#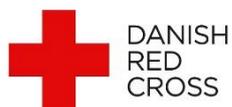 Comparative Study in the Early Warnings and Early Actions before Tropical Cyclone Freddy in Southern Malawi in areas with and without previous Anticipatory Action programming

Quantitative Data Findings and Analysis

i. Executive summary

Early Warnings and Early Action

The study findings indicate that living in an area with previous Anticipatory Action (AA) programming increases your chances of receiving an early warning, believing in the early warning, and doing an early action with almost 20 percentage points compared to similar communities that have not had previous AA programming. More survey respondents in areas with previous AA programming heard early warnings before Tropical Cyclone Freddy than survey respondents in areas with no previous AA programming, and more respondents in areas with previous AA programming heard the early warnings 4-6 days before the cyclone. When mass-messaging was initiated 1-3 days before the cyclone, the early warnings had an equal reach in areas with and without AA programming. This suggests that more people in areas with AA programming receive the alerts earlier, while all areas receive the mass-messaging at the same time.

Many survey respondents both heard early warning messages before TC Freddy and believed them right away but did not do any early actions to reduce the risk of being affected by the cyclone. This study did not investigate why, but theories include being due to structural challenges to acting early such as lack of resources to conduct early actions, lack of safe evacuation destinations that are opened early, and a generalised lack of knowledge on which actions to take.

Evacuation and internal displacement

The data findings indicate that respondents were equally impacted across areas with and without Anticipatory Action programming. Disaster Risk Reduction (DRR) and Disaster Risk Management (DRM) programmes in Malawi have not historically had a strong focus on local preparedness to evacuate, permanent evacuation facilities and infrastructure, education in emergencies (EiE), and sustainable long-term recovery and return strategies for internally displaced people.

The finding that 36% of all respondents in the household survey (598 people) spent one to four months in an evacuation shelter or were still living in an evacuation shelter at the time of the survey suggests that this topic remains a gap to focus on to increase the dignity and improve the return and recovery opportunities for internally displaced people in the aftermath of disasters.

Protection, Gender, and Inclusion

Older women over the age of 70 reported hearing fewer early warnings and conducting fewer early actions, and a higher percentage of them spent over one month in an evacuation shelter compared to the other women of all age groups, regardless of whether they had a disability or not. Both men and women with disabilities reported hearing fewer early warnings and taking fewer early actions if they had heard a warning compared to men and women without disabilities. Men reported higher confidence in believing the early warnings than women. This was across all age groups and abilities.

92% of respondents (both men and women) in areas with previous AA programming heard an early warning (824 people), compared to 73% of respondents (70% women and 78% men) in areas with no previous AA programming (769 people). This suggests that AA interventions may play a role in reducing gendered barriers to accessing early warnings, helping to ensure more equitable access to vital information regardless of gender. Further investigation is needed to confirm the specific elements of AA programming that contribute to this equalization and to explore whether similar improvements occur for other vulnerable groups, such as the elderly and people with disabilities.

Interpersonal and community engagement

Respondents, who spend time in a normal week surrounded by the wider community and in public institutions heard more early warnings, believed them at a higher rate, and conducted more early actions than respondents who spend time at their own house, at their own farm, or with a private employer. This both suggests that public dissemination of early warnings is effective, and that more efforts should be made to reach those community members who do not participate in public spheres.

ii. Acknowledgements

iii. Contact

Please contact Ms. Prisca Chisala, Malawi Red Cross Society Head of Operations and Development, and/or Ms. Eva Jordung Nicolson, Danish Red Cross Country Manager Malawi, for additional information or further questions.

iv. Reference

The suggested reference for the report is: Malawi Red Cross Society (2024) *Comparative Study on Early Warnings and Early Actions before Tropical Cyclone Freddy in Southern Malawi in areas with and without previous Anticipatory Action programming. Quantitative data findings and analysis*. Lilongwe.

v. List of abbreviations

AA	Anticipatory Action
ACPC	Area Civil Protection Committee
CBEWS	Community-based Early Warning System
CCPC	City Civil Protection Committee (urban)
DCCMS	Government of Malawi's Department of Climate Change and Meteorological Services
DCPC	District Civil Protection Committee (rural)
DG-ECHO	The EU's Directorate General for European Civil Protection and Humanitarian Aid Operations
DoDMA	Government of Malawi's Department of Disaster Management Affairs
DRC	Danish Red Cross
EA	Early Action
ECHO IDREAM	DG-ECHO Increased Disaster Resilience through Early Action in Malawi (2021-2023)
EiE	Education in Emergencies
EW	Early Warning
EWT	Early Warning Team
MRCS	Malawi Red Cross Society
NDMA	National Disaster Management Affairs
NRT	National Response Team (Malawi Red Cross Society)
TA	Traditional Authority
TC	Tropical Cyclone
TC Freddy	Tropical Cyclone Freddy (impacted Southern Malawi on March 11-13, 2023)
TS	Tropical Storm
TS Ana	Tropical Storm Ana (impacted Southern Malawi on 24-25 January 2022)
VCPC	Village Civil Protection Committee (rural)
WCPC	Ward Civil Protection Committee (urban)

vi. List of pictures, tables, figures, and diagrams

vi.i. List of pictures

- Picture 1 (front page): Aerial view of destroyed bridge in Chikwawa district immediately after TC Freddy. Copyright C. J. Muwama (2023).
- Picture 2 (page 7): Volunteer enumerator Milca at the MRCS branch office in Nsanje district before heading out with the team to collect the household survey through Kobo on her Android phone. Copyright S. N. Djurhuus (2023).

vi.ii. List of tables

vi.iii. List of figures and diagrams

Question 5: Which actions did you take when you heard the early warnings?
- Figure 5.1: 2-D bar diagram with unweighted answers for areas with and without AA programming
- Figure 5.2: 2-D bar diagram with unweighted answers for areas with and without AA programming
- Figure 5.3: 100% stacked bar diagram with weighted answers and margin of error (3.16%)
- Figure 5.4: 100% stacked bar diagram with weighted answers and margin of error (3.16%)

Question 6: Did you spend any time in an evacuation shelter after the impact from Cyclone Freddy?
- Figure 6.1: 2-D bar diagram with unweighted answers for areas with and without AA programming
- Figure 6.2: 100% stacked bar diagram with weighted answers and margin of error (3.16%)

- Diagram 1: Administrative structures in Malawi in rural and urban locations (correct as of October 2023)

Table of content

1. Background

The "Increased Disaster Resilience through Early Action in Malawi" project was funded by the European Union's Directorate General for European Civil Protection and Humanitarian Aid Operations (DG-ECHO) with co-funding from Belgium Flanders Red Cross, Faroe Islands Red Cross, Finnish Red Cross, and Danish Red Cross (DRC). This project will throughout the report be referred to as ECHO IDREAM. The project was implemented from 2021 to 2023 and also financially supported the activation of anticipatory actions through the project's crisis modifier budget. This study was conducted after the project ended.

ANTICIPATORY ACTION (AA)

Anticipatory Action refers to actions taken to reduce the humanitarian impacts of a forecast hazard before it occurs, or before its most acute impacts are felt.

The decision to act is based on a forecast, or collective risk analysis, of when, where, and how the event will unfold. The core goal of Anticipatory action is to save lives and livelihoods and reduce losses and suffering.

Through the project, Malawi Red Cross Society (MRCS) and DRC trained and equipped 26 local Early Warning Teams and volunteers in the four southern flood-prone areas Nsanje, Chikwawa, and Thyolo districts and Blantyre City in Anticipatory Action, Early Warnings, First Aid, and digital communication through Android phones that were provided through the project. The project also trained National Response Team (NRT) members in MRCS to conduct Anticipatory Actions (AA) in a triggered event.

The AA were triggered ahead of Tropical Storm Ana in January 2022 where NRT members deployed to the 10 districts in Southern Malawi that the Malawian Department for Climate Change and Meteorological Services (DCCMS) forecast would be worst affected by the tropical storm. Given the novelty of the AA approach in Malawi in 2022, the NRT members managed to conduct Early Warnings and advocate for early evacuation at district level ahead of Tropical Storm Ana. The success of AA built understanding and interest among the critical actors at national, district, and local levels to adopt the approach as a disaster preparedness mechanism.

When DCCMS forecast the catastrophic impact of Tropical Cyclone Freddy six days before landfall in Southern Malawi in March 2023, MRCS activated both the NRT to support 10 southern district councils in conducting Early Actions, and also the local Early Warning Teams that had been trained through the ECHO IDREAM project. Anecdotal evidence after the disaster indicated that the areas that had conducted local Anticipatory Actions were less impacted than others, but no conclusion could be made without evidence. This study therefore sought to collect comparative data from locations that participated in the ECHO IDREAM project and conducted local early actions before Tropical Cyclone Freddy, compared to similar areas in the same district that had not participated in AA training. The intended result was to investigate whether doing AA programming with local committee had any transferred effect on the households in their areas by collecting the same data in areas that had been targeted with AA programming and areas that had not been targeted with AA programming and comparing the results of the two.

2. Target area and methodology

The comparative study targeted five districts in Southern Malawi that were all highly affected by Tropical Cyclone Freddy in March 2023. The MRCS National Response Team deployed to all targeted districts ahead of the onset of the cyclones. Four districts (Nsanje, Chikwawa, Thyolo and Blantyre) were participating in Anticipatory Action (AA) programming in the ECHO IDREAM project (2021-2023) before and during the impact of TC Freddy, and one district (Mulanje) was not. For the quantitative study, enumerators conducted a household survey in the two TAs per district that correspond with the focus group discussion members' residency to investigate whether different local populations were reached and reacted differently with Early Warnings and Early Actions before TC Freddy depending on whether AA programming had been previously implemented in their area or not.

LOCATIONS *WITH/WITHOUT* PREVIOUS AA PROGRAMMING

Locations *with* previous AA programming, in this context, refers to areas where AA mechanisms have been established through MRCS programmes. For example, communities and districts have undergone training and received necessary equipment to initiate early actions and respond based on forecasts.

Locations *without* previous AA programming refers to areas where MRCS has not conducted any training or provided equipment through its programmes. This does not imply that early actions cannot be undertaken in these areas; rather, it indicates that communities and districts have not received prior training or equipment from MRCS.

2.1. Data protection, informed consent, and anonymity

The quantitative data was collected anonymously, ensuring that information on individuals' age, sex, disability, and TA was gathered in a manner that prevents the identification of specific respondents. Further questions in the survey concerned Early Warnings, Early Actions, and cyclone impact. Only adults over 18 years old were invited to participate in the survey. Informed consent was explained and collected before every survey response with an emphasis on the anonymous and voluntary nature of participating in the survey. It was explained that declining to participate would not in any way affect a respondent's chances of receiving support from the Red Cross partners in the future, and neither would accepting to participate in the survey result in any specific support or favoritism currently or in the future. The data is securely stored in a DRC repository as MRCS was using a public domain which was not reliable. The data will however be transferred into the new IFRC domain which is currently in use by MRCS and has adequate data protection and security features. The enumerators collected data using personal phones using the online generated link which did not provide access to transfer or store in personal gadgets. Furthermore, data was deleted upon expiration according to GDPR guidelines.

Picture 2: Volunteer enumerator Milca at the MRCS branch office in Nsanje district before heading out with the team of volunteers to collect the household survey through Kobo Collect on her Android phone.

2.2. Household survey targeting and methodology

Volunteer enumerators in the MRCS branches Nsanje, Chikwawa, Blantyre and Mulanje conducted household surveys using Kobo forms on personal Android phones to compare the responses from residents in Traditional Authorities (TAs) that had previously participated in AA programming versus TAs in the same districts that had not participated in AA programming to gauge if data from the wider area-level populations displays any behavioral differences regarding Anticipatory Action and Early Warnings depending on whether other local residents or structures have participated in AA programming.

To ensure comprehensive and inclusivity in data collection there was a deliberate consideration on sex, age, disability disaggregated data (SADDD) which is the standard methodology for IFRC and DRC. The approach enabled the study to identify specific issues associated with vulnerabilities within different demographic groups. The Washington Group Short Set on Functioning has been used as a methodology to collect data on disability among respondents. The tool includes six questions, focusing on difficulties of functioning in seeing, hearing, mobility, communication, cognition, and self-care.

No household survey was conducted in Thyolo district due to its mountainous topography and large distances between settlements, making it difficult for the volunteer enumerators to safely and timely reach the minimum number of households needed to conduct a viable survey.

In Chikwawa district, the two surveyed TAs both participated in the ECHO IDREAM project because the committee from TA Mlilima that partook in the Focus Group Discussion was from a neighboring village to GVH Namila that participated in ECHO IDREAM. The purpose was to gauge whether there had been a voluntary transfer of knowledge between village committees.

Number of respondents in each group disaggregated by location:

Household survey	With AA programming	Without AA programming
Blantyre	Misesa Ward	Bangwe Ward
Nsanje	TA Tengani	TA Chimombo
Chikwawa	TA Lundu and TA Mlilima	
Mulanje		TA Njema
Total number of respondents	**894 (54%)**	**769 (46%)**

Number of respondents in each group disaggregated by gender:

Household survey	With AA programming	Without AA programming	Total
Male	316	296	612
Female	578	473	1,051
Total number of respondents	**894 (54%)**	**769 (46%)**	**1,663 (100%)**

2.3. Weighted multiplier to correct size imbalance in comparative sample populations

When applicable, the statistical findings from the quantitative data will be corrected to account for the unequal split between the two groups by applying a weighted score. The unweighted answers are included as a description of whether any AA methods and interventions have significant values and might therefore be more applicable and effective at community level in the surveyed areas. The weighted answers are included to analyze an equalised comparison between the areas with and without AA programming to examine whether AA programming has an effect at community level in the surveyed areas.

