Report:

Baseline User Needs survey – Kanyama, Zambia

November 2023

WISER
Weather and Climate Information Services

Supported by:
UK International Development
Partnership | Progress | Prosperity

Baseline User Needs Survey – Kanyama, Zambia November 2023

Authors

Katharine Vincent (Kulima Integrated Development Solutions)
Willem Colenbrander (Kulima Integrated Development Solutions)
Sarah Holmes (UK Met Office)
Sarah Jenkins (University of Leeds)
Catrina Johnson (UK Met Office)
Kaisa Juhanko (Finnish Meteorological Institute)
Gilda Monjane (Kulima Integrated Development Solutions)
Marita Monjane (Kulima Integrated Development Solutions)
Miriam Murambadoro (South African Weather Service)
Adriaan Perrels (Tyrsky Consulting)
Anna Steynor (UK Met Office)
Jess Vujovic (Kulima Integrated Development Solutions)

WISER Weather and Climate Information Services

Supported by: UK International Development Partnership | Progress | Prosperity

Summary

This report presents findings from 99 responses to a survey conducted in Kanyama in November 2023. This survey provides insights into use and needs for weather information, to inform the co-production process. It also acts as a baseline of current weather information use against which change will be monitored at the end of the project. Sampling was geographical targeting people who have lived for over one year in Kanyama with a purposive intention to include women and people with disabilities.

In terms of demographic criteria, the largest age group represented in the sample was 18–30 years age bracket. Most participants had attained at least some primary education, with around half having some secondary education, with more females lacking formal education compared to males, and a higher proportion of females achieving secondary education. Approximately one third of participants reported having a disability, with hearing impairment being the most common, followed by visual impairment and physical disability. Interestingly, the distribution of disabilities was relatively equal between genders.

The most common livelihood is in the informal sector or piecework, while a smaller percentage were unemployed or retired. Individuals with disabilities were largely underrepresented in formal waged employment. Housing patterns revealed that most participants used self-assembled materials like corrugated iron for their dwellings. Access to mobile phones was widespread among participants regardless of gender.

Extreme weather events that are experienced in Kanyama include thunderstorms and heatwaves, followed by heavy winds and drought less frequently. These are reported consistently regardless of gender or disability. Participants ranked thunderstorms as the most impactful weather event, followed by heatwaves and strong winds, due to their tangible effects on livelihoods and daily life.

In terms of weather forecast access and engagement, the majority of participants accessed forecasts regularly, with some gender differences noted in frequency. Reasons for non-access included lack of awareness or communication platform accessibility.

1. Introduction

Weather and Climate Information Services (WISER) Early Warnings for Southern Africa (EWSA) is a project implemented by the University of Leeds in conjunction with South African Weather Services, Kulima Integrated Development Solutions, World Meteorological Organisation, Finnish Meteorological Institute, UK Centre for Ecology and Hydrology, Tyrsky Consulting, Mozambique's National Institute of Meteorology and Zambia Meteorological Department from March 2023-June 2025. The project will work with disaster risk management agencies and non-governmental organisations, focusing on women and people with disabilities, to reduce disaster risk through the co-production of new weather information services and early warnings.

To generate user-focused early warning alerts for severe thunderstorms that are understood and can be acted upon by urban communities, including women and people with disabilities, the project is working with urban communities in Zambia, Mozambique and South Africa. In Zambia the urban communities are located in Kanyama in Lusaka. This report presents findings of a survey conducted in Kanyama in November 2023. This survey provides insights into use and needs for weather information, to inform the co-production process. It also acts as a baseline of current weather information use against which change will be monitored at the end of the project.

2. Setting in Kanyama

Kanyama covers an area of 81.3km^2, approximately 7km to the southwest of Lusaka's Central Business District (Figure 1). It began to grow in the 1960s due to its proximity to the city and was legalised as a compound in 1999. The settlement has grown significantly. In 2010 the population was over 350,000 people (approximately 20% of the population of Lusaka), and this had grown to 525,000 in 2022 (Musa, 2023).

Kanyama's most significant challenges include access to clean water and adequate sanitation, substandard road and drainage infrastructure, overcrowding, inadequate housing, and ineffective waste management practices (Musa, 2023). Furthermore, the area is high highly susceptible to flood events as a result of being situated on impermeable, flat dolomite bedrock. Flood events are often compounded by the fact that buildings block key drainage routes, and poor drainage maintenance. Kanyama also faces frequent cholera outbreaks due to the contamination of shallow well water from pit latrines (Futures, Fair Water, 2013). As a result, the residents of Kanyama largely receive potable water by tanker.

Figure 1: Kanyama's location (Source: https://africacallzambia.wordpress.com/learn-more/the-history-of-kanyama/)

Figure 2: Example of a flooded street in Kanyama

3. Method

The baseline user needs survey was collaboratively developed by the project team. It comprises sections on demographics and livelihoods, experience of extreme events, and forecast and early warning access and use with primarily closed answer questions. The sampling strategy was random in

Kanyama but with a particular focus on inclusion of women and people with disability, with a target of 100 participants. Eligibility to participate was based on residence in Kanyama for at least one year (to have experienced the weather conditions in the compound) and consent.

Three enumerators (one of whom acted as a supervisor) were recruited, all of whom are voluntary Red Cross foot soldiers. They have been collaborating closely with the project as part of the co-production process, and hence are familiar with the project aims. Through their Red Cross roles they also had prior experience with survey administration, including with electronic data collection through Kobo Toolbox, as was used here. The survey was conducted from 20-22nd November 2023. A sign language interpreter was availability to support inclusion of people with hearing disabilities.

A total of 102 surveys were collected. Quality checks identified three entries with no line or very limited (only four introductory questions answered) data; as such, these were excluded from the analysis. This resulted in a total of 99 entries which were complete and useable for the analysis.

4. Results

4.1 Demographics

4.1.1 Age and gender distribution

The majority of participants interviewed were female (66), while there were 33 male participants. Within both genders, a significant proportion fell within the 18–30-year age bracket (Figure 3), with 21 females and 9 males falling into this category. The lowest represented age categories for both males and females were 71-80 years and Over 80.

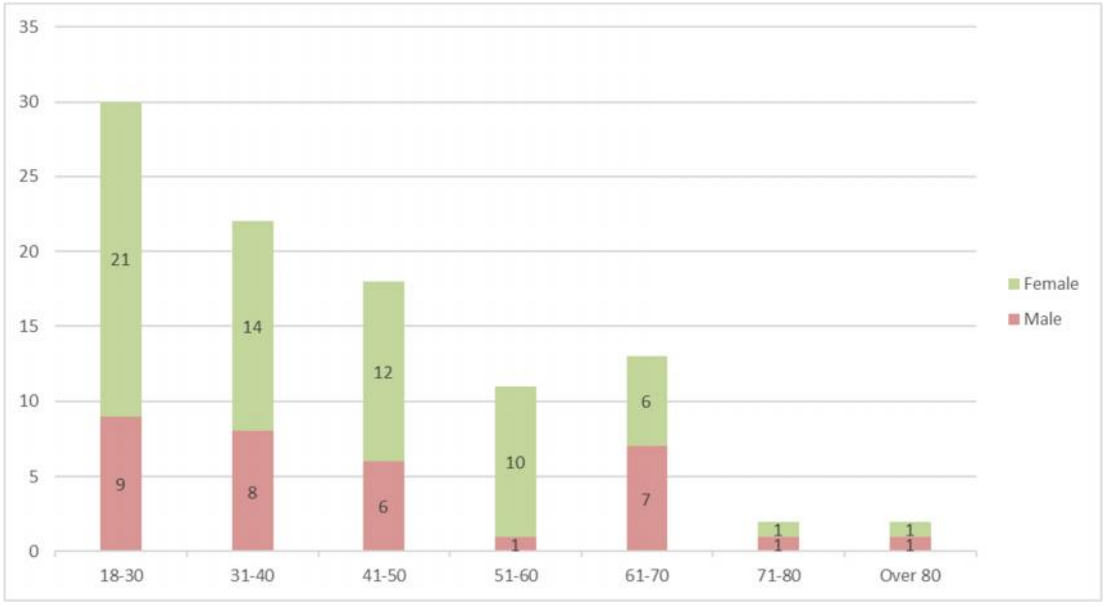


Figure 3: Age and gender distribution among participants

4.1.2 Residence status

As shown in Figure 4, the majority of participants have lived in Kanyama for more than ten years.

