Report:

Baseline User Needs survey – Boane, Mozambique

November 2023

WISER
Weather and Climate Information Services

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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)

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Summary

This report presents findings from 100 responses to a survey conducted in Boane in November 2023[1]. 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 Boane 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 some also having undertaken secondary, professional and vocational training. Just under one half of participants reported having a disability, with physical disability being the most common, followed by visual impairment and hearing impairment. Physical disability and hearing impairment are experienced similarly by men and women, whereas more men have a visual disability.

The most common livelihood is in the informal sector, while a smaller percentage were unemployed or retired. Individuals with disabilities were largely underrepresented in formal waged employment. Access to mobile phones was widespread among participants regardless of gender and disability.

Extreme weather events that are experienced in Boane include extreme heat/heatwaves, thunderstorms, floods and drought, with heavy winds occurring less frequently. These are reported consistently regardless of gender or disability. Participants ranked floods and thunderstorms as the most impactful weather events, due to their tangible effects on livelihoods and daily life.

In terms of weather forecast access and engagement, around three quarters of participants accessed forecasts, with lack of access particularly high among people with disabilities. Reasons for non-access included disability and lack of communication platform accessibility. Whilst many people take notice of forecasts and early warnings, this does not always translate into taking action, where barriers exist in the understanding of information and the capacity of act, whether in terms of physical ability or access to resources.

[1] Of these, three individuals did not disclose their gender, and one did not disclose their disability status, and thus these have been excluded from disaggregated analysis.

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 Mozambique the urban communities are located in Boane in Maputo. This report presents findings of a survey conducted in Boane 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 Boane

Boane district is situated in Maputo province in southern Mozambique. It covers an area of 815km^2. The district was once primarily agricultural, and agriculture still forms a primary landuse. Three major rivers flow through the district – the Umbeluzi River, the Tembe River and the Matola River. The Umbeluzi river is dammed at Pequeno Libombos dam, which has to periodically be discharged to manage large inflows from upstream and creating flooding risk (other than from thunderstorms in Boane itself).

Although agriculture remains popular in the area, the location of Boane on a road that connects Mozambique and South Africa, and its proximity to Maputo and the neighbouring city of Matola, means that the district increasingly forms part of the peri-urban spread of those cities. The district is divided into two *postos* (local administrative units), Boane, which comprises three localities, and Matola Rio, which comprises one locality. It is within commuting district of both cities.

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. The survey comprised primarily closed answer questions. The sampling strategy was random in Boane 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 Boane for at least one year (to have experienced the weather conditions in the area) and consent.

Four enumerators conducted the survey, two of whom are EWSA project team members and trained the other enumerators. A sign language interpreter was available to support inclusion of people with hearing disabilities. The survey data was collected by hand on hard paper copies in Portuguese and later the data was inputted to the online Kobo Toolbox in a Portuguese version of the survey, with responses to open answer questions translated into English on entry.

A total of 102 surveys were collected. Quality checks identified two entries with no line or very limited (only three introductory questions answered) data; as such, these were excluded from the analysis. This resulted in a total of 100 entries which were complete and useable for the analysis. Of these, three individuals did not disclose their gender, and one did not disclose their disability status, and thus these have been excluded from disaggregated analysis.

4. Results

4.1 Demographics

4.1.1 Gender and age distribution

Just over half of the participants interviewed were female (57) while 40 were male. Three participants did not disclose their gender (and are not represented in Figure 1). Among both genders the most significant portion of males (37.5%) and females (38.6%) fell within the 31-40-year age bracket. The lowest represented age categories for both males (5%) and females (7%) were 61-70. Overall, females dominated the 'older' age brackets (51-over 80), while male representation was higher in the 18-50 age brackets.

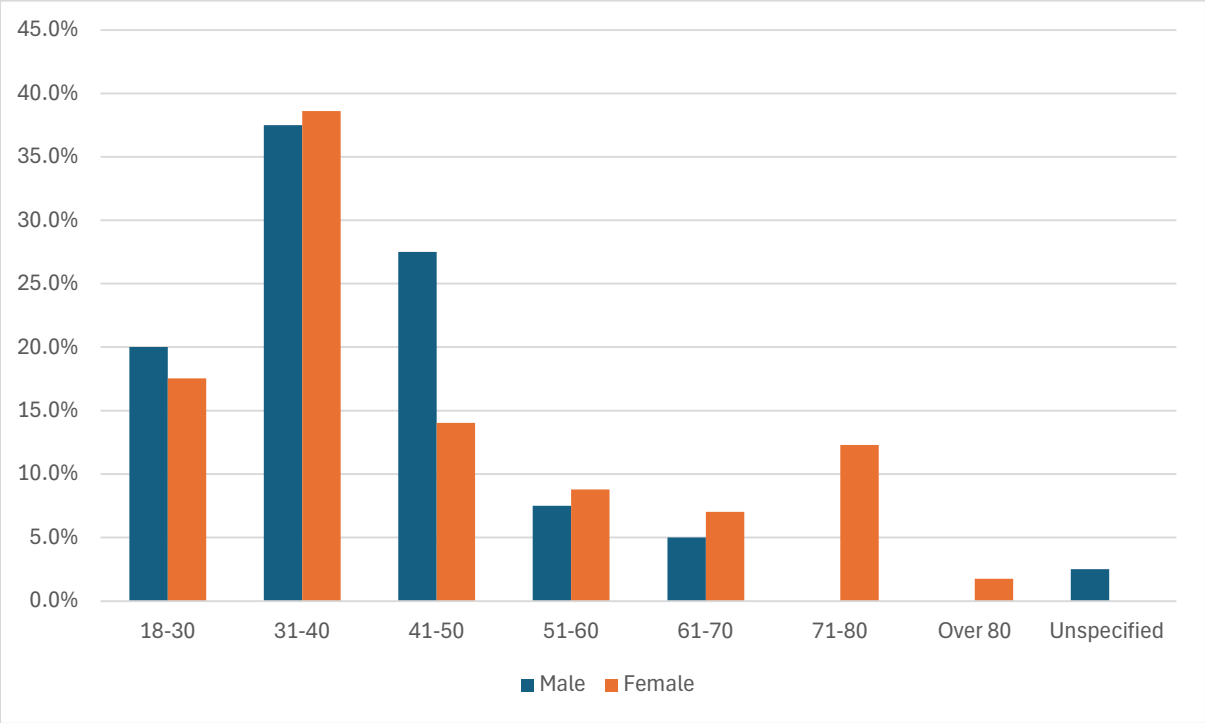

Figure 1: Age and gender distribution among participants

4.1.2 Residence status

The majority of participants (68%) have lived in Boane for more than ten years. A small proportion have lived there for smaller amounts of time – at least in part reflecting the fact that there is high in-migration from other areas.

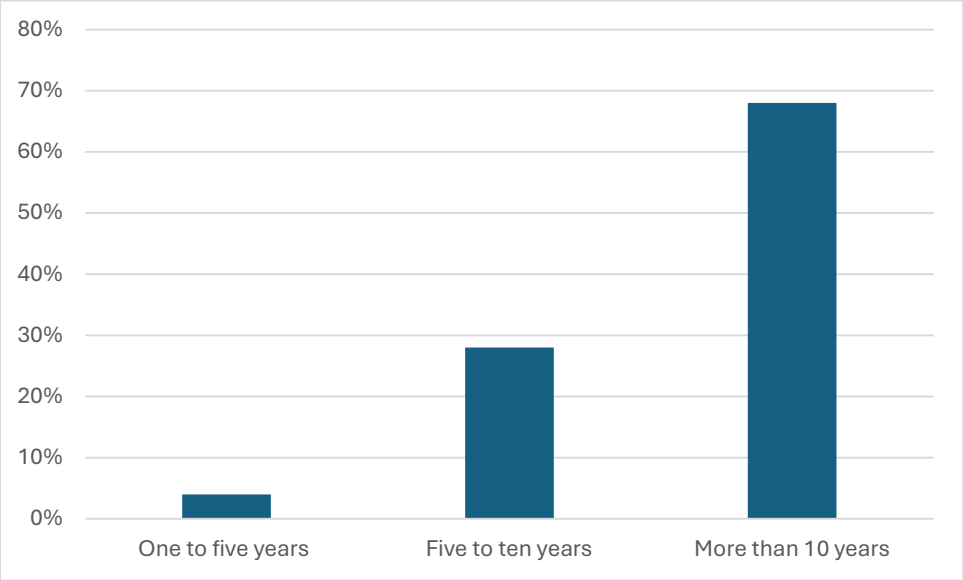

Figure 2: Residency duration distribution among interviewed Boane residents

All participants are resident in Boane, with some specifying Bairro 1; Bairro 1 Quarteiro 2; Bairro 1 Quarteiro 3; Bairro 1 Quarteiro 4, and Marconi.

Table 1: Number and percentage of participants by location in Boane

Location	Total number of participants	Percentage (%)
Bairro 1	4	4%
Bairro 1, Quarteiro 2	1	1%
Bairro 1, Quarteiro 3	5	5%
Bairro 1, Quarteiro 4	1	1%
Marconi	1	1%
Location not specified	88	88%

4.1.3 Language

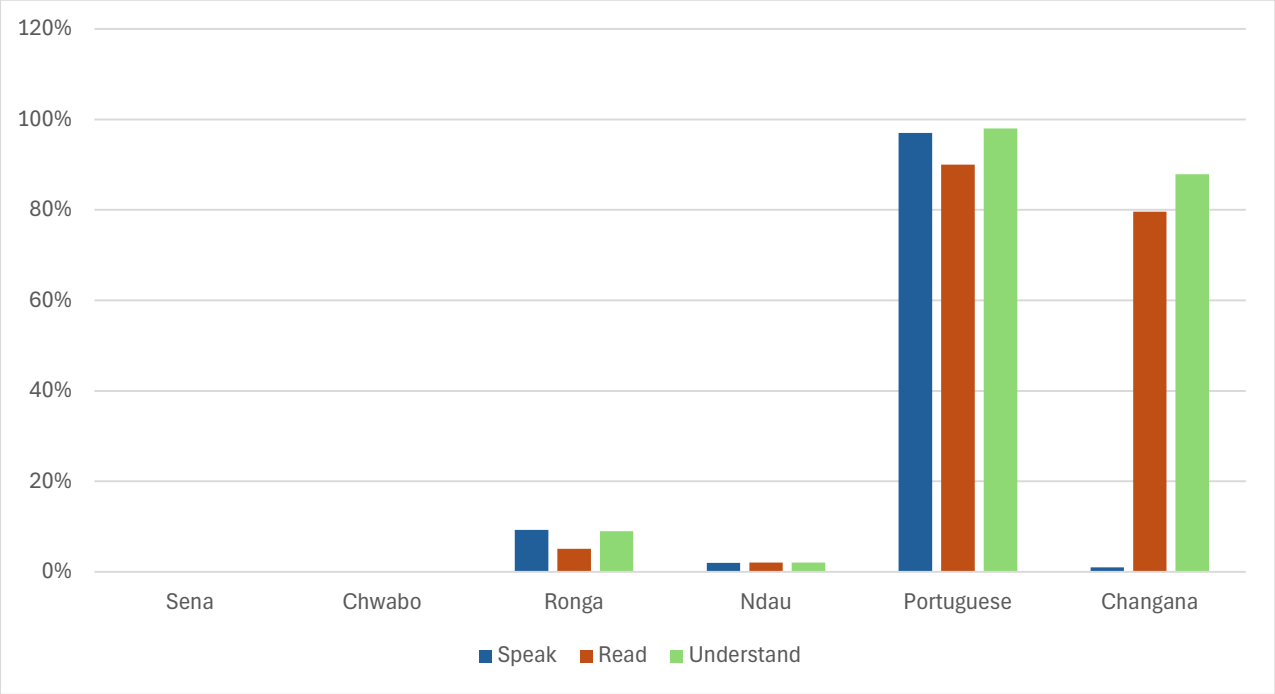

Figure 3: Language spoken/read/understood among participants[2]

In terms of language, Portuguese emerges as the most highly spoken (97%), read (90%) and understood (98%) language (Figure 3). Changana follows and can be read by 79.6% of the participants and understood by 87.9%, although only 1% are able to speak it. This is highly unexpected given that Changana is the mother tongue of most participants and suggests that there was a misunderstanding of participants in the question as it is more likely that a smaller proportion can read it than speak it and understand it. Nonetheless for comprehension, Portuguese and Changana are clearly the most important ones to communicate weather forecasts and early warnings.

