



# ECRP Flood Study

Assessing the contribution of ECRP to  
flood resilience

Final Report

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# Acronyms

ACPC	Area Civil Protection Committee
ADC	Area Development Committee
ADDRMO	Assistant District Disaster Risk Management Officer
CA-ECRP	Christian Aid led Enhancing Community Resilience Programme sub-project
CFM	Community Forest Management
CPC	Civil Protection Committee
CU	Concern Universal
DC	District Council
DCPC	District Civil Protection Committee
DEC	District Executive Committee
DFID	Department For International Development
DISCOVER	Developing Innovative Solutions with Communities to Overcome Vulnerability Through Enhanced Resilience
DPD	Director of Planning and Development
DRM	Disaster Risk Management
DoDMA	Department of Disaster Management Affairs of Malawi
DRR	Disaster Risk Reduction
ECRP	Enhancing Community Resilience Programme
EMP	Environmental Management Plan
EWS	Early Warning System
FGD	Focus Group Discussion
FHH	Female Headed Households
GVH	Group Village Head
Ha	Hectare
IRLAD	Irrigation, Rural Livelihoods and Agricultural Development Project
MHH	Male Headed Household
MK	Malawi Kwacha
MVAC	Malawi Vulnerability Assessment Committee
NOAA	National Oceanic and Atmospheric Administration
NRM	Natural Resource Management
PMU	Programme Management Unit
TA	Traditional Authority
VCPC	Village Civil Protection Committee
VDC	Village Development Committee
VSL	Village Savings and Loans
WFP	World Food Programme

# Executive Summary

## Background

In January 2015 flooding resulting from heavy seasonal rainfall, caused extensive damage across Malawi. 15 districts were directly affected by the floods, with the southern districts of Nsanje, Chikwawa, Phalombe and Zomba worst affected. Flooding is not uncommon in Malawi, however the scale of this disaster was unprecedented. Malawi's rainfall in January 2015 was the highest on record, with the resulting flood representing a one in 500 year event. January's devastating floods have presented a unique occasion for the impacts of the Enhancing Community Resilience Programme (ECRP) on the resilience of affected populations to be examined.

The ECRP aims to increase the capacity of stakeholders at different levels to respond to the impacts of increasing climate variability and climate change, whilst ensuring that local livelihood practices are better adapted to these impacts. The objective of this study was to assess the extent to which participation in ECRP enhanced community and household preparedness for, response to and recovery from the floods in one of the flood affected Districts - Nsanje.

## Approach

A mixed methods approach was employed to address the research questions. This involved gathering data from a range of sources, which enabled findings to be triangulated to further improve the breadth, depth, and validity of the evidence. Data were collected from four key sources:

- Household survey data
- Key informant interviews
- Focus group discussions
- Secondary data

Data were collected from sample sites in ECRP Project areas for both DISCOVER and CA-ECRP consortia, and non ECRP beneficiary areas were sampled in neighbouring Chikwawa District.

## Findings

The findings have been ordered/sequenced according to four key evaluation questions:

**Question 1:** How has participation in the ECRP impacted on early warning and preparedness?

**Finding 1:** ECRP beneficiary communities are more likely to have received warning of the floods.

**Finding 2:** ECRP beneficiaries have more sources of warning, information, and a greater knowledge of potential sources of support to prepare for flooding.

**Finding 3:** ECRP beneficiary communities are more likely to have a VCPC.

**Finding 4:** Programme beneficiaries are more likely to take action in response to warning, but over half took no action.

**Question 2:** How has participation in ECRP impacted on loss during the flood and immediate coping strategies?

**Finding 5:** ECRP beneficiaries were less severely affected by the floods.

**Finding 6:** VCPCs are the most important actor in immediate flood response.

**Finding 7:** Limited prepositioning of supplies and finance was a key barrier to effective flood response.

**Finding 8:** ECRP Beneficiaries have a wider range of coping mechanisms at their disposal compared to non-beneficiaries.

**Question 3:** How has participation in the ECRP impacted beneficiaries' ability to recover from flood impacts?

**Finding 9:** The barriers impeding post flood recovery are similar in beneficiary and non-beneficiary communities.

**Finding 10:** ECRP beneficiaries are most likely to receive post flood support for recovery actions through NGOs.

**Finding 11:** Involvement in ECRP activities is having a positive impact on post flood recovery.

**Question 4:** How has participation in the ECRP impacted on long term resilience?

**Finding 12:** ECRP interventions have limited influence on exposure to flood risk.

**Finding 13:** ECRP beneficiaries believe that the programme will reduce future vulnerability to flood hazards.

**Finding 14:** Afforestation, livestock pass-on and VSL are perceived to be the most important interventions for building resilience.

## Recommendations

The results of this study have highlighted a number of important lessons with respect to early warning and preparedness, disaster response and coping strategies, recovery and rehabilitation, and long-term risk reduction. Linked to these findings are nine recommendations to ECRP IPs and wider stakeholders, intended to improve the impact of the programme and further enhance the resilience of project beneficiaries. Several recommendations are also of relevance to at risk populations not currently benefiting from the ECRP.

**Recommendation 1:** ECRP NGOs should continue to identify appropriate radio stations and increase support for warnings through these channels for the 2016 flood season.

**Recommendation 2:** ECRP stakeholders should work closely with key national actors to ensure warning messages are clearly directed, unambiguous and provided to those at risk at the earliest possible opportunity.

**Recommendation 3:** IPs should continue to work with local stakeholders to ensure that community level awareness of actions plans is increased and that such plans are linked to previously determined scenarios and warnings.

**Recommendation 4:** ECRP NGOs should continue to focus on the capacity building of VCPCs, whilst encouraging the spread and harmonisation of this approach through the sharing of lessons and best practice with wider stakeholders.

**Recommendation 5:** ECRP NGOs should take action to facilitate the repositioning of resources at the district and community levels.

**Recommendation 6:** IPs should strengthen mechanisms to ensure that site specific post disaster needs inform recovery plans that take account of local circumstances.

**Recommendation 7:** ECRP partners should consider further engagement in activities that reduce exposure to risk.

**Recommendation 8:** IPs should work to cultivate and further develop channels for knowledge sharing between beneficiary communities, to enable learning to be shared and to ensure upstream activities do not increase the risk of downstream hazards.

**Recommendation 9:** Future ECRP activities should include afforestation and VSL components.

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# 1. Introduction

## 1.1 Background

In January 2015 flooding resulting from heavy seasonal rainfall, caused extensive damage across Malawi. 15 districts were directly affected by the floods, with the southern districts of Nsanje, Chikwawa, Phalombe and Zomba worst affected (see Figure 1 below). Flooding is not uncommon in Malawi, however the scale of this disaster was unprecedented. Malawi's rainfall in January 2015 was the highest on record, with the resulting flood representing a one in 500 year event (World Bank 2015).

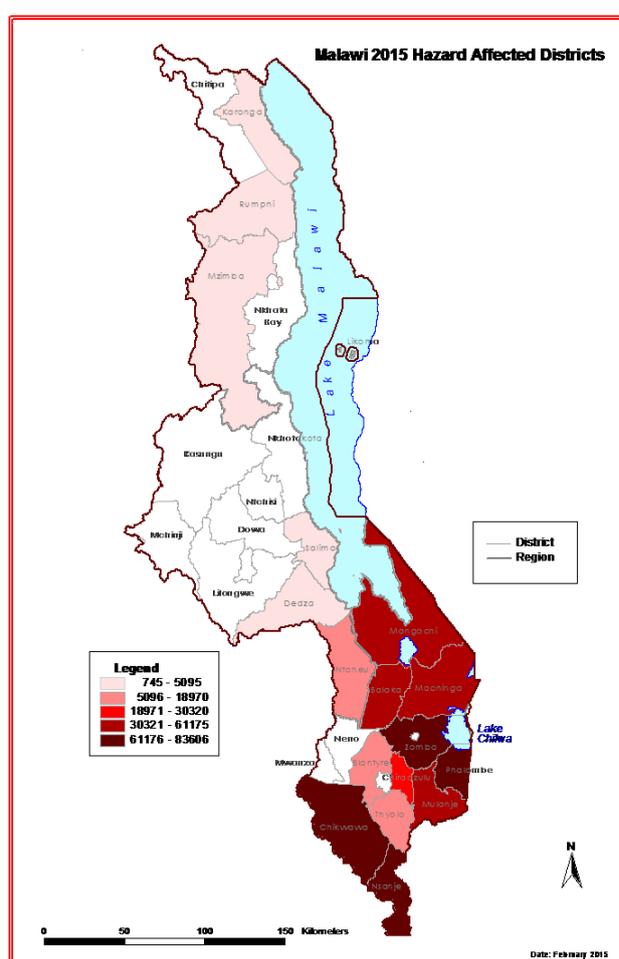


Figure 1 Flood affected districts taken from MVAC Rapid Food Security Assessment Report

The social, economic and environmental impacts of the flooding reflect the exceptional scale of the disaster. Over 1.1 million people have been affected, with 230,000 people internally displaced. By March 2015, 106 people had been killed and a further 172 reported missing (World Bank 2015). The impacts of the flooding extended beyond direct human losses with over half a million houses destroyed, 90,000ha of cropland inundated, and over 200,000 head of livestock lost to the flood waters. In a country where about 30% of GDP is derived from agriculture and where 85% of the population are rural, such losses are particularly significant. The World Bank has estimated that the cost of damage and losses resulting from the flood could be as much as \$335 million, whilst the anticipated cost of recovery and reconstruction has been put at an additional \$494 million.

## 1.2 Study Objectives

The ECRP aims to increase the capacity of stakeholders at different levels to respond to the impacts of increasing climate variability and climate change, whilst ensuring that local livelihood practices are better adapted to these impacts. This includes interventions which:

- Strengthen DRM systems at local, district and national level including early warning and contingency planning;
- Improve information sharing on DRM through the production of lessons learned and engagement in multi-stakeholder platforms.

January's devastating floods have presented a unique occasion for the impacts of the programme on the resilience of affected populations to be examined. In short, the objective of this evaluation is to assess the contribution of the ECRP to resilience building at the household and community level, in flood affected districts of Malawi. In order to achieve this end it examines and compares the impacts of, and responses to flooding amongst affected communities benefiting from ECRP interventions, with affected communities that are not.

## 1.3 Research Questions

In order to achieve this broad objective, the evaluation is focused on four key research questions organised around key stages of the DRR cycle: preparedness and early warning; individual disaster response/coping; recovery and rehabilitation; and long-term risk reduction.