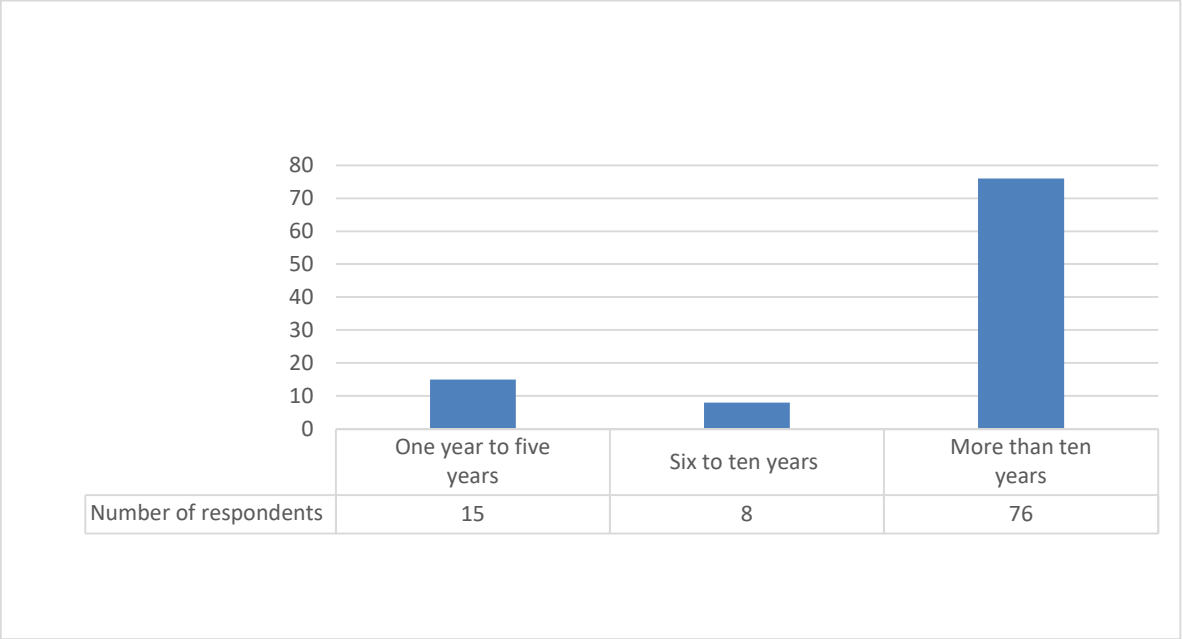


Figure 4*:* Residency duration distribution among interviewed Kanyama residents

All residents live in Kanyama, with particularly common locations being Kanyama main (70), followed by Makeni Villa and Masauko Banda, each with 10 residents (Table 1).

Table 1: Number and percentage of participants by location

Location	Total number of participants	Percentage (%)
Banda	3	3.0
Kanyama	70	70.7
Makeni Villa	10	10.1
Masauko Banda	10	10.1
John Laing	2	2.0
Mbasela	1	1.0
No location provided	3	3.0

4.1.3 Language

In terms of language, Nyanja is the most widely spoken among the surveyed population, with over 90% reporting the ability to speak it (Figure 5). The next most widely spoken languages, in descending order, include English, Bemba and Tonga. English has the highest percentage for a read (66.7%) language followed by Nyanja (60.6%), Tonga (31.3%) and Bemba (31.3%). English emerges as one of the most widely spoken *and* understood languages among the surveyed population, with relatively high percentages across all three language skills.

Overall, these findings highlight variations in language proficiencies among the population, with some languages, such as Nyanja and English, being more widely spoken and understood compared to others like Lunda and Luvale. These findings have implications for the communication of weather forecasts and early warning information. Currently weather forecasts are only made available from Zambia Meteorological Department in English although, as a recent progression, seasonal forecasts are now made available in each of Zambia's seven major language groups. The languages with highest comprehension are Nyanja and English – and hence aural messages could reasonably be transmitted in these languages. However, in a written format, whilst these are still the languages that can be read by the highest proportions of people, significantly fewer people have capacity to read than to speak and understand it. Hence forecasts and early warnings should be available in more than one language, and not solely transmitted in a written format that needs to be read.

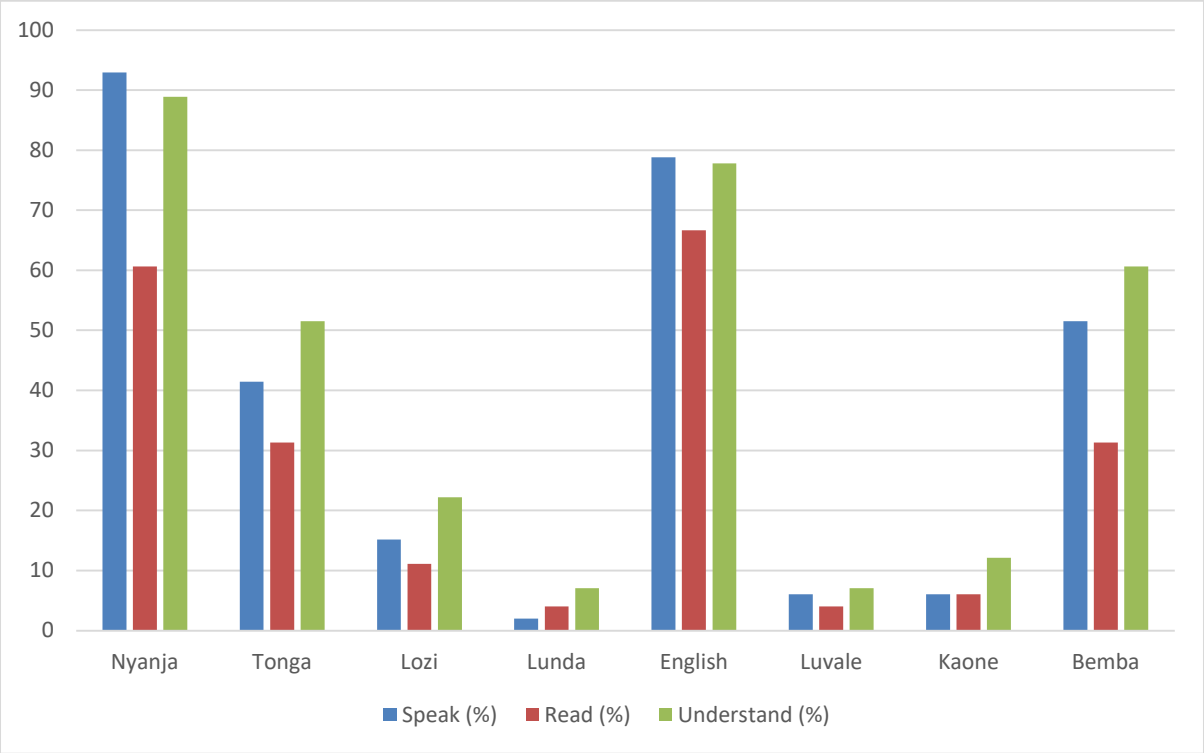
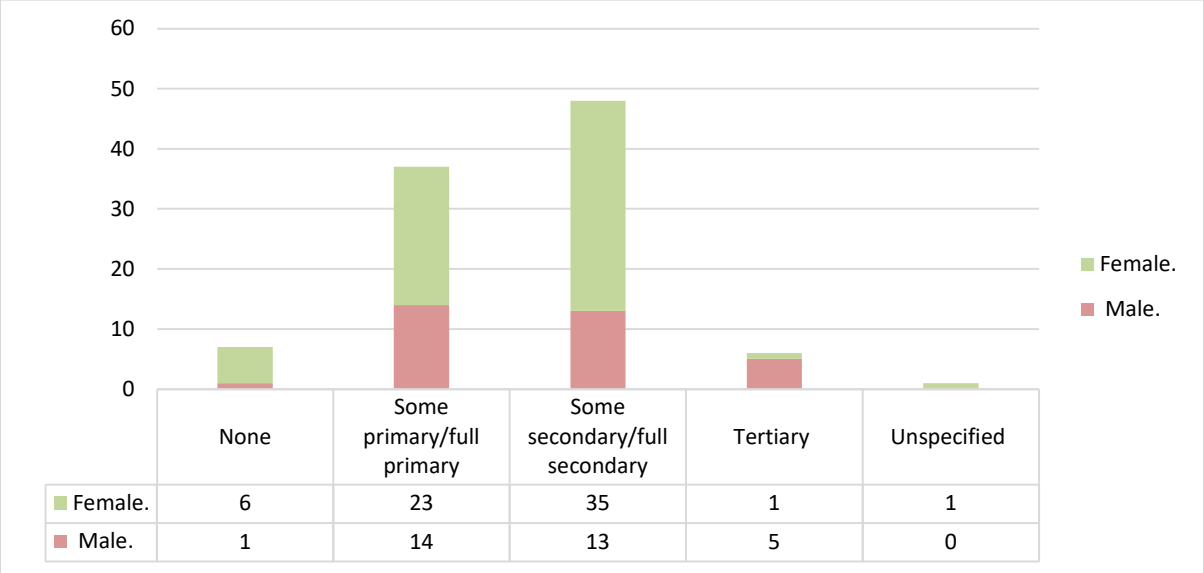


Figure 5: Language spoken/read/understood among participants

4.1.4 Education

The highest education level attained disaggregated by gender reveals interesting patterns. Over 90% of participants have some education (at least primary level), whilst nearly 50% have at least some secondary education, and less than 10% have tertiary education (Figure 6). Notably, a higher proportion of females (approximately 9.1%) report having no formal education compared to males (3%). Conversely, males exhibit a greater prevalence of 'Some primary/full primary' education (42.4% compared with 34.9% for females). Moreover, 'Some secondary/full secondary' education is more common among females, with approximately 53%, whereas males represent around 39.4%. This is somewhat surprising, as secondary school completion rates in Zambia are higher for boys than for

girls. However, the survey was conducted during weekdays, and it is possible that the sample is therefore biased against men with secondary education, who perhaps have a higher likelihood of being engaged in employment at this time. In the 'Tertiary' education category, males surpass females, comprising about 15.2% compared to only 1.5% of females. There are no males with unspecified educational backgrounds, whereas one female falls into this category.



	None	Some primary/full primary	Some secondary/full secondary	Tertiary	Unspecified
Female.	6	23	35	1	1
Male.	1	14	13	5	0

Figure 6: Educational background and gender distribution by participant

4.1.5 Disability status

Given the focus of WISER EWSA on including women and people with disabilities, it was important to disaggregate the sample of the basis of (dis)ability. Definitions of disability differ and can be nuanced. The UN Convention on the Rights of Persons with Disability states that persons with disabilities include "those who have long-term physical, mental, intellectual or sensory impairments which, in interaction with various barriers, may hinder their full and effective participation in society on an equal basis with others". Of the total number of participants 66 (66.7%) reported to have no disabilities, while 33 (33.3%) have a disability (Figure 7). Among those with disabilities, there was a roughly equal distribution between females (51.5%) and males (48.5%).