The comparative findings for the areas with AA programming will be corrected by applying the multiplier 100%/54% = 1.852.

The comparative findings for the areas with no AA programming will be corrected by applying the multiplier 100%/46% = 2.174.

2.4. Household survey confidence interval, sample size and margin of error

Confidence interval: The confidence interval was set at 99%, meaning that if the survey was repeated 100 times, 99 times the answers would be within the same margin of error range, and 1 time the answers would be outside the margin of error range. A confidence interval between 90-99% is considered reliable.

Sample size: The enumerators were tasked with reaching minimum 400 respondents in each district, which would ensure the disaggregated answers for each district would also fall within a 95% confidence level and a 5% margin of error.

Population variability: The population variability was set at 50%, indicating that there was expected to be an equal chance of respondents providing either a confirming or negating answer.

Population size: The population size is the combined population reported in the Government of Malawi's Office of National Statistics' *2018 Population and Housing Census* for the three districts Nsanje, Chikwawa and Mulanje, and for Blantyre City. The household survey was not conducted in Thyolo district.

Margin of error: The margin of error (MoE) indicates that for each question, the true representative answer would fall within a range of plus or minus 3.16% of the findings presented in the report. A margin of error below 5% is considered reliable.

Indicator	Value
Confidence interval	99%
Sample size	1,663
Population variability	50%
Population size	2,348,223
Margin of error	3.16%

2.5. Descriptive, comparative, and differential findings

The data findings in the next chapter "3. Data findings" offer descriptive, comparative, and differential data in the forms of unweighted tables and bar diagrams for descriptive purposes; weighted tables and 100% stacked bar diagrams for comparative purposes. The data is analyzed in the subsequent chapter "4. Conclusions".

3. Data findings

3.1. Descriptive statistics

Data on gender age, disability status, and interpersonal and community engagement was collected to analyze whether these population sub-groups presented different results than the general comparative groups which were "locations with previous Anticipatory Action programming" versus "locations without previous Anticipatory Action programming" (see definition on page 8).

The data was used to indicate whether the sub-groups experienced significant barriers/differences in their 1) access to hearing Early Warnings, 2) belief in the Early Warnings, and 3) Early Actions taken. The respondents were not asked why they acted as they did, but differential findings may indicate specific barriers to participation that future programming should take into account to improve accessibility and outcomes. The differential findings are presented in the section "3.2.2. Differential findings data depending on gender, age, and disability" on page 29.

3.1.1. Gender and age

The household survey only included adults aged 18 and over. The number of respondents per age bracket corresponds with the population profile for Malawi, which has a young population that narrows with higher age and therefore a corresponding expansive population pyramid shape.

The gender ratio in Malawi skews slightly in favor of more women, while the household survey includes many more women respondents than men. This may be explained by the societal context at the time of data collection in villages during the morning and early afternoon, when more males are likely to be away from the villages pursuing work while more women are likely to stay close to the villages.

0.1 Total number of respondents disaggregated by gender and age brackets								
Gender	Total	18-30	31-40	41-50	51-60	61-70	Above 70	Blank age
Women	1,051	400	271	141	109	51	43	36
Men	612	197	131	106	84	38	29	27
Total	1,663	597	402	247	193	89	72	63
% of total	100%	36%	24%	15%	12%	5%	4%	4%

3.1.1.1 Household survey respondents per location disaggregated by gender.

The location data is used throughout the study to indicate whether respondents lived in areas with or without previous Anticipatory Action programming.

The data is used to analyze whether this indicator was a significant factor in the answers provided by the respondents, i.e., whether it made a difference in terms of early warnings, early actions, and disaster impact if their area had previously participated in Anticipatory Action programmes or not.

0.2 Location		Type	% of all	Female	Male	Total
Blantyre City	Bangwe Ward	Urban	15%	102	146	248
	Misesa Ward	Urban	15%	178	68	246
Chikwawa	TA Lundu	Rural	16%	161	111	272
	TA Mlilima	Rural	12%	114	89	203
Mulanje	TA Njema	Rural	19%	230	94	324
Nsanje	TA Chimombo	Rural	12%	141	56	197
	TA Tengani	Rural	10%	125	48	173
Grand total			100%	1,051	612	1,663

3.1.2. Washington Group disability questions disaggregated by gender and age

Between 11-12% of people in Malawi over the age of 5 are estimated to have a disability. The total percentage of respondents who reported having difficulties in undertaking basic functioning activities ("a lot of difficulty" or "cannot do [activity] at all") according to the Washington Group questionnaire is 25% of the survey respondents, which exceeds the 11-12%. This may be explained by the societal context at the time of data collection in villages during the morning and early afternoon, when more people without disabilities are likely to be away from the villages pursuing work, while more persons with disabilities are likely to stay close to the villages.

0.3 Respondents self-reporting having a disability disaggregated by gender and age brackets								
Gender	Total	18-30	31-40	41-50	51-60	61-70	Above 70	Blank age
Women	246	41	46	46	45	28	25	15
Men	176	33	26	38	37	19	14	9
Total	422	74	72	84	82	47	39	24
% of 1,663	25%	4%	4%	5%	5%	3%	2%	1%

3.1.3. Interpersonal and community engagement

Respondents were given a choice of multiple answers to indicate where they spend time in a normal week to later test whether the study finds any correlation between the respondents' interpersonal and community engagement, and them e.g. hearing early warnings, their belief in their validity, and the early actions taken.

In Malawi, the "boma" is the main town in a district, akin to a district capital. Districts and their bomas are usually eponymous. The findings suggest that slightly over 50% of respondents spend time at home during a typical week, which contrasts with the initial expectation of a higher percentage. This deviation may stem from varying interpretations of the survey questions. For example, respondents might have different definitions of "home" or perceive the questions as referring to where they spend the majority of their time, resulting in discrepancies in their responses.

0.4 Where do you spend time in a normal week?			
Gender	Women	Men	Total
At home	674	294	968
At school	36	40	76
At work (private employer)	68	64	132
At work (public / organisational / industrial employer)	55	67	122
At work with my own or my family's agriculture / farm animals	369	206	575
At the local market in my community	103	62	165
At the bigger market in the boma or by the main road	11	15	26
At a religious gathering	61	28	89

For the data analysis in "3.2.3. Differential findings depending on interpersonal and community engagement" on page 32. the answers "at work (public / organisational / industrial employer)", "at the bigger market in the boma or by the main road" and "at school" have been amalgamated into the category "in a normal week I spend time with a public employer, at the large market, or at school". Since respondents could choose multiple answers, the amalgamated category has a lower number of respondents to avoid double counting. The answers "at the local market in my community" and "at a religious gathering" have

been amalgamated into the category "in a normal week I spend time together with the local community". The same note about not double counting applies.

3.2. Quantitative data (household survey)

3.2.1. Main findings from household survey

The unweighted and weighted count and split between the two comparative groups (areas with and without Anticipatory Action programming) to the different answers is included in this section, and the findings are concluded in the section "4. Conclusions" on page 36. In case of large differences in the data depending on the respondents' gender, age and disability status, this is highlighted in section "3.2.2. Differential findings data depending on gender, age, and disability status" on page 29.

Question 1: Did you hear any early warnings about Tropical Cyclone Freddy before it happened?

A much larger percentage of respondents living in areas with no AA programming heard no early warnings about Tropical Cyclone Freddy before it happened (27% of the group) compared to respondents, who lived in areas with AA programming (8% of the group). This suggests that having AA programming improves the reach of early warnings ahead of a forecast impact.

A larger proportion of respondents in areas with AA programming heard early warnings 4 to 6 days before the impact of TC Freddy (46% of the group) compared to respondents in areas with no AA programming (31% of the group). Roughly the same comparative number of respondents heard the early warnings 1 to 3 days before the impact or on the day of the impact of TC Freddy. These findings suggest that more people in areas with AA programming receive the alerts earlier, while all areas receive mass-messaging (e.g. radio messages and loudspeakers on top of vans) at the same time.

Table 1.1:

Anticipatory Action in Malawi: Comparative Study	
1.1	Did you hear early warnings about Tropical Cyclone Freddy before it happened?
a	Yes, 4 – 6 days before it happened
b	Yes, 1 – 3 days before it happened
c	Yes, on the same day that it happened
d	No, I didn't hear any warnings before the cyclone and floods started
e	Grand total

Table 1.2: Unweighted answers (descriptive)

1.2	Areas with no AA programming			Areas with AA programming			Total	
	Count	% of group (769)	% of all (1,663)	Count	% of group (894)	% of all (1,663)	Total	% of grand total (1,663)
a	235	31%	14%	414	46%	25%	649	39%
b	245	32%	15%	286	32%	17%	531	32%
c	85	11%	5%	124	14%	7%	209	13%
d	204	27%	12%	70	8%	4%	274	16%
e	769	100%	46%	894	100%	54%	1,663	100%

When the sum is 1,663, the total percentage split in the unweighted indicative answer naturally equates the percentage split in the unweighted number of respondents in each group.

Figure 1.1: 2-D bar diagram with unweighted answers for areas with and without AA programming

DID YOU HEAR EARLY WARNINGS ABOUT TROPICAL CYCLONE FREDDY BEFORE IT HAPPENED?

■ Areas with no AA programming   ■ Areas with AA programming

Yes
- 249
- 434

No, I just waited until the cyclone and floods started.
- 306
- 368

(axis: 0, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500)
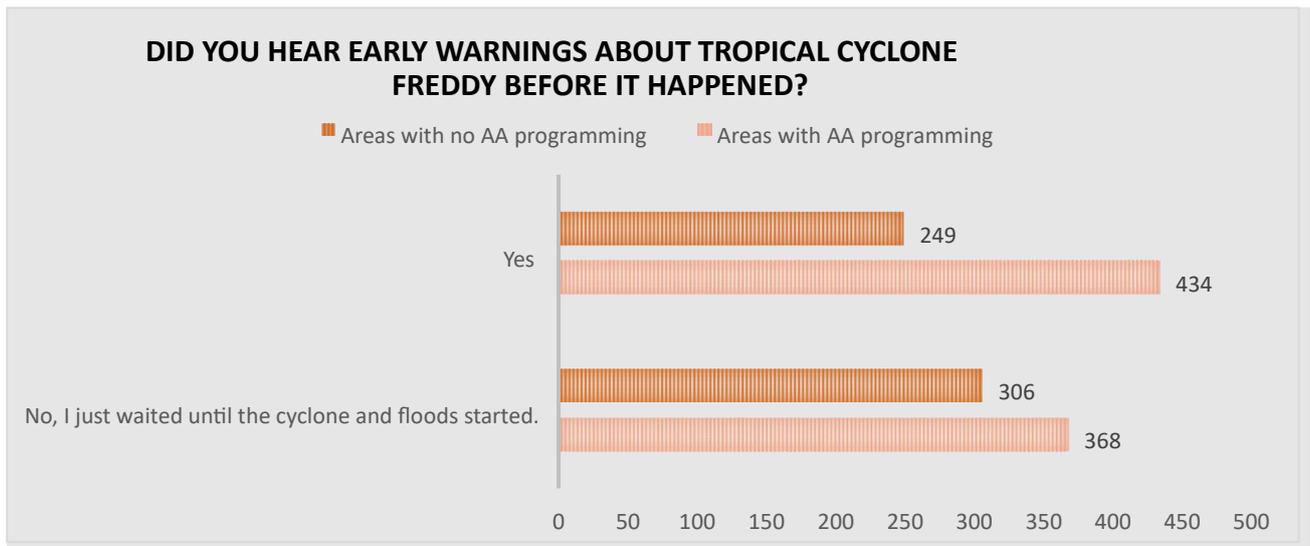
Table 1.3: Weighted answers (comparative)

1.3	Areas with no AA programming		Areas with AA programming	
	Weighted	**Split**	**Weighted**	**Split**
a	511	40%	767	60%
b	533	50%	530	50%
c	185	45%	230	55%
d	443	77%	130	23%
e	**1,672**		**1,656**	

Figure 1.2: 100% stacked bar diagram with weighted answers and margin of error (3.16%)

DID YOU HEAR EARLY WARNINGS ABOUT TROPICAL CYCLONE FREDDY BEFORE IT HAPPENED?

No, I didn't hear any warnings before — 77% | 23%

Yes, on the same day that it happened. — 45% | 55%

Yes, 1 – 3 days before it happened. — 50% | 50%

Yes, 4 – 6 days before it happened. — 40% | 60%

(axis: 0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%)

■ Areas with no AA programming   ■ Areas with AA programming
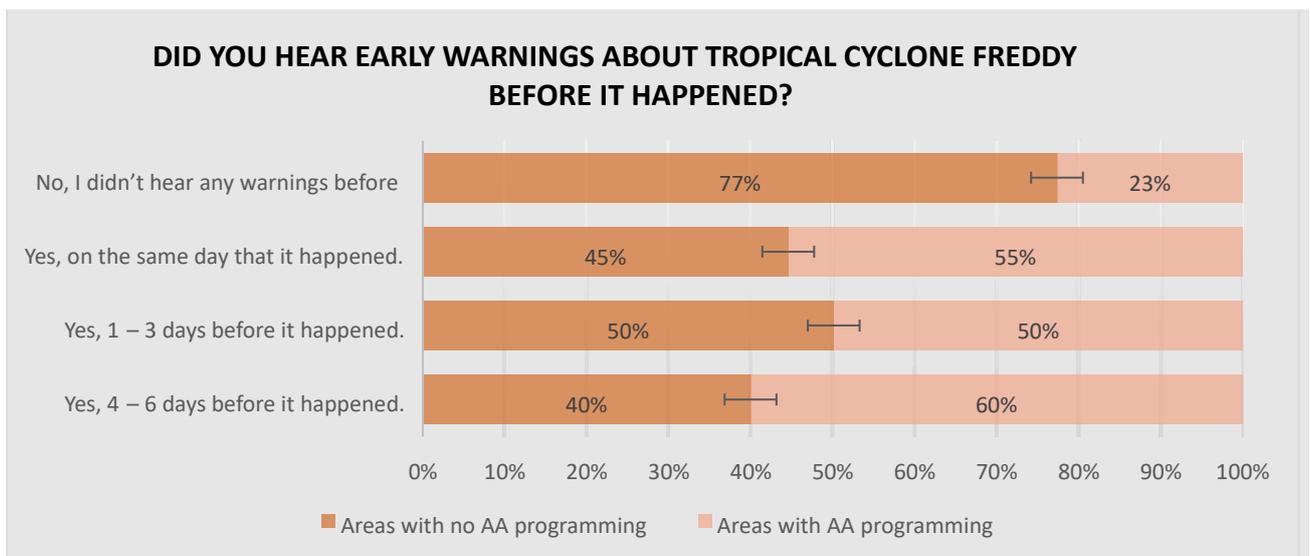
Question 2: If you heard a warning, did you believe the cyclone warnings?