- i. How has participation in the ECRP impacted on early warning and preparedness?
- ii. How has participation in ECRP impacted on loss during the flood and immediate coping strategies?
- iii. How has participation in the ECRP impacted beneficiaries' ability to recover from flood impacts?
- iv. How has participation in the ECRP impacted on long term resilience?

This report begins by outlining the approach and methodology taken to address these research questions. The results of the study and their implications are subsequently analysed, before the conclusions of the study are presented and key recommendations discussed.

## 2. Methodology

### 2.1 Study Area

Nsanje, Malawi's southernmost district, was selected as the focus of this evaluation. As discussed above, Nsanje was amongst the areas most severely affected by the flooding with some estimates indicating that almost 80,000 people have been affected within the district, with over 40,000 residents displaced (MVAC 2015).

The World Bank's post disaster needs assessment report (2015) estimates the value of crops lost to the floods in Nsanje to be around MK 674,000,000, the cost of livestock losses to be MK2,469,000,000, whilst the cost of damage to housing in Nsanje has been put as high as 3 billion MK.

The loss and damage of crops, food items, household assets, livestock, and infrastructure caused by the flooding has had significant impacts on the subsistence activities and livelihoods of those living in Nsanje. As of February 2015 31% of families reliant on farming in the district did not have their own food (MVAC 2015). Given that Malawi's southern districts have a disproportionate share of the country's poor, combined with the greater extent of the flooding in these districts, it seems likely that the participants in this research are amongst Malawi's least resilient.

Nsanje is the only district covered by this programme that includes both CA-ECRP and DISCOVER consortium operational areas. Focusing the study in this district also enables the impact of both consortia on community level resilience to be assessed, as well as highlighting issues of relevance to both consortia and areas for potential collaboration and learning. This study is therefore of direct relevance to both ECRP consortia, providing evidence of how their activities are influencing the resilience of beneficiaries at the local scale.

### 2.2 Approach

A mixed methods approach was employed to address the four key evaluation questions outlined above. A mixed methods approach to evaluation enables the distinct strengths of both qualitative and quantitative approaches to be built upon, whilst overcoming the limitations associated with employing each approach in isolation. Gathering data from a range of sources also enables findings to be triangulated to further improve the breadth, depth, and validity of the data.

In the context of this study data were collected from four key sources. Survey data gathered from the household level provides an overview of the relationships between components of the ECRP and resilience at the local level; qualitative data adds flesh to these figures, enabling these relationships to be interrogated and better understood. This is not the first piece of work conducted into the floods and this study must therefore be mindful of the work that has already been done in this area, to build upon it and to use it as a further point for triangulation.

## 2.3 Household Survey Data

As part of the overall annual review of ECRP a survey was administered to over 1,000 respondents to track progress on impact, outcome, and output indicators. Some of the quantitative data required to evaluate the impact of ECRP on resilience to flooding in Nsanje was generated through responses to existing questions from this survey, however flood-affected households in Nsanje were issued with a customised survey with supplementary questions to ensure that responses of relevance to all of the study's research questions were received.

In total the flood resilience survey was administered to 248 beneficiaries of the ECRP programme in Nsanje. Respondents were drawn from flood-affected households in areas identified by the implementing NGOs prior to the sampling. Survey responses were also gathered from 200 flood affected non-beneficiaries in Chikwawa with this data used to compare dimensions of resilience between beneficiaries and non-beneficiaries of the ECRP. These households are found in TAs which border Nsanje district, and were selected because there were no flood-affected households in Nsanje District where ECRP or similar programmes (e.g. the USAID funded WALA programme) had not been operational. Annex 4 provides further detail on the sample for flood affected beneficiary households in Nsanje, and the comparison sample, identified during the survey implementation in discussion with stakeholders at the district level.

The focus within the survey on standardised closed-ended questions allows comparisons to be made between individuals and groups, and cautious generalisations to be made about the respondent population. Analysis of survey data was completed using SPSS. Simple descriptive statistics were employed to identify headline results, which were subsequently used to inform focus group and interview guide questions. These qualitative tools were, in turn, then used to further investigate the reasons behind the survey findings.

## 2.4 Qualitative Data

### 2.4.1 Interviews

As part of this evaluation a number of semi structured interviews were undertaken with key informants. This enabled additional detail to be obtained regarding stakeholder perceptions of the impacts of, responses to, and recovery from the recent floods. Interviews were conducted in Lilongwe with IPs, programme donors, and other key stakeholders. Further interviews were conducted at the sub-national level with the District Council and local government personnel, and representatives from local IPs.

A purposive, opportunistic approach to interviewee selection was adopted, to ensure that representatives from each of the key stakeholder organisations at the national and district levels were able to engage with this evaluation. Conducting interviews at this range of levels enabled information to be obtained on the cross-scalar issues, systems and procedures which interact to influence resilience at the local level.

Interview responses were transcribed in full and the resultant transcripts then coded into thematic groups to link the raw data to the four key evaluation questions. These broad categories were then refined through the addition of a second level of coding, focused on more detailed subcategories, inspired by the key themes emerging from the FGDs. The creation of these codes facilitated a more comprehensive understanding of the key themes of this study and the relationships between them. A full list of those people interviewed for this evaluation is included in Annex 3 of this report.

### 2.4.2 Focus Group Discussions

Focus groups are centrally concerned with the views of stakeholders, enabling respondents to highlight and provide detail on the issues that they deem to be of greatest importance. This research method represents a cornerstone of this evaluation, acting as the key qualitative research method at the community level.

In total 24 FGDs were conducted in 6 different GVHs, 4 ECRP beneficiary GVHs, and 2 not benefitting from the programme. Of the 16 FGDs conducted with beneficiaries, 8 were conducted in CA-ECRP sites whilst 8 were conducted at DISCOVER intervention sites. The 8 FGDs held with non-beneficiaries were conducted in neighbouring Chikwawa as this was deemed to represent a representative comparison group and would mirror the data collection completed in the household survey. Four FGDs were held at each site, with participants selected based on gender and perceived vulnerability (detailed in Table 1, below). The original intention had been to divide group into those with more than 6 months food (food secure)

and those with less (food insecure). In the event, this was not an appropriate distinction as very few respondents would have been classified as food secure. Instead, communities were asked to divide themselves into groups of those who were felt to be more vulnerable, and those who were less so.

<b>DISCOVER GVH</b>	<b>CA-ECRP GVH</b>	<b>Comparison GVH</b>
Kachere	Osiyana	Masanduko
- More Vulnerable Women	- More Vulnerable Women	- More Vulnerable Women
- More Vulnerable Men	- More Vulnerable Men	- More Vulnerable Men
- Less Vulnerable Men	- Less Vulnerable Men	- Less Vulnerable Men
- Less Vulnerable Women	- Less Vulnerable Women	- Less Vulnerable Women
Tizola	Chapinga	Belo
- More Vulnerable Women	- More Vulnerable Women	- More Vulnerable Women
- More Vulnerable Men	- More Vulnerable Men	- More Vulnerable Men
- Less Vulnerable Men	- Less Vulnerable Men	- Less Vulnerable Men
- Less Vulnerable Women	- Less Vulnerable Women	- Less Vulnerable Women

Table 1 Focus groups by GVH

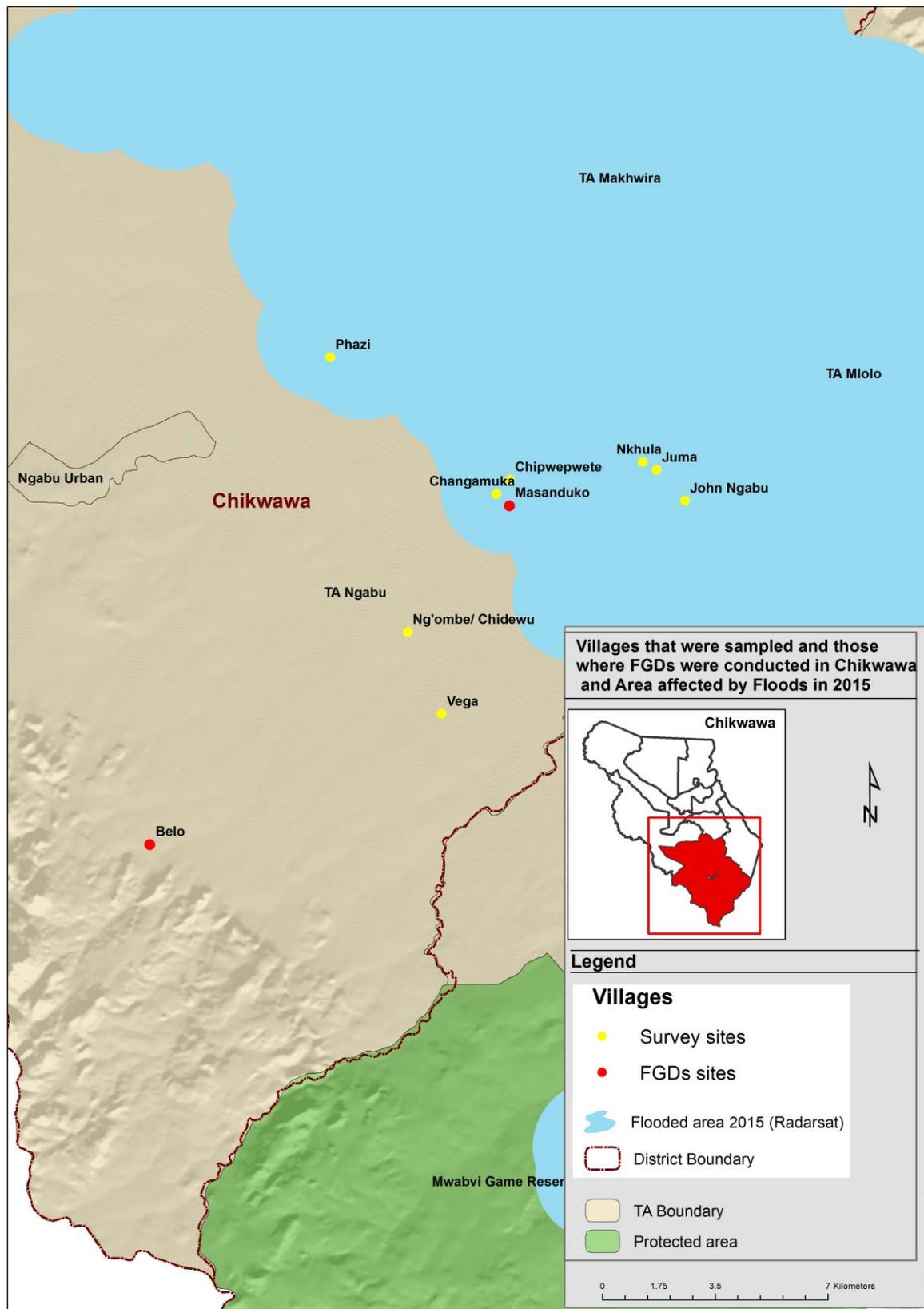
Focus group GVHs were selected by ECRP IPs at the local level. The evaluation team requested that respondents be from flood affected beneficiary (in Nsanje) and non-beneficiary (in Chikwawa) communities, and it is understood that the selected GVHs fit this criteria. Maps 1 and 2 illustrate Radarsat data of the flood water at its highest extent, alongside the FGD and survey location for which data is available. Focus group responses were noted down and transcribed, before being coded following the same protocol as that used for the interviews.

