Mobile phone (Yes=1, 0 = no)	-0.02	0.39
Television set ownership (1 = Yes, 0= no)	**0.10**	**0.20** **
Radio set ownership (1 = Yes, 0= no)	-0.04	0.23
Ordinary Level education and above (1=yes, 0 =otherwise)	-0.02	0.19
Living with disabilities (1=Yes, 0 = No disability)	**-0.19**	**0.33** **
Aged Above 60 years (1-yes, 0- 18-30 years)	-0.001	0.51
31-59 age group (1=Yes, 0=above 60 years)	-0.05	0.48
Awareness of DARAJA (1=Yes, 0 = no)	**0.36**	**0.25*** **
Constant	-0.99	0.71

Mean dependent variable	0.73	Standard Deviation dependent variable	0.44
Pseudo r-squared	0.44	Number of observations	457
Chi-square	166.750	Prob > chi2	0.000
Akaike crit. (AIC)	319.807	Bayesian crit. (BIC)	369.303

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

THANK YOU

RESURGENCE.

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