The tables below include the respondents that answered "Yes" to hearing any early warning, regardless of when they heard it.

64% of the respondents in areas with previous AA programming answered that they believed the early warnings immediately (569 people) compared to 39% of the respondents in areas with no previous AA programming (301 people). 19% of the respondents in the areas with no previous AA programming believed the early warnings but had some doubts and additional questions (143 people), while 12% of the respondents in areas with previous AA programming believed the early warnings but had some doubts (110 people). Comparatively more people believed it immediately and had fewer doubts in areas with previous AA programming.

An equal percentage of the two groups did not believe the early warnings that they heard (14% of each). This was, however, only 17% of all the respondents. Of all the respondents that heard an early warning regardless of their location, 83% believed it either immediately or with some follow up questions (1,123 people).

Seven respondents had additional comments to the question. Six had answered that they had doubts, and one had answered that they believed the early warning message right away. All answered that in the past they used to doubt the validity of the early warning messages, but after the current events with early warnings accurately forecasting multiple disasters, they have started to strongly believe that the early warnings are true.

Table 2.1

Anticipatory Action in Malawi: Comparative Study	
2.1	**If you heard a cyclone warning, did you believe it?**
a	No, I didn't believe the warnings
b	Yes, but I had some doubts and some additional questions
c	Yes, I believed it right away
d	Grand total
e	Skip question

Table 2.2: Unweighted answers (descriptive)

2.2	Areas with no AA programming			Areas with AA programming			Total	
	Count	**% of group (769)**	**% of all (1,663)**	**Count**	**% of group (894)**	**% of all (1,663)**	**Total**	**% of grand total (1,359)**
a	108	14%	6%	128	14%	8%	236	17%
b	143	19%	9%	110	12%	7%	253	19%
c	301	39%	18%	569	64%	34%	870	64%
d	**552**	**72%**	**33%**	**807**	**90%**	**49%**	**1,359**	**100%**
e	13	2%	1%	17	2%	1%	30	2%

Figure 2.1: 2-D bar diagram with unweighted answers for areas with and without AA programming

IF YOU HEARD A CYCLONE WARNING, DID YOU BELIEVE IT?

■ Areas with no AA programming   ■ Areas with AA programming

Answer	Value
Yes, I believed it right away.	301 / 569
Yes, but I had some doubts and some additional questions.	143 / 110
No, I didn't believe the warnings.	108 / 128
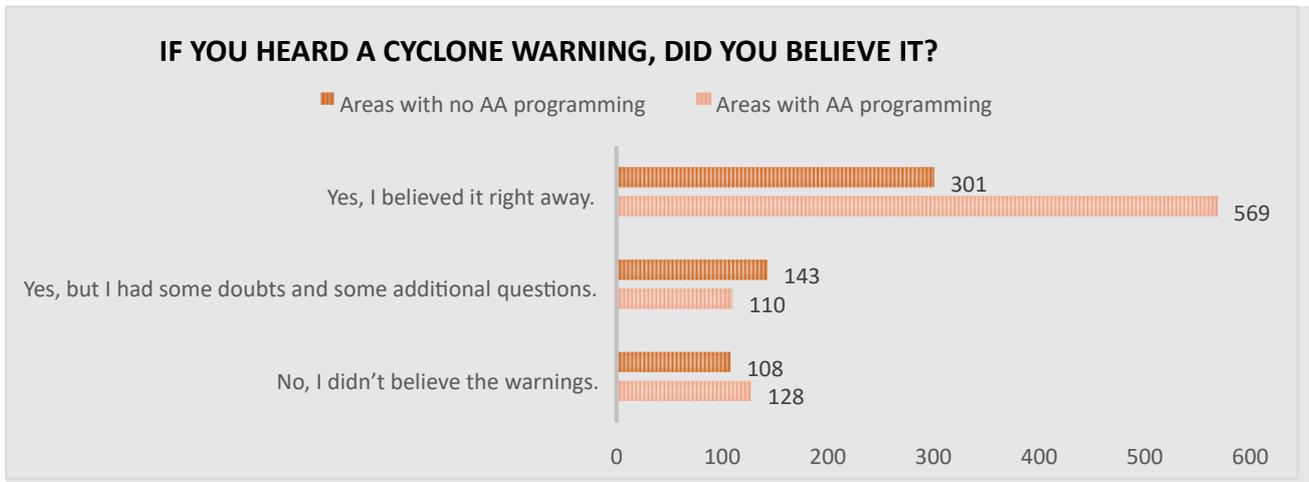
Table 2.3: Weighted answers (comparative)

2.3	Areas with no AA programming		Areas with AA programming	
	Weighted	Split	Weighted	Split
a	235	50%	237	50%
b	311	60%	204	40%
c	654	38%	1,054	62%
d	1,200		1,495	
e	28		31	

Figure 2.2: 100% stacked bar diagram with weighted answers and margin of error (3.16%)

IF YOU HEARD A CYCLONE WARNING, DID YOU BELIEVE IT?

Answer	no AA	AA
Yes, I believed it right away.	38%	62%
Yes, but I had some doubts and questions.	60%	40%
No, I didn't believe the warnings.	50%	50%

■ Areas with no AA programming   ■ Areas with AA programming
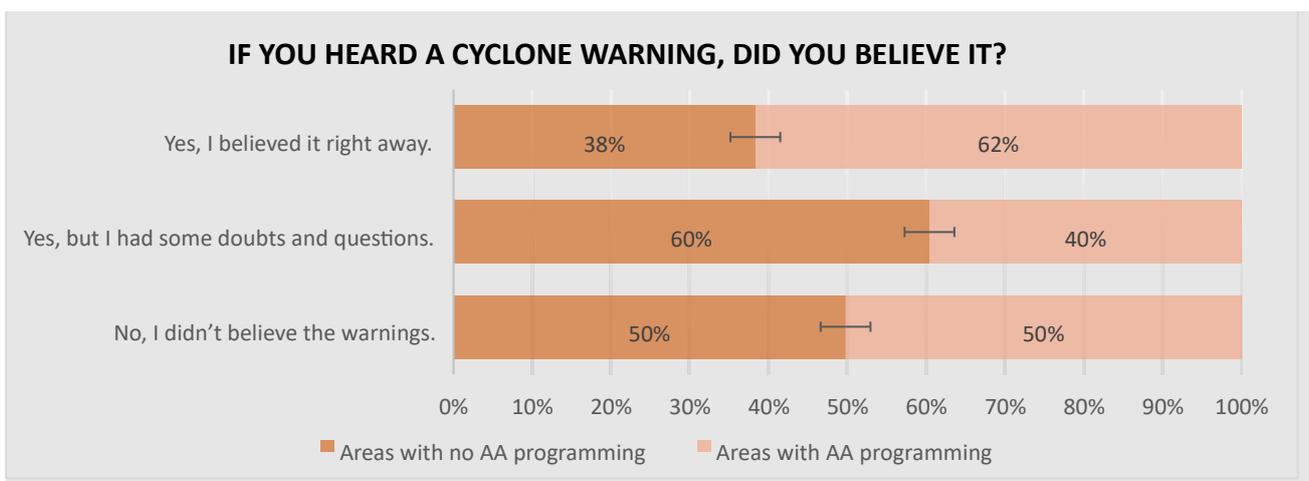
Question 3: If you heard a warning, did you take any action before the cyclone and floods started?

The tables below exclude the respondents that did not hear an early warning (question 1) and asked to skip the question about whether they believed it when they heard it (question 2). The number of people answering "I just waited" is lower than the number of people answering not doing any early actions in question 5, since question 3 was only asked to those who said that they had heard an early warning.

An equal percentage of respondents in each group (with and without previous AA programming) had heard an early warning, believed it, and done no early actions, while a larger number of the group with previous AA programming had heard an early warning, believed it, and done an early action (49%), than the respondents in the areas with no previous AA programming (32%). This finding suggests that community members in areas with previous AA programming have a higher incentive to do early actions when they hear an early warning, and potentially more knowledge on appropriate action to take.

Table 3.1

Anticipatory Action in Malawi: Comparative Study	
3.1	**If you heard a warning, did you take any action before the cyclone and floods started?**
a	No, I just waited until the cyclone and floods started
b	Yes
c	**Grand total**
d	Skip question

Table 3.2: Unweighted answers (descriptive)

	Areas with no AA programming			Areas with AA programming			Total	
3.2	**Count**	**% of group (769)**	**% of all (1,663)**	**Count**	**% of group (894)**	**% of all (1,663)**	**Total**	**% of grand total (1,357)**
a	306	40%	18%	368	41%	22%	674	50%
b	249	32%	15%	434	49%	26%	683	50%
c	**555**	**72%**	**33%**	**802**	**90%**	**48%**	**1,357**	**100%**
d	10	1%	1%	22	2%	1%	32	

Figure 3.1: 2-D bar diagram with unweighted answers for areas with and without AA programming

IF YOU HEARD A WARNING, DID YOU TAKE ANY ACTION BEFORE THE CYCLONE AND FLOODS STARTED?
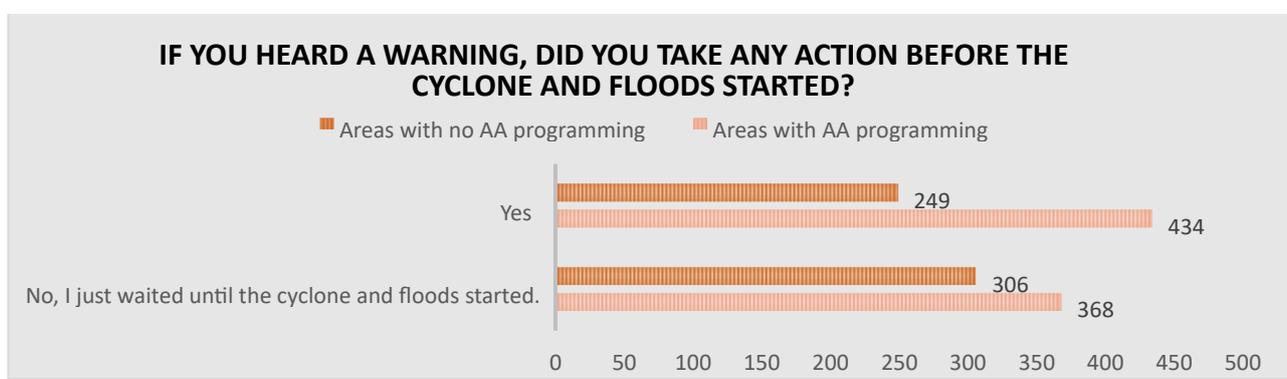
Table 3.3: Weighted answers (comparative)

3.3	Areas with no AA programming		Areas with AA programming	
	Weighted	Split	Weighted	Split
a	665	49%	682	51%
b	541	40%	804	60%
c	1,207		1,485	
d	22		41	

Figure 3.2: 100% stacked bar diagram with weighted answers and margin of error (3.16%)

IF YOU HEARD A WARNING, DID YOU TAKE ANY ACTION BEFORE THE CYCLONE AND FLOODS STARTED?

Yes — 40% Areas with no AA programming, 60% Areas with AA programming
No, I just waited. — 49% Areas with no AA programming, 51% Areas with AA programming
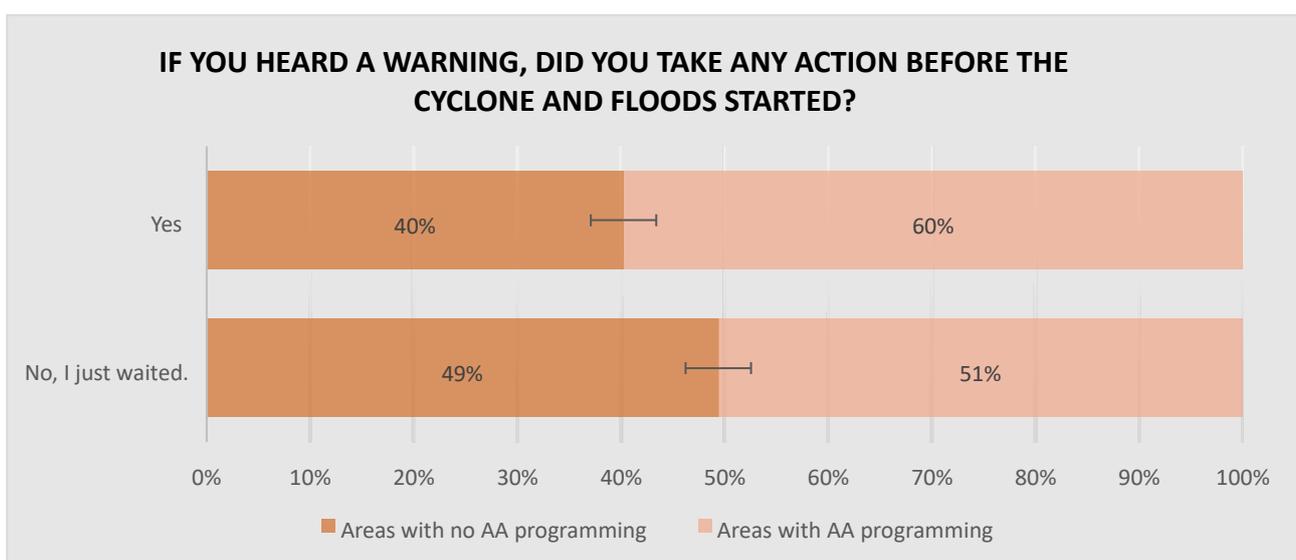
Question 4: Where did you hear early warnings about Tropical Cyclone Freddy before it happened?