## 2.5 Secondary Data

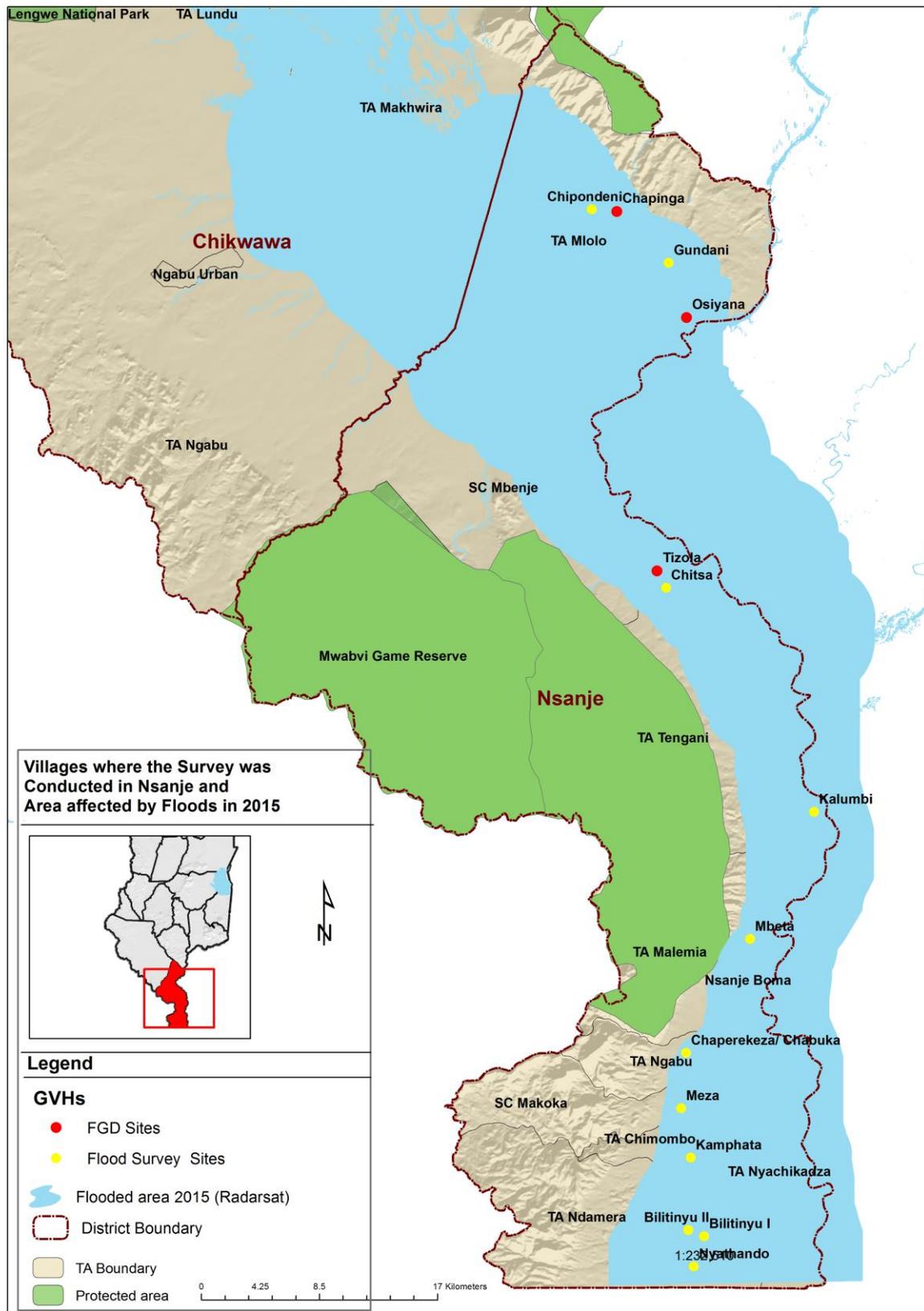
Consideration of, and reference to, the growing body of work relating to the recent Malawi floods is essential, to avoid the duplication of effort, to allow this evaluation to draw upon existing lessons learnt, and to act as a point against which data can be triangulated. In the completion of this evaluation a large number of relevant publications have been studied including reports by the government of Malawi, the World Bank, and the MVAC, as well as both public and internal documents authored by CA-ECRP and DISCOVER consortia members.

Document selection was predominantly guided by information gained through discussions and interviews with key stakeholders, enabling the selection of key documents of most relevance to the study. A full list of secondary literature consulted as part of this evaluation is included in Annex 2 of this report.

Map 1 A map illustrating selected non-beneficiary FGD sites and sampled villages



Map 2 A map illustrating selected beneficiary FGD sites and sampled villages



## 2.6 Limitations

As with any study of this nature there are a number of potential limitations of which it is important to be aware. In this case these relate primarily to issues of sample size and site selection, and to the limitations associated with the research methods selected.

In terms of the former, time constraints and budgetary limitations restricted the sample size for both FGDs and surveys. In relation to FGD site selection the study team had limited control and selection of FGD participants was chosen by IPs and village heads, and influenced by specific criteria (flood affected or not, beneficiary or not). The selection of survey sites was guided by similar criteria. Ultimately FGDs in beneficiary communities focused on some of the worst affected GVHs whilst those in non-beneficiary communities were impacted to a lesser extent. In contrast it is understood that for survey site selection, the reverse was true.

In terms of methodological limitations, there is always a risk when conducting FGDs that one or two voices will dominate, or that participants will respond in ways they believe will be of greatest benefit to them. The likely impact of these issues has been minimised with their cautious application. In the case of surveys, as is common when collecting large datasets, there are some gaps in the dataset when respondents have failed to respond to specific questions. Where gaps in the survey data presented in this report exist, they have been identified.

The use and flexible application of a mixed-methods approach to this study, is intended to minimise the influence of these limitations on the results obtained. In particular the triangulation of data from different sources, that forms the central strand of this evaluation, has helped to strengthen the findings of this study.

## 3. Results

### 3.1 How has participation in the ECRP impacted on early warning and preparedness?

FGDs did not identify significant differences in experience of early warning and preparedness between DISCOVER/ECRP respondents, nor by gender or level of vulnerability. The key differences observed were primarily between beneficiary and non-beneficiary groups, and findings were broadly consistent between data gathered through FGDs and the flood survey.

**The indication is that the ECRP is positively impacting on the resilience of communities in relation to early warning and preparedness in a number of important ways.**

#### Finding 1: ECRP beneficiary communities are more likely to have received warning of the floods.

Results obtained from the flood survey indicate that participation in the ECRP has a positive impact on the community receiving early warning and being prepared at the community level. Over half of beneficiary households (51.2%) received prior warning of the floods compared to only one third (33.5%) of non-beneficiaries. The FGDs lend weight to this finding with three non-beneficiary groups reporting a total absence of flood warnings whereas the majority of beneficiary groups reported receiving warnings from multiple sources.

#### Finding 2: ECRP beneficiaries have more sources of warning, information, and a greater knowledge of potential sources of support to prepare for flooding.

Non-beneficiary communities were found to be much more isolated than those involved in ECRP. Non-beneficiaries were not only unable to cite sources of support given prior to the flooding, they were often unaware of any organisations from which support could potentially be gained.

Differences were also highlighted in the mechanisms through which respondents received flood warnings. Whilst both beneficiaries and non-beneficiaries highlighted the importance of radio in learning about the impending floods, as Table 2 elucidates, ECRP beneficiaries cited a much wider range of sources of information than those not involved in programme.

ECRP Involvement	Missing Data	Radio	VCPC	Govt Extension Worker	VDC	District Council	Other
Beneficiary (n=248)	123	60	30	18	15	6	12
%	50%	48%	24%	14%	12%	5%	10%
Non – beneficiary (n=200)	133	50	5	4	5	1	5
%	67%	75%	7%	6%	7%	1.5%	7%

Table 2 Sources of flood warning (percentages exceed 100% as respondents may have selected more than one response). Of those responses coded other, only ‘cars on the road’ were cited by more than one respondent

Focus group results corroborate these findings with an average of 3.3 sources of warning cited in beneficiary focus groups compared to just 0.6 in those not benefiting from the programme. FGDs further echo the findings of the survey in relation to the importance of radios as a source of warning about the floods. Respondents from all focus groups highlighted the key role of radio in receiving warning of the impending floods.

In relation to the time taken between the warning and the disaster occurring, survey results indicate that those not benefiting from ECRP received more advanced warning of the flood. On average respondents reported a lag of 24 days, compared to just 21 days for project beneficiaries. A possible explanation for this surprising result is the reliance of non-beneficiaries on a single source of warning. FGD respondents frequently spoke of receiving the first warning of the floods through the radio, often as far back as August 2014 when evidence of the El Nino event emerged. Since ECRP beneficiaries also heard from additional sources closer to the onset of the floods, this could have impacted upon their ability to recall the mean lag time between receipt of warning and the floods, especially since the question did not specify which warning (first or most recent). It is also important to note the limited number of survey respondents who answered this question (126 beneficiaries, 67 non-beneficiaries).

### Finding 3: ECRP beneficiary communities are more likely to have an VCPC.

The important role of VCPCs as a source of information on warning about potential floods was highlighted in all beneficiary focus groups. The same cannot be said for non-beneficiaries, with none of these FGDs identifying a role for VCPCs in early warning. These findings are echoed by survey responses in which three quarters of beneficiary respondents reported having a VCPC, compared to just 18% of those not involved in ECRP activities. Similarly, almost half of

beneficiary communities reporting having a Disaster Risk Management strategy in place, compared to only 12.5% of non-beneficiaries.