In contrast, Ronga and Ndau show limited proficiency in spoken, read, and understood abilities among participants. Sena and Chwabo were not identified as spoken, read, or understood by any participants in the survey.

Therefore, it can be reasonably assumed that a preference exists for aural communication of forecasts and early warnings in Portuguese.

4.1.4 Education

[2] Not all respondents provided answers to all language questions therefore the total number of responses/percentages per subcategory will vary. These non-responses did not result in a significant statistical (5-10%) variance.

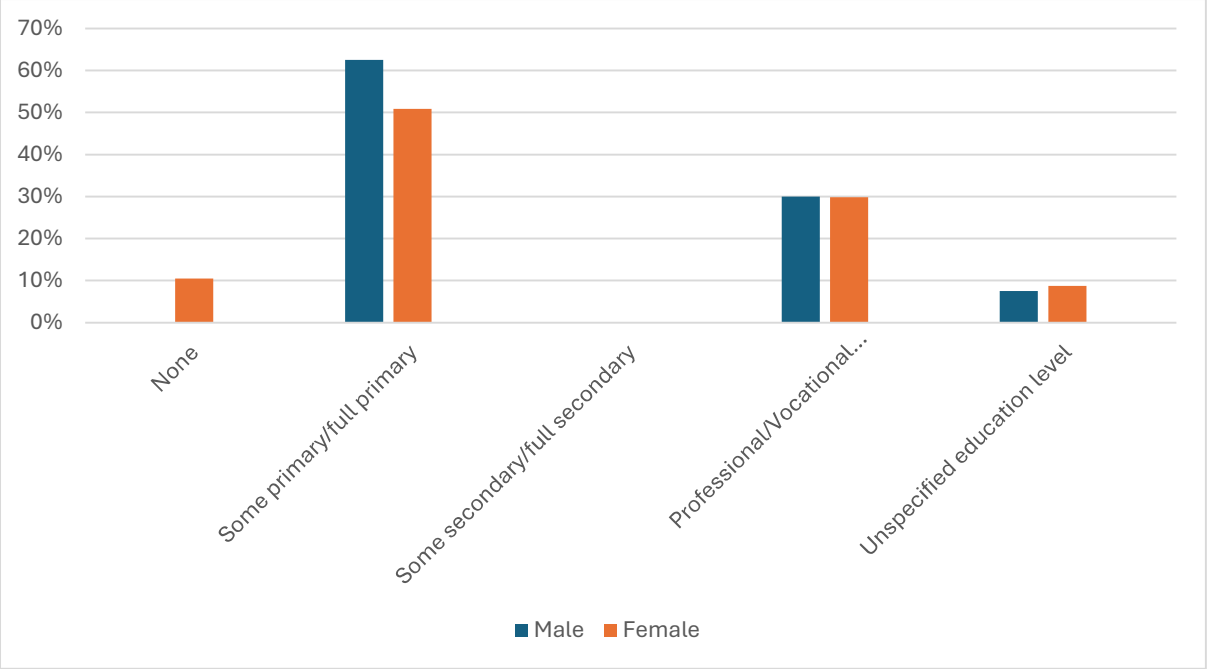

Figure 4: Educational background and gender distribution by participant

In terms of education, female participants show an 10.5% rate of having no formal education, contrasting with male participants all of whom have some level of education. The majority of participants, regardless of gender (62.5% of males, 50.9% of females, and 66.7% of participants who did not specify their gender), have received some primary or full primary school education. A similar proportion of males (30.0%), females (29.8%) and those participants with unspecified gender (33.3%), have received professional or vocational technical education. On further interrogation, an error in the survey programming meant that the option for secondary education was not available, and hance the professional or vocational technical education also includes secondary education. Furthermore, 8% of male participants and 9% of female participants did not specify their education level.

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 disability. 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 51% reported to have no disabilities, while 48% have a disability (Figure 5). One individual did not disclose their disability status. Among those with disabilities, a slightly higher proportion were female (55.3%) compared to male (44.7%). Of the participants without disabilities, a larger proportion were female (63.3%) compared to male 36.7%.

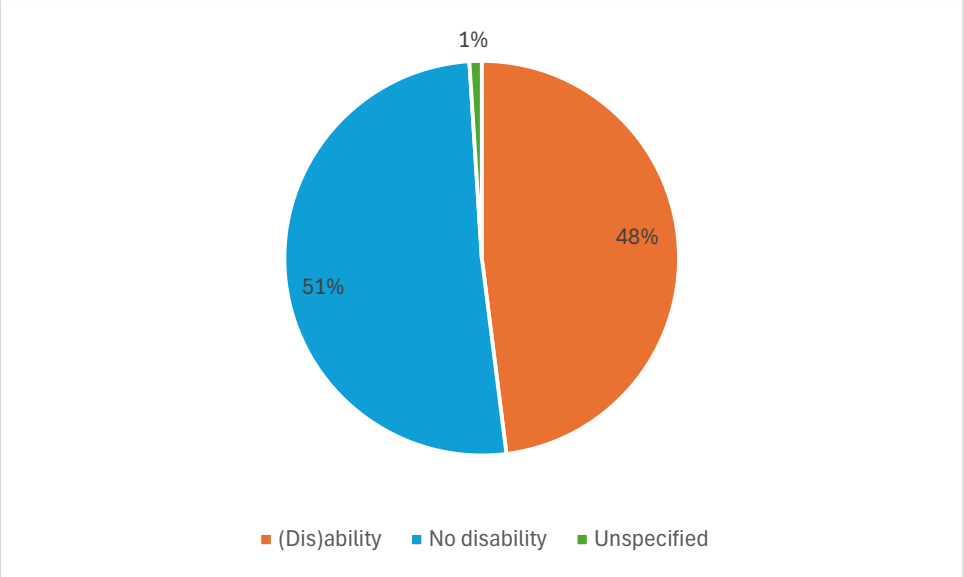

Figure 5: Disability status of participants

In terms of the nature of disability, the majority (31) of participants suffer from a physical disability, followed by a visual impairment (9). Hearing impairment accounts for 4 individuals overall. Two participants disclosed 'other' disabilities and were open to individual definition and were all permanent conditions, namely "… deaf and mute'" and "epilepsy".

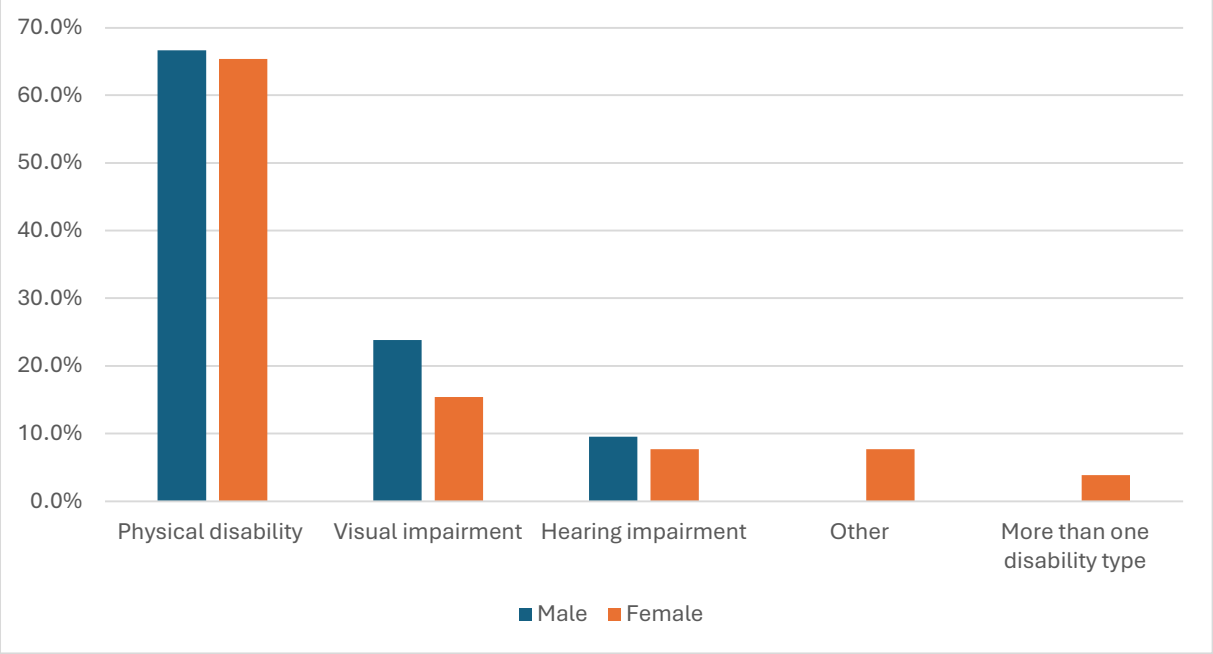

Figure 6: Disability type disaggregated by gender

When disaggregating disability status by gender, physical disability is relatively evenly distributed among males (66.7%) than females (65.4%), while visual impairment is more frequently experienced

among males (23.8%) than females (15.4%). Hearing impairment is relatively uniformly spread between genders, with 9.5% of males and 7.7% females reporting it as a disability (Figure 6). Both with an 'Other' disability were female, as was the one person who reported multiple disabilities. There 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 Livelihood status

The majority of both males (35%) and females (51.1%) are engaged in the informal sector (Figure 7). Much smaller proportions – well under 10% each – are retired or unemployed, or in salaried employment in the formal sector. Interestingly more women than men are in salaried employment in the formal sector and the informal sector, but this is likely reflecting the 60:40 split of women to men in the sample overall.