Consistent with findings from previous reviews on the early warnings ahead of Tropical Storm Ana in January 2022, the majority of respondents who heard early warnings before the impact of Tropical Cyclone Freddy in March 2023 heard so on the radio. This applies to both areas with and without previous AA programming, although the weighted comparison shows that comparatively more people in areas with previous AA programming heard the early warnings on the radio. This is also consistent with the finding in Question 1, where 12% of all respondents heard no early warnings ahead of the disaster in areas with no AA programming, while only 4% of all respondents heard no early warnings ahead of the disaster in areas with AA programming.

Other early warning channels that reached respondents were through mobile phones; the local Civil Protection Committee, Early Warning Team members, Red Cross volunteers, school children or government extension workers; and through public spheres such as marketplaces, religious gatherings and through loudspeaker announcements on top of cars.

Respondents could provide more than one answer, hence why the total sum exceeds the number of respondents.

Table 4.1: Unweighted answers (descriptive)

Where did you hear EW about Tropical Cyclone Freddy before it happened?	Areas with no AA programming			Areas with AA programming			Total	
	Count	% of group (769)	% of all (1,663)	Count	% of group (894)	% of all (1,663)	Sum	% of all (1,663)
From the radio	346	45%	21%	616	69%	37%	962	58%
From a member of the local ACPC, W/VCPC or EWT	71	9%	4%	157	18%	9%	228	14%
From another type of message on my phone or a phone call	80	10%	5%	127	14%	8%	207	12%
From the market	98	13%	6%	96	11%	6%	194	12%
From a car with a loudspeaker	83	11%	5%	106	12%	6%	189	11%
From a member of my family	79	10%	5%	81	9%	5%	160	10%
From a TV or the internet	84	11%	5%	69	8%	4%	153	9%
From a Red Cross volunteer or staff member	24	3%	1%	109	12%	7%	133	8%
From a person who works for the government	76	10%	5%	29	3%	2%	105	6%
From WhatsApp	41	5%	2%	34	4%	2%	75	5%
From a child, who had heard it in school	15	2%	1%	51	6%	3%	66	4%
From a religious gathering	28	4%	2%	22	2%	1%	50	3%
Grand total	**914**			**1,369**			**2,283**	

Figure 4.1: 2-D bar diagram with unweighted answers for areas with and without AA programming

WHERE DID YOU HEAR EARLY WARNINGS ABOUT TROPICAL BEFORE IT HAPPENED?

20
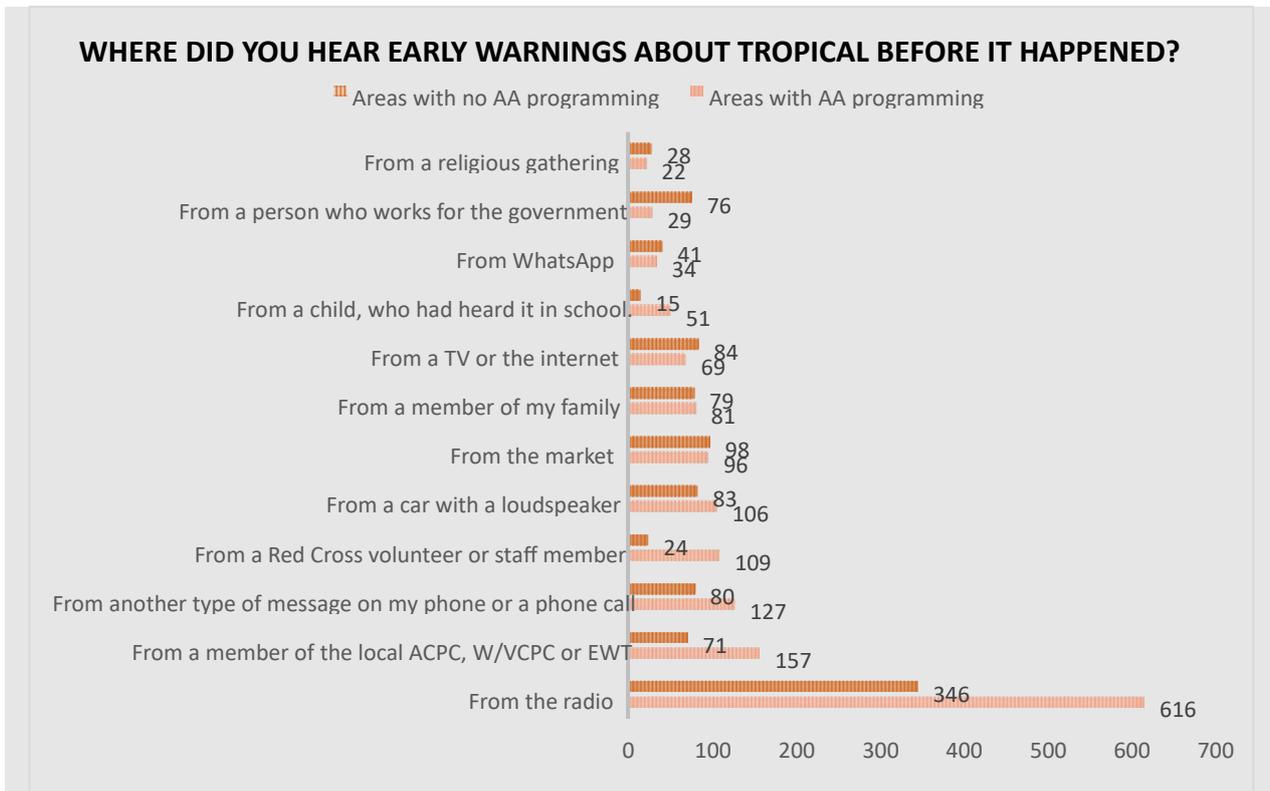
Table 4.2: Weighted answers (comparative)

Where did you hear EW about Tropical Cyclone Freddy before it happened?	Areas with no AA programming		Areas with AA programming	
	Weighted	Split	Weighted	Split
From the radio	752	40%	1,141	60%
From a member of the local ACPC, W/VCPC or EWT	154	35%	291	65%
From another type of message on my phone or a phone call	174	43%	235	57%
From the market	213	55%	178	45%
From a car with a loudspeaker	180	48%	196	52%
From a member of my family	172	53%	150	47%
From a TV or the internet	183	59%	128	41%
From a Red Cross volunteer or staff member	52	21%	202	79%
From a person who works for the government	165	75%	54	25%
From WhatsApp	89	59%	63	41%
From a child, who had heard it in school	33	26%	94	74%
From a religious gathering	61	60%	41	40%
Grand total	**2,228**		**2,772**	

Figure 4.2: 100% stacked bar diagram with weighted answers and margin of error (3.16%)

WHERE DID YOU HEAR EARLY WARNINGS ABOUT TROPICAL CYCLONE FREDDY BEFORE IT HAPPENED?
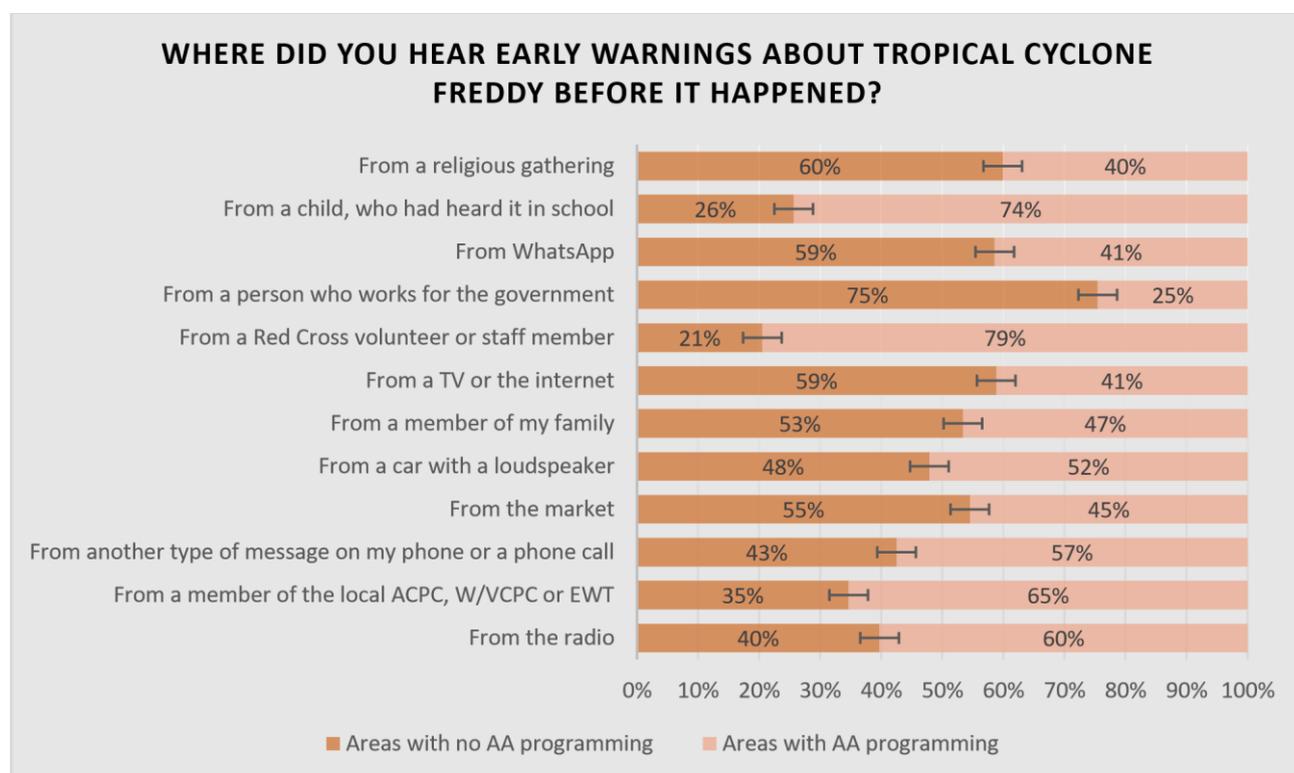
Question 5: Which actions did you take when you heard the early warnings?

Although the question asked which actions the respondent took "after hearing the early warnings", the question was asked to all respondents and not just the ones that had answered that they had heard an early warning. Respondents were able to provide multiple answers, which is why the total number of answers differs from the total number of respondents.

The first table (5.1) shows all answers. The second table (5.2) groups the responses into seven different sectors and "none". The third table (5.3) groups the responses according to human agency, i.e. whether the respondent did nothing, helped themselves, helped others, or received help from others.

The comparative analysis shows that the respondents answered that they did "nothing" in equal amounts regardless of whether there had been AA programming in the area or not, but across all other sectors and human agency, the areas with previous AA programming scored comparatively higher. This indicates that in areas with previous AA programming, people take more anticipatory actions to both help themselves and to help others.

The descriptive answers show that the most popular early action was to engage in the community-based early warning system, i.e. spreading knowledge and awareness about the upcoming impact (448 respondents). The second-most popular early action was to protect shelters (262 respondents); the third most popular early action was to evacuate early (185 respondents); and the fourth-most popular early action was to secure livelihoods (139 respondents). Less than 40 respondents conducted early actions in each of the sectors Mental Health and Psychosocial Support (MHPSS), protecting nature and waste management, and engaging in disaster management.

Related to human agency, the respondents answered that most of them did nothing (737 respondents); the second-largest group helped others (588 respondents); the third-largest group helped themselves (382 respondents); and the final group received help from others (128 respondents).