The role of the VCPCs in early warning and preparedness is undoubtedly an important one. Not only are ECRP beneficiaries more likely to have a VCPC, VCPCs in beneficiary communities were found to be twice as likely to have undertaken awareness raising activities in advance of the disaster, whilst in non-beneficiary communities VCPCs were reported to be more likely to have taken no action prior to the disaster (64% took no action compared to 36%). Similarly VCPCs in beneficiary communities were also more likely to have demonstrated the evacuation process prior to the flood, although only one of the 448 individuals to whom the survey was administered, reported that their VCPC had prepared through the repositioning of supplies.

Beneficiaries were also able to identify a much broader range of organisations that had helped them prepare for flooding, including ECRP IPs, local NGOs, VCPCs and government departments. In contrast in 6 of the 8 FGDs held with those not involved in ECRP, respondents were unable to cite any sources of potential assistance with early warning and preparedness.

#### Finding 4: Programme beneficiaries are more likely to take action in response to warning, but over half took no action.

Table 3 illustrates that survey respondents benefitting from the ECRP programme were more likely to take action on receiving the flood warning than non-beneficiaries.

ECRP Involvement	Valid Responses	Informed Family	Informed others	Moved assets	Constructed Protective Measures	Evacuated to Higher Ground	Took No Action
Beneficiary (n=248)	124	18	22	13	10	4	67
%	50%	15%	18%	10%	8%	3%	54%
Non – beneficiary (n=200)	66	5	7	2	10	3	46
%	33%	8%	11%	3%	15%	5%	70%

Table 3 Action taken on receiving flood warning

Whilst beneficiaries were more likely to inform family and friends and move their assets, non-beneficiaries were more likely to construct protective measures. This is perhaps a function of the greater knowledge of the likely extent of the flood amongst beneficiary respondents and greater understanding of what can be done to effectively avoid it. Few respondents reported evacuating to higher ground. However, it is important to note that many respondents from both beneficiary and non-beneficiary groups report taking no action at all. In some cases, this may be because evacuation was not required, e.g. in Tizolo, but focus group findings suggest other more common reasons which are outlined in the following paragraphs.

FGD data broadly substantiates the survey findings outlined above; respondents overwhelmingly reported taking no action in response to flood warnings. The primary reason given for this inaction was the assumption amongst communities that it would be 'flooding as usual'. All of the FGD sites have experienced flooding in the recent past, however previous flood events had been on a much smaller scale, with waters stopping short of people's fields and houses. Respondents from all focus groups reported a belief that despite the warnings, the flood would not be worse than those experienced in the past.

A related reason for inaction cited by respondents was a disbelief in the messages received. A number of respondents argued that the warnings broadcasted on the radio lack reliability and others shared similar scepticism in relation to weather forecasts. This sentiment was captured by one respondent who observed that, "they [on the radio] said the rain would fall in November and December but it didn't and then it came in January." Further problems arose from a perceived lack of clarity in the warnings received, with several respondents reporting a belief that the messages were only intended for those living in riparian locations. In addition, focus group participants highlighted the unusual timing of the floods, which would normally be expected to occur later in the year, as an additional source of doubt concerning the accuracy of the warnings.

A further issue connected to the flood warnings identified by respondents was the timing of these alerts and resources available to act on them. In one beneficiary community FGD participants described first receiving a warning about potential flooding on the radio in November 2014. At this time many of the villagers were occupied with farm work and Ganyu and so were unable to spare the time to relocate to higher ground. As one respondent from Osiyana elucidated, "in November we had no food so we had to work as Ganyu and we didn't have time to build a house in the upper land." Similarly, issues of timing were found to be important in relation to the later warnings. For those that were received in January, just before the start of the floods, residents were reluctant to relocate to higher ground given the challenges associated with moving during the rainy season.

Of those respondents that did take action, two thirds of beneficiaries reported their belief that actions taken helped to save lives that would otherwise not have been protected; only 30% of non-beneficiaries reported the same. Similarly ECRP beneficiaries were found to be more likely to report that actions taken in response to the flood warning helped them to protect assets, although overall numbers were lower (39% compared to 22%). FGDs amongst beneficiary communities focused on some of the most badly affected areas. It is not unsurprising then that FGD respondents were unable to save significant assets. A common refrain in all discussions was that participants "had no time to save anything except for ourselves and our children."

## 3.2 How has participation in ECRP impacted on loss during the flood and immediate coping strategies?

### Finding 5: ECRP beneficiaries were less severely affected by the floods.

Survey data indicates that ECRP beneficiaries were able to save a greater level of assets, whilst having to spend less on post flood repairs, than non-beneficiaries. In terms of the value of assets saved, only 10% of all respondents answered the relevant survey question, likely a reflection of the speed at which the flooding occurred, highlighted in FGDs. However of those who were able to protect their possessions, in beneficiary communities the mean values of assets saved as a result of actions taken was MK 61,029, almost MK 5,000 more than for non-beneficiary households. ECRP beneficiaries also reported having to spend less on post flood house repairs and renovations, MK 30,399 on average compared to MK 33,017 for non-beneficiaries.

The majority of FGDs were held in areas severely affected by the floods. As a consequence the majority of FGD respondents reported that they were unable to save any possessions. As one respondent observed, "it was impossible, the water was too much and it moved too quickly." However of those who were able to save their possessions, respondents from all beneficiary GVHs credited the information and evacuation assistance provided by the VCPC as playing a vital role in this. In contrast, non-beneficiary communities lacked these local level institutions and were unable to save any possessions. As a consequence, these communities were more materially affected by the flooding.

### Finding 6: VCPCs are the most important actor in immediate flood response.

As implied above, VCPCs were found to have played an overwhelmingly positive role in the immediate flood response.

The most common VCPC response actions identified in the survey included assistance with evacuation and communicating flood impacts to the district level. This was true for both beneficiary and non-beneficiary respondents who had a VCPC. In beneficiary communities the VCPC was also found, as reported by almost one quarter of respondents, to play a role in the

coordination and distribution of relief items. Only one individual in non-beneficiary communities reported the same.

FGD responses from all beneficiary GVHs further emphasised the value of the role played by VCPCs in response to the flooding. The importance of VCPCs in this regard was highlighted in 14 of 18 beneficiary FGDs (7 from each IP), whilst their role in reporting data on those affected to the district level was discussed in 13 (7 DISCOVER GVHs, 6 CA-ECRP). Interviews at the district level echo this finding with the District Commissioner stressing the value of VCPCs both in helping to identify those affected by the floods, and in coordinating the response effort. This role in the coordination of the relief effort and the distribution of aid items was acknowledged in 10 of the beneficiary FGDs (5 from each IP). FGDs held with the most vulnerable men and women in GVHs of each consortia, highlighted the particular importance that these groups place on the medical advice and assistance received through the VCPC in the aftermath of the flood.

VCPCs were not present in the non-beneficiary communities visited, and respondents from each of these FGD reported an absence of any equivalent community based institution. One respondent highlighted the stark difference between those benefiting from ECRP and those not, noting that, "when the floods came we didn't know what to do. If we had had a plan, or some warning, then that would have helped us... we might have been able to save some assets."

It is important to note that this belief in the positive role played by the VCPCs in the immediate flood response was not unanimous. A third of beneficiary and one fifth of non-beneficiary survey respondents reported that in the event their VCPC took no action. Similarly in only two DISCOVER and 3 CA-ECRP FGDs were there individuals who were aware of the existence of VCPC response plans. Although subsequent discussions implied that such plans had been in place, the indication is that only those who were members of the VCPC were aware of these plans. This issue could be addressed through the introduction of simulation exercises, improved intra-community communication, and a clearer division of roles and responsibilities throughout the community, actions also identified in the World Bank's PDNA Report (2015).

## **Finding 7: Limited prepositioning of supplies and finance was a key barrier to effective flood response.**

Linked to the importance of, and limitations faced by, VCPCs is the issue of the prepositioning of finance and supplies in advance of disasters. At the community level FGD respondents from both DISCOVER and CA-ECRP beneficiary groups highlighted the financial and capacity constraints within which VCPCs are operating. Respondents argued that without access to additional resources including the finances required to put response plans into action, and

equipment such as boats, ropes and tents, the VCPCs are unlikely to improve their performance in relation to immediate flood response.

Similar issues were aired at the district level. Interviews with district level officials identified the lack of a contingency budget for responding to floods as the major factor constraining the district level flood response. Interviewees also identified the difficulties of coordinating the flood response whilst lacking the necessary equipment and resources, particularly boats.

Such issues were further highlighted in interviews held with IPs who reiterated the lack of necessary resources within the DCPC, to respond immediately and effectively following the floods. The rescue operation was constrained by the lack of boats at the district level, and whilst ultimately a number of boats were borrowed, when they finally arrived there was no fuel available for them. Fortunately GOAL Malawi were able to provide the petrol required to mobilise the rescue effort, but clearly the lack of prepositioning of supplies resulted in significant delays. In order to ensure an effective response to future flooding is possible at the community and district levels, it will be vital to establish the mechanisms needed to enable the prepositioning of the equipment and finances necessary to effect an efficient and timely response to the disaster.

In the event, DFID, working closely with ECRP IPs, were able to overcome a number of these resource gaps resulting from a lack of prepositioned supplies, through their fast and far reaching flood response. During semi-structured interviews, IPs were unanimously quick to acknowledge the vital role of DFID in the immediate aftermath of the flooding. Particular benefits were noted in relation to their flexibility and the speed, scale and effectiveness of their response, which enabled IPs to mobilise financial and material resources much faster than would otherwise have been the case.

### **Finding 8: Beneficiaries have a wider range of coping mechanisms at their disposal compared to non-beneficiaries.**

Survey results and FGDs identify the positive contribution of ECRP activities to the range of coping mechanisms that flood affected households are able to deploy. The survey results summarised in Table 4 show that beneficiary coping strategies are more likely to involve VSL, less likely to involve Ganyu and are less likely to require help from NGOs or loans from money lenders, than those employed by non-beneficiaries.