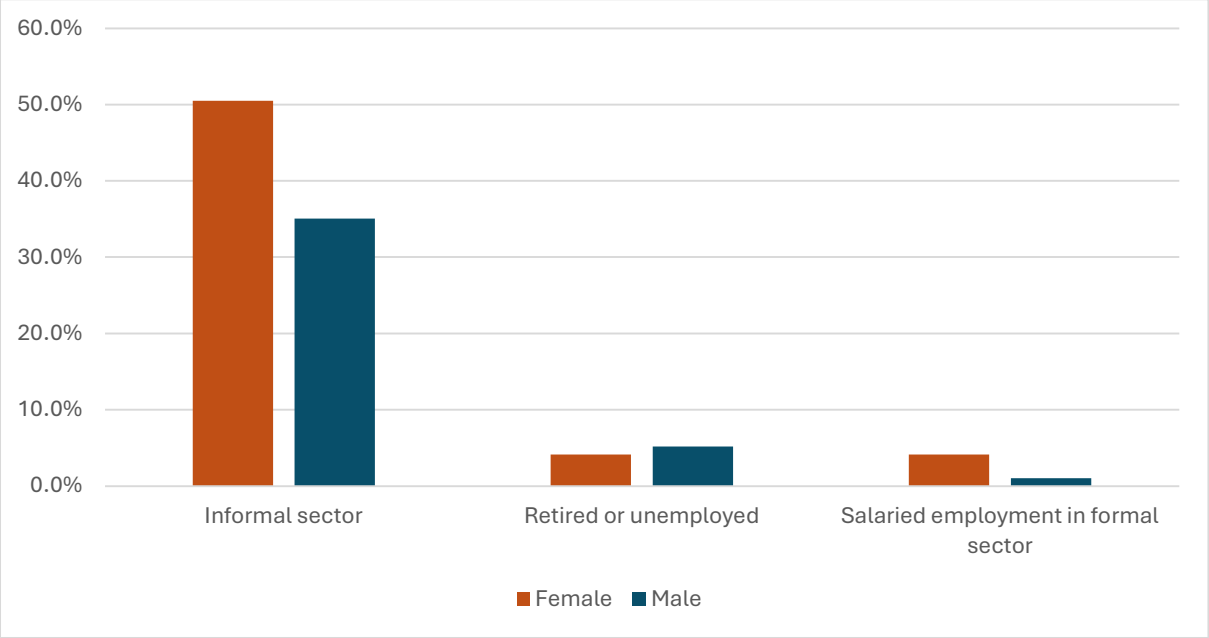

Figure 7: Livelihoods disaggregated by gender

There are few differences between people with disabilities and those without in terms of involvement in the informal sector (with 85.4% of people with disabilities, and 86.3% of people without disabilities). However there are larger differences in salaried employment in the formal sector, which is practised by 2.1% of people with disabilities but 7.8% of people without disabilities. Additionally a greater proportion of people with disabilities report being retired or unemployed (12.5%) compared with people without disabilities (5.9%).

Table 2: Livelihood by disability

Livelihood	**People with disabilities**	**No disability**
Waged employment in formal sector	2.1%	7.8%

Retired or unemployed	12.5%	5.9%
Informal sector/piecework	85.4%	86.3%

4.1.8 Cell phone ownership and access

Three quarters of participants (76.5%) own a cell phone (Figure 8). Among cell phone owners, 16 possess a smart phone, and one individual who owned a cell phone did not specify whether or not it a smart phone. Seven individuals (7.1%) have access to a cell phone through a household member, with one of these having access to a smartphone device. Two individuals were removed from this analysis as they did not specify their cell phone ownership status.

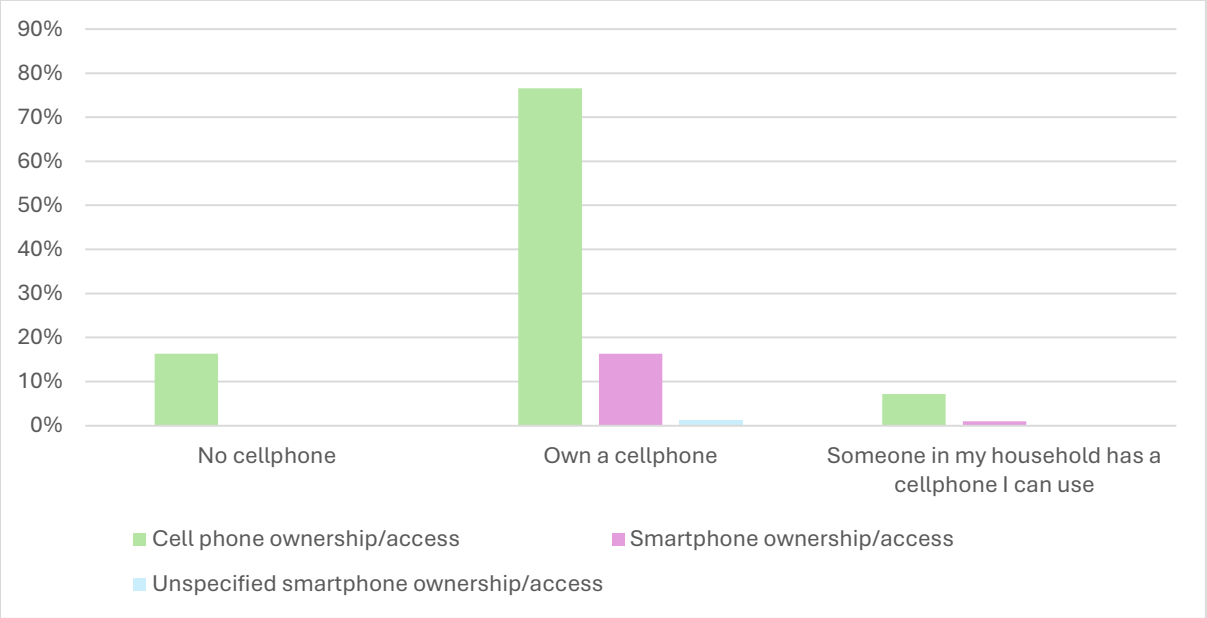

Figure 8: Cell phone and smartphone access and ownership among participants

In disaggregating cell phone ownership by gender, there is very little difference between men and women in ownership (76.9% for males and 76.8% for females)(Figure 9). A slightly higher percentage of females (8.9%) in comparison to males (5.1%) have access to a cell phone through a household member. Slightly more males (17.9%) than females (14.3%) do not own a cell phone, which is somewhat unusual as men tend to have higher ownership overall. Four of the survey sample have been excluded from this disaggregation: one as they did not disclose their gender or cell phone ownership status, three because they specified their gender but not their cell phone ownership status, and one because they did not disclose their gender. Their exclusion from the data analysis does not significantly impact the overall findings, as they represent only 5% of the total surveyed population.

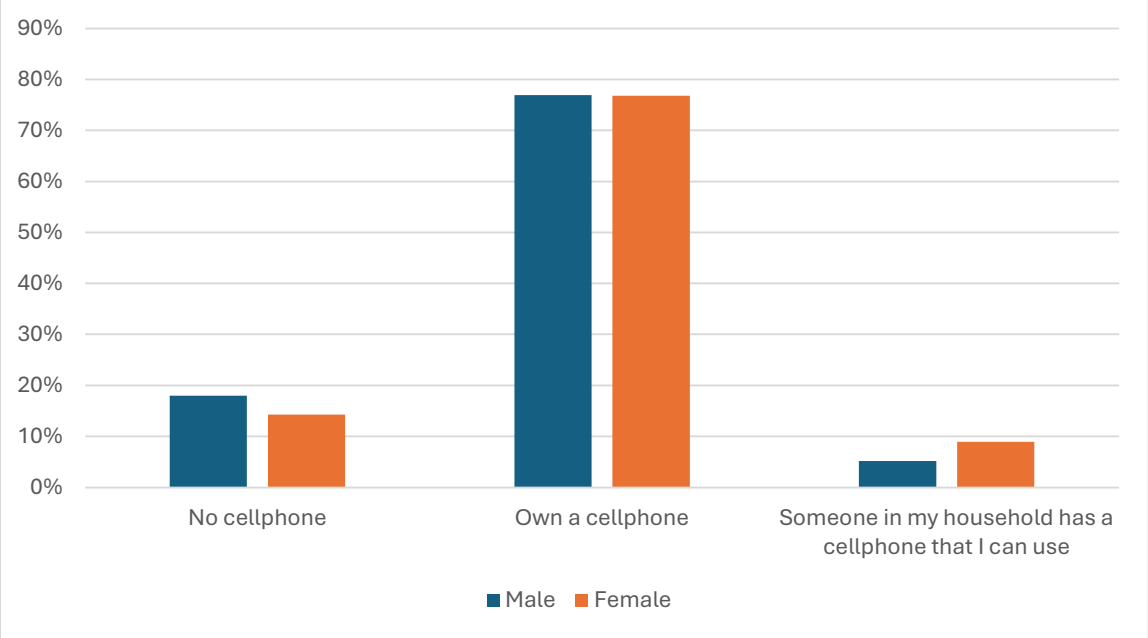

Figure 9: Cell phone ownership disaggregated by gender

4.2 Experience of extreme events

4.2.1 Perceived extreme event occurrence

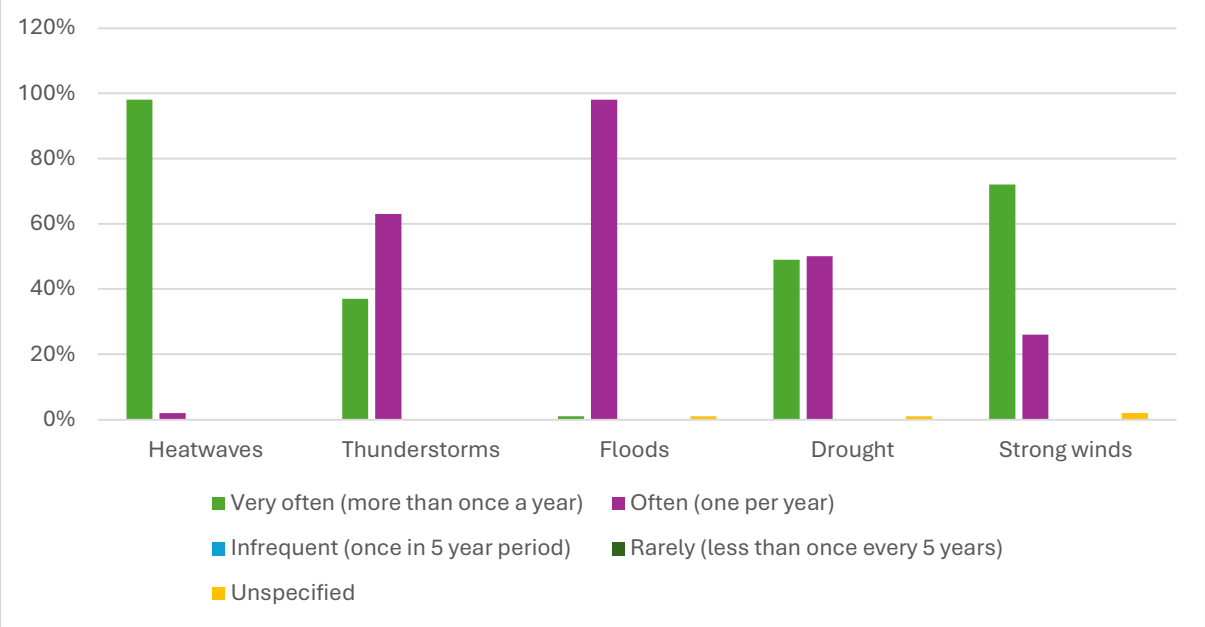

Figure 10: Perceived occurrence of weather events among all participants

Heat/heatwaves, thunderstorms, drought and strong winds are all very regular occurrences in Boane (more than once per year), whilst thunderstorms, floods and drought are also reported as occurring often (once per year). For heat/heatwaves, the majority of participants (98%) report experiencing heatwaves very often (more than once per year), followed by a further 2% of participants who stated that they experience them often (once per year). For thunderstorms (that may also bring high winds

and flash floods), the majority of participants, 37% report experiencing extreme thunderstorms often, with 63% experiencing them often. Drought is experienced very frequently (49%) or often (50%). For strong winds, 72% of participants report experiencing strong winds very often, while 49% of participants report experiencing them often.