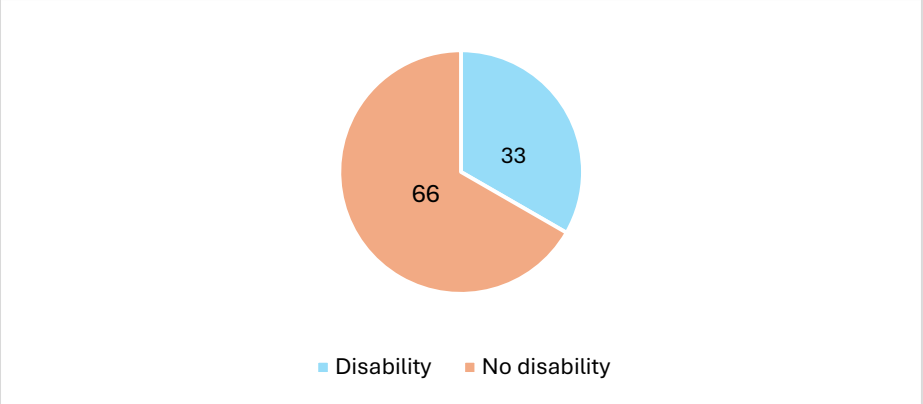


Figure 7: (Dis)ability status of participants

Participants were also surveyed to specify the nature of any disabilities they experienced, leading to a detailed breakdown of disability types among the study cohort. The most common disability is a hearing impairment (10), this is followed closely by individuals (9) affected with a visual disability. Physical disability accounts for 6 individuals overall. Other disabilities were open to individual definition and varied from temporary and minor impediments (e.g. "problem with teeth", "stiff neck") to permanent conditions, e.g. "… can hear, but can't talk".

Figure 8: (Dis)ability type disaggregated by gender

Disaggregating the disability data by gender shows that physical disability appears to affect more males (4) than females (2), while visual disability exhibits a contrasting trend with more females (6) affected than males (3) (Figure 8). Hearing impairment seems evenly distributed between genders, with both males and females reporting 5 cases each. The 'Other' category shows parity between males and females. Additionally, specific combinations of disabilities, such as visual impairment and physical disability, or visual and hearing impairment, display variations in prevalence between genders. The are

no reported cases of intellectual/learning disabilities in either gender – this category was not actively sought out among people with disability due to the ethics of working with this group.

4.1.6 Livelihoods status

The majority of both males (60.6%) and females (62.1%) are engaged in the informal sector or piecework (Figure 9). A higher percentage of females (33.3%) are either unemployed or retired in comparison to males. Few people of either gender are engaged in waged employment through the formal sector. There is a notable difference between males (12.1%) and females (1.5%) in receiving government or NGO grants.

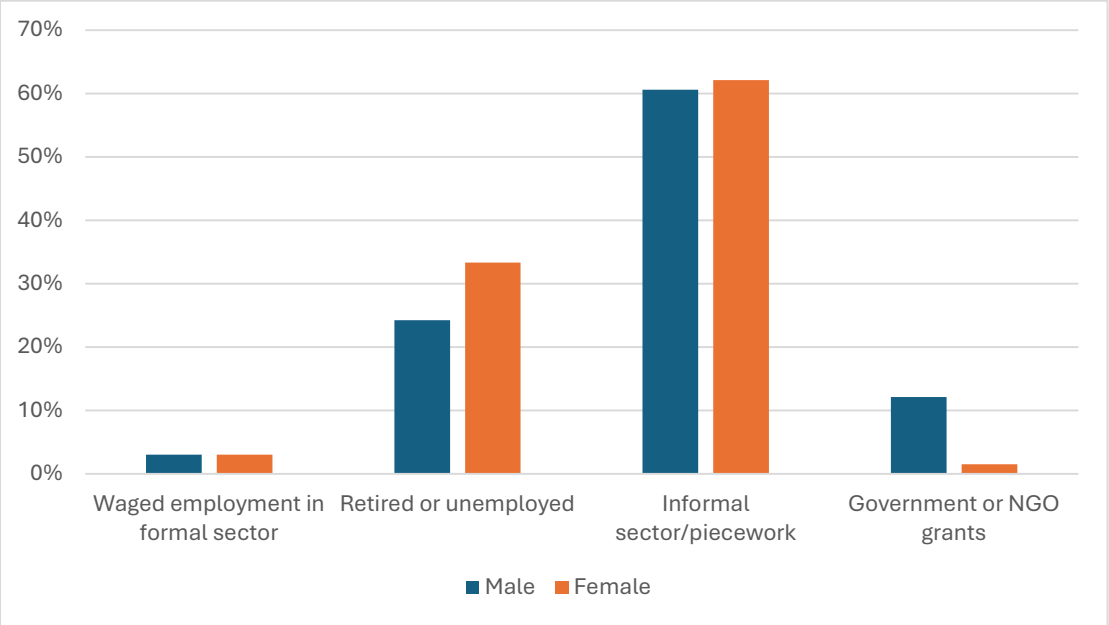


Figure 9: Livelihoods disaggregated by gender

There are few differences between people with disabilities and those without in terms of livelihoods distribution, except in the case of waged employment (Table 2). Individuals with disabilities report no engagement (0%) in waged employment within the formal sector, while 5% of individuals without disabilities are employed in such roles. In a mirroring percentage breakdown to gender, above, the highest number of both people with disabilities (61%) and people without disabilities (62%) are engaged in the informal sector or piecework. None of the participants with disabilities are engaged with waged employment in the formal sector. A relatively similar number of both people with disabilities and those without rely on financial support from governmental or non-governmental organisations in the form of grants.

Table 2: Livelihood by (dis)ability

Livelihood	**People with disabilities**	**No disability**

Waged employment in formal sector	0%	5%
Retired or unemployed	33%	29%
Informal sector/piecework	61%	62%
Government or NGO grants	6%	5%

4.1.8 Cell phone ownership and access

The majority of participants (85.9%) own a cell phone, with just over half of these being smartphone devices (Figure 10). Eight individuals (8.1%) have access to a cell phone through a household member, with five of these being smartphone devices. Few individuals (6.1%) do not own a cell phone.

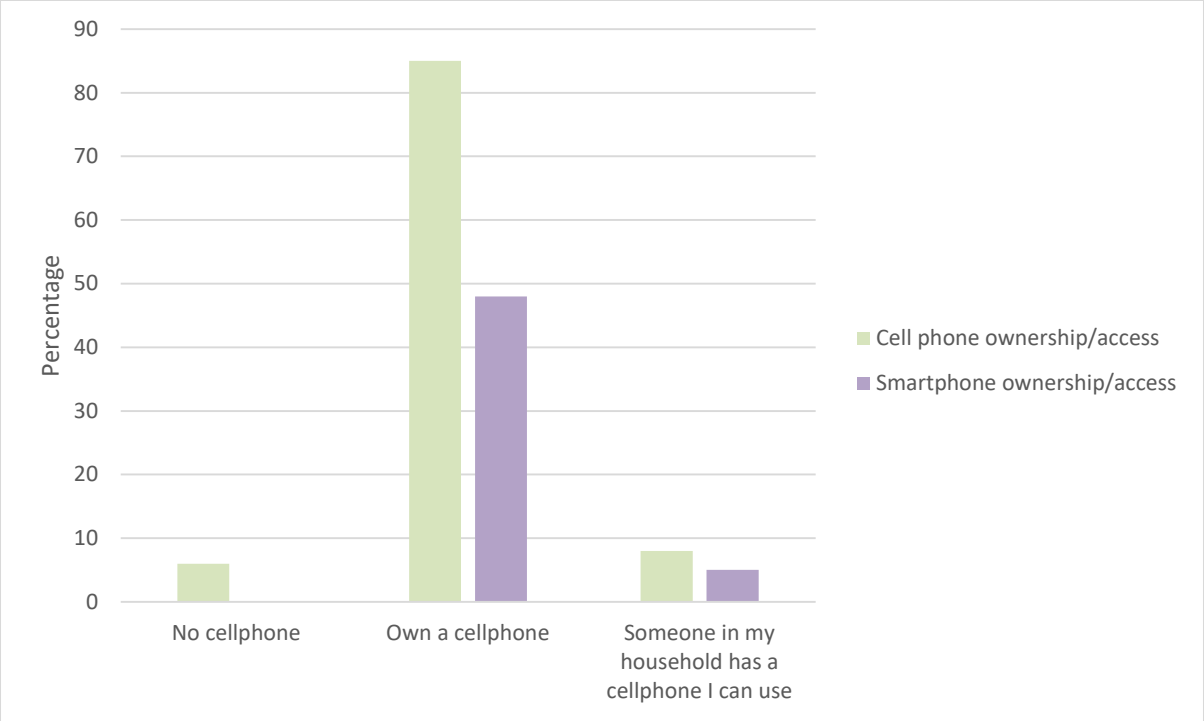


Figure 10: Cell phone and smartphone access and ownership among participants

In disaggregating cell phone ownership by gender, a relatively similar percentage of males (84.8%) and females (86.4%) own cell phones (Figure *11*). The same proportion of males to females (6.1%) did not own cell phones. A slightly higher percentage of males (12.1%) in comparison to females (7.6%) had access to a cell phone through a household member. This finding is interesting as it contradicts dominant narratives that suggest that women's access to cellphones is inferior to that of men.