HH3. District * Q703. What HH did after floods to return to normal life													
	Valid	VSL	VSL loan in combination with 1 or more other actions	Ganyu	Ganyu in combo	Help from friends / family	Friends/ family in combo	Help from NGO	Help from NGO in combo	Sold crops	Sold crops in combo	Borrow from money lender	Borrow from money lender in combo
<b>Beneficiary (248)</b>	210	9	13	30	36	9	12	6	11	3	5	3	3
<b>%</b>	85	4.3	6.2	14.3	17.1	4.3	5.7	2.9	5.2	1.4	2.4	1.4	1.4
<b>Non Beneficiary (200)</b>	198	1	1	51	59	13	16	16	20	1	3	3	4
<b>%</b>	99	0.5	0.5	25.8	29.8	6.6	8.1	8.1	10.1	0.5	1.5	1.5	2.0

**NB all percentages are of valid responses**

Table 4 Post-flood actions taken to return to normal life ('in combo' refers to the use of the main action, in combination with 1 or more of the other actions)

FGDs in beneficiary communities identified a wide range of coping mechanism employed in response to the flooding. In addition to the relief received from NGOs, beneficiary communities cited Ganyu, VSL, selling livestock, small income generating activities such as collecting firewood to sell, and assistance from relatives as important components of their coping strategies. In contrast non-beneficiaries reported a reliance on Ganyu, small income generating activities, and the collection of edible wild plants to cope in the immediate wake of the flood. Of those respondents who ranked the relative importance of these coping mechanisms, ECRP beneficiaries consistently ranked VSL highly, whilst non-beneficiaries most frequently emphasised the importance of Ganyu as their preeminent coping strategy.

### 3.3 How has participation in the ECRP impacted ability beneficiaries' ability to recover from flood impacts?

**Finding 9: The barriers impeding post flood recovery are similar in beneficiary and non-beneficiary communities.**

FGD respondents were very forthcoming in relation to those issues that have hampered their recovery since the floods. A lack of food was cited as being an important barrier to recovery in all FGD sites, with one respondent from Makhapha observing that, "it is hard to get back to normal life because all our time is spent just trying to get food." A lack of money, limited capacity for agriculture and a lack of clean, safe drinking water were also commonly discussed barriers at both beneficiary and non-beneficiary sites. Respondents described how a lack of

money prevented them from taking part in VSL activities or from starting small businesses. Limited agricultural inputs and infertile, sandy soil following the floods, was cited as an issue which resulted in both a lack of food, but also lost income from crops that would have been sold.

Two important barriers were found to be relevant only in beneficiary communities, the loss of livestock and a lack of adequate housing. As Maps 1 and 2 demonstrate, the location of the FGDs held with non-beneficiaries in Chikwawa were less severely affected by flooding than those in Nsanje. The worse affected beneficiary communities are therefore likely to have experienced more extensive destruction to their homes and assets including livestock, than their non-beneficiary counterparts in Chikwawa. The extent of livestock losses are recorded in the World Bank's Post Disaster Needs Assessment Report (2015) which states that, in Nsanje, livestock with a total value of almost MK 2,500,000,000 were lost to the flood waters.

The site specific nature of these barriers is a significant observation. It is important when considering the impacts of the flooding, and potential actions to increase community level resilience, that the site specific needs of the most vulnerable are taken into account. This point is reinforced by the final line in Table 5 which demonstrated that for some, the destruction of crops by hippos is in fact perceived to be the greatest barrier to post flood recovery. Similarly, in other locations visited, local changes in the course of rivers, and local destruction of infrastructure were deemed to be key factors working to constrain recovery.

Barrier to recovery	DISCOVER	CA-ECRP	Non-beneficiaries	Total
Lack of food	2	5	4	11
Livestock lost	3	8	0	11
Lack of houses	3	5	0	8
Lack of money/assets	2	4	2	8
Dry spell/wind	4	1	3	8
Lack of agricultural inputs/sandy land	1	4	1	6
Lack of drinking water	2	2	2	6
Pests	3	0	2	5
Lack of medical care	0	1	1	2
Limited opportunities for Ganyu	0	1	1	2
Hippos	2	0	0	2

Table 5 Frequency of barriers to post flood recovery cited in FGDs

In terms of the time it has taken communities to return to normal life, survey responses found little difference between beneficiary and non-beneficiary communities. In fact, it is clear from key informant interviews, and from the FGDs held with communities that many respondents have not yet returned to life as usual, particularly in those areas most severely affected by the floods. What is more, some FGD respondents clearly stated their intention not to return to life as normal but to remain on, or move to higher ground where the risk of future flooding is less.

Others still, cannot return to life as normal until local infrastructure is repaired or water courses returned to their previous channels.

## Finding 10: ECRP beneficiaries are most likely to receive post flood support for recovery actions through NGOs.

Survey responses indicate that approximately 40% of flood affected beneficiary communities received external recovery support following the flood compared to almost 62% of those not benefitting from the ECRP programme. There is, however, some doubt surrounding this finding which is strongly countered by FGD responses. Likely explanations for this anomaly lie in the location of flood affected survey sites. In contrast to the FGDs, the survey was administered in less severely flood affected sites in Nsanje, and amongst more seriously affected non-beneficiary communities in Chikwawa. Communities most severely affected by the flood were evacuated to camps where they were likely to receive significant assistance from external actors. Those who were less badly affected by the floods and did not have to relocate, were therefore less likely to receive such extensive assistance in recovery.

Evidence from FGD supports the notion that post flood recovery action is more closely linked to the severity of flood impact, than to participation in the ECRP. In 14 of the 16 FGDs conducted with ECRP beneficiaries respondents cited a diverse range of external organisations providing recovery assistance. Particularly prominent amongst these were ECRP partners, GOAL Malawi (acknowledged in 15 beneficiary FGDs) and ActionAid (mentioned in 10). The non-beneficiary groups, in contrast, had only received recovery assistance from the Government, from IFAD through the IRLAD programme, and from Monsanto in the form of seeds. Indeed the gulf between the support received by those participating in the ECRP and those not, was highlighted by one non-beneficiary who observed that, “we want to be helped but we don’t know who can do it.”

In terms of the diverse sources of the support provided to assist with post flood recovery, survey results support the findings of the FGDs. Almost three quarters of beneficiary respondents highlighted the importance of NGOs as a key source of support. Non-beneficiaries were found to be less reliant on NGOs with more support coming directly from the district council (11%) and local MPs (43%) in combination with other sources.

## Finding 11: Involvement in ECRP activities is having a positive impact on post flood recovery.

In addition to assistance from external actors, focus group responses indicate that ECRP beneficiaries are involved in a wider range of recovery initiatives than non-beneficiaries.

Recovery Activity	DISCOVER	CA-ECRP	Non-beneficiaries	Total
Winter cropping	5	7	2	14
Ganyu	1	2	5	8
VSL	3	4	0	7
Afforestation/CFM	2	3	0	5
Other income generating activity	1	1	1	3
Cash for work schemes	1	1	0	2
Livestock	2	0	0	2
Small business	1	0	1	2

Table 6 Number of FGDs in which each post-flood recovery option was cited

As Table 6 demonstrates, those involved in ECRP are engaged in a wide range of recovery activities with a particular focus on winter cropping, with VSL and afforestation also playing an important role. Interestingly afforestation was viewed as a recovery option by several FGD respondents who emphasised its importance in protecting the soil from erosion and improving the local environment. Those not involved in the programme have far fewer recovery options, and the focus is much more firmly on Ganyu. Although winter cropping also has a role to play, interestingly the FGDs highlighted the different sources from which seeds were obtained. Beneficiaries were most likely to receive seeds for winter crops from IPs or village seed banks, whilst non-beneficiaries cited friends in camps and Ganyu, as their primary sources.

In terms of the specific role of ECRP interventions in flood recovery, FGDs are also instructive. Respondents reported that seeds and agricultural inputs received from the IPs enabled them to replant the crops that they had lost to the floods. In one DISCOVER beneficiary community, replanting had been undertaken with seeds preserved in the village seed bank, demonstrating a direct link between recovery and an ECRP intervention. Interviews with IPs substantiate the important role of winter cropping in the post flood recovery. As a district official observed, “recovery is now focusing very much on the agricultural side.”

Closely linked to this focus on agriculture as the catalyst for post flood recovery are the conservation agriculture initiatives implemented under the ECRP. In a third of beneficiary focus groups, CA was cited as an important component of the recovery, particularly through enabling them to make use of increased residual moisture in the fields. This has helped their post-flood harvest to succeed in spite of the dry spell which has endured since the floods. Only one note of caution was raised regarding the lack of available grass for mulching since the flooding.

Numerous FGD respondents identified the important contribution of VSL programmes to their recovery. VSL was found to have a dual function, with short term recovery aided by the ability to have immediate access to money for food and other essentials; the ability to borrow money to start small scale businesses was cited as an important component of longer term recovery.

The positive contribution of VSL to post flood recovery including the ability of VSL schemes to continue to operate strongly, even where people have been displaced to camps, was substantiated by information received in a number of IP interviews (e.g. ActionAid, RUO CBO, and ROLEC).

It is important to note, however, that the role of VSL schemes in flood recovery was not found to be universally positive. Several focus group participants reported that since the floods VSL schemes have foundered. Others were unable to join VSL groups following the floods as they lacked the money to buy shares, whilst some respondents found that they were unable to repay loans having lost assets to the floods, and were having belongings repossessed as a result.

Making and selling energy saving stoves was also quoted, albeit less frequently, as being a useful ECRP intervention that has assisted with recovery at the community level. Respondents used the money gained from selling stoves to buy food and household materials, whilst also highlighting the benefits of the stoves in relation to reduced wood consumption and their continued effectiveness even when used on wet ground. Respondents were also aware of the longer term benefits stemming from the lower demand for wood and reduced rates of deforestation.

Focus group respondents were also consistently quick to highlight the value of livestock as a means of recovering from the flood. They observed however that the livestock pass-on programme had stopped since the flood in several places, but they were keen for it to be restarted. Whilst the value of livestock as an immediate source of food, and as a commodity that can be traded or sold was cited by respondents and is recognised, the actual role of livestock in the recovery of beneficiary communities appears to be limited in this case. This seems particularly true given the loss of livestock that resulted from the floods, an observation made in several stakeholder interviews (e.g. ActionAid, RUO CBO).

### 3.4 How has participation in the ECRP impacted on long term resilience?

#### Finding 12: ECRP interventions have limited influence on exposure to flood risk.

Despite the broadly positive impact of ECRP interventions on the early warning and preparedness, response, and recovery of beneficiary communities, FGD respondents still felt vulnerable to natural disasters. In 9 of the 16 focus groups respondents had reduced their

exposure to potential hazards either by relocating to higher ground whilst continuing to farm their riparian land, or had expressed an intention to move. In the remaining discussions, respondents expressed a belief that they would remain vulnerable, exposed to droughts and heavy rains, or to flooding particularly where river courses have changed.