Thunderstorms and, particularly, drought are reported by similar numbers to occur very often and often (Figure 10). In the case of drought, this very even split is understandable because, as a creeping hazard, the exact onset and conclusion of drought is difficult to discern, and hence it is likely that there will be different perceptions of the frequency. Reporting floods as often (once per year) reflects the fact that Boane experiences riverine flooding as well as the flash flooding that results from thunderstorms (and is likely reflected in their often or very often occurrence).

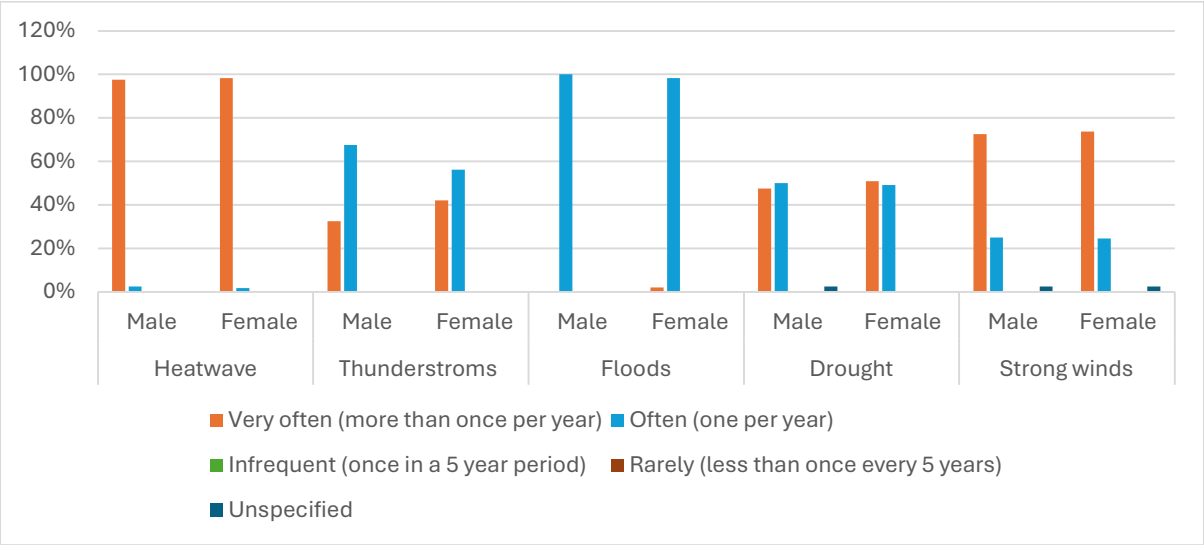

Figure 11: Perceived weather event occurrence by gender

When looking at extreme event occurrence by gender, there are both similarities and differences (

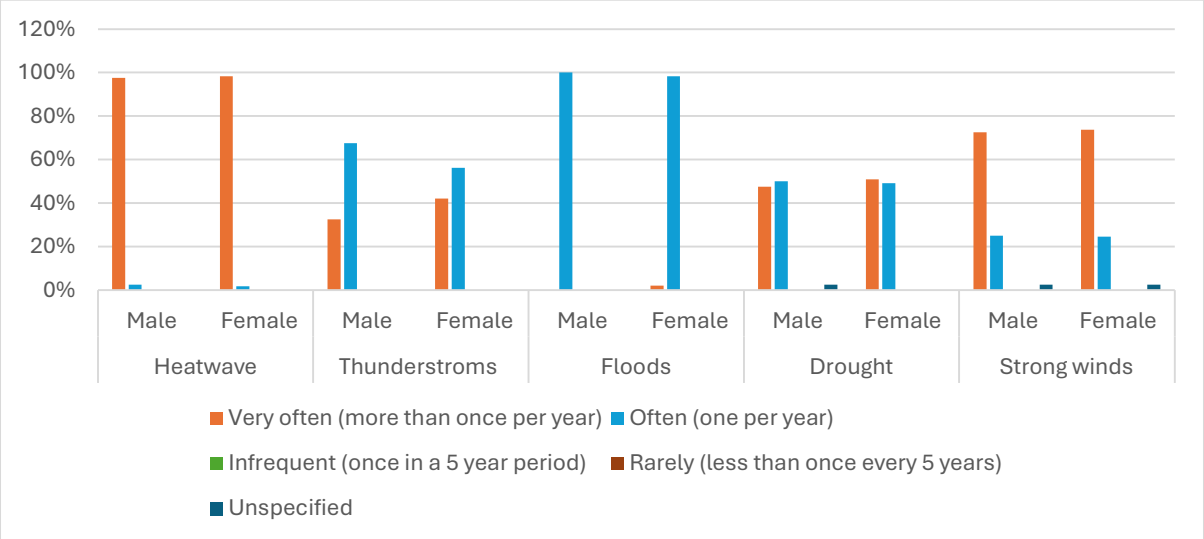

Figure 11). Similarities exist for heat/heatwaves, floods, drought and strong winds. Both males and females perceive heatwaves as occurring very often; and floods as occurring often. There are also little differences with drought and strong winds. For drought men and women report it as occurring very often (48% and 51% respectively) and often (50% and 49% respectively). For strong winds it is similar, with 73% of men and 74% of women reporting them occurring very often, and 25% each of men and women reporting them occurring often.

There are some differences and more stark differences in the case of extreme thunderstorms (that may also bring high winds and flash floods). For thunderstorms, among males, 33% report very frequent thunderstorms and 68% encounter them often. Conversely, females tend to experience thunderstorms more frequently, with 42% encountering them very often and 56% often.

When looking at extreme event occurrence by disability, there are also similarities and differences (Figure 12). For heatwaves, thunderstorms and floods, findings are similar regardless of disability status. In the case of extreme heat/heatwaves, 100% of people with disabilities and 96.1% of people without disabilities perceive them as occurring very often. In the case of thunderstorms (that may also bring high winds and flash floods), all participants (whether with disability or not) report them as occurring often or very often. For floods, everyone with a disability, and almost everyone without a disability reports floods as occurring often.

Differences exist when disaggregating by disability for droughts and strong winds. Both groups report experiencing droughts relatively frequently. Among people with disabilities, 54.2% report encountering droughts very often, while 45.1% experience them often. Comparatively, a slightly lower proportion of those without disabilities perceive droughts as occurring very often (43.1%) and often (54.9%). The majority of individuals without disabilities (82.4%) report encountering strong winds very often, whereas among those with disabilities, 62.5% report very often occurrences.

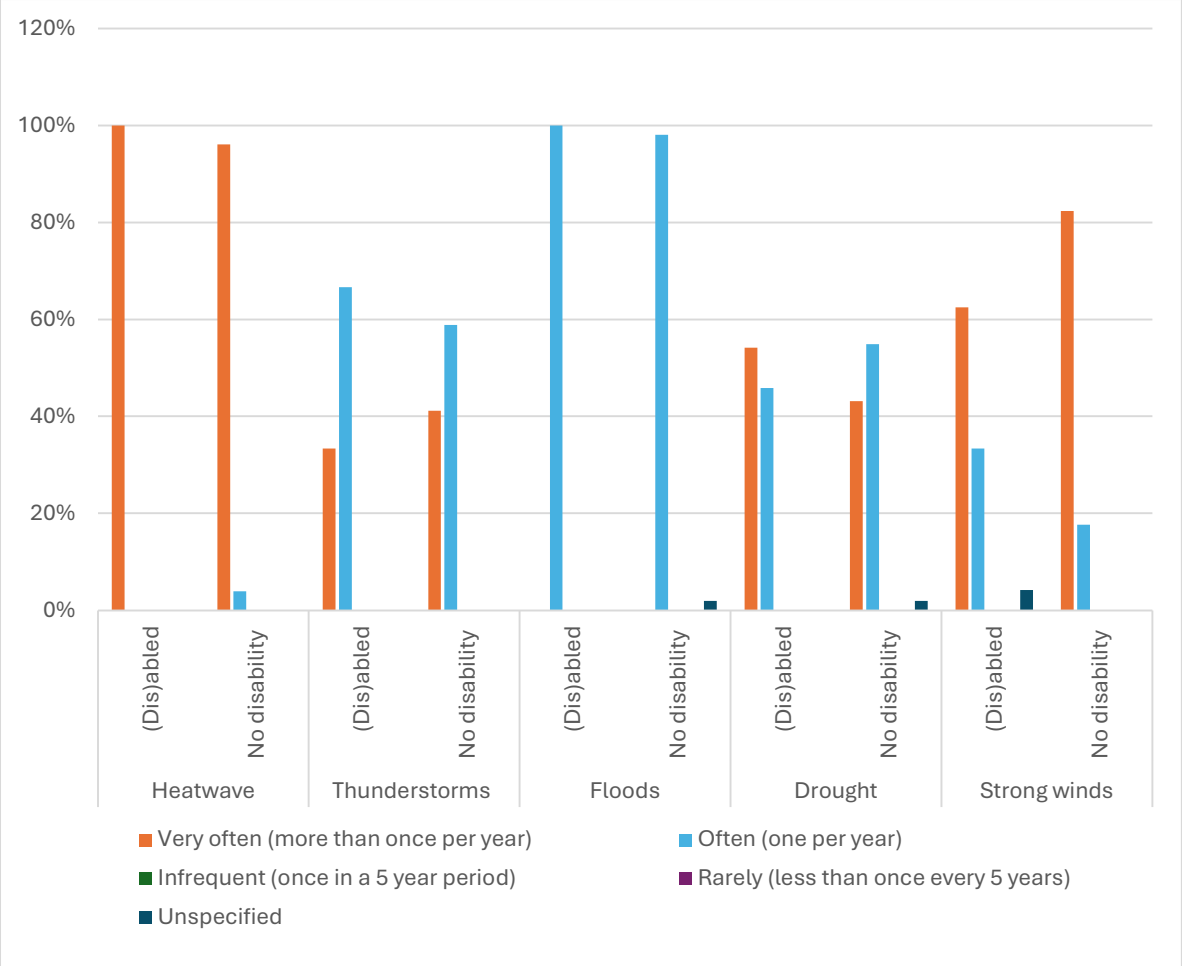

Figure 12: Perceived extreme event occurrence frequency by disability

4.2.2 Ranking of weather events by impact

Patterns for the impacts of extreme event (based on impact on individuals and their households over the past five years) are related to occurrence, but not always in the most linear way, i.e. the events which occur the most often are not the ones that cause the biggest impacts. For example extreme heat/heatwaves are experienced very often but were largely not ranked as a top impact event, with 51% ranking it as their fourth choice, and 16% ranking it as their fifth choice (Figure 13). Floods were reported to be an event that occurred often, and 89% ranked it as the most impactful event, rising to a combined 99% ranking it as first or second most impactful. Thunderstorms were most commonly ranked as the second choice by 89% of participants. Droughts were the most predominantly ranked third choice, affecting 57% of participants. Strong winds are generally considered the least impactful weather event among respondents, with 78% ranking it as their least concerning (5th choice).