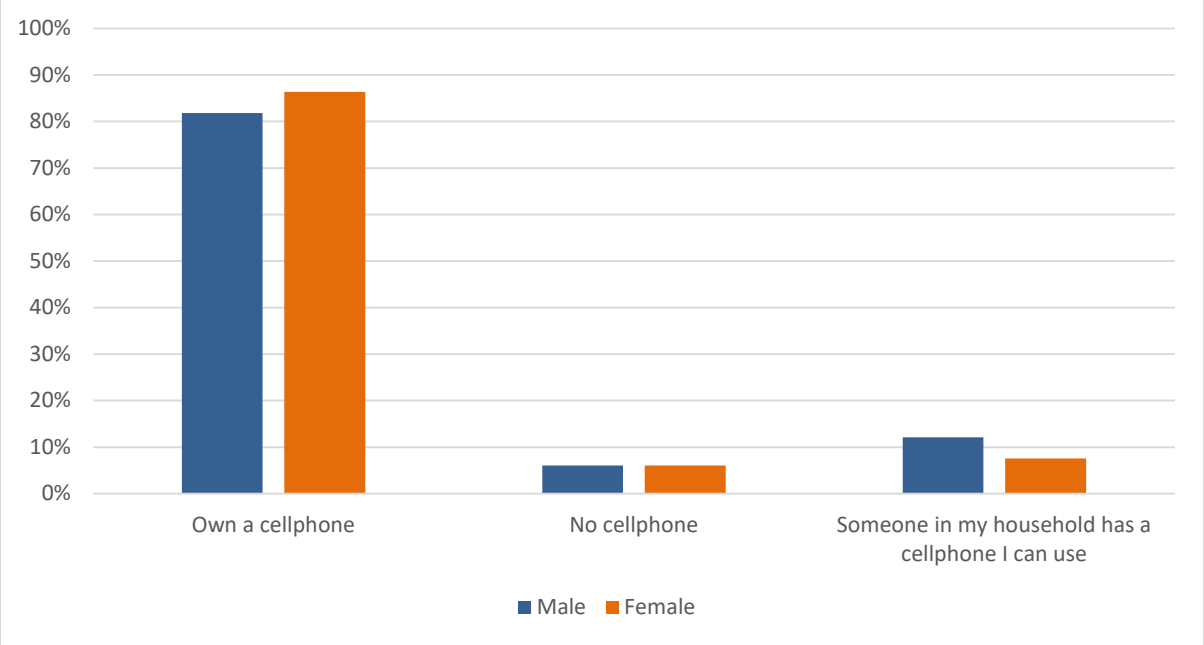


Figure 11: Cell phone ownership disaggregated by gender

4.2 Experience of extreme events

4.2.1 Perceived extreme event occurrence

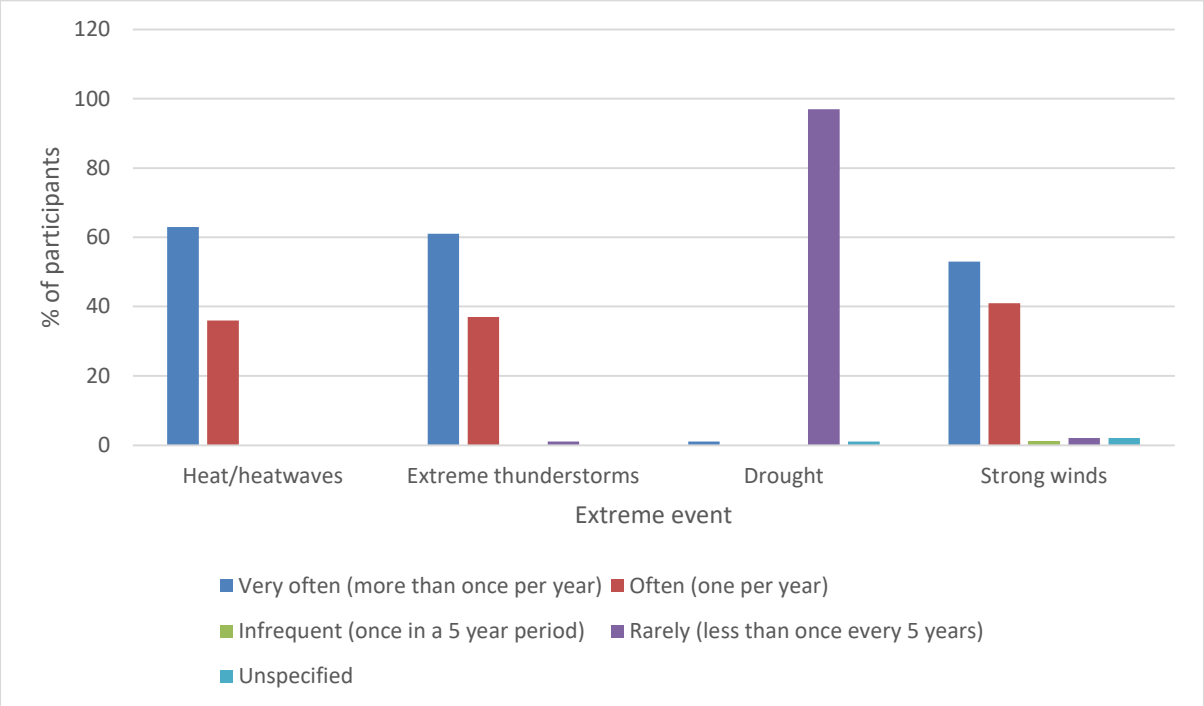


Figure 12: Perceived extreme event occurrence frequency among all participants

Heat/heatwaves, extreme thunderstorms and droughts are regular occurrences in Kanyama, occurring more per year or more (Figure 12). For heat/heatwaves, the majority of participants (63.6%) report experiencing heatwaves very often (more than once per year), followed by 36.4% participants who stated that they experience them often (once per year). There are no reports of experiencing heatwaves infrequently or rarely. For thunderstorms (that may also bring high winds and flash floods), the majority of participants (61.6%) report experiencing extreme thunderstorms very often, with 37.4% of participants experiencing them often. Only one respondent reports experiencing extreme thunderstorms rarely, and there are no reports of infrequent experiences. In comparison to experiences of heatwave and extreme thunderstorm events, the data shows a contrast for drought events. Only one respondent reports experiencing drought very often, and there are no reports of experiencing it often or infrequently. The majority of participants (98%) report experiencing drought rarely. The data for strong winds shows a relatively balanced distribution across the frequency intervals. 53.5% of participants report experiencing strong winds very often, while 41.4% participants report experiencing them often. One respondent reports experiencing strong winds infrequently, and two participants report experiencing them rarely.

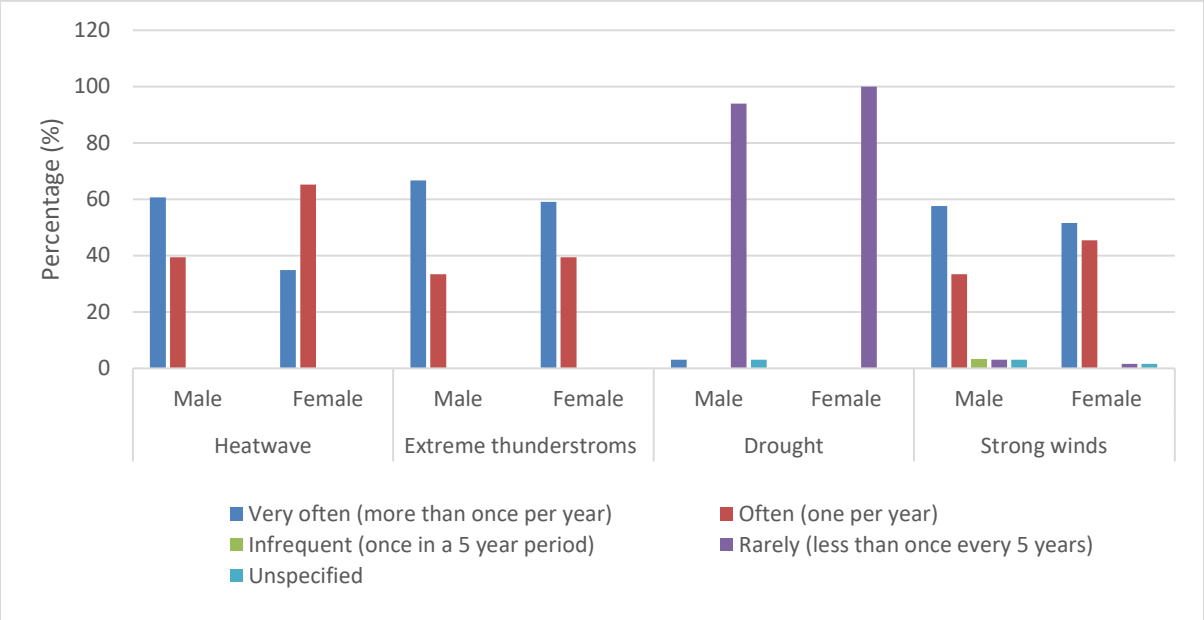


Figure 13: Perceived extreme event occurrence frequency by gender

When looking at extreme event occurrence by gender, there are some slight differences within the overall patterns (Figure 13). Heat/heatwaves are perceived by a greater proportion of men to occur very often (more than once per year) relative to often (once per year), whilst the reverse trend is the case for women. Among males, 60.6% report experiencing heatwaves/heat very often (more than once per year), and 39.4% report experiencing them often (once per year). Among females, 34.85% experience heatwaves/heat very often, while 65.2% experience them often. Neither males or females stated that they experienced heatwaves/heat infrequently or rarely. Thunderstorms are reported to occur very often by more men (33 individuals, or 66.7%) and women (39 individuals, or 59.1%) relative to often (11 mend, or 33.3%, and 26 women, or 39.4%). Drought is reported as rare by both men and women. Strong winds are reported as quite common by both males and females, with 57.6% of males and 51.5% of females report experiencing strong winds very often, with a slightly slower percentage of both genders (33.3% and 45.5% respectively) indicating that they experience strong winds often.