Table 5.1: Unweighted answers, all possible individual answers (descriptive)

Anticipatory Action in Malawi: Comparative Study	Areas with no AA programming			Areas with AA programming			Total	
Which actions did you take when you heard the early warnings?	Count	% of group (769)	% of all (1,663)	Count	% of group (894)	% of all (1,663)	Total	% of all (1,663)
I didn't do anything – I just waited until the cyclone and floods started	339	44%	20%	398	45%	24%	737	44%
I told my family and community about the warnings	145	19%	9%	252	28%	15%	397	24%
I reinforced my own house, private latrine or animal shelters against the cyclone impact (for example with sandbags, plastic sheets, wood beams, etc.)	84	11%	5%	109	12%	7%	193	12%
I evacuated to a safer location (before the cyclone started)	21	3%	1%	53	6%	3%	74	4%
I moved my farm animals away from dangerous areas	17	2%	1%	36	4%	2%	53	3%
I moved things and food from my home to a safer location	18	2%	1%	23	3%	1%	41	2%
Someone helped me reinforce my own house, private latrine or animal shelters against the cyclone impact	15	2%	1%	20	2%	1%	35	2%
Someone helped me move my farm animals away from dangerous areas	14	2%	1%	17	2%	1%	31	2%
I was part of the local ACPC or W/VCPC	4	1%	0%	23	3%	1%	27	2%
I helped reinforce someone else's house, private latrine or animal shelters against the cyclone impact	3	0%	0%	20	2%	1%	23	1%
I harvested my crops that were ready	5	1%	0%	16	2%	1%	21	1%
Someone helped to comfort me or my family, when I was / we were in emotional distress (before the cyclone)	2	0%	0%	18	2%	1%	20	1%
Someone helped me move things and food from my home to a safer location	1	0%	0%	14	2%	1%	15	1%
I helped someone else evacuate to a safer location (before the cyclone started)	3	0%	0%	12	1%	1%	15	1%
I helped move someone else's farm animals away from dangerous areas	3	0%	0%	11	1%	1%	14	1%
I helped move things and food from someone else's home to a safer location	3	0%	0%	11	1%	1%	14	1%
Someone helped me evacuate to a safer location (before the cyclone started)	2	0%	0%	12	1%	1%	14	1%
I or my family helped comfort someone, who was in emotional distress (before the cyclone)	3	0%	0%	11	1%	1%	14	1%
Someone helped me harvest my crops that were ready	3	0%	0%	10	1%	1%	13	1%
I helped to contact our neighboring community about the water levels in their part of the river alliance	3	0%	0%	9	1%	1%	12	1%
I was part of the local Early Warning Team	7	1%	0%	5	1%	0%	12	1%
I was part of the local Camp Management Committee	5	1%	0%	7	1%	0%	12	1%
I helped reinforce community structures such as school, shared latrine, bridge, health centre, or other public buildings against the cyclone	1	0%	0%	10	1%	1%	11	1%
I was a volunteer (with Red Cross or another humanitarian organisation)	2	0%	0%	7	1%	0%	9	1%
I helped to reinforce the riverbank (for example with sandbags, etc.)	1	0%	0%	7	1%	0%	8	0%

	Count	%	%	Count	%	%	Count	%
I helped to clear away waste from the river and drains	2	0%	0%	6	1%	0%	8	0%
I helped harvest someone else's crops that were ready	2	0%	0%	5	1%	0%	7	0%
I or my family was in emotional distress before the cyclone, but there was no one to help us	4	1%	0%	1	0%	0%	5	0%
I was part of the local Search and Rescue Team	1	0%	0%	4	0%	0%	5	0%
Grand total	**713**			**1,127**			**1,840**	

Table 5.2: Unweighted answers, grouped into sectors (descriptive)

Sectors: Which actions did you take when you heard the early warnings?	Areas with no AA programming			Areas with AA programming			Total	
	Count	% of group (769)	% of all (1,663)	Count	% of group (894)	% of all (1,663)	Total	% of all (1,663)
None	339	44%	20%	398	52%	24%	737	44%
Community Early Warning System	159	21%	10%	289	38%	17%	448	27%
Shelter	103	13%	6%	159	21%	10%	262	16%
Early evacuation	53	7%	3%	132	17%	8%	185	11%
Livelihoods	44	6%	3%	95	12%	6%	139	8%
MHPSS	9	1%	1%	30	4%	2%	39	2%
Nature and waste	3	0%	0%	13	2%	1%	16	1%
Disaster management	3	0%	0%	11	1%	1%	14	1%
Grand total	**713**			**1,127**			**1,840**	

Figure 5.1: 2-D bar diagram with unweighted answers for areas with and without AA programming

SECTORS: WHICH EARLY ACTIONS DID YOU TAKE?

Areas with no AA programming   Areas with AA programming
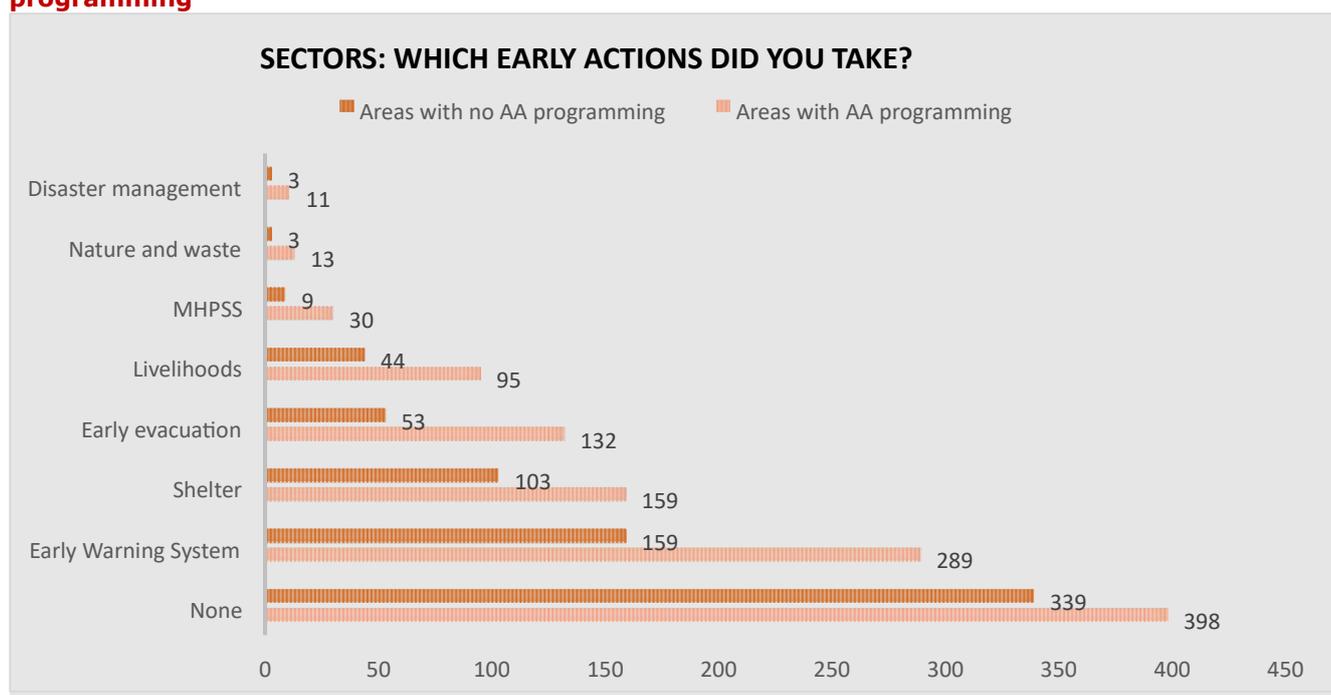
Table 5.3: Unweighted answers, grouped according to human agency (descriptive)

Agency: Which actions did you take when you heard the early warnings?	Areas with no AA programming			Areas with AA programming			Total	
	Count	% of group (769)	% of all (1,663)	Count	% of group (894)	% of all (1,663)	Total	% of all (1,663)
I did nothing	339	44%	20%	398	52%	24%	737	44%
I helped others	188	24%	11%	400	52%	24%	588	35%
I helped myself	145	19%	9%	237	31%	14%	382	23%
Others helped me	37	5%	2%	91	12%	5%	128	8%
Grand total	**709**			**1,126**			**1,835**	

There is a difference in the total sum between the two tables "sectors" and "human agency" because five respondents indicated they needed help with mental health and psychosocial support (grouped with MHPSS in the sectoral table), but no one was available to help them.

The total number of actions taken exceeds the total number of respondents since the same respondent could provide multiple answers, which fall into multiple sectors and agency classifications. The findings above also indicate that more than half of the respondents chose both "did nothing" and "helped others." This contradictory scenario could be attributed to the survey's design, which permitted respondents to select multiple options, potentially resulting in overlapping responses. Furthermore, the interpretation of "did nothing" and "helped others" may have contributed to this overlap. The broad scope of "helping others" could encompass even minor acts of assistance, which respondents might not have considered as excluding the "did nothing" option.

Figure 5.2: 2-D bar diagram with unweighted answers for areas with and without AA programming

HUMAN AGENCY: WHICH EARLY ACTIONS DID YOU TAKE?

■ Areas with no AA programming ■ Areas with AA programming
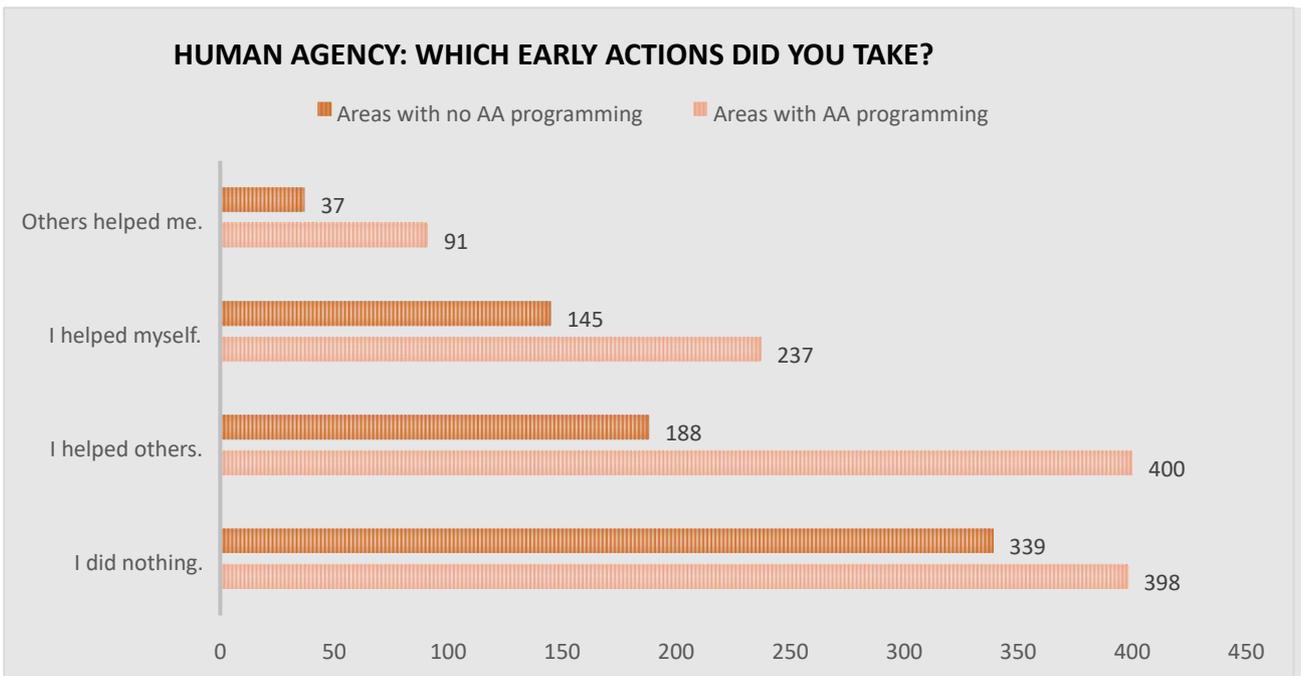
Table 5.4: Weighted answers, grouped into sectors (comparative)

Sectors: Which actions did you take when you heard the EW?	Areas with no AA programming		Areas with AA programming	
	Weighted	Split	Weighted	Split
None	737	50%	737	50%
Early Warning System	346	39%	535	61%
Shelter	224	43%	294	57%
Early evacuation	115	32%	244	68%
Livelihoods	96	35%	176	65%
MHPSS	20	26%	56	74%
Nature and waste	7	21%	24	79%
Disaster management	7	24%	20	76%
Grand total	**1,550**		**2,087**	

**Figure 5.3: 100% stacked bar diagram with weighted answers and margin of error (3.16%)**
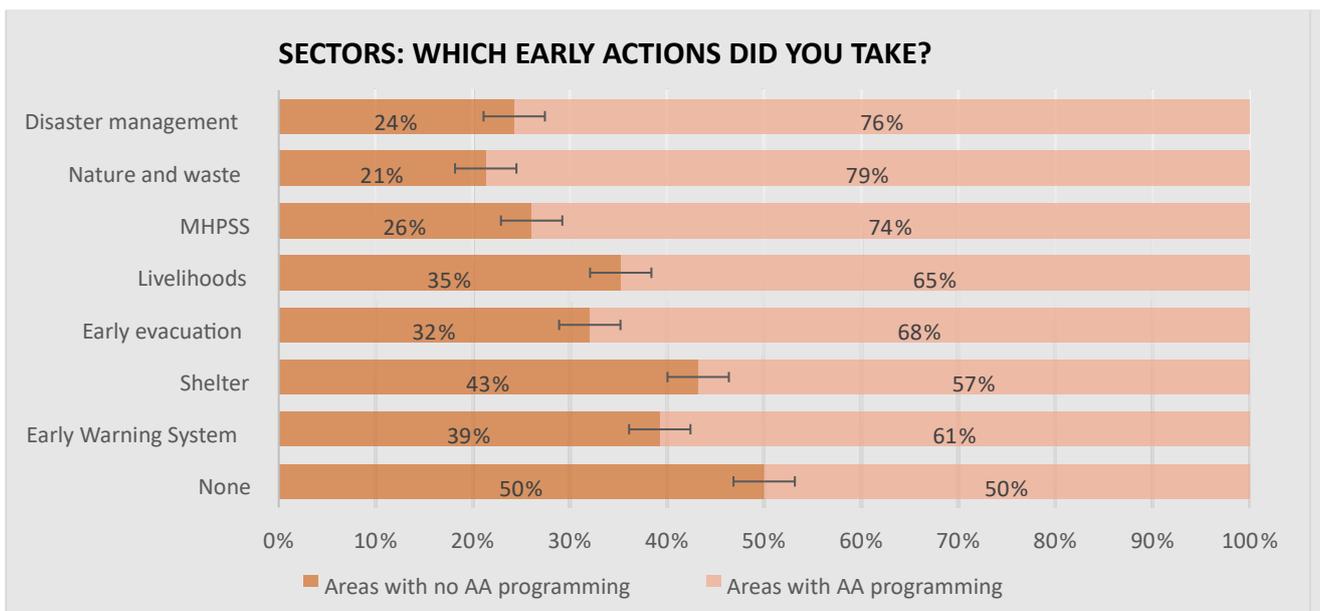
Table 5.5: Weighted answers, grouped into human agency (comparative)

Agency: Which actions did you take when you heard the EW?	Areas with no AA programming		Areas with AA programming	
	Weighted	Split	Weighted	Split
I did nothing	737	50%	737	50%
I helped others	409	36%	741	64%
I helped myself	315	42%	439	58%
Others helped me	80	32%	169	68%
Grand total	**1,541**		**2,085**	

Figure 5.4: 100% stacked bar diagram with weighted answers and margin of error (3.16%)

HUMAN AGENCY: WHICH EARLY ACTIONS DID YOU TAKE?