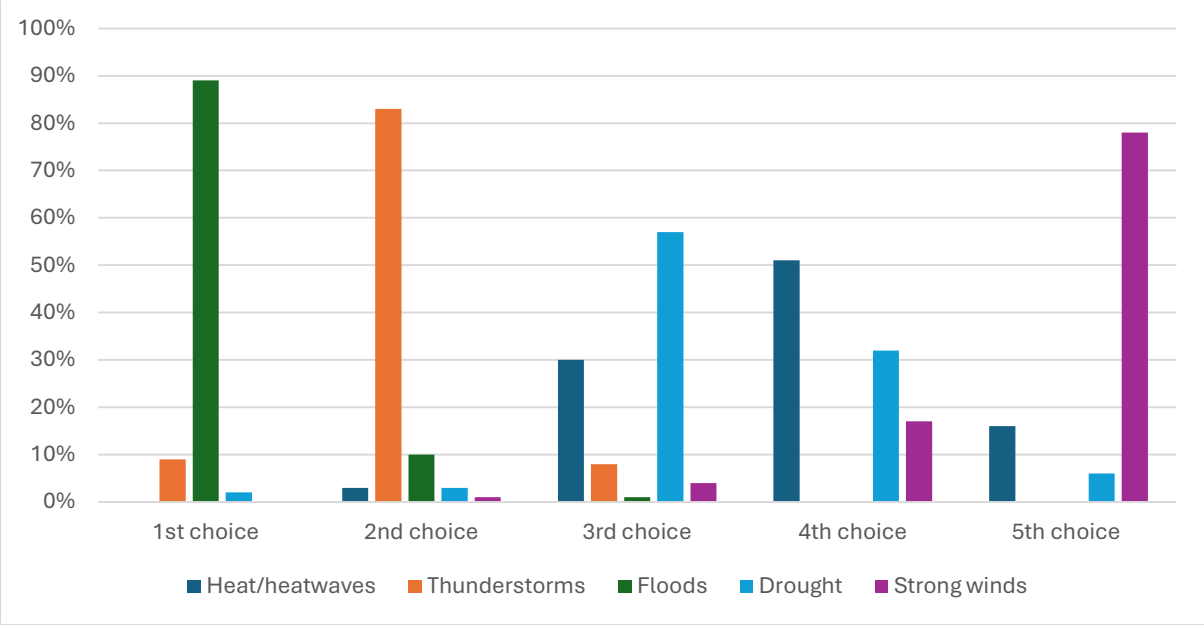

Figure 13: Ranking of extreme event according to negative impact to participant and their household over the last five years

Disaggregating impact data by gender shows few differences. Floods emerge as the top concern for both males and females, followed by thunderstorms and drought (Figure 14). Strong winds are consistently ranked as the least concerning weather event by both genders.

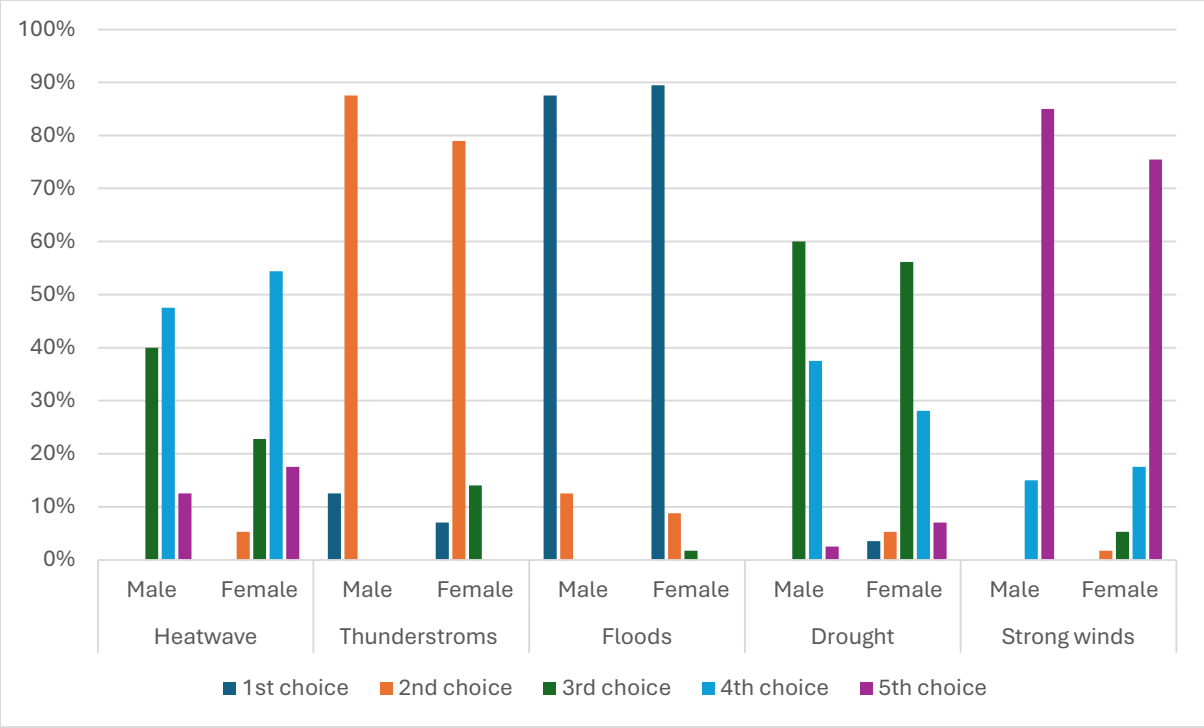

Figure 14: Ranking of extreme event according to negative impact to participant and their household over the last five years disaggregated by gender

Similarly when disaggregating by disability, there are few deviations from the aggregate pattern (Figure 15). Floods emerge as the top concern for both people with and without disabilities, followed by

relatively closely by thunderstorms and drought. Strong winds are consistently ranked as the least concerning weather event by both people with and without disabilities.

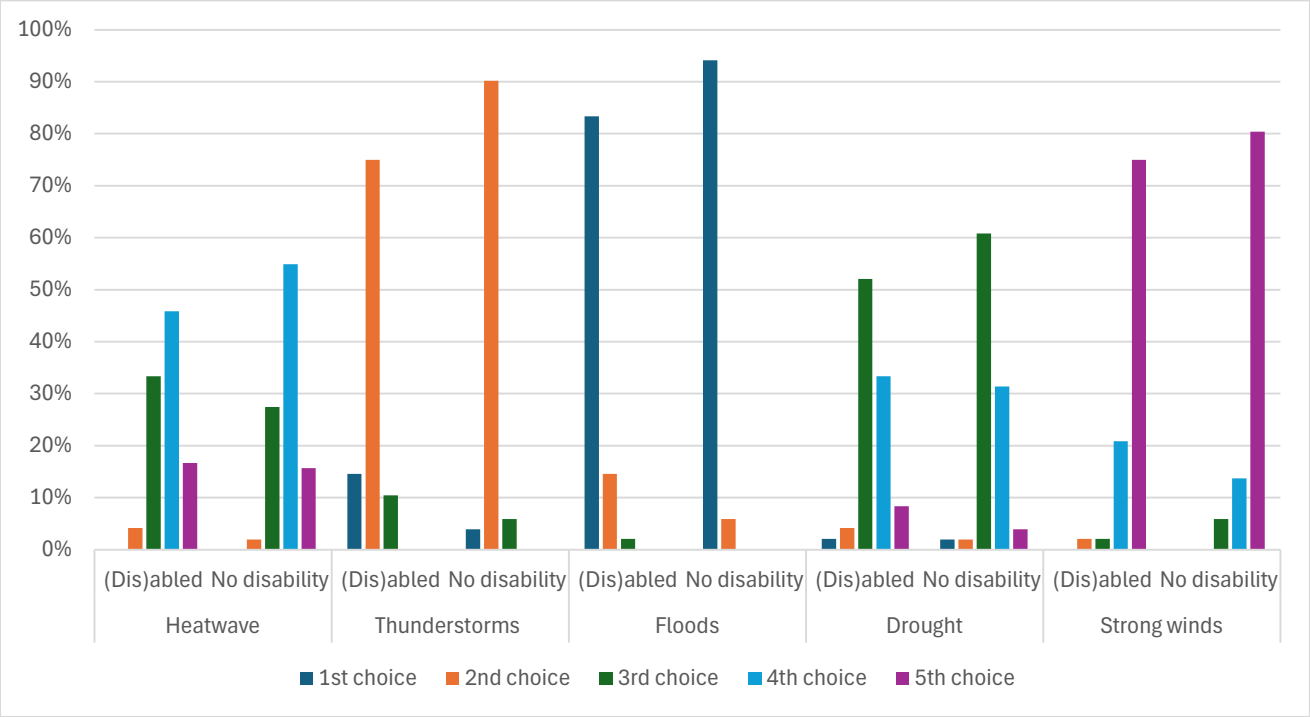

Figure 15: Ranking of extreme event according to negative impact to participant and their household over the last five years disaggregated by disability

4.2.3 Effects of extreme events

Extreme event and impacts show that, even considering disaggregation by gender and disability, the most commonly encountered and highly impactful extreme events by participants are thunderstorms (that may also bring high winds and flash floods) and floods. As such, the focus of this subsection will be the effects of these specific events on participants across a variety of domains.

Floods have negative impacts across a number of different dimensions. For example some negative effect was reported from floods on physical health, mental health, household earnings and assets. For thunderstorms, some negative effect was reported on physical health, household earnings and assets. The key difference was that negative impacts on mental health derived from floods but not from thunderstorms (Figure 16). 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.

Common themes stated under the 'other' for floods included mention of impacts on agricultural production and effects on public and private infrastructure, including loss of identity documents (which are necessary to access public services), and damage to roads and water reticulation. Effects on infrastructure also translate into impediments to mobility, which also affects capacity to reach safe spaces, and can also keep customers from small businesses.

Common themes stated under the 'other' for floods included the risk of damage to private infrastructure and the need to secure houses (especially roofs), and public infrastructure, including power lines and how damage to roads creates impediments to mobility. In particular one blind, middle-

aged woman noted that ‘I get scared because I’m blind’, highlighting that there is a greater range of impacts for people with disabilities. Panic was also cited by many participants (with and without disabilities).