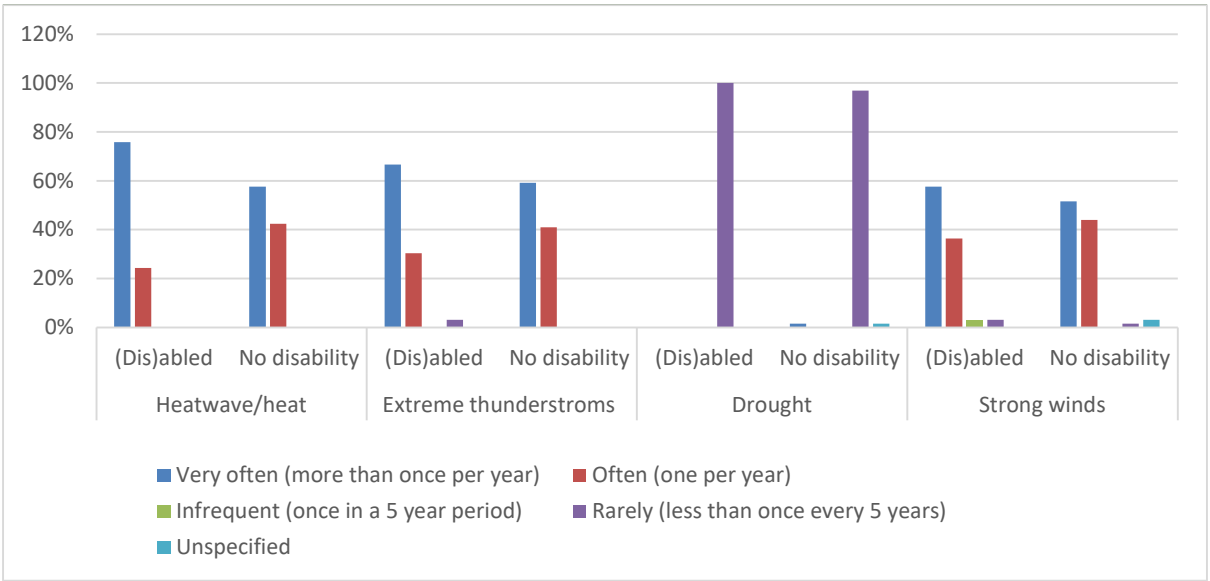


Figure 14: Perceived extreme event occurrence frequency by disability

People with disabilities tend to report experiencing extreme weather events (heatwaves, extreme thunderstorms, and strong winds) as occurring more than once a year compared to those without disabilities (Figure 14). A higher proportion of people with disabilities report experiencing heat/heatwave events very often (75.8%) relative to those without disabilities (57.6%), whereas more people without disabilities report them as often (42.4%) relative to people with disabilities (24.4%). The same pattern occurs with thunderstorms (that may also bring high winds and flash floods), with higher proportions of people with disabilities reporting thunderstorms very often (67%) relative to those without disabilities (59.1%), and more people without disabilities reporting them as often (40.9%) relative to those with disabilities (30.3%). Likewise with strong winds, a slightly higher percentage of people with disabilities report experiencing strong winds more frequently (57.6%) than those without disabilities (51.5%), and more people without disabilities reporting them as occurring often (43.9%) relative to people with disabilities (36.4%).

4.2.2 Ranking of extreme events by impact

Patterns for the impacts of extreme event (based on impact on individuals and their households over the past five years) mirror the occurrence (Figure 15). The majority of participants identified thunderstorms as the most impactful event, with 80 (80.8%) ranking it as their first choice. Heatwaves were commonly ranked as the second choice by 66 participants (66.7%). Strong winds were predominantly ranked as the third choice, affecting 79 (79.8%) participants. Droughts were unanimously ranked as least impactful, which is to be expected given their rare occurrence as previously reported.

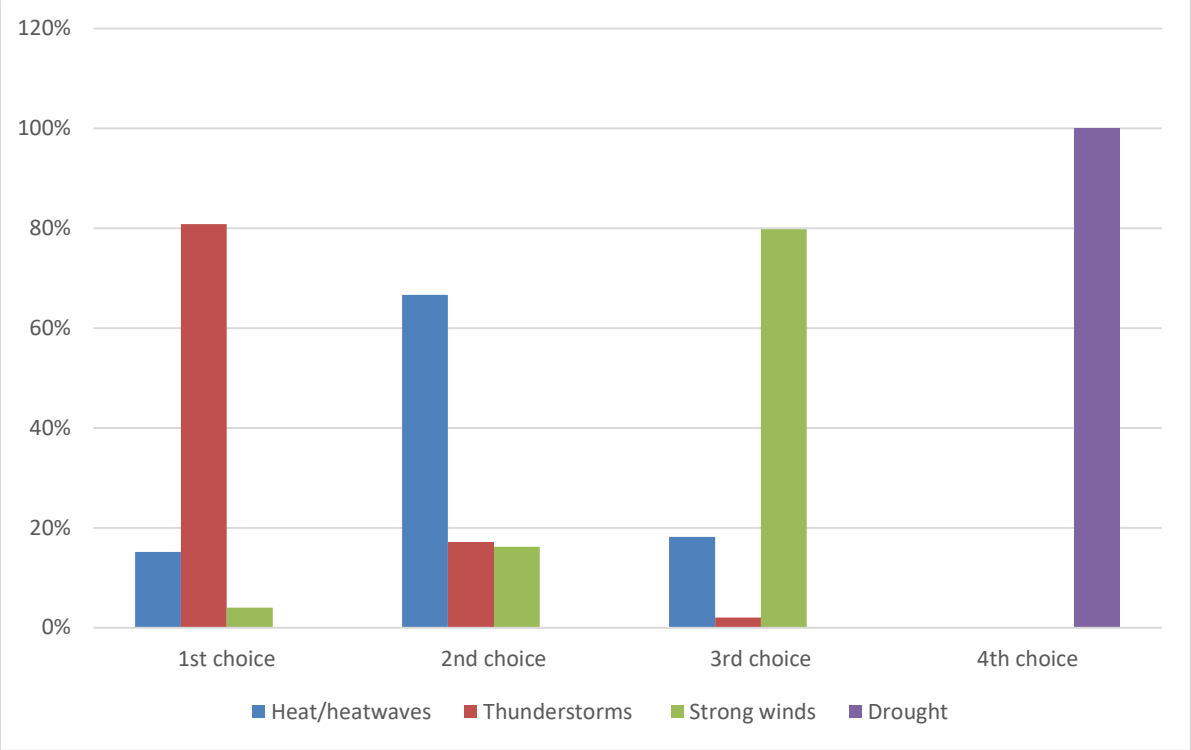


Figure 15: Ranking of extreme event according to negative impact to participant and their household over the last five years

4.2.3 Effects of extreme events

The findings above show that across the entire sample group, regardless of gender and disability status, the most frequently encountered extreme events are thunderstorms (that may also bring high winds and flash floods) and heatwaves, and that these two events are the most impactful on individuals and households over a five-year period. As such, the focus of this subsection will be the effects of these specific events on participants across a variety of domains.