Over the longer term a number of ECRP activities, particularly those related to afforestation, conservation agriculture and irrigation, are likely to reduce exposure to the risk of drought and floods. However the failure of any focus group respondents to acknowledge this when discussing exposure to risk suggests that the severity of the current flood risk is enough to precipitate immediate action amongst the worst affected, regardless of potential future reductions in risk resulting from ECRP activities.

Non-beneficiaries similarly expressed the opinion that they would remain vulnerable to future droughts and floods. However this group also expressed uncertainty relating to actions that could reduce their vulnerability to future climatic changes, perhaps a result of their limited access to sources of information on climate change, or potential resilience building activities.

It is important to recognise here the potentially limited scope of the programme's influence in relation to the scale of the disaster and the substantial governance challenges that are involved in strengthening national DRR systems. Investment of substantial resources in large-scale flood protection works are not within its remit. Similarly its success in advocating for decentralisation and effective use of DRR resources is influenced by political factors which may not be within the direct control of the programme.

### **Finding 13: ECRP beneficiaries believe that the programme will reduce future vulnerability to flood hazards.**

FGD respondents involved in the ECRP were overwhelmingly of the opinion that involvement in the ECRP is reducing their vulnerability to future flooding. Beneficiaries in all GVHs cited a range of ECRP interventions responsible for reducing their vulnerability, see Table 7 overleaf; no respondents were of the opinion that participation in the programme increased their vulnerability. Conversely on-beneficiaries were unable to cite involvement in any activities that reduced their vulnerability to future flooding.

Intervention to reduce vulnerability	DISCOVER	CA-ECRP	Non-beneficiaries	Total
VSL	6	4	0	10
Forestry related (afforestation, CFM, Watershed protection etc.)	4	5	0	9
Conservation agriculture and irrigation	3	4	0	7
Energy efficient stoves	2	0	0	2
Capacity building	2	0	0	2
Livestock	1	1	0	2
Relocation	1	0	0	1
Solar lamps	0	1	0	1
Dykes	0	1	0	1

Table 7 ECRP interventions reducing vulnerability to future flooding

As Table 7 illustrates, three ECRP interventions in particular were found to be of greatest importance to participants in reducing their vulnerability. VSL was the most commonly cited intervention (raised in a total of 10 FGDs) with beneficiaries highlighting the benefits of the initiative in enabling people to have savings, as well as easy access to loans.

The benefits of forestry related interventions including afforestation, CFM, and agroforestry, in reducing vulnerability to future flooding was also stressed. FGDs centred on the role of forestry in mitigating the impacts of climate change, securing river banks, and the wider watershed protection and flood risk reduction benefits associated with such activities. The importance of connectivity between interventions in distinct locations was highlighted in this regard. One respondent, for example, observed that, “it is difficult for us because people cut trees upland in Thyolo so even if we plant trees here we can only have a very limited impact. When the water comes it comes with so much sand from these districts because of the erosion upland.” It is important then, to ensure that ECRP interventions in distinct locations, consider the wider impacts of their work on the vulnerability of those living in other districts.

Conservation agriculture was also cited as a key intervention for reducing future vulnerability to flooding. The role of mulching in particular, in keeping the soil moist for crops during the increasingly frequent dry spells, was discussed as an important component of vulnerability reduction. The role of CA techniques in improving soil structure and fertility, reducing soil erosion, and enhancing productivity, were also reported to have a positive impact on the vulnerability of beneficiaries.

The analysis of FGDs did not identify any significant differences between ECRP consortia, amongst those of different genders, or between those with different degrees of vulnerability. Clear differences are apparent, however, in perceived future vulnerability between those participating in the ECRP and non-beneficiaries. In FGDs with those not benefiting from ECRP interventions, respondents were asked whether they believed that current or potential future involvement with external organisations could reduce their vulnerability. Participants were unequivocal in their belief that such involvement was unlikely and that continuing with their current activities would not reduce future vulnerability to flooding. If it is accepted that the comparison group represent a reasonable control, this would appear to indicate that the ECRP has had a substantial impact on the perceived future vulnerability of its beneficiaries.

### Finding 14: Afforestation, livestock pass-on and VSL are perceived to be the most important interventions for building resilience.

In terms of the most important ECRP interventions for resilience building, participatory ranking exercises undertaken during FGDs, resulted in an aggregate ranking headed by afforestation, see Table 8. No significant patterns were found by consortia, gender or degree of vulnerability.

Intervention	Total Score	Ranking
Afforestation	48	1
Livestock	47	2
VSL	46	3
CA	38	4
Stoves	30	5
Irrigation	19	6
Post-harvest	10	7
Solar Lamps	9	8

Table 8 Ranking of most important interventions for resilience building (top ranked interventions in each FGD were scored 6, those ranked second 5 etc. and all scores for each intervention summed to derive the total score)

At the landscape level, forestry related interventions were cited as an important means of reducing the severity of future floods. Respondents consistently emphasised the importance of transboundary and landscape level issues, particularly in relation to forestry, and it is essential that the ECRP IPs consider such issues when implementing future interventions. At the local level the importance of forestry interventions to resilience was also acknowledged, with beneficiaries emphasising the anticipated future benefits of tree planting in communities

and on riverbanks. Respondents did acknowledge this lag between current effort and future benefits, although appeared unconcerned by it. As one respondent joked, “these trees cannot help us now, they are just ankle high. They will certainly help in the future but I will probably be dead by then!”

Livestock pass on was identified as the second most important intervention for resilience building. FGDs identified their dual role both as a source of food in scarce times, and also as a commodity that can be sold for cash in times of need. An additional benefit discussed was the use of manure produced by livestock as an agricultural input to increase productivity.

It is undoubtedly true that possession of livestock provides both a possible source of food and potential income when faced with disasters. However, the recent experience during the floods documented in FGDs, stakeholder interviews, and the wider literature would suggest that when faced with such extreme events the worst affected will derive the least benefit from this intervention, as more of their livestock will be lost. In addition, a number of respondents drew attention to the fact that although all beneficiaries of the livestock intervention are required to pass-on livestock to other participants, in practice this does not always occur. It is possible that respondents desire to re-stock livestock that were lost, and to benefit from the increased assets and social status that livestock bring, makes them more likely to rank livestock highly. However, whilst livestock may be popular, it may not be the most impactful intervention.

VSL, as also indicated in finding 13, was also cited as a key intervention that improved the resilience of beneficiaries. FGD respondents reported that the scheme has introduced a culture of saving among communities who now have access to cheap credit which they can use to diversify their income streams and respond to future shocks. Although several VSL groups were struggling to continue following the floods, many continued to present opportunities for participants to recover. The fact that a number of non-beneficiary communities have now started their own VSL groups having seen the impact achieved in neighbouring communities, is perhaps testament to their role and value in helping to build community level resilience.

FGD respondents also stressed the importance of conservation agriculture in influencing their resilience to future floods. In particular, the benefits of the training they have received which have helped them to acquire new skills and improve moisture retention, soil fertility, and ultimately crop yields and income, were highlighted. The role of energy efficient stoves in reducing firewood consumption and therefore rates of deforestation and vulnerability to future flooding was also reported.

In addition, several non-ECRP interventions were highlighted by FGD respondents as being potentially important for future resilience. Dredging or diverting river channels, in particular, were cited as potentially important resilience building activities not currently provided under

the ECRP. Non-programme beneficiaries shared similar concerns when discussing the most important interventions to increase future flood resilience, with river dredging the most commonly cited resilience building activity, followed by VSL, afforestation, livestock and capacity building of local institutions.

## 4. Conclusions & Recommendations

The results of this study have highlighted a number of important lessons with respect to early warning and preparedness, disaster response and coping strategies, recovery and rehabilitation, and long-term risk reduction. Linked to these findings are nine recommendations to ECRP IPs and wider stakeholders, intended to improve the impact of the programme and further enhance the resilience of project beneficiaries. Several recommendations are also of relevance to at risk populations not currently benefiting from the ECRP.

### Recommendation 1: ECRP NGOs should continue to identify appropriate radio stations and increase support for warnings through these channels for the 2016 flood season.

As outlined in Finding 2, radio messages were found to be the most far reaching mechanism for communicating flood warnings to those at risk. Both FGD and survey responses have highlighted the importance of this means of communication, particularly for those with limited alternative sources of warning. Radio should, therefore, represent a key component of any early warning system. At least one implementing partner has already started exploring how radio early warning can be integrated into the programme's activities and such efforts should be expanded upon.

### Recommendation 2: ECRP stakeholders should work closely with key national actors to ensure warning messages are clearly directed, unambiguous and provided to those at risk at the earliest possible opportunity.

Although many of those in beneficiary communities received advanced warning of the flood, few took action (Finding 4). One aspect of this disparity identified by this evaluation is the issue of how flood warnings are framed to communities. Warnings that define likely impacts, geographical locations of impacts and suggested actions are likely to be more effective than those, for example, that convey more general messages regarding likely levels of rainfall. At the same time, an important consideration is the timing of warnings (Finding 4). Warnings should be provided to those at risk at the earliest possible juncture.

It is recognised that national level institutions may currently lack the capacity to provide such high quality forecast data, and that such data is not readily available in Malawi at present.

However improving the quality and specificity of warnings is key to improving local level preparation for flooding. It is therefore recommended that DFID contemplate appropriate mechanisms to provide technical assistance to relevant national organisations including MOWID and the National Meteorological Office. In doing so they may consider what support is required to improve the quality of the meteorological data, and the timeliness of warnings. Given that many beneficiaries are unable to act immediately on warnings, it is vital that they be transmitted frequently over a period of time where preparedness would be possible and that if appropriate, resources to support preparedness actions at the local level are provided.

IPs may also have a role to play in advocating for appropriately framed official warnings to be released at the earliest opportunity. It is recognised, however, that such engagement by IPs may be limited by the political sensitivities surrounding the release of such information, and that advocacy work must take place within, and be sensitive to, existing national level systems and processes.

### Recommendation 3: IPs should continue to work with local stakeholders to ensure that community level awareness of actions plans is increased and that such plans are linked to previously determined scenarios and warnings.

Building on Recommendation 2 (and Finding 4) it will be important for IPs to continue to work in conjunction with stakeholders at the community and district levels, to map out scenarios and develop action plans related to different types of warning. Whilst it is acknowledged that IPs are already engaged in such activities, FGDs overwhelmingly demonstrated a lack of knowledge amongst communities of VCPC-led response plans, with correspondingly few participants reporting involvement in simulation exercises.