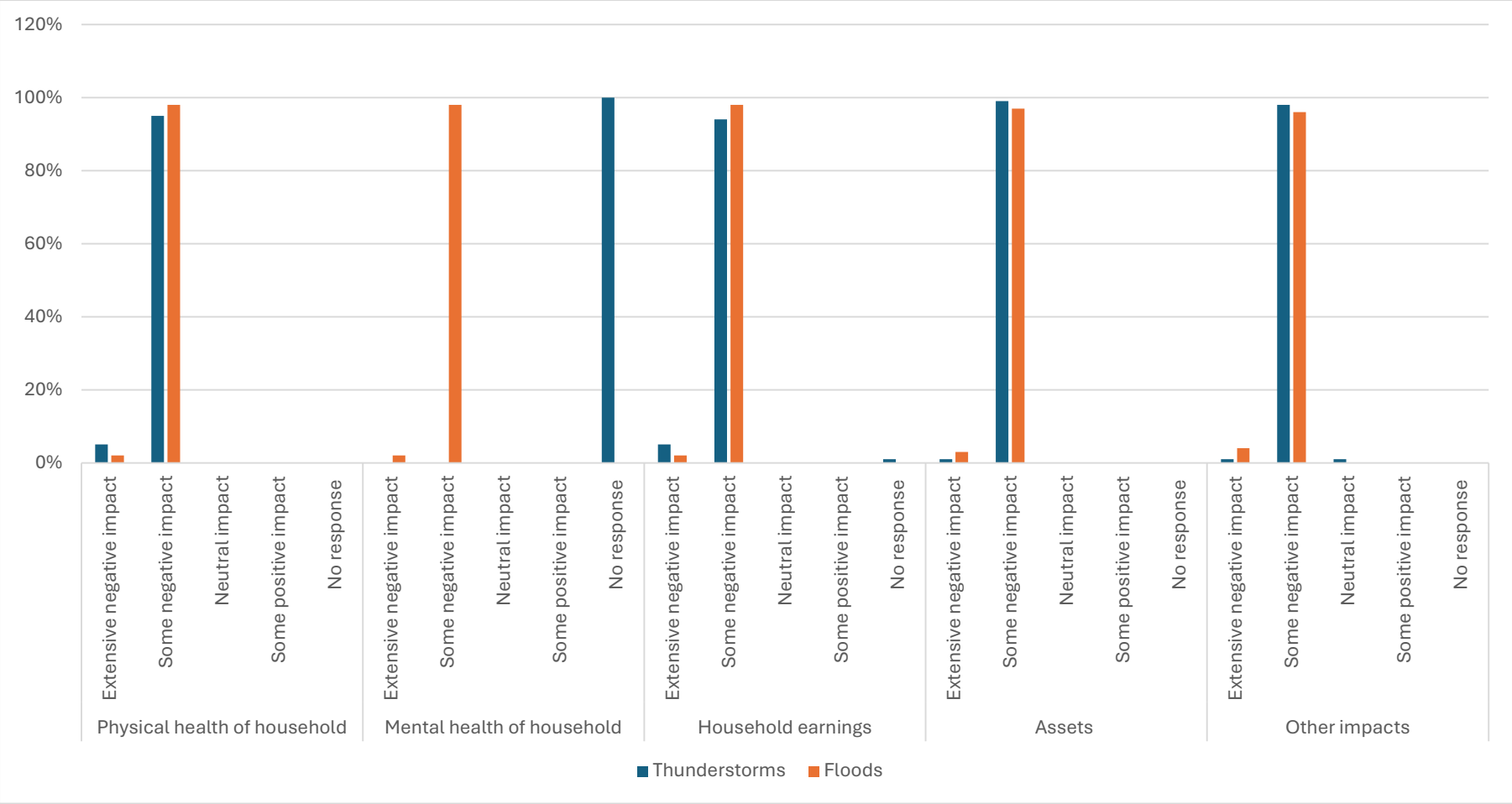

Figure 16: Effects of Thunderstorms and floods on households and individual

4.3 Forecast access and use

4.3.1 Access to forecasts and early warnings

Around three quarters of participants are accessing forecasts and early warnings, but just over a quarter (26%) are not. Most participants (50%) access weather forecasts or early warnings on a daily basis, with only 2% of participants accessing this information more than once a day. A combined 22% of participants access information less frequently (i.e. sometimes or rarely) (Figure 17).

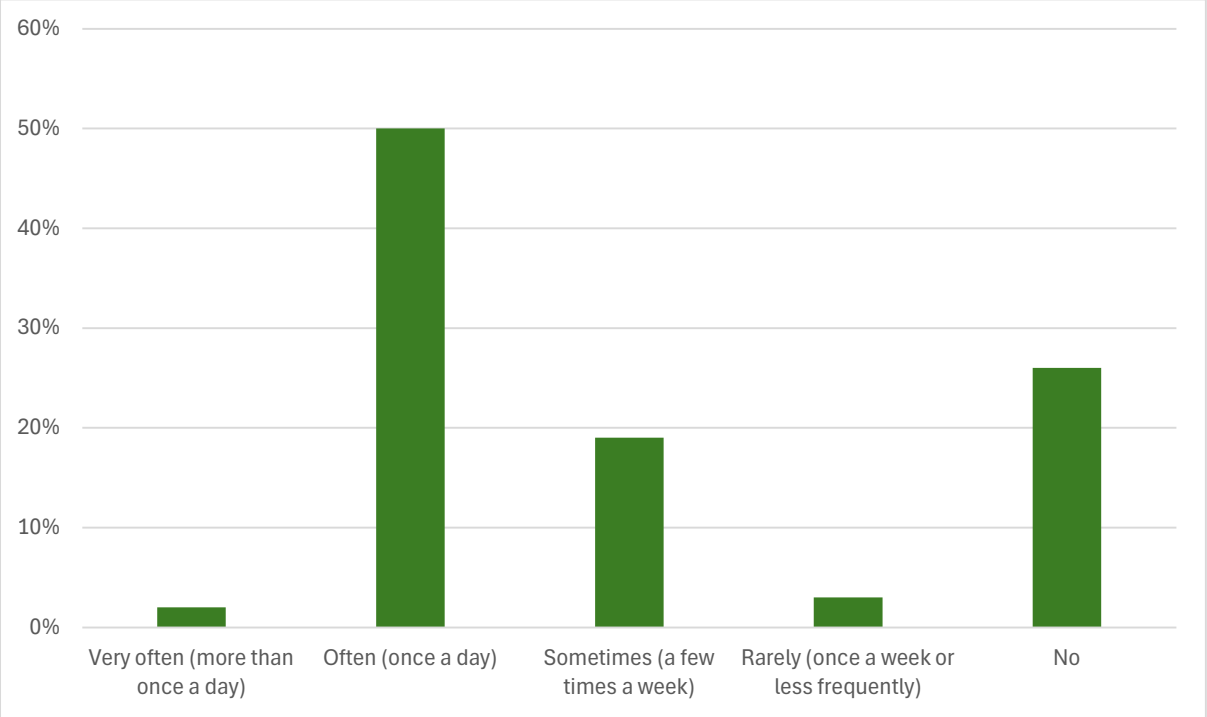

Figure 17: Frequency of access to weather forecasts or early warnings of weather events among participants

When disaggregating this data by gender, a small proportion of men access the forecasts very often, but the combined total of men accessing the forecasts very often (more than once a day) or once a day is approximately similar to proportion of women accessing them once a day (52.5% for men, comprising 47.5% once a day and 5% more than once a day; compared with 54.5% of women accessing once per day) (Figure 18). A small proportion of women access forecasts rarely (once a week or less frequently). A relatively equal proportion of males (25%) and females (26.3%) do not access weather forecasts or early warnings at all.

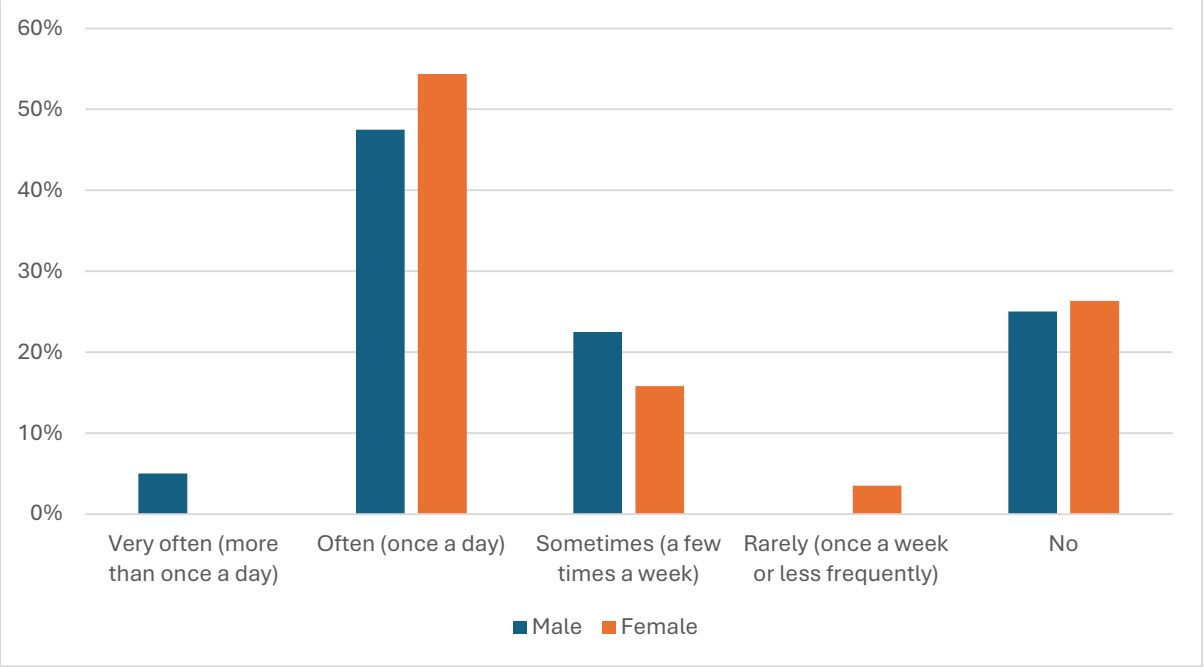

Figure 18: Frequency of access to weather forecasts or early warnings of weather events disaggregated by gender

When disaggregating for disability, data shows that people with disabilities tend to access weather forecasts and early warnings less frequently and not at all (Figure 19). In particular over 40% of people with disabilities are not accessing weather forecasts or early warnings at all, compared to 11.8% of people without disabilities. These findings underscore the importance of considering accessibility and tailored approaches to ensure that weather forecasts and early warnings are accessible and inclusive for all individuals, including those with disabilities.

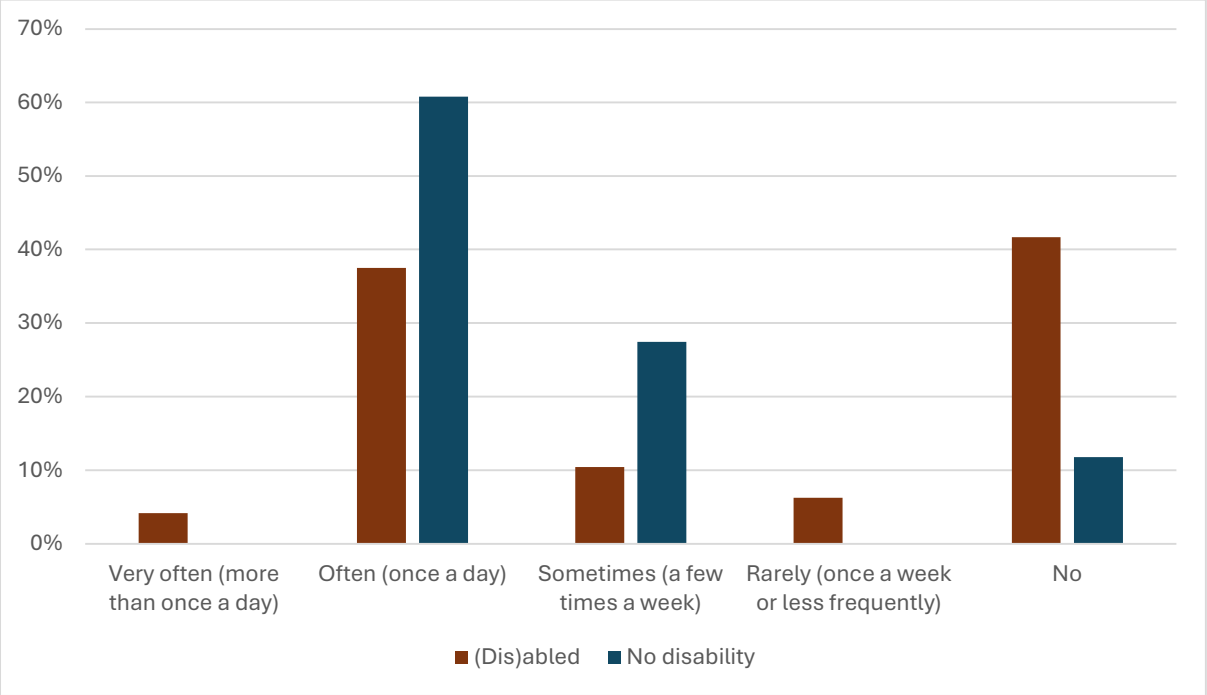

Figure 19: Frequency of access to weather forecasts or early warnings of weather events disaggregated by disability

There are various reasons cited by participants who do **not** access weather forecasts or early warnings. The largest reasons are disability (46.2%) and a lack of access to radio, TV, or internet/social media platforms (42.3%)(Figure 20). Smaller proportions reported lack of connectedness with forecast providers (23.1%) and general lack of awareness and access to forecasts (15.4%).