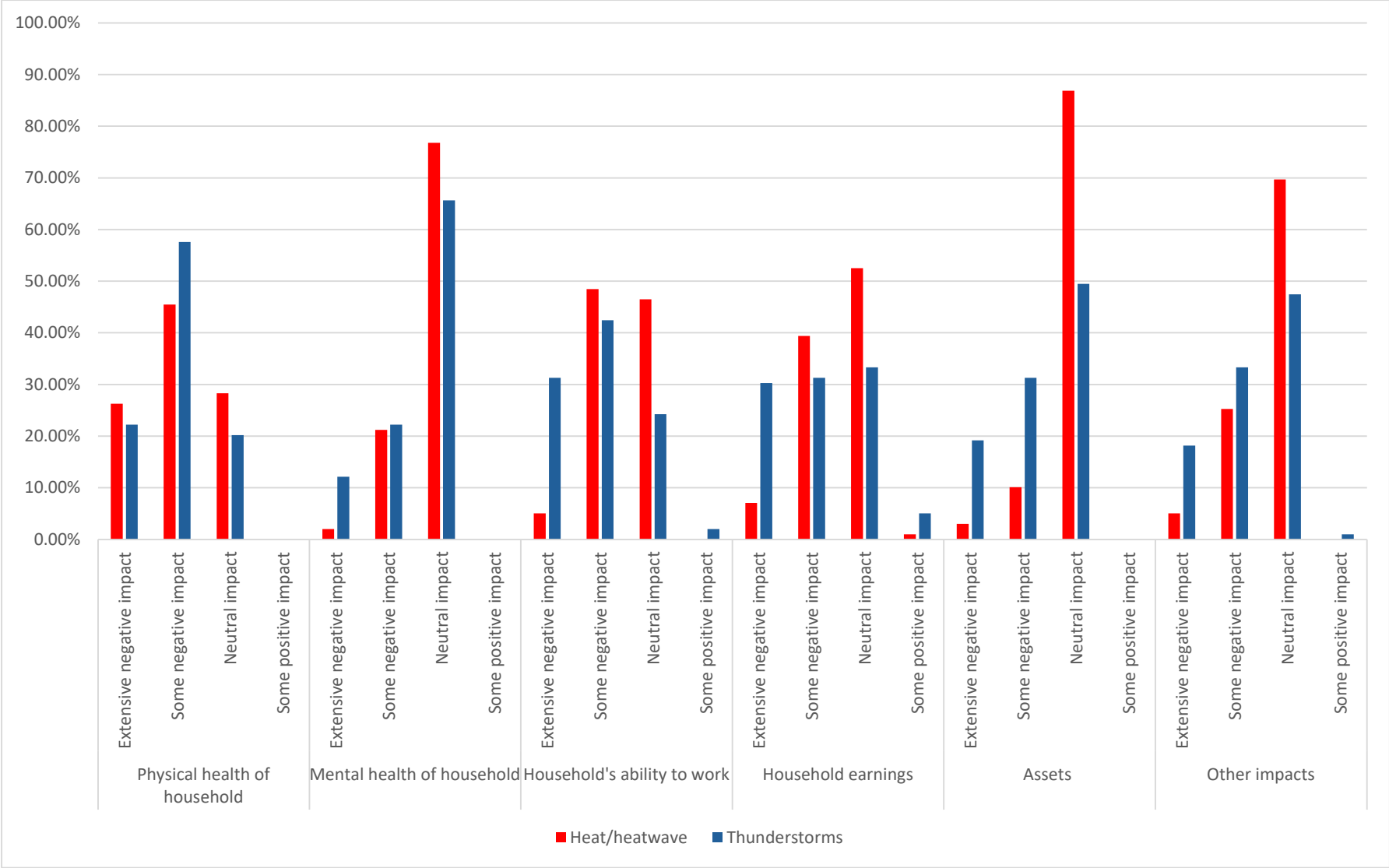


Figure 16: Effects of Thunderstorms and heat/heatwave events on households and individual

4.3.2.1 Impacts of thunderstorm events

The most negative impacts of thunderstorms are on physical health and ability to work (with higher proportions describing extensive or some negative impacts here, relative to other domains), with household earnings and assets also described as extensive or negative impacts by around half of the sample. The 'other' category gave an opportunity for participants to self-specify other impacts. In practice, the majority of responses here were to reinforce impacts which had already been represented in another domain, so the illustrations are also presented here.

A number of participants report various a rise in the spread of waterborne diseases, specifically diarrhoea, cholera, and malaria as a result of thunderstorm events. Some participants also mention experiencing illnesses, sores, and injuries because of these events. One individual highlighted that as a result of her physical disability she has to stay at home for months as a result of thunderstorm events, while another stated that he is wheelchair bound and that makes movement difficult during floods.

A slowdown in business activity is also commonly reported as having negative effects as a result of thunderstorm events, with some individuals stating that it is difficult to travel to work or for people to access their businesses due to the flooding of roads. Examples include:

> "*When it starts raining it's hard to go for work*" (Participant 38, Female, No disability)
>
> "*Business becomes very slow…*"(Participant 31, Male, No disability)
>
> "*No business because of floods people tend to use other roads*" (Participant 50, Male, No disability)
>
> "*Business becomes slow and those who go for work stop since roads are flooded and nowhere to pass*" (Participant 55, Female, No disability)
>
> "*Business becomes slow because of floods limited movement*" (Participant 87, Female, No disability)
>
> "*We fail to work cause our place is flooded and this is where we work from…*" (Participant 43, Male, No disability)
>
> *"When it's flooded, we can't look for piece works properly hence no incomes"* (Participant 68, Male, Disability)

A few participants highlighted some positive business and work impacts tied to thunderstorm events, including:

> "*When it's raining it becomes cool and am able to work*" (Participant 45, Male, Disability)
>
> "*Business booms during this time…*" (Participant 29, Female, Disability)
>
> "*My business booms in my pharmacy*" (Participant 13, Female, No disability)

Some participants stated that their assets (homes) and general public infrastructure suffer damage during thunderstorms, including roofs being blown away and properties being submerged in floodwaters. This is highlighted in the following quotes:

"*Houses gets submerged*" (Participant 30, Male, Disability)

"*Our toilets are outside hence when it rains due to the floods, we fail to access them unless you pass through the water*" (Participant 49, Female, Disability)(Figure 17)

"*Roads tend to be impassable*" (Participant 27, Male, Disability)

"*Roads get filled up with water*" (Participant 19, Female, No disability)

Linking to the above, participants frequently mention limited mobility during extreme thunderstorms, particularly due to flooded roads and impassable routes.

Figure 17: Toilets on raised platforms in flooded streets

4.2.3.2 Impacts of heat/heatwave events

The most negative impacts of heat/heatwaves are on physical health and ability to work (with higher proportions describing extensive or some negative impacts here, relative to other domains). As above, in practice the majority of responses to the 'other' category were to reinforce impacts which had already been represented in another domain, so the illustrations are also presented here.

Individuals report various physical health impacts during extreme heat/heatwave events including changes in blood pressure (increase and decrease), swollen legs, headaches, fevers, rash, sweating excessively, chest pains, flu-like symptoms, limited mobility, and heart problems. Examples include:

"*When it's very hot we experience a lot of fevers*" (Participant 36, Male, No Disability)

"*Experience headache*" (Participant 39, Female, No Disability)

"*My heart gets affected…*" (Participant 46, Female, No Disability)

"*When it is hot my blood pressure goes up*" (Participant 31, Male, No Disability)

"*I experience heart problems*" (Participant 59, Female, Disability)

Some individuals mention specific health or disability conditions being exacerbated by the heat, for example:

"*She's diabetic and has sight problems so she gets affected*" (Participant 24, Female, Disability)

"*When it's very hot I can't see properly since only one eye is working and it's partially blind*" (Participant 85, Male, Disability)

Two participants also disclosed that when there is a heat/heatwave event their children become ill with symptoms such as diarrhoea and headaches.

In terms of ability to work, a considerable number of participants note a slowdown in business activity during extreme heat – which is important given such a high proportion of the population is dependent on the informal sector and self-initiated income. Some individuals stated that the heat makes it difficult to work or to actively seek opportunities due to weakness, limited mobility, or health issues aggravated by the heat. Examples include:

"*Mostly when it's hot we feel weak hence can't do business properly*" (Participant 65, Female, No Disability)

"*She fails to work properly*" (Participant 16, Female, Disability)

"*Because of the heat am unable to do my works because my leg gets affected that I fail to walk*" (Participant 45, Male, Disability)

"*When it is hot I fail to work because the body becomes weak*" (Participant 74, Male, No disability)

"*Business becomes slow*" (Participant 2, Female, No disability)

One person described how the intense heat adversely affects his tomato business, leading to the destruction of his crops.

4.3 Forecast access and use

4.3.1 Access to forecasts and early warnings

The majority of participants (84.8%) access weather forecasts or early warnings of weather events to varying degrees (i.e. very often; often; sometimes or rarely)(Figure 18). The most prevalent frequency of accessing forecasts is a few times a week, with less than a third accessing them on a daily basis (or more frequently). Only 14 participants (14.1%) do not access forecasts, with one participant not specifying their frequency of engagement.

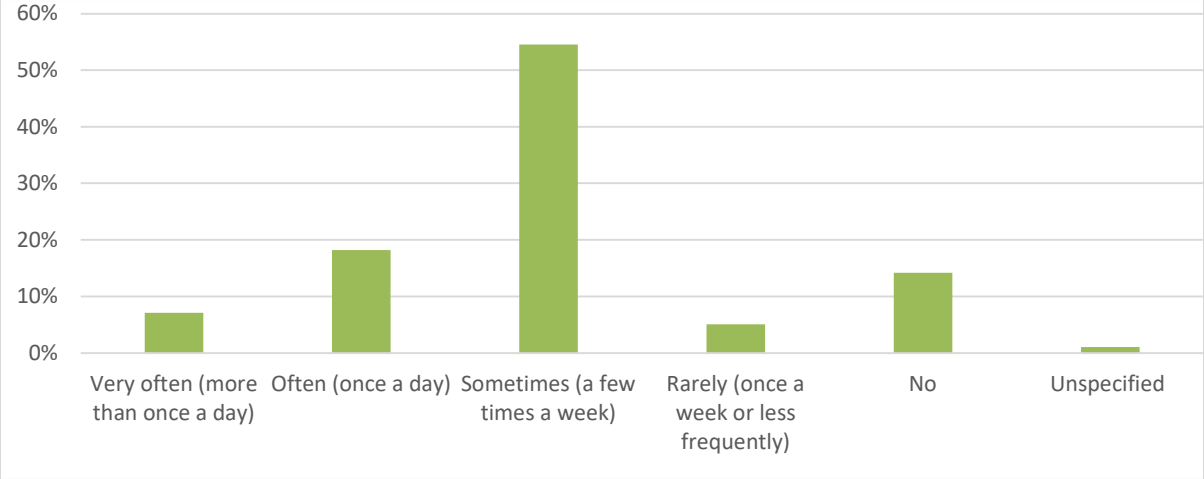


Figure 18: Frequency of access to weather forecasts or early warnings of weather events among participants

The reasons given for not accessing weather forecasts or early warnings (by those who do not access them) vary among respondents. Three individuals stated that they don't know about them or where to get them, while two participants stated they have no need for them (Table 3). The largest proportion of participants (six) cited lack of access to the communication platforms through which they are transmitted (e.g. lack of access to radio, TV, or the internet/social media platforms). Smaller proportions reported not knowing about them or where to get them or having no need for them. Notably no participants mentioned disabilities that hinder their ability to hear or see the forecasts.