Others helped me. 32% | 68%
I helped myself. 42% | 58%
I helped others. 36% | 64%
I did nothing. 50% | 50%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

■ Areas with no AA programming ■ Areas with AA programming
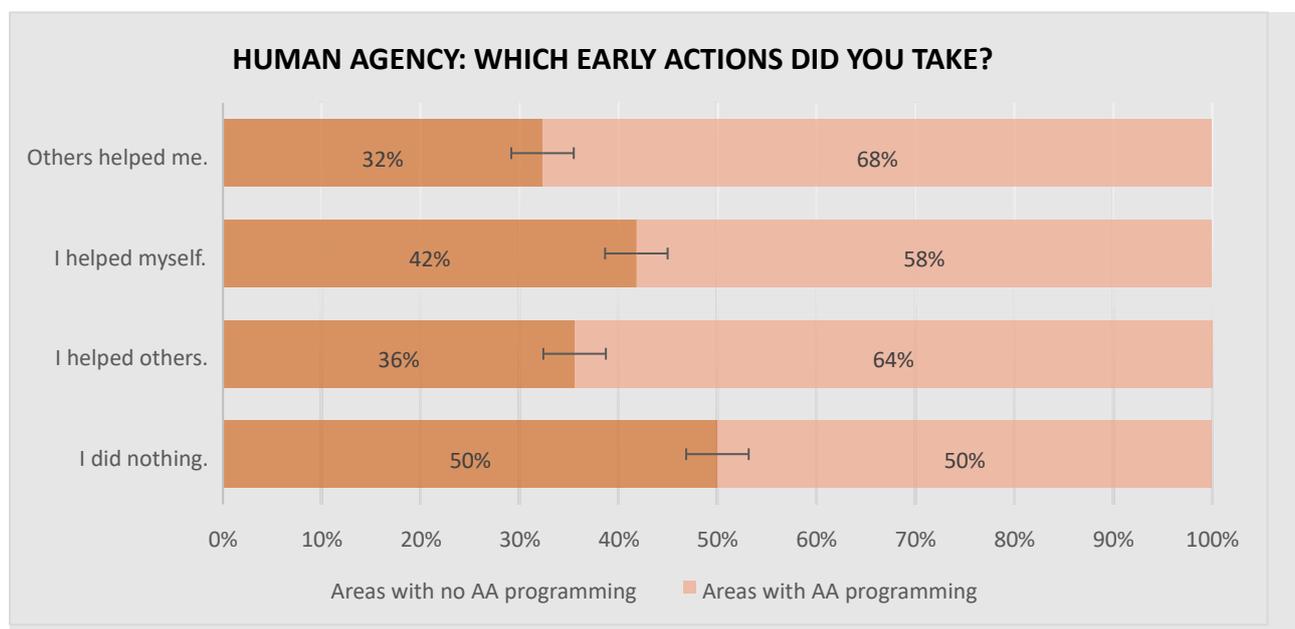
Question 6: Did you spend any time in an evacuation shelter after the impact from Tropical Cyclone Freddy?

The weighted data findings indicate that respondents were equally impacted across areas with and without Anticipatory Action programming. Anticipatory Action programmes in Malawi have not yet had a strong systematic focus on local community-based preparedness to evacuate, permanent evacuation facilities and infrastructure, community-based capacity to manage evacuation shelters, education in emergencies, and sustainable long-term recovery strategies for internally displaced people.

The unweighted data finding that 36% of the respondents (598 people) spent one to four months in an evacuation shelter or are still living in an evacuation shelter suggests that this topic remains a gap to focus on to increase the dignity and recovery for internally displaced people after disasters.

Table 6.1: Unweighted answers (descriptive)

Did you spend time in an evacuation shelter after the impact from Cyclone Freddy?	Areas with no AA programming			Areas with AA programming			Total	
	Count	% of group (769)	% of all (1,663)	Count	% of group (894)	% of all (1,663)	Total	% of all (1,663)
No	257	33%	15%	349	39%	21%	606	36%
No, but I hosted someone in my own house	35	5%	2%	30	3%	2%	65	4%
Yes, I am still living in an evacuation shelter	57	7%	3%	59	7%	4%	116	7%
Yes, I was there for 1 day – 7 days	78	10%	5%	99	11%	6%	177	11%
Yes, I was there for 1 month – 4 months	232	30%	14%	250	28%	15%	482	29%
Yes, I was there for 1 week – 4 weeks	110	14%	7%	107	12%	6%	217	13%
Grand total	**769**			**894**			**1,663**	

Figure 6.1: 2-D bar diagram with unweighted answers for areas with and without AA programming

DID YOU SPEND TIME IN AN EVACUATION SHELTER?

Areas with no AA programming ■ Areas with AA programming

Yes, I was there for 1 week. – 4 weeks	110 / 107
Yes, I was there for 1 month. – 4 months	232 / 250
Yes, I was there for 1 day. – 7 days	78 / 99
Yes, I am still living in an evacuation shelter.	57 / 59
No, but I hosted someone in my own house.	35 / 30
No	257 / 349
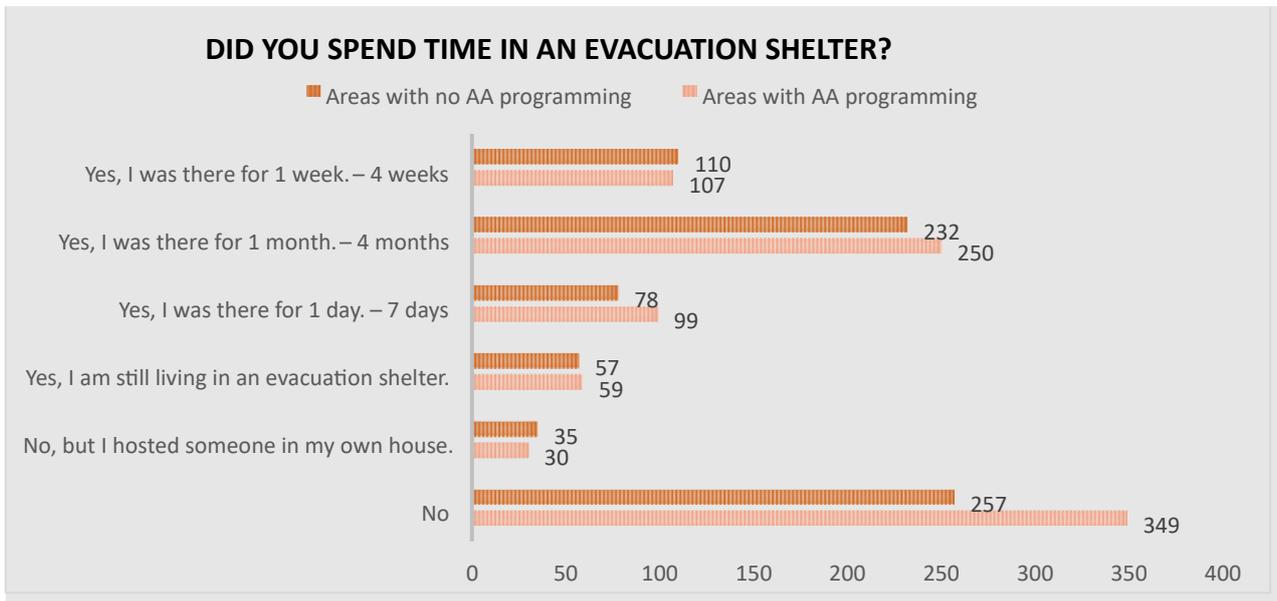
Table 6.2: Weighted answers (comparative)

Did you spend time in an evacuation shelter after the impact from Cyclone Freddy?	Areas with no AA programming		Areas with AA programming	
	Weighted	Split	Weighted	Split
No	559	46%	646	54%
No, but I hosted someone in my own house	76	58%	56	42%
Yes, I am still living in an evacuation shelter	124	53%	109	47%
Yes, I was there for 1 day – 7 days	170	48%	183	52%
Yes, I was there for 1 week – 4 weeks	239	55%	198	45%
Yes, I was there for 1 month – 4 months	504	52%	463	48%
Total	**1,672**		**1,656**	

Figure 6.2: 100% stacked bar diagram with weighted answers and margin of error (3.16%)

DID YOU SPEND TIME IN AN EVACUATION CENTRE?

	Areas with no AA programming	Areas with AA programming
Yes, I was there for 1 week. – 4 weeks	55%	45%
Yes, I was there for 1 month. – 4 months	52%	48%
Yes, I was there for 1 day. – 7 days	48%	52%
Yes, I am still living in an evacuation shelter.	53%	47%
No, but I hosted someone in my own house.	58%	42%
No	46%	54%
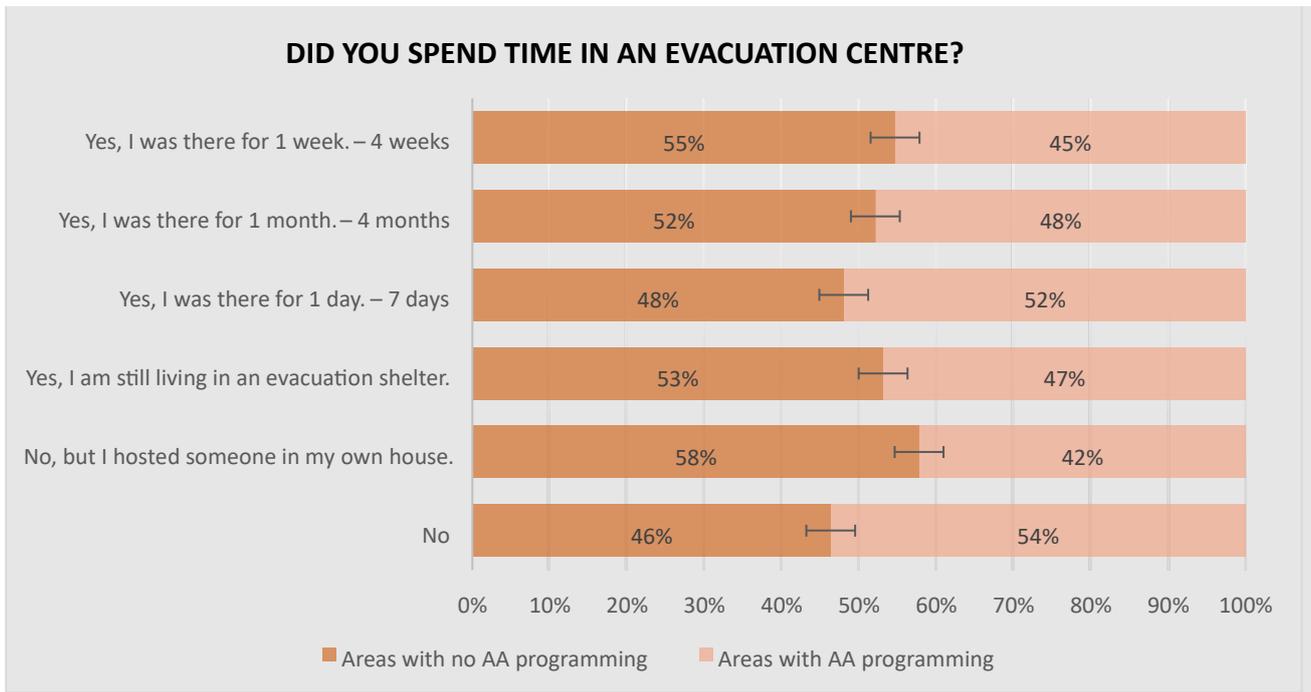
3.2.2. Differential findings depending on gender, age, and disability

The tables below illustrate how the respondents disaggregated on gender, age and disability answered on whether they had heard any early warnings, whether they believed the early warnings, if yes, did they take any early actions, and whether they spent more than one month in an evacuation shelter.

The data shows that the greatest overall disparity was for women with and without disabilities aged over 70, who both heard fewer early warnings than the other women age groups, took fewer early actions than the other women age groups (for those who did hear an early warning), and a higher percentage of them spent over one month in an evacuation shelter than the other women age groups.

The second biggest disparity was between persons with and without disabilities regarding whether they had heard the early warnings and taken any early actions. 47% of all women took an early action (411 respondents) while 39% of women with disabilities took an early action (78 respondents). This is a difference in 8 percentage points between women with disabilities and women without disabilities taking an early action. Both groups had previously heard an early warning and believed the warning.

For the men, 57% of all men took an early action (299 respondents) while 51% of men with disabilities took an early action (77 respondents). This is a difference in 6 percentage points between men with disabilities and men without disabilities taking an early action. Both groups had previously heard an early warning and believed the warning.

The third biggest disparity was how different genders believed in the early warnings if they heard one. For the men, 85% of them believed in the early warning (442 respondents), while for the women, 79% of them believed in the early warning (681 respondents). This is a difference in 6 percentage of responses between the men and women.