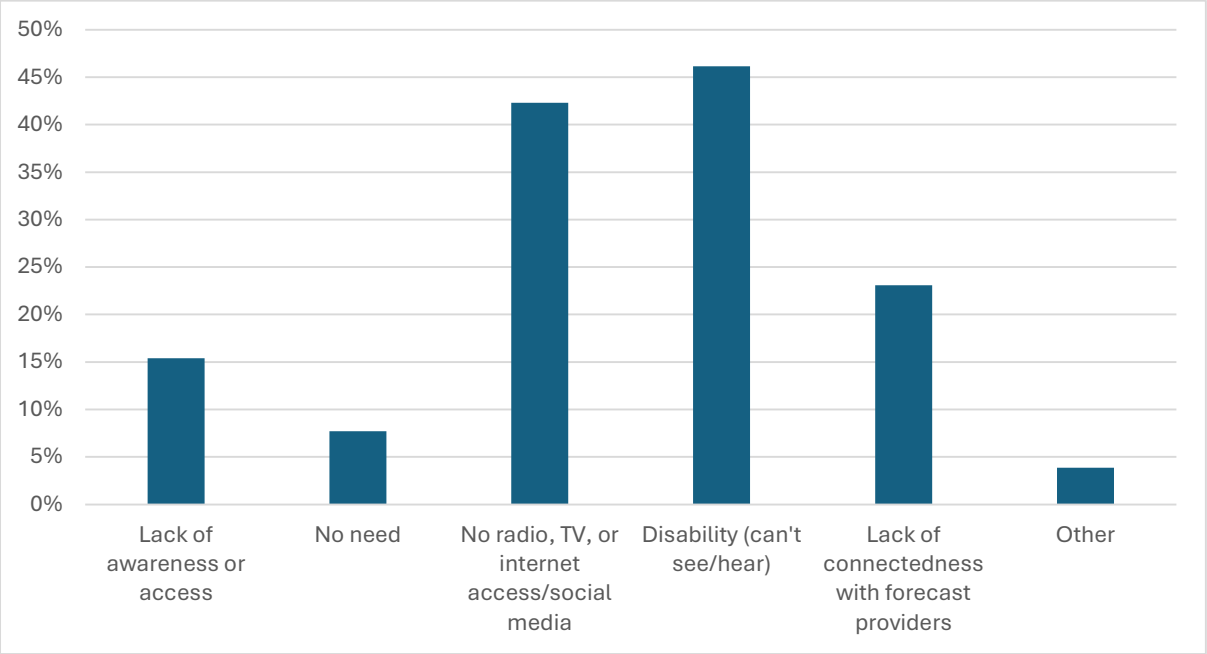

Figure 20: Participants' reasons for not accessing weather forecasts or early warnings

4.3.2 Engagement with weather forecasts and early warnings

For those people that do receive weather forecasts and early warnings, a vast majority report that they always (90%) or sometimes (81%) take notice of them (Figure 21). However, there is variability in how often individuals act upon this information, with a large portion (40%) opting not to take action based on forecasts or warning, and 47% only sometimes acting on forecasts and early warnings.

In disaggregating the above data by gender, both genders show similar patterns of taking notice of weather forecasts and early warnings – with the majority saying 'sometimes' (Figure 22). However, while both genders generally show similar patterns of noticing weather information, there are differences in the tendency to act upon this information. Males demonstrate a higher inclination towards disregarding weather forecasts compared to females, with fewer saying they act always (3%, compared with 7% of women) or sometimes (43% compared with 51% of women), and a larger number saying they usually do not act (50% compared with 33% of women).

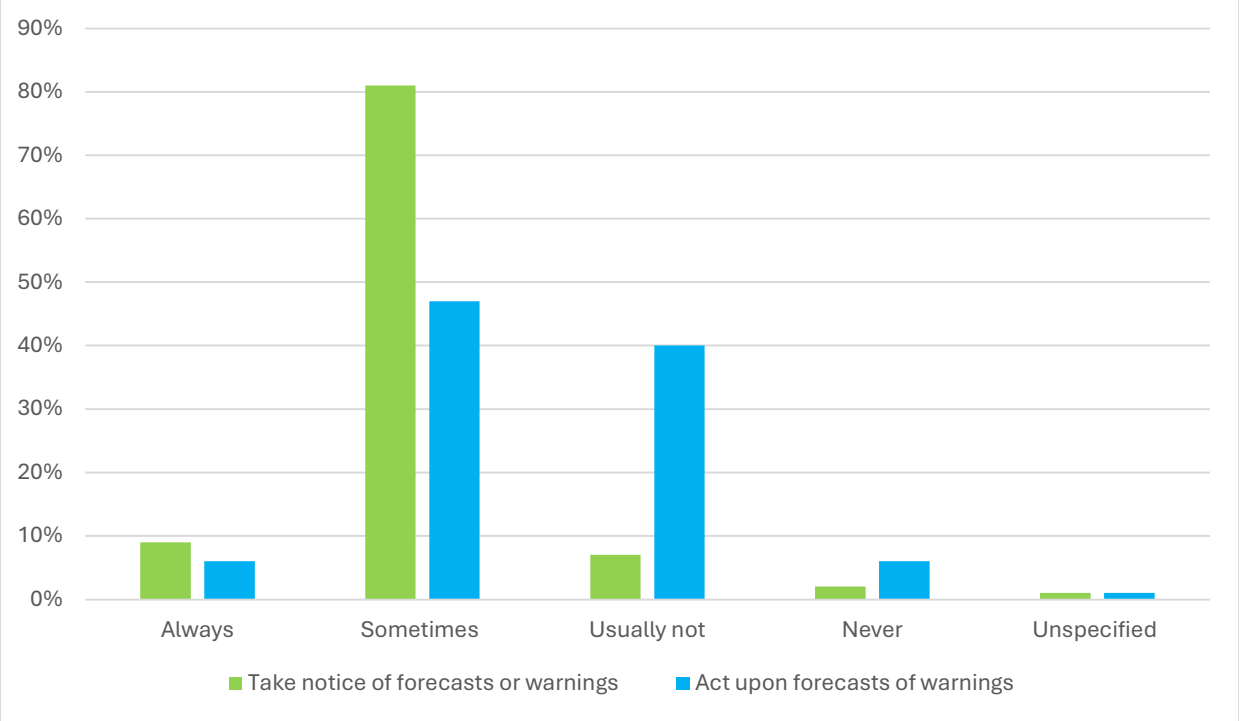

Figure 21: Response rates for taking notice of and acting upon forecasts or warnings

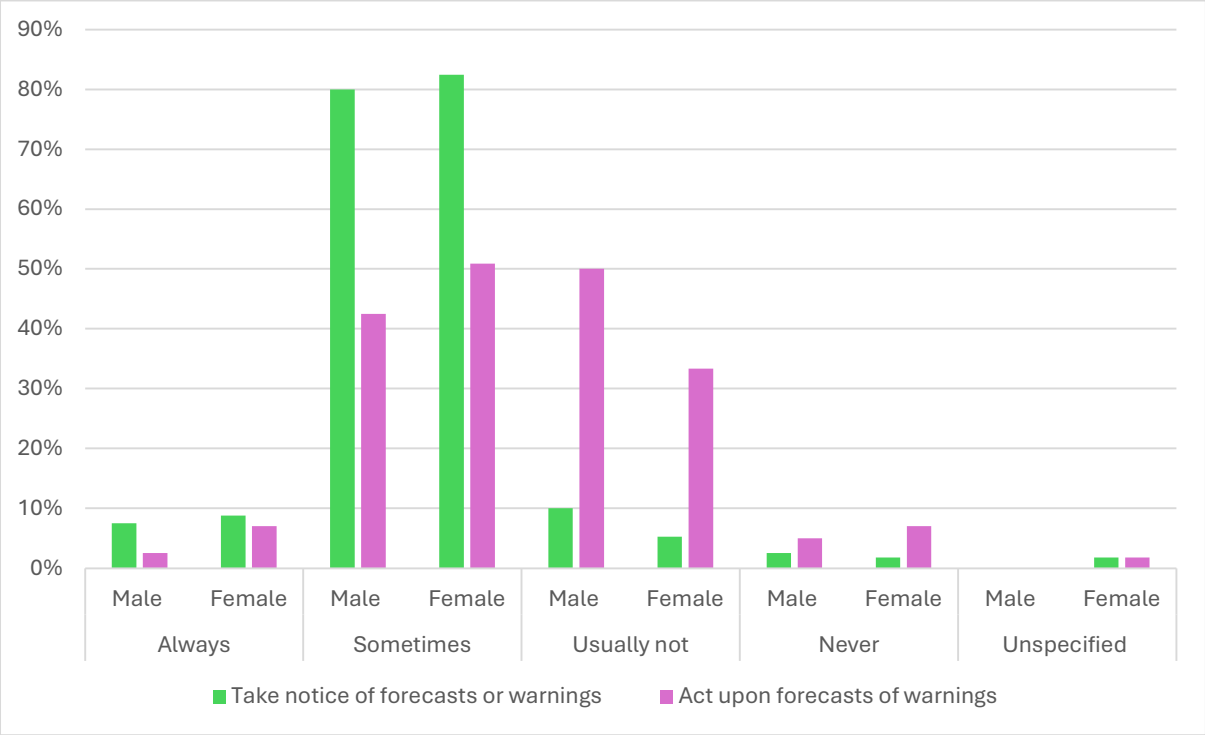

Figure 22: Response rates for taking notice of and acting upon forecasts or warnings disaggregated by gender

In disaggregating the above data according to disability, there is a relatively even distribution of people with disabilities (87.5%) and without disabilities (92.2%) who always or sometimes take notice of forecasts or warnings. However, it is interesting to note that a higher portion (12.5%) of disabled people always take notice of these forecasts, in comparison to 3.9% of people without disabilities. In

contrast, a lower percentage of disabled people (75%) sometimes take notice of forecasts or warnings in comparison to people without disabilities (88.2%) (Figure 23).

The level of action taken upon these forecasts or warnings varies between the two groups, with a higher proportion of individuals with disabilities either sometimes acting upon (54.2%) or always acting upon (10.4%) weather information. Interestingly, a higher percentage of individuals without disabilities (49%) admit to usually not acting upon forecasts or warnings compared to those with disabilities (31.3%). This may reflect the fact that failure to act on such information could otherwise have more severe consequences for people with disabilities.