Table 3: Participant's reasons for not accessing weather forecasts or early warnings

	I don't know about them or where to get them	I have no need for them	I don't have a radio, TV, or access to internet/social media	I am disabled so I cannot hear or see them	I am not connected with people who would provide the forecast to me, like community leaders, local government officers or NGOs	Other	Total no. of respondents
No. of participants	3	2	6	0	0	5	**14**

'Other' reasons cited by participants related to some of the categories, for example "*No one comes here to tell us*" (Participant 3, Female, no disability) and "*I have never heard of weather forecast before*" (Participant 33, Female, no disability) might also fall under the category "I don't know about them or where to get them". Other reasons related to time and disinterest, for example:

> "*I have no time to watch the television*" (Participant 65, Female, No disability)
>
> "*I get tired, so I have less interest*" (Participant 88, Male, No disability)
>
> "*We don't listen to the news*" (Participant 38, Female, No disability)

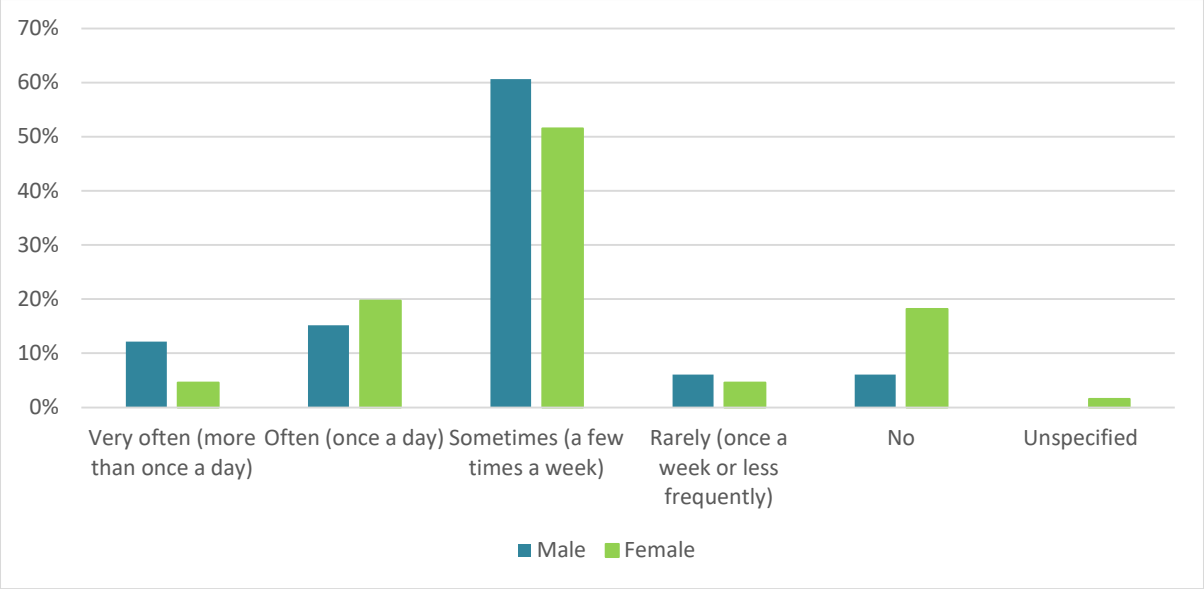


Figure 19: Frequency of access to weather forecasts or early warnings of weather events disaggregated by gender

When looking at access by gender there is some difference in in the frequency and extent of weather forecast access between males and females (Figure 19). Overall, males exhibit a higher propensity (93.9%) to access weather forecasts across various intervals compared to females (80.3%). A larger percentage of male's access weather forecasts *very often* or *sometimes* in contrast to their female counterparts. A higher proportion of females (18.2%) do not access weather warnings or forecasts at all, when compared to males (6.1%).

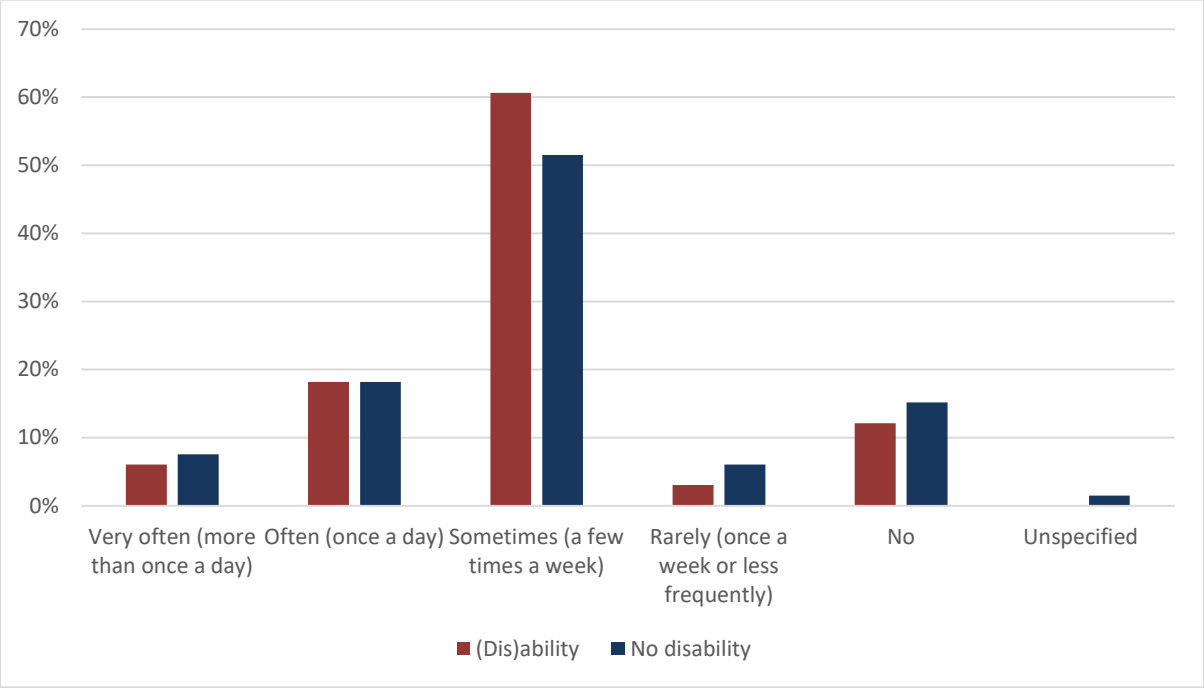


Figure 20: Frequency of access to weather forecasts or early warnings of weather events disaggregated by (dis)ability

Whilst there are some differences in gender, there are few differences between people with disabilities and those without (Figure 20).

4.3.2 Engagement with forecasts and early warnings

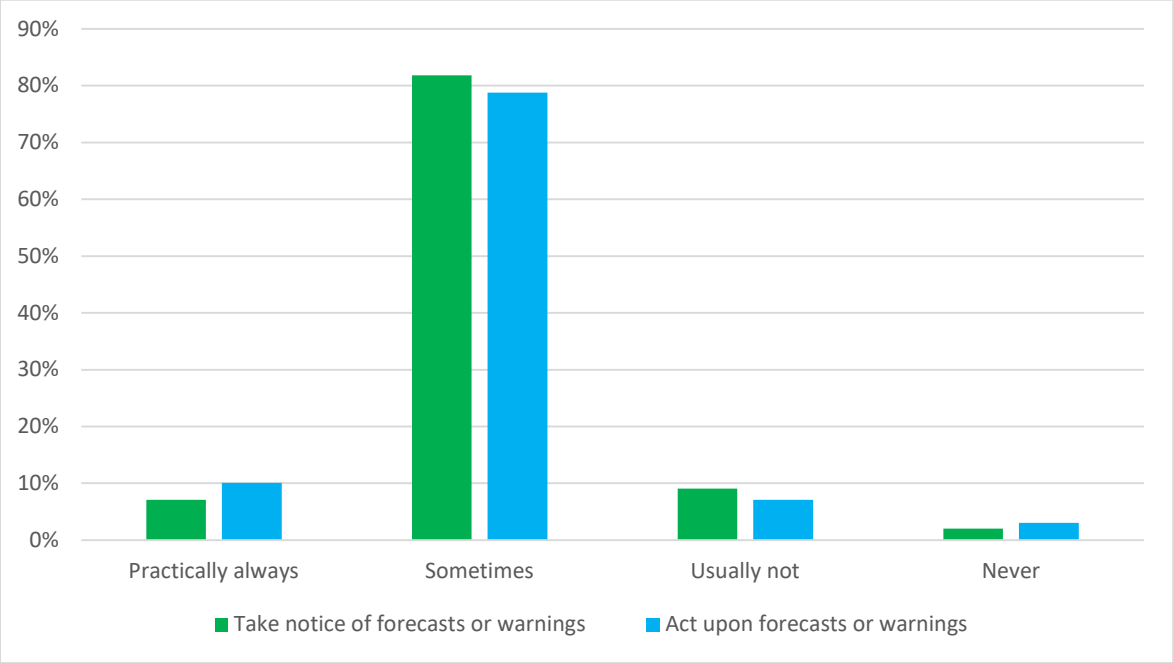


Figure 21: Response rates for taking notice of and acting upon forecasts or warnings

For those people that do receive weather forecasts and early warnings, the majority of people said that they sometimes take notice of them (81.8%) or act upon them (78.8%)(Figure *21*).