There is therefore a need to improve awareness of and involvement in simulation activities at the local level. Simulations should be undertaken to ensure that the response actions attached to each warning scenario are clear. Attaching actions to warnings in this way will ensure that those who are most at risk have a clear understanding of the steps that should be taken in the event of future floods. Simulations will also enable individual roles and responsibilities to be clearly defined, improving intra-community communications and spreading awareness of VCPC disaster response plans more widely.

It will be important to build a common understanding of the likely severity of events linked to distinct categories of warning, and for response plans to define the urgency and type of response actions required. As discussed above, the 2015 floods were a 1 in 500 year event, however with increasing climate variability and change high magnitude floods are likely to

become increasingly common. It is therefore recommended that IPs intensify their activities in this area.

#### Recommendation 4: ECRP NGOs should continue to focus on the capacity building of VCPCs, whilst encouraging the spread and harmonisation of this approach through the sharing of lessons and best practice with wider stakeholders.

VCPCs are a key institution for early warning and preparedness. They had, and will continue to have, an important role to play in early warning and preparedness for those at risk from flooding (Finding 3). This role has many components, not limited to raising awareness about the likely impacts of flooding, reinforcing the warnings received from other sources and reducing the ambiguity associated with them, and in planning for the immediate flood response.

IPs should continue the important capacity building activities they are engaged in with VCPCs at the community level, and should work with government stakeholders at the district level to encourage the spread of the VCPC approach to non-beneficiary GVHs. Specific areas on which such activities should focus include the preparation of flood response action plans with associated response actions, the prepositioning of key supplies, and improved early warning information systems.

In addition, IPs should consider engaging in advocacy activities at the national level to encourage a government led VCPC harmonisation process. At present there is no standardised mission statement or remit of activities for VCPCs, nor a standardised approach to the activities they undertake. Even within the ECRP programme, for example, the costs associated with capacity building of VCPCs are diverse, ranging from hundreds to thousands of pounds, depending on the implementing NGO (ECRP Value for Money Study 2014). Similarly the cost of the production of contingency plans ranges widely (ibid.) implying significant disparities in the range of activities undertaken and outputs produced. Lobbying efforts undertaken by IPs and their development partners to develop a harmonised approach to VCPCs at the national level would enable this approach to be scaled up more effectively, improving the efficiency with which lessons can be captured and shared, whilst increasing value for money by capitalising on economies of scale.

#### Recommendation 5: ECRP NGOs should take action to facilitate the prepositioning of resources at the district and community levels and pilot local governance approaches to identify the

## best way of making sure such resources can be appropriately managed and deployed during disasters.

This study has highlighted the constraints placed upon the immediate flood response, by the lack of prepositioned supplies at both the community and district levels (Finding 7). As is discussed in more detail in Section 5.3 of this report, a lack of prepositioning of funds, supplies, and equipment at both the VCPC and district level, is a key factor in determining the ability of those affected to respond to the floods.

The speed at which IPs and DFID were able to launch their response was impressive, with IPs on the ground able to respond within the first two days. This reaction was facilitated and complimented by the swift action taken by DFID in reallocating and releasing over £100,000 for the immediate flood response. However, many stakeholders still noted that the overall response was insufficient and slow, particularly those activities expected to run through Government systems. Calls for faster and larger responses are normal during humanitarian crises and pre-positioning efforts are often challenging and result in over-supply or in stocks being misused or expiring before they are used. However, since Government response was slowed by a lack of basic search and rescue equipment and local VCPCs noted delays in accessing basic supplies such as tarpaulins, supplementary food and water purification tablets, there is no doubt still more that could be done to strengthen the national approach to contingency planning and pre-positioning.

Given the likelihood of further flooding, a pilot that tests different approaches to pre-positioning within Government and Community systems could generate useful lessons on how best to strengthen these systems and on different modalities for ensuring rapid and decentralised responses. For example, new approaches to rapid procurement or joint-NGO-Community or Government management of pre-positioned goods at strategic points of high ground may be worth investigating. This will likely include an element of advocacy and strengthening links with DODMA and potentially other humanitarian actors exploring risk financing options.

## Recommendation 6: IPs should strengthen mechanisms to ensure that site specific post disaster needs inform recovery plans that take account of local circumstances.

In relation to post-flood recovery actions, Finding 9 highlights the importance of taking a nuanced approach that accounts for site specific needs, to the extent possible within prevailing time, resource, and institutional constraints. This study has shown that whilst some barriers to

post-flood recovery are common across affected groups, others are dependent upon GVH specific circumstances.

It is understood that both DISCOVER and CA-ECRP IPs already have these mechanisms in place to consult with communities and ensure that response and recovery interventions are aligned to local needs. In addition, post-disaster priorities are defined through Government-led assessments and agreed within the national institutional architecture and cluster system. Both DISCOVER and CA-ECRP are working within these systems. It is also recognised that post-flood activities take place in an emergency context, and activities are constrained by the availability of funds and resources.

However, to the extent to which it is possible, in response to future flooding, rapid post-flood needs assessments could be undertaken at the community level coordinated by IP programme and field officers. Information gained through these surveys would then be used to inform site specific recovery plans, within the broader ECRP programme of activities or used in advocacy at District level. In doing so this would enable important site specific barriers to recovery, be they infrastructure damage, altered river courses, or human-wildlife conflict, to be identified and reflected in recovery interventions. In addition, sharing the outputs of post-flood needs assessments with other stakeholders working on post-flood recovery may help to improve the targeting of responses by other actors.

### **Recommendation 7: ECRP partners should consider further engagement in activities that reduce exposure to risk, either within ECRP or through lobbying other stakeholders.**

As highlighted in Finding 12, whilst current ECRP interventions are having a positive impact upon the early warning and preparedness, response, and recovery of beneficiary communities, their impact on exposure to flood risk, in the near term, is limited.

It is therefore suggested that IPs undertake a feasibility assessment of engaging in activities to reduce the exposure of the most vulnerable to the risk of flooding if that is feasible within the remainder of this programme, or use such information to design future programmes or to lobby other stakeholders working in the area. The potential exposure reduction role of activities such as upland afforestation, dredging rivers, constructing dykes and supporting those communities who have already voluntarily relocated but lack basic supplies in their new locations, may be of particular relevance.

Where such activities are not within the mandate of the ECRP, developing links with other actors in the region such as the World Bank's Shire River Basin programme could be useful activities to this end. Risk reduction activities that do not require the relocation of villages

should be prioritised, however in some instances, the relocation of those most at risk may be desired by residents. It is understood that at least one of the IPs is engaged in advocacy work at the national level, to encourage the Government of Malawi to develop clearer relocation policies to enable those displaced by the floods, to decide on any actions to be taken to this end. Such efforts should continue and can be coordinated across the ECRP and DISCOVER consortia.

### **Recommendation 8: IPs should work to cultivate and further develop channels for knowledge sharing between beneficiary communities, to enable learning to be shared and to ensure upstream activities do not increase the risk of downstream hazards.**

The penultimate recommendation of this study stems from Findings 13 and 14, and relates to landscape level and transboundary issues. This evaluation has identified a need to further strengthen the links and communication channels between stakeholders at the community level, both between districts and between upstream and downstream stakeholders. Doing so will help to raise awareness amongst key populations, that actions taken in one area can have significant impacts on the vulnerability of those in other locations. At the same time these actions may help to strengthen community based early warning systems.

One potential means to address these issues could be through inter-district meetings or exchange visits between beneficiary stakeholders in different districts, to facilitate learning and develop concrete links and channels of communication between VCPCs in diverse locations. Such procedures would best be developed in conjunction with, and talk to, the response plans and simulation exercises referred to in Recommendation 2, and would likely include a strong focus on phone communications, with flood warnings spread through predetermined phone trees.

Whilst it is understood that many of these VCPCs will fall within the same IP areas, the links established between beneficiary groups should not be constrained by district or consortia. Just because a particular GVH is benefitting from the activities of one ECRP partner, does not mean the actions taken and activities implemented in that location will not impact upon GVHs involved with the other consortia, in other areas or districts. For example, there is a lag time of approximately 12 hours between heavy rains falling in Thyolo District and flood water arriving in Nsanje. Were stronger connections in place between beneficiary VCPCs in the two districts, those most at risk of flooding would have an additional accurate source of warning. Although FGDs found evidence that in some cases these links exist, they tended to be on an ad hoc basis between friends and relatives. Further developing the links between different stakeholder

groups would also provide an opportunity to raise awareness of the fact that, particularly in the case of deforestation, actions taken in one location can have significant impacts in another.

## Recommendation 9: Future ECRP activities should include afforestation and VSL components.

As findings 13 and 14 demonstrate, FGDs consistently highlighted the importance of ECRP forestry related interventions and VSL in reducing vulnerability and enhancing community resilience to future flooding. The benefits of increased forest cover at both the community and catchment scales was highlighted in FGDs through its role in reducing the likelihood and potential severity of flooding events, whilst the benefits of VSL in reducing vulnerability and increasing resilience were consistently identified by participants. Livestock was also cited as having a positive role in increasing resilience through its potential role as a source of food and income and as a source of agricultural inputs, however the benefits of this intervention are less clear cut (see Finding 14).

Given the positive impacts of these interventions, highlighted through this study, it is important that they form a key part of future resilience building interventions under the ECRP. Nevertheless it remains important to recognise that used in isolation each of these interventions has its limitations. These may include, as in the case of forestry, the lag time between the intervention taking place and the benefit being felt or may, as with VSL, relate to issues of sustainability following heavy flooding events. What is important, then, is for the ECRP to continue to employ its combinations approach to resilience building which has, to date, proved effective in enhancing the resilience of beneficiary communities in Nsanje.

## Concluding Remarks

This study has employed a mixed-methods approach to investigate how participation in the ECRP has influenced the impacts of and responses to the devastating floods that occurred in Malawi at the start of 2015. It has considered how involvement in the ECRP has impacted upon early warning and preparedness amongst affected communities, and examined differences in loss and coping strategies between beneficiaries and those not benefitting from the programme. It has scrutinised post-flood recovery amongst flood affected communities and has considered how participation in the ECRP has impacted upon the long term resilience of beneficiaries.