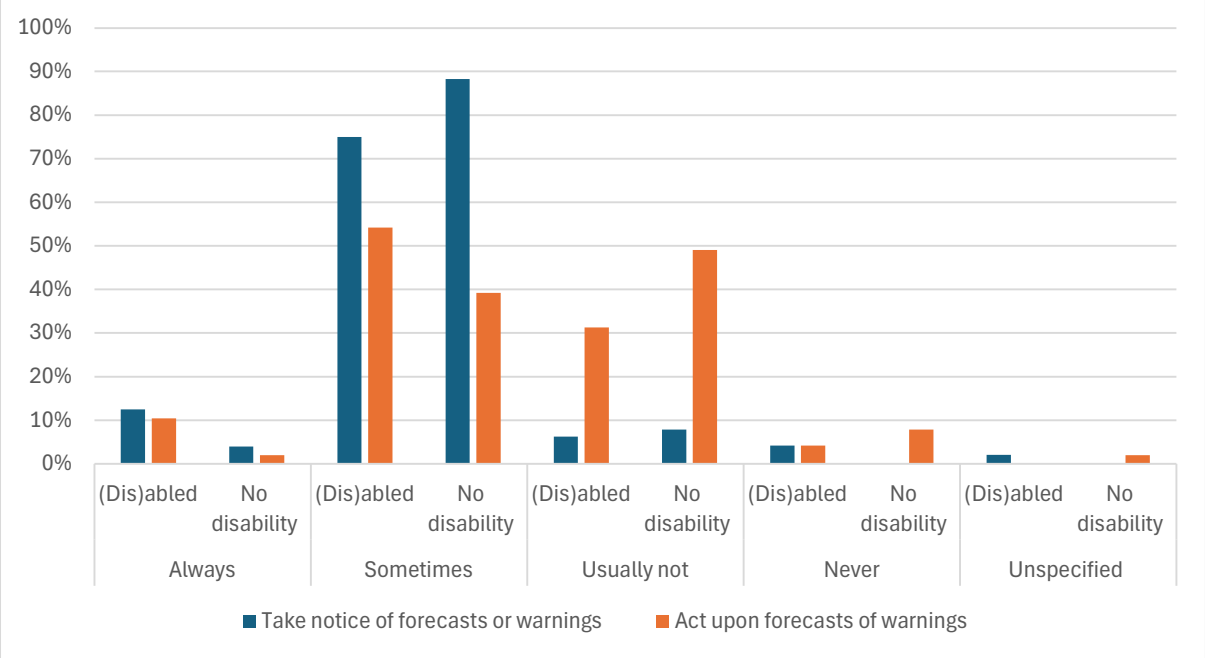

Figure 23: Response rates for taking notice of and acting upon forecasts or warnings disaggregated by disability

The participants who indicated that they usually do not or never act on forecasts or warnings (accounting for 46% of respondents)(Figure 21), were presented with a pre-written selection of reasons to choose from explaining 'why' they do not take action. These reasons were presented in a list format, allowing participants to select multiple reasons if applicable. Reasons cited by those not acting on forecasts and early warnings were clustered into several categories (Box 1).

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.).

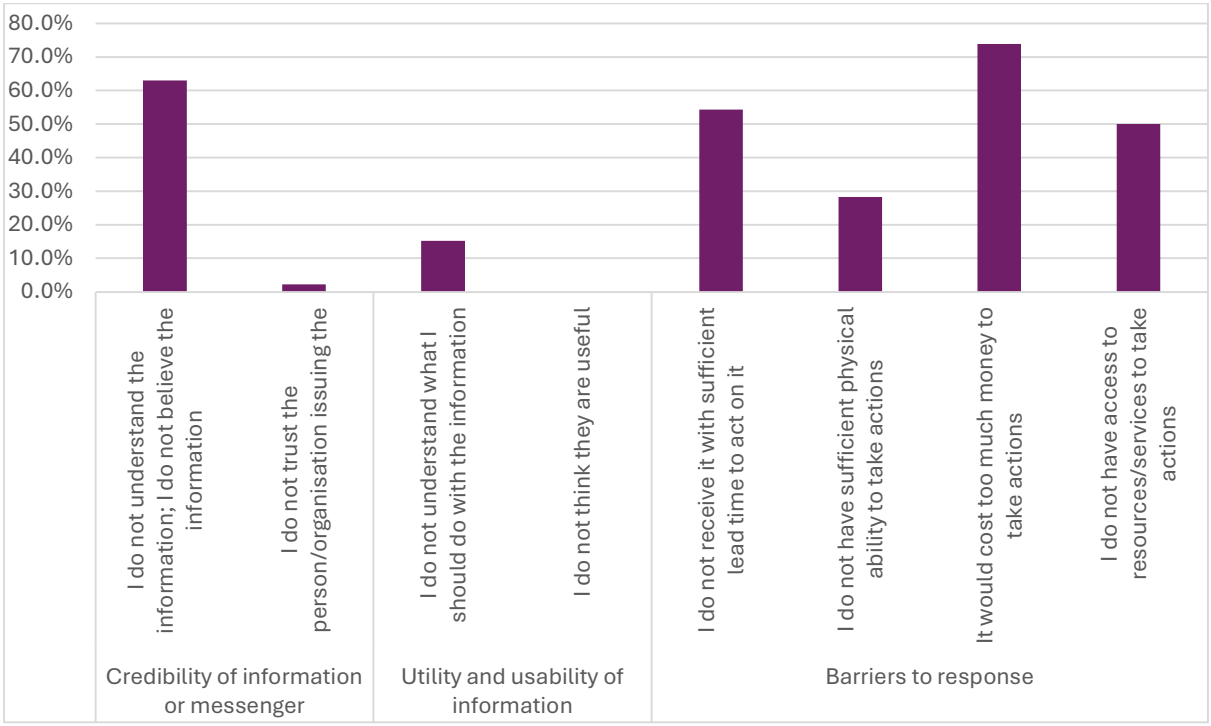

Figure 24: Reasons for usually not or never acting on forecasts or warnings

(note totals exceed 100% as more than one reason could be cited by any one participant)

Reasons for non-action span the categories of credibility of information or messenger, utility and usability of information, and barriers to response. Not understanding the information or believing the messenger was cited as a barrier by 60%, highlighting a significant barrier to be overcome if weather forecasts and early warnings are to serve their function of reducing risk. Not trusting the person/organisation issuing the information was only cited by 2.3%, which suggests that these agencies have a critical role to play in improving understanding and credibility of the information itself. Similarly there were few barriers in the utility and usability of information – with nobody saying that forecasts and early warnings are not useful, and 15.2% not knowing what to do with it.

Significant barriers to response exist in the timeliness of information receipt and the capacity to enact the required actions. Just over half of participants (54.3%) cited not receiving information with sufficient lead time. Nearly three quarters (73.9%) said it would cost too much money to take actions,

with 50% stating that they do not have access to the resources/services that are necessary to take actions. A further 28.3% stated that they do not have physical ability to take actions (Figure 24).

4.3.3 Perceived usefulness of 0–6-hour warnings

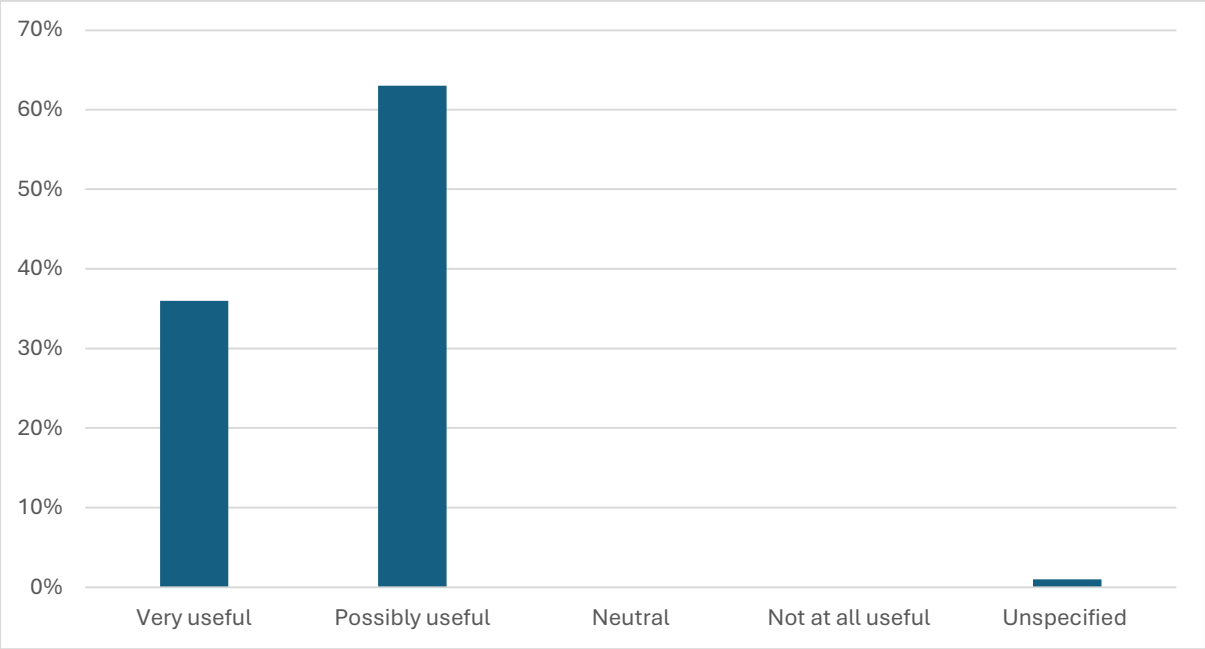

Figure 25: Perceived usefulness of 0–6-hour thunderstorm warnings

Although such short-range information does not currently exist, participants were asked to rate the usefulness of a 0–6-hour thunderstorm warning and its associated level of damage. All participants provided a positive response to this question, with the highest number of participants (63%) opting for 'possibly useful' and the second highest number (36%) saying that such a warning would be 'very useful' (Figure 25).

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

Nearly the entirety of the sample (98%) was aware that the National Disaster Management Institute (INGD) actively supports disaster risk reduction in Boane. One participant identified the church and religious institutions. A lesser proportion (16%) had actively engaged with these institutions, and of that small group 25% reported interaction with INGD whilst 75% reported interaction through the church or religious institution. Additionally, 2% identified civil society organizations, namely the Boane Municipality and the Association of Disabled People in Mozambique (ADEMO)[3].

[3] Participants were able to select more than one institute with which they had engaged.

5. Conclusion

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

Boane 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 of participants are engaged in the informal sector for livelihoods.

Heat/heatwaves, thunderstorms, drought and strong winds are all very regular occurrences in Boane (more than once per year), whilst thunderstorms, floods and drought are also reported as occurring often (once per year). However, the most frequent occurrences do not necessarily cause the biggest impacts. Floods and thunderstorms cause the biggest impacts, with the former having negative impacts on physical health, mental health, household earnings and assets, and the latter having negative effects on physical health, household earnings and assets.

Access to weather forecasts and early warning information is variable, with around a quarter of the respondents not accessing information at all. Men and women access information in similar proportions, but men tend to access more regularly. Lack of access to weather forecasts and early warning is particularly high among people with disabilities. For those not accessing forecasts and early warnings, disability is a common reason, as is lack of access to radio, TV or internet/social media platforms.

For those people that do receive weather forecasts and early warnings, a vast majority take notice of them. However, this does not always translate into acting upon them – with large proportions not acting at all, or only acting sometimes. There are some gender differences, with men more likely to disregard information than women. Likewise with disability, a higher proportion of people with disabilities take notice of forecasts.

Reasons for not acting on forecasts span the categories of credibility of information or messenger, utility and usability of information, and barriers to response. Notably, not understanding the information or believing the messenger was a common barrier, yet much smaller numbers did not trust the messenger, suggesting that these agencies have a critical role to play in improving understanding and credibility of the information itself. Barriers also exist to being able to act on information – notably disability and not having access to the money or services that would be required to act.

Although such short-range information does not currently exist, almost all participants perceived that there would be possible or a lot of utility in a 0–6-hour thunderstorm warning and its associated level of damage.

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