Smaller proportions said they do not usually (7.1%) or never (3.0%) act on forecasts or warnings. Of these participants not acting on them, 70% were female and 30% were male and 40% have a disability with 60% reporting not having a disability. A wide range of reasons was available for participants to choose (and they could choose more than one), which have been clustered into several categories as per box 1.

Reasons cited by those not acting on forecasts and early warnings were clustered into several categories as follows:

Box 1: Reasons for not acting on forecasts and early warnings

Credibility of information or messenger:
- I do not understand the information; I do not believe the information.
- I do not trust the person/organisation issuing them).

Utility and usability of information:
- I do not understand what I should do with the information.
- I do not think they are useful.

Barriers to response:
- I do not receive it with sufficient lead time to act on it.
- I do not have sufficient physical ability to take actions (e.g. I am not able to move quickly).
- It would cost me too much money to take the actions (e.g. I cannot afford transport costs, or the potential loss to my livelihood).
- I do not have access to resources/services to enable action (e.g. not enough public transport for everyone to travel, no local availability of sandbags, etc.).

Distribution across these categories of reason for non-action are fairly similar, ranging from 20-30% of the sample (Figure *22*). In addition, 20% said they do not act because there is no need to do so, and 20% gave other reasons for not acting.

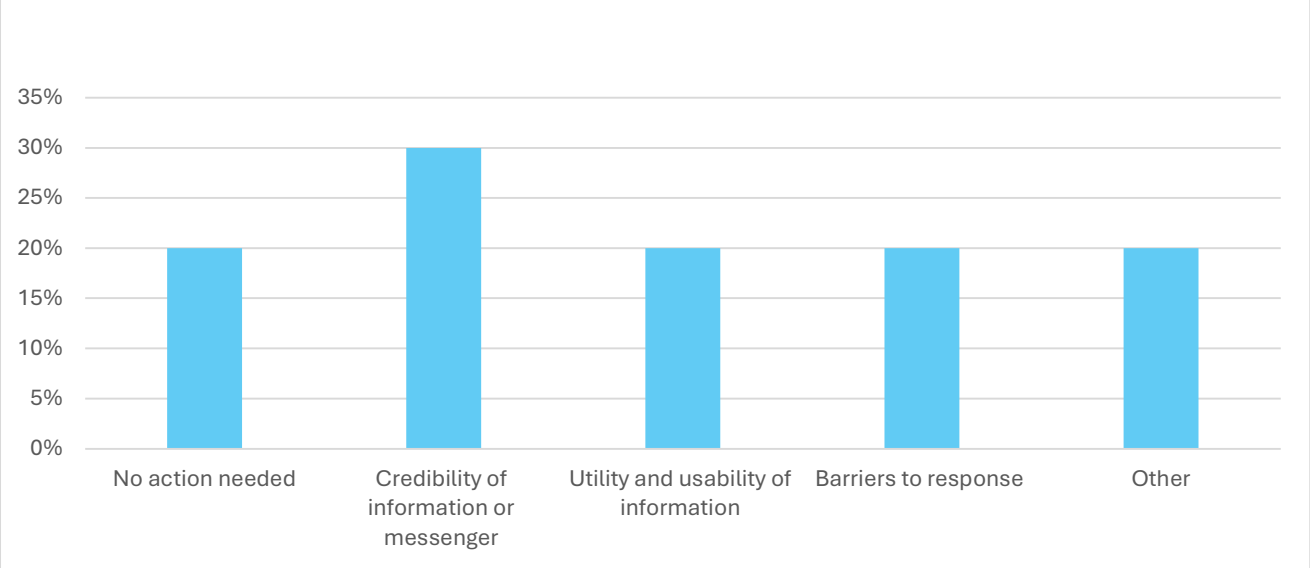


Figure 22: Reasons for not acting on forecasts and warnings

4.3.3 Perceived usefulness of 0-6hr warnings

Although nowcast information on a 0–6-hour timeframe does not currently exist, participants were asked to rate the usefulness of a 0–6-hour thunderstorm warning if it were available. All participants provided a positive response to this question, with 90.9% of participants opting for 'very useful'. Given that thunderstorms are one of the most frequent hazard events, and one which causes the most negative impacts, this response is unsurprising.

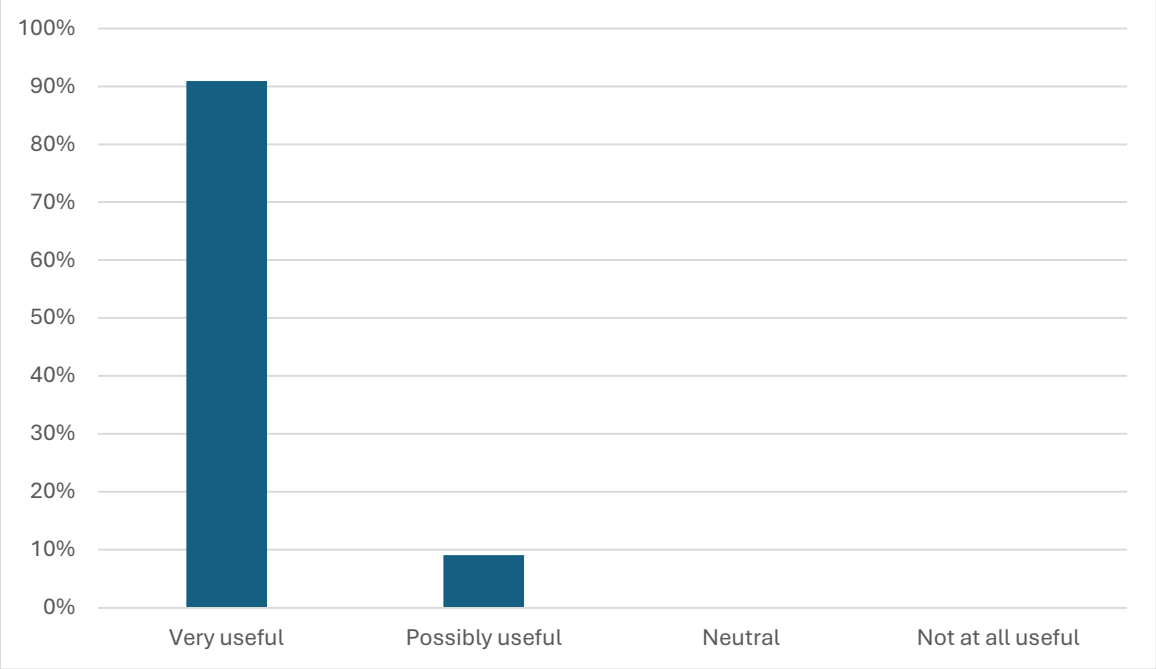


Figure 23: Perceived usefulness of 0–6-hour thunderstorm warnings

4.4 Participant knowledge of organisations which support disaster risk reduction in Kanyama

Two thirds of the sample (66 individuals) were aware that the Disaster Management and Mitigation Unit (DMMU) supports disaster risk reduction in Kanyama, with much smaller numbers (less than four participants in each category) acknowledging the role of local government, the church, NGOs and civil society organisations. Nearly one third of the sample (27 individuals) were unaware of these organisations supporting disaster risk reduction efforts in Kanyama. However, despite DMMU being widely recognised, only 5 participants reported direct interaction with DMMU. In comparison, the small numbers of people who mentioned awareness of the roles of local government, the church, NGOs and civil society organisations also had direct interaction with them on issues of disaster risk reduction.

5. Conclusion

This survey has enabled painting a picture of the reality of circumstances in Kanyama which can inform a useful and inclusive process of co-production of useful and useable weather information and early warning alerts.

Kanyama has a largely youthful population, and more women than men. This is likely partly a response to the purposive sampling, but also likely reflective of reality, particularly given that surveys were conducted in the daytime when men were less likely to be around the home. The vast majority are engaged in the informal sector for livelihoods.

Thunderstorms and extreme heat/heatwaves are common weather extremes in Kanyama, and both have implications for physical health and ability to work, with thunderstorms also affecting assets and infrastructure.

Access to weather forecasts and early warning information is moderate, and likely enabled at least in part by high levels of cell phone ownership and access – including among women, men and people with disabilities. Acting on weather forecasts and early warnings is also moderate, and among those not acting on the information, there are slightly higher proportions of women. Overall there are few notable differences between genders and between people with and without disability, although people with disability did cite particular impacts of extreme events.

The extent of support for disaster management is also variable and, despite widespread knowledge of the public sector agency, for the few people who have received support, much is coming from non-government sources, including the church.

References

Futures, Fair Water, 2013. *Case study briefing: The crisis of poor water supply, inadequate sanitation and chronic groundwater pollution facing Lusaka - Evidence from Kanyama.* [Online] Available at: https://static1.squarespace.com/static/5baa3175bfba3e44386d68a5/t/5e1c71e33a904b6e1b6bc4b1/1578922472369/Kanyama+case+study+brief+-+Final+-+AfW+version.pdf
[Accessed 24 March 2024].

Musa, C., 2023. *The evolution of land and housing markets in informal settlements in Zambia: Analysis of formal and informal institutions.* [Online] Available at: https://api.repository.cam.ac.uk/server/api/core/bitstreams/b9486cb5-8546-4f2f-9b74-0be59d8a4b43/content
[Accessed 24 March 2024].