This study is not without its limitations, however its findings present strong evidence that the ECRP has made a positive contribution to resilience at the household and community level, in relation to all of the key stages of the DRR cycle. Programme beneficiaries are more likely to receive flood warnings, have a greater awareness of potential response options, and have the

local institutions in place to support response actions. Beneficiaries were also found to be less badly affected by the floods and have a wider range of coping mechanisms at their disposal. Involvement in the ECRP was found to have a positive impact on post flood recovery, and whilst programme interventions have limited impact on exposure to flood risk, beneficiaries are of the belief that it has a positive impact on their long term resilience. A number of opportunities to further strengthen the programme's impact on local resilience have been identified which if addressed, will likely further improve the impact of the ECRP on the resilience of beneficiary communities to future floods.

# 5. Annexes

## Annex 1 – Selected Data Tables

	N	Mean	Std. Deviation
<b>Beneficiaries</b>	91	30399.03	45189.813
<b>Non-beneficiaries</b>	159	33017.19	37082.582
<b>Total</b>	250	32064.18	40153.124

**Q702.3 How much might cost you to renovate your house**

Table A1 Mean cost of post flood hosing repairs

	Respondents	Evacuation	Communicating to District	Coordinated Targeting of Relief	Distributing relief	Nothing
<b>Beneficiary</b>	<b>109</b>	<b>29</b>	<b>22</b>	<b>10</b>	<b>15</b>	<b>37</b>
<b>%</b>		27	20	9	14	34
<b>Non-beneficiary</b>	<b>25</b>	<b>10</b>	<b>17</b>	<b>0</b>	<b>1</b>	<b>5</b>
<b>%</b>		40	68	0	4	20
	134	39	39	10	16	42

Table A2 VCPC actions in response to floods

<b>HH3. District * Q703. What HH did after floods to return to normal life</b>																	
	Missing	Valid	Did nothing	VSL	VSL loan as part of combo	Ganyu	Ganyu as part of combo	Help from friends/family	Friends/family in combo	Sold livestock	Sold livestock in combo	Help from NGO	Help from NGO in combo	Sold crops	Sold crops in combo	Borrow from money lender	Borrow from money lender in combo
<b>Beneficiary (248)</b>	38	210	127	9	13	30	36	9	12	0	0	6	11	3	5	3	3
<b>%</b>	15	85	60.5	4.3	6.2	14.3	17.1	4.3	5.7	0.0	0.0	2.9	5.2	1.4	2.4	1.4	1.4
<b>Non Beneficiary (200)</b>	2	198	85	1	1	51	59	13	16	2	4	16	20	1	3	3	4
<b>%</b>	1	99	42.9	0.5	0.5	25.8	29.8	6.6	8.1	1.0	2.0	8.1	10.1	0.5	1.5	1.5	2.0

**NB all percentages are of valid responses**

Table A3 Post-flood actions taken to return to normal life

<b>Q708C. When it happened and when living normal life</b>			
HH3. District	N	Mean	Std. Deviation
<b>Nsanje</b>	94	74.99	70.185
<b>Chikwawa</b>	52	68.12	44.857
<b>Total</b>	146	72.54	62.274

Table A4 Mean time taken between flood and returning to a normal life

HH3. District * Q705Z. Did you get any external support?			
	Yes	No	Total
Beneficiaries	97	151	248
%	39.1%	60.9%	100.0%
Non-Beneficiaries	123	77	200
%	61.5%	38.5%	100.0%
	220	228	448
	49.1%	50.9%	100.0%

Table A5 Did you receive external support following the flood

	Valid Responses	VDC	VDC Combo	VCPC	VCPC Combo	District Council	DC Combo	MP	MP Combo	NGO	NGO Combo	Other
<b>Beneficiary</b>	67	2	2	8	11	0	1	1	2	43	49	3
%		3.0	3.0	11.9	16.4	0.0	1.5	1.5	3.0	64.2	73.1	4.5
<b>Non-beneficiary</b>	100	0	0	1	1	1	11	20	43	19	60	4
%		0.0	0.0	1.0	1.0	1.0	11.0	20.0	43.0	19.0	60.0	4.0

**NB All percentages are of valid responses**

Table A6 Sources of support for post flood recovery actions

## Annex 2 – Literature Consulted

ECRP 2015 – Technical Leads Quarterly Report

DISCOVER 2015 – Documentation of Lessons from Recent Flood in Malawi, April 2015

LTSI, 2014 - Enhancing Community Resilience Programme: mid-term evaluation. Assessment of Programme Value for Money.

MVAC 2015 – Rapid food security assessment report, March 2015

World Bank 2015 – Malawi 2015 Post Disaster Needs Assessment Report

## Annex 3 – Flood Specific Key Informant Interview Respondents

Name	Organisation	Role
<b>Chikondi Chikalimba</b>	Action Aid/RUO	Field Officer
<b>Raphael Alumenda</b>	RUO	Project Coordinator
<b>Charles Dickson</b>	RUO	Field Officer
<b>Mussa Gwedeza</b>	RUO	M&E Officer
<b>Blessings Fula</b>	Action Aid	Field Officer
<b>Dziko Malonje</b>	Action Aid	Field Officer
<b>Elias Lipenga</b>	ROLEC	Field Officer
<b>Andrew Lijuni</b>	ROLEC	Field Officer
<b>Dorica Chibota</b>	Goal Malawi	Field Manager
<b>Mathews Mtimaukanena</b>	Goal Malawi	M&E Officer
<b>Boniface Kumwenda</b>	Goal Malawi	Programme Manager
<b>Micheal Chanza</b>	Nsanje District Council	Assistant ADDRMO
<b>John Banda</b>	Nsanje District Council	Forestry Officer
<b>Lloyd Faramenga</b>	Nsanje District Council	Crops Officer
<b>Atanzio Chibwana</b>	Nsanje District Council	District Commissioner
<b>Aidan Fitzpatrick</b>	Irish Aid	Head of Development
<b>Ester Mweso</b>	Discover	
<b>Francis Semson Nkoka</b>	World Bank	Water Engineer/ DRM Specialist
<b>George Chimseu</b>	MVAC	
<b>James Chiusiwa</b>	DODMA	
<b>Jenny Brown</b>	EU	
<b>Mwiriha Kapondamgaga</b>	Discover	
<b>Phil Smith</b>	DFID	Senior Programme Officer
<b>Senard Mwale</b>	Discover	
<b>Sharron</b>	DFID	Leads Finance
<b>Teddie Nakhumwa</b>	DFID	Deputy Team Leader, Growth and Resilience Team
<b>Victoria Geresomo</b>	Government of Malawi	MVAC Chair

## Annex 4 – Flood Survey Sites

District	TA	GVH	Villages												
Nsanje	Chimombo	Kamphata	DZAKUNJA	KAMPHATA 2	TSABILIMA	KAMBALAME	TCHABILIMA	KAMPHATA	KAMPHATA 1	AKINA	JAMBASA	BOMBWE	CHABILIMA	ZAKUNJA	
Nsanje	Chimombo	Metza	MEZA	KUMBUKANI	KHAMU	NDAIMA	METZA	GUMBWA	MWANYANDULA	KANYANDULA					
Nsanje	Tengani	Kalumbi	MTANTHA	KALUMBI	CHIMWENDELELE	NYANG'OMBE	MTHATHA	NYANG,OMBE	ALUMENDA	MTANDA	CHIMWENDELELA	KALUMBE			
Nsanje	Tengani	Chitsa	CHITSA	SOPOTONGWE	M'DODO	DODOMEKA	CHINOMBA	MWACHINOMBA	MDODOMEKA	CHAGWEDEBUKA	CHITSA 1	MTONDO	CHITSA2	TIDZE	
Nsanje	Mulolo	Chipondeni	CHIPONDENI	CHINZETI	MASANZO	NDUTSA									
Nsanje	Mulolo	Gundani	SANDAMA	PHUPUIRA	NSITU	GUNDANI	MSITU	SANDALAMU	CHABE	PHUPWILA	CHITSEKO				
Nsanje	Malemia	Mbeta	CHIBWE	MBETA	LAMBWE	LUNDU	MKOTAMO	CHIGWE	KASENGA	CHIWUWE					
Nsanje	Ndamera	Bitilinyu	SEMBA	BITILINYU	BITILINYU 2	BEANS	BITILINYU 1	BITILINYO	BITILINYO 2						
Nsanje	Ndamera	Nyathando	CHITENGU	MAKHAZA	NYATHANDO	CHITENSO	CHITENGO	THIKITI	CHITENKHU	MAGASO	TCHIKITI				
Nsanje	Ngabu	Chaperekeza	CHABUKA	GILBERT	CHAPELEKEZA	NJOVU	NJOVU 2	MKUZADUKA 2	NYADZIKWI	NJOVU2	ZADUKA2	MLAMBA	MBALANYAMA	CHAPEREKEZA	KAUJU
Chikwawa	Ngowe	Masanduko	MAILOS	NELIYO	TAFUNSAKO	MASANDUKO	BIYASI	AJEJE	KALOTA	PANKHALA IWO	PAKHALA IWO	JIMU			
Chikwawa	Ngowe	Chingamuka	SANDE	EDISAN	KANYEMBE	KANYENZE	KANYENZA	CHINGAMUKA							
Chikwawa	Ngowe	Chikwekwete	BILIATI	CHIKWEKWETE	BILYATI	BILIAT									
Chikwawa	Ngowe	Juma	BELO	YULA	JUMA	KALONGONDA	MEDSON	MIDISONI	KANAVENTI	MEDISON	KUKULIDWA	KALINGONDA			
Chikwawa	Ngowe	Mkhula	MKHULA	MKHAMBANULA	WILLIAM	KAKHOMBE	DICKSON	KACHOMBO	KANDALE						
Chikwawa	Ngowe	John Ngabu	KAHOMBE	JOHN NGABU	KANDALI	KAFOKOMBA	KAKANG'OMA	MKAKANGOMA							
Chikwawa	Masache	Ng'ombe	CHIDEWU	THAYO	PHINDA	BRYTON	ZYUGA	KHEMBO	MWANDICHIWA	MWANDACHIWA	NG'OMBE	NGOMBE	PZYAKOMA	BRAYTON	PHOTE
Chikwawa	Masache	Vega	NGANIWA	CHAVI	VEGA	WILISON	WILISONI	WILLISON	ANGENIWA						
Chikwawa	Ngabu	Phazi	PHAZI	LORE	LOLE	DAITONI	BUTIZA	BUTIUZA							
Chikwawa	Mulilima	Belo	BELLO	RONESI	AMWAI	MWAYI	MWAI	MAFUNGA	MAFUNGA 2						