Table 7.1: Differential findings on EW and EA for women disaggregated on age and disability

7.1 Differential findings on EW and EA for women disaggregated on age and disability								
Description	**Total**	**18-30**	**31-40**	**41-50**	**51-60**	**61-70**	**Above 70**	**Blank age**
Number of women	1,051	400	271	141	109	51	43	36
Number of women with disabilities	246	41	46	46	45	28	25	15
% of women with disabilities	**23%**	**10%**	**17%**	**33%**	**41%**	**55%**	**58%**	**42%**
Number of women who heard EW	866	324	234	125	85	39	25	34
% of all women who heard EW	82%	81%	86%	89%	78%	76%	58%	94%
Number of women with disabilities, who heard EW	200	35	40	42	34	23	12	14
% of women with disabilities, who heard EW	81%	85%	87%	91%	76%	82%	48%	93%
Percentage point difference between % of all women and women with disabilities, who heard EW	**-1**	**+4**	**+1**	**+2**	**-2**	**+6**	**-10**	**-1**
Number of all women, who believed EW (if they heard it)	681	250	179	102	72	29	21	28
% of all women, who believed EW (if they heard it)	79%	77%	76%	82%	85%	74%	84%	82%
Number of women with disabilities, who believed the EW (if they heard it)	157	26	33	35	27	16	10	10
% of women with disabilities, who believed the EW (if they heard it)	79%	74%	83%	83%	79%	70%	83%	71%
Percentage point difference between % of all women and women with disabilities, who believed the EW (if they heard it)	**0**	**-2**	**+7**	**+1**	**-6**	**-4**	**-1**	**-11**
Number of all women, who heard EW and did EA before the disaster impact	411	157	109	57	45	17	11	15
% of all women, who heard EW and did EA before the disaster impact	47%	48%	47%	46%	53%	44%	44%	44%
Number of women with disabilities who heard EW and did EA before the disaster impact	78	11	14	19	13	12	4	5
% of women with disabilities, who heard EW and did EA before the disaster impact	39%	31%	35%	45%	38%	52%	33%	36%
Percentage point difference between % of all women and women with disabilities, who heard EW and did EA before the disaster impact	**-8**	**-17**	**-12**	**-1**	**-15**	**+8**	**-11**	**-8**
Number of all women, who spent more than one month in an evacuation shelter	402	129	99	59	60	26	18	11
% of all women, who spent more than one month in an evacuation shelter	38%	32%	37%	42%	55%	51%	42%	31%
Number of women with disabilities, who spent more than one month in an evacuation shelter	96	9	15	19	23	15	11	4
% of women with disabilities, who spent more than one month in an evacuation shelter	39%	22%	33%	41%	51%	54%	44%	27%

Percentage point difference between % of all women and women with disabilities, who spent more than one month in an evacuation shelter	+1	-10	-4	-1	-4	+3	+2	-4

Table 7.2: Differential findings on EW and EA for men disaggregated on age and disability

7.2 Differential findings on EW and EA for men disaggregated on age and disability								
Description	**Total**	**18-30**	**31-40**	**41-50**	**51-60**	**61-70**	**Above 70**	**Blank age**
Number of men	612	197	131	106	84	38	29	27
Number of men with disabilities	176	33	26	38	37	19	14	9
% of men with disabilities	**29%**	**17%**	**20%**	**36%**	**44%**	**50%**	**48%**	**33%**
Number of all men who heard EW	523	166	118	82	77	27	26	27
% of all men who heard EW	85%	84%	90%	77%	92%	71%	90%	100%
Number of men with disabilities, who heard EW	151	29	26	31	30	13	13	9
% of men with disabilities, who heard EW	86%	88%	100%	82%	81%	68%	93%	100%
Percentage point difference between % of all men and men with disabilities, who heard EW	**+1**	**+4**	**+10**	**+5**	**-11**	**-3**	**+3**	**0**
Number of all men, who believed the EW (if they heard it)	442	140	93	70	64	24	25	26
% of all men, who believed the EW (if they heard it)	85%	84%	79%	85%	83%	89%	96%	96%
Number of men with disabilities, who believed the EW (if they heard it)	129	25	18	27	25	12	13	9
% of men with disabilities, who believed the EW (if they heard it)	85%	86%	69%	87%	83%	92%	100%	100%
Percentage point difference between % of all men and men with disabilities, who believed the EW (if they heard it)	**0**	**+2**	**-10**	**+2**	**0**	**+3**	**+4**	**+4**
Number of all men, who heard EW and did EA before the disaster impact	299	102	65	40	44	15	18	15
% of all men, who heard an EW and did EA before the disaster impact	57%	61%	55%	49%	57%	56%	69%	56%
Number of men with disabilities, who heard EW and did EA before the disaster impact	77	12	12	14	17	8	11	3
% of men with disabilities, who heard EW and did EA before the disaster impact	51%	41%	46%	45%	57%	62%	85%	33%
Percentage point difference between % of all men and men with disabilities, who heard EW and did EA before the disaster impact	**-6**	**-20**	**-9**	**-4**	**0**	**+6**	**+15**	**-22**
Number of all men, who spent more than one month in an evacuation shelter	196	66	27	33	34	18	15	3
% of all men, who spent more than one month in an evacuation shelter	32%	34%	21%	31%	40%	47%	52%	11%
Number of men with disabilities, who spent more than one month in an evacuation shelter	52	5	3	12	15	8	7	2

% of men with disabilities, who spent more than one month in an evacuation shelter	30%	15%	12%	32%	41%	42%	50%	22%
Percentage point difference between % of all men and men with disabilities, who spent more than one month in an evacuation shelter	**-2**	**-19**	**-9**	**+1**	**+1**	**-5**	**-2**	**+11**

3.2.3. Differential findings depending on interpersonal and community engagement

Respondents could choose multiple answers, which is why the sum of the individual tables exceeds the total number of respondents. The survey had seven different answer options as detailed in the section "3.1.3. Interpersonal and community engagement" on page 11. The answers "at work (public / organisational / industrial employer)", "at the bigger market in the boma or by the main road" and "at school" have been amalgamated into the category "in a normal week I spend time with a public employer, at the large market, or at school". Since respondents could choose multiple answers, the amalgamated category has a lower number of respondents to avoid double counting. The answers "at the local market in my community" and "at a religious gathering" have been amalgamated into the category "in a normal week I spend time together with the local community". The same note about not double counting applies.

The answers have been grouped into five categories to indicate whether the respondents:

1. Typically spend time with their household, meaning restricted engagement with non-family
2. Typically spend time with their own farming, meaning restricted engagement with the area
3. Typically spend time with a private employer, meaning restricted engagement with the community
4. Typically spend time with the local community, meaning restricted engagement with the public
5. Typically spend time with the public, meaning access to random and opportunistic information sharing

The five groups are analysed in the tables below to give an indication of whether the informal information sharing of Early Warnings and the respondents' belief in them, and subsequent agency to take an early action has a correlation with the respondents' typical community engagement. The tables show the number of respondents that answered, "Yes I heard an Early Warning", "Yes I heard an Early Warning and believed it", and "Yes, I heard an Early Warning, believed it, and did an Early Action". All tables are also disaggregated on whether the respondents live in an area with or without previous Anticipatory Action programming.

The data shows that respondents, who spend time in a normal week surrounded by the local community and in public institutions heard more early warnings, believed them at a higher rate, and conducted more early actions than respondents who spend time at their own house, at their own farm, or with a private employer. This both suggests that public dissemination of early warnings is effective, and that more efforts should be made to reach those community members who do not participate in public spheres.

The data also shows throughout that respondents, who lived in areas with previous AA programming, almost ubiquitously scored above the average (all respondents) in each category, while respondents in areas with no previous AA programming almost consistently scored below the average. This suggests that living in an area with previous AA programming increases your chances of hearing an early warning, believing in the early warning, and doing an early action with almost 20 percentage points compared to similar communities that have not had previous Anticipatory Action programming.

92% of respondents (both men and women) in areas with previous AA programming heard an early warning (824 people), compared to 73% of respondents (70% women and 78% men) in areas with no previous AA programming (769 people). This suggests that AA interventions may play a role in reducing gendered barriers to accessing early warnings, helping to ensure more equitable access to vital information regardless of gender. On the other side, the data in table 7.1 and 7.2 suggests that men (with and without disabilities) have a comparative advantage over women (with and without disabilities) when it comes to accessing early warnings and taking early actions. A total of 57% of men heard the EW and took EA, compared to a total of 47% of women.

Further investigation is needed to confirm the specific elements of AA programming that contribute to a potential equalization and to explore whether similar improvements occur for other vulnerable groups, such as the elderly and people with disabilities.

Table 8.1: All respondents

	Women	% of all in group	Deviation (% point) from all respondents in category	Men	% of all in group	Deviation (% point) from all respondents in category	Total	% of all in group	Deviation (% point) from total respondents
All respondents	**1,051**			**612**			**1,663**		
Yes I heard EW	866	82%	-	523	85%	-	1,389	84%	-
Yes I heard EW and believed EW	681	65%	-	442	72%	-	1,123	68%	-
Heard EW, believed EW, and did EA	351	33%	-	265	43%	-	616	37%	-
Areas with no AA programming	**473**			**296**			**769**		
Yes I heard EW	333	70%	-12%	232	78%	-7%	565	73%	-10%
Yes I heard EW and believed EW	252	53%	-12%	192	65%	-7%	444	58%	-10%
Heard EW, believed EW, and did EA	117	25%	-9%	92	31%	-12%	209	27%	-10%
Areas with AA programming	**578**			**316**			**894**		
Yes I heard EW	533	92%	10%	291	92%	7%	824	92%	9%
Yes I heard EW and believed EW	429	74%	9%	250	79%	7%	679	76%	8%
Heard EW, believed EW, and did EA	234	40%	7%	173	55%	11%	407	46%	8%

Table 8.2: In a normal week I spend time at home

	Women	Men	Total	% of all in group	Deviation (% point) from all respondents in category	Deviation (% point) from total respondents
All respondents	**674**	**294**	**968**			
Yes I heard EW	543	236	779	80%		-3%
Yes I heard EW and believed EW	421	200	621	64%		-3%
Heard EW, believed EW, and did EA	204	113	317	33%		-4%
Areas with no AA programming	**340**	**164**	**504**			
Yes I heard EW	235	118	353	70%	-10%	-3%
Yes I heard EW and believed EW	176	99	275	55%	-10%	-3%
Heard EW, believed EW, and did EA	86	47	133	26%	-6%	-1%

Areas with AA programming	334	130	464			
Yes I heard EW	308	118	426	92%	11%	0%
Yes I heard EW and believed EW	245	101	346	75%	10%	-1%
Heard EW, believed EW, and did EA	118	66	184	40%	7%	-6%

Table 8.3: In a normal week I spend time at my own or my family's farm

8.3 In a normal week I spend time at my own or my family's farm	Women	Men	Total	% of all in group	Deviation (% point) from all respondents in category	Deviation (% point) from total respondents
All respondents	**369**	**206**	**575**			
Yes I heard EW	311	178	489	85%		2%
Yes I heard EW and believed EW	262	150	412	72%		4%
Heard EW, believed EW, and did EA	141	93	234	41%		4%
Areas with no AA programming	**148**	**75**	**223**			
Yes I heard EW	106	60	166	74%	-11%	1%
Yes I heard EW and believed EW	81	45	126	57%	-15%	-1%
Heard EW, believed EW, and did EA	37	27	64	29%	-12%	2%
Areas with AA programming	**221**	**131**	**352**			
Yes I heard EW	205	118	323	92%	7%	0%
Yes I heard EW and believed EW	181	105	286	81%	10%	5%
Heard EW, believed EW, and did EA	104	66	170	48%	8%	3%

Table 8.4: In a normal week I spend time working for a private employer

	Women	Men	Total	% of all in group	Deviation (% point) from all respondents in category	Deviation (% point) from total respondents
All respondents	**68**	**64**	**132**			
Yes I heard EW	38	60	98	74%		-9%
Yes I heard EW and believed EW	41	49	90	68%		1%
Heard EW, believed EW, and did EA	17	26	43	33%		-4%
Areas with no AA programming	**37**	**38**	**75**			

	Women	Men	Total	% of all in group	Deviation (% point) from all respondents in category	Deviation (% point) from total respondents
Yes I heard EW	10	34	44	59%	-16%	-15%
Yes I heard EW and believed EW	23	29	52	69%	1%	12%
Heard EW, believed EW, and did EA	8	11	19	25%	-7%	-2%
Areas with AA programming	**31**	**26**	**57**			
Yes I heard EW	28	26	54	95%	20%	3%
Yes I heard EW and believed EW	18	20	38	67%	-2%	-9%
Heard EW, believed EW, and did EA	9	15	24	42%	10%	-3%

Table 8.5: In a normal week I spend time together with the local community

	Women	Men	Total	% of all in group	Deviation (% point) from all respondents in category	Deviation (% point) from total respondents
All respondents	**157**	**86**	**243**			
Yes I heard EW	141	75	216	89%		5%
Yes I heard EW and believed EW	115	63	178	73%		6%
Heard EW, believed EW, and did EA	60	39	99	41%		4%
Areas with no AA programming	**63**	**39**	**102**			
Yes I heard EW	54	30	84	82%	-7%	9%
Yes I heard EW and believed EW	49	22	71	70%	-4%	12%
Heard EW, believed EW, and did EA	25	12	37	36%	-4%	9%
Areas with AA programming	**94**	**47**	**141**			
Yes I heard EW	87	45	132	94%	5%	1%
Yes I heard EW and believed EW	66	41	107	76%	3%	0%
Heard EW, believed EW, and did EA	35	27	62	44%	3%	-2%

Table 8.6: In a normal week I spend time with a public employer, at the large market, or at school

8.6 In a normal week I spend time with a public employer, at the large market, or at school	Women	Men	Total	% of all in group	Deviation (% point) from all respondents in category	Deviation (% point) from total respondents
All respondents	**102**	**121**	**223**			
Yes I heard EW	95	114	209	94%		10%

Yes I heard EW and believed EW	81	104	185	83%		15%
Heard EW, believed EW, and did EA	46	73	119	53%		16%
Areas with no AA programming	**44**	**57**	**101**			
Yes I heard EW	41	53	94	93%	-1%	20%
Yes I heard EW and believed EW	36	50	86	85%	2%	27%
Heard EW, believed EW, and did EA	16	29	45	45%	-9%	17%
Areas with AA programming	**58**	**64**	**122**			
Yes I heard EW	54	61	115	94%	1%	2%
Yes I heard EW and believed EW	45	54	99	81%	-2%	5%
Heard EW, believed EW, and did EA	30	44	74	61%	7%	15%

4. Conclusions

4.1 Early Warnings

A much larger percentage of respondents living in areas with no Anticipatory Action (AA) programming heard no early warnings about Tropical Cyclone Freddy before it happened (27% of the group) compared to respondents, who lived in areas with AA programming (8% of the group). This suggests that having AA programming improves the reach of early warnings ahead of a forecast impact.

A larger proportion of respondents in areas with AA programming heard early warnings 4 to 6 days before the impact of TC Freddy (46% of the group) compared to respondents in areas with no AA programming (31% of the group). Roughly the same comparative number of respondents heard the early warnings 1 to 3 days before the impact or on the day of the impact of TC Freddy. These findings suggest that more people in areas with AA programming receive the alerts earlier, while all areas receive mass-messaging (e.g. radio messages and loudspeakers on top of cars) at the same time.

64% of the respondents in areas with previous AA programming answered that they believed the early warnings immediately (569 people) compared to 39% of the respondents in areas with no previous AA programming (301 people). 19% of the respondents in the areas with no previous AA programming believed the early warnings but had some doubts and additional questions (143 people), while 12% of the respondents in areas with previous AA programming believed the early warnings but had some doubts (110 people). Comparatively more people believed it immediately and had fewer doubts in areas with previous AA programming.

An equal percentage of the two groups did not believe the early warnings that they heard (14% of each). This was, however, only 17% of all the respondents. Of all the respondents that heard an early warning regardless of their location, 83% believed it either immediately or with some follow up questions (1,123 people).

Seven respondents had additional comments to the question. Six had answered that they had doubts, and one had answered that they believed the early warning message right away. All answered that in the past they used to doubt the validity of the early warning messages, but after the current events with early warnings accurately forecasting multiple disasters, they have started to strongly believe that the early warnings are true.

Consistent with findings from previous reviews on the early warnings ahead of Tropical Storm Ana in January 2022, most respondents who heard early warnings before the impact of Tropical Cyclone Freddy in March 2023 heard so on the radio. This applies to both areas with and without previous AA programming, although the weighted comparison shows that comparatively more people in areas with previous AA programming heard the early warnings on the radio.

Other early warning channels that reached respondents were through mobile phones; the local Civil Protection Committee, Early Warning Team members, Red Cross volunteers, school children or government extension workers; and through public spheres such as marketplaces, religious gatherings and through loudspeaker announcements on top of cars.

4.2 Early Actions

An equal percentage of respondents in each group (with and without previous AA programming) had heard an early warning, believed it, and done no early actions, while a larger number of the group with previous AA programming had heard an early warning, believed it, and done an early action (49%), than the respondents in the areas with no previous AA programming (32%).

The comparative analysis shows that the respondents answered that they did "nothing" in equal amounts regardless of whether there had been AA programming in the area or not, but across all other sectors and human agency, the areas with previous AA programming scored comparatively higher. This indicates that in areas with previous AA programming, people take more anticipatory actions to both help themselves and to help others.

The descriptive answers show that the most popular early action was to engage in the community-based early warning system, i.e., spreading knowledge and awareness about the upcoming impact (448

respondents). The second-most popular early action was to protect shelters (262 respondents); the third-most popular early action was to evacuate early (185 respondents); and the fourth-most popular early action was to secure livelihoods (139 respondents). Less than 40 respondents conducted early actions in each of the sectors Mental Health and Psychosocial Support (MHPSS), protecting nature and waste management, and engaging in disaster management. Some respondents did however add a follow-up comment that they tried to seek mental health support, but that this support was unavailable. The score on respondents who sought out MHPSS as an early action might therefore be lower due to inaccessible resources rather than disinterest.

Related to human agency, the respondents answered that most of them did nothing (737 respondents); the second-largest group helped others (588 respondents); the third-largest group helped themselves (382 respondents); and the final group received help from others (128 respondents).

4.3 Internal displacement
The weighted data findings indicate that respondents were equally impacted across areas with and without Anticipatory Action programming. Anticipatory Action programmes in Malawi have not yet had a strong systematic focus on local community-based preparedness to evacuate, permanent evacuation facilities and infrastructure, community-based capacity to manage evacuation shelters, education in emergencies, and sustainable long-term recovery strategies for internally displaced people.

The unweighted data finding that 36% of the respondents (598 people) spent one to four months in an evacuation shelter or are still living in an evacuation shelter suggests that this topic remains a gap to focus on to increase the dignity and recovery for internally displaced people after disasters.

4.4 Protection, Gender, and Inclusion
The data shows that the greatest overall disparity was for women with and without disabilities aged over 70, who both heard fewer early warnings than the other women age groups, did fewer early actions than the other women age groups (for those who did hear an early warning), and a higher percentage of them spent over one month in an evacuation shelter than the other women age groups.

The second biggest disparity was between persons with disabilities and persons without disabilities regarding whether they had heard the early warnings and taken any early action. 47% of all women took an early action (411 respondents) while 39% of women with disabilities took an early action (78 respondents). This is a difference in 8 percentage points between women with and without disabilities taking an early action. Both groups had previously heard an early warning and believed the warning.

For the men, 57% of all men took an early action (299 respondents) while 51% of men with disabilities took an early action (77 respondents). This is a difference in 6 percentage points between men with and without disabilities taking an early action. Both groups had previously heard an early warning and believed the warning.

The third biggest disparity was how different genders believed in the early warnings if they heard one. For the men, 85% of them believed in the early warning (442 respondents), while for the women, 79% of them believed in the early warning (681 respondents). This is a difference in 6 percentage points between the men and the women respondents.

4.5 Interpersonal and community engagement
The data shows that respondents, who spend time in a normal week surrounded by the local community and in public institutions heard more early warnings, believed them at a higher rate, and conducted more early actions than respondents who spend time at their own house, at their own farm, or with a private employer. This both suggests that public dissemination of early warnings is effective, and that more efforts should be made to reach those community members who do not participate in public spheres.

The data also shows throughout that respondents, who lived in areas with previous AA programming, almost ubiquitously scored above the average (all respondents) in each category, while respondents in areas with no previous AA programming almost consistently scored below the average. This suggests that living in an area with previous AA programming increases your chances of hearing an early warning, believing in the

early warning, and doing an early action with almost 20 percentage points compared to similar communities that have not had previous Anticipatory Action programming.

92% of respondents (both men and women) in areas with previous AA programming heard an early warning (824 people), compared to 73% of respondents (70% women and 78% men) in areas with no previous AA programming (769 people). This suggests that AA interventions may play a role in reducing gendered barriers to accessing early warnings, helping to ensure more equitable access to vital information regardless of gender. Further investigation is needed to confirm the specific elements of AA programming that contribute to this equalization and to explore whether similar improvements occur for other vulnerable groups, such as the elderly and people with disabilities.

5. Addendum

5.1. Technical terminology and translations in Chichewa and English

Malawi has around 16 local languages. Chichewa is the main administrative language that most Malawians will learn alongside their local or tribal language. Many will also learn English, especially in the larger metropolitan areas, but rural locations are more likely to only know their local language and Chichewa. Chichewa is a synthetic language, meaning the syntactic structure differs from English, which is an analytic language. The Chichewa terms are therefore more connected and explanatory than the English terms.

The table below shows the English terms that have been used in the comparative study and their standard Chichewa translations and includes the direct translation back to English. The translations illustrate how the respondents have been explained the terminology that they have been asked about in the study.

English term	Chichewa term	Direct English translation
Anticipatory Action (AA)	Kuchitapo kanthu pomwe talandira machenjezo ngozi isanachitike	Taking action when we receive warnings before an accident occurs
Early Action (EA)	Kukonzekera mwansanga	Acting quickly in preparation
Early Warning (EW)	Machenjezo a ngozi zokugwa mwadzizidzi	Warnings for dangerous hazards
Early warning messages	Kupereka uthenga wamachenjezo	Providing a warning message
Early Warning Systems (EWS)	Ndondomeko ya machenjezo yokhazikika	Standardised warning system
Forecast-based Action (FbA)	Kuchitapo kanthu potsatira ulosi wa zanyengo	Taking action in response to weather forecasts
Impact-based Forecasting (IbF)	Zomwe zingakhudzidwe potsatira ulosi wazanyengo	What can be affected according to the weather forecast
Triggered activation	Kuyambitsa zinthu zochitika	Initiating events

5.2. Names, administrative levels, and corresponding committee structures in Malawi

Geographical names have been spelled according to the names in the 2018 Population and Housing Census whenever available. Names of villages and GVHs where the official spelling is not available may differ from other sources. The naming convention of the different administrative levels was correct as of October 2023 but may have subsequently changed with administrative restructuring.
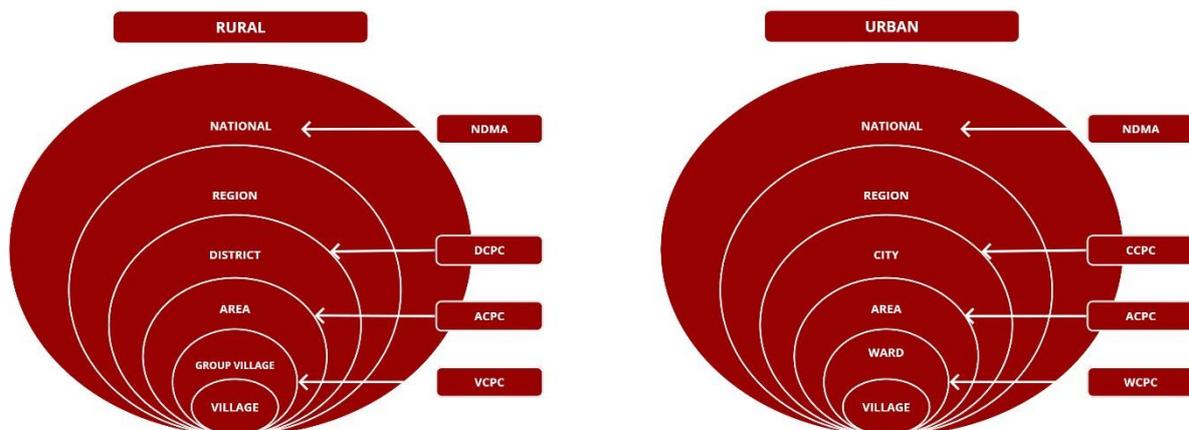

Diagram 1: Administrative structures in Malawi in rural and urban locations (correct as of October 2023).

5.3. Additional data and limitations to use

The household survey dataset also includes more detailed information on the situation at the evacuation centres they sought refuge in immediately after the cyclone, which could offer an insight into the conditions that were present and absent.

This comparative study did not examine counterfactual questions to determine feasibility of different Anticipatory Action modalities or their potential impact on early action. Such questions could for example examine the feasibility of anticipatory cash distributions by asking the question "would you have done any other/more early actions if you were given money ahead of the disaster?", or the appropriateness of PASSA as anticipatory shelter assistance by asking the question "would you have sourced the materials to reinforce your house if someone in your community was trained in how to protect houses from cyclones and could tell you what to do?". Another approach not examined in this comparative study was the challenges that prevented community members from taking early actions and open-ended solutions. Such questions could for example be framed as "after you heard the early warning, what assistance would you have needed in order to evacuate early to a safe shelter?".

While the study was designed to collect enough data to be reliably representative for the population of the entire country (3.16% margin of error and 99% confidence interval for an estimated population of approximately 20 million people in 2023), the data offers a snapshot of the surveyed areas and is not meant to be extrapolated to form general conclusions about the whole Southern region or the whole country. Many more contextual factors would influence the answers at local, committee, and district level in the areas not included in this study depending e.g. on the specific areas' hazard profiles, history of impact, education and literacy level, Chichewa language comprehension, radio reach, disaster preparedness, environmental state, institutional and physical access, governmental and organisational presence, and more.

Some specific answers were only given by a low number of respondents. In such cases they are included in the report, but no conclusions are drawn from them as the margin of error would be too large to extract any generalised hypothesis from such a small number. The absence of answers does however indicate that of all 1,663 people who were asked, very few provided that exact answer, and it could therefore be theorised that the people in these communities do not have adequate access to or information about these opportunities.

5.4. Timeline

To fit with annual business continuity and other commitments in the MRCS/DRC Anticipatory Action team, the comparative study data collection was conducted during one week in July 2023 (Nsanje and Blantyre districts) and one week in October 2023 (Chikwawa and Mulanje districts).

Date	District	Household Survey
July 26, 2023	Nsanje	TA Chimombo
July 27, 2023	Nsanje	TA Tengani
July 29, 2023	Blantyre	Misesa Ward
July 31, 2023	Blantyre	Bangwe Ward
October 24, 2023	Chikwawa	TA Lundu
October 25, 2023	Chikwawa	TA Mlilima
October 27, 2023	Mulanje	TA Njema