COMMUNITY BASED RESILIENCE ANALYSIS (CoBRA) ASSESSMENT REPORT
for
Machinga and Mangochi Districts
in
Malawi

Version: 29 November 2016

Contents

1.   Introduction

This report outlines the findings of the first comprehensive Community Based Resilience Analysis (CoBRA) assessment undertaken in Malawi on 8–16 August 2016 with special focus on Machinga and Mangochi districts (Figure 1). It was carried out jointly by the United Nations Development Programme (UNDP) Malawi Office and the Government of Malawi, the Environmental Affairs Department (EAD), under the framework of the *Climate Proofing Local Development Gains in Rural and Urban Areas of Machinga and Mangochi Districts Project*. The overall objective of the project is to utilize ecological, physical and policy measures to reduce vulnerability to climate change driven droughts, floods and post-harvest grain losses for rural and urban communities of the two Districts. The assessment was supported financially by the Global Environmental Facility (GEF) and technically by the [UNDP Global Policy Centre on Resilient Ecosystems and Desertification (GC-RED)](#), formerly known as the Drylands Development Centre (DDC).

CoBRA methodological framework was developed originally by the UNDP DDC in 2012 with the objective of complementing scientific/technical experts-led resilience planning and programming efforts by bringing in views and voices of local communities and households on resilience building in the face of severe 2010/11 drought in the Horn of Africa (HoA). To date, CoBRA methodology has successfully been tested in different locations within Kenya, Uganda and Ethiopia, and the assessment findings have been incorporated into relevant resilience policies, plans and programmes/projects at various levels in the region. The assessment in Malawi builds on these successful CoBRA experiences in the HoA and is meant to make direct input to project interventions, as well as contribute to evidence-based policy advocacy, in Machinga and Mangochi.

CoBRA is a participatory resilience assessment methodology, largely qualitative. It aims to identify the locally-specific factors contributing to the resilience of households and communities, which face different types of shocks and stresses. This tool does not use any preconceived definitions or indicators of resilience, but rather helps local populations describe and explain them on their own, based on their past experiences, by:
* Stating the concept of resilience in plain terms based on local knowledge and experiences;
* Identifying the key factors/characteristics contributing to their local resilience;
* Identifying households that are more (or fully) resilient; and
* Specifying the types of interventions which they perceive to best build resilience.

A detailed explanation of the conceptual framework that underpins the methodology is contained in the [CoBRA Conceptual Framework and Methodology](#) document.

Figure 1: Target Districts of CoBRA Assessment in Malawi (Green Highlighted)

2.   Approach

2.1.   Characteristics of Field Site

In recent times, Malawi has had an erratic rainfall pattern, which varies widely in space and time, with frequent bouts of droughts and floods. This poses great suffering particularly to rural dwellers, who depend largely on smallholder farming as the main livelihood activity. Indeed, agriculture is a major contributor to national economy and household food security, employing over 80% of the country's workforce and contributing to over 80% of its foreign exchange earnings and 35% of gross domestic product. Maize is particularly important, since it is the main staple crops in Malawi and is often used as a parameter of the country's food security. However, maize production and price often fluctuate considerably due to high temporal and spatial variability of precipitation. These conditions are set to get worse in the face of climate change.

Malawi is highly exposed to natural disasters, such as floods and droughts. Available records indicate that in the last 100 years, the country has experienced about 20 droughts. In the last 36 years alone, the country has experienced eight major droughts, affecting over 24 million people in total. The impact, frequency and spread of drought in Malawi have intensified in the past four decades and are likely to worsen with climate change, compounded by other factors, such as population growth and environmental degradation. Droughts and dry spells in Malawi cause, on average, a 1 percent loss of Gross Domestic Product (GDP) annually. Most drought episodes have occurred in El Niño years, during which the country experiences rainfall deficits. The dramatic increase in the frequency, intensity and impact of natural disasters in recent decades has been well documented. But few could have predicted what has befallen Malawi in the last two years. A once-in-500-years flood in 2015, which impacted more than 1.1 million people, has now been followed by a devastating drought that is expected to leave at least 6.5 million people food insecure during the 2016/17 season[1].

The 2015/2016 agricultural season was greatly affected by strong El Niño conditions and resulted in erratic rains and prolonged dry spells across most parts of the country. In particular, the country experienced a delayed start of the 2015-16 agricultural season by two to four weeks followed by erratic and below average rains in November and December 2015. Prolonged dry spells have resulted in severe crop failure, particularly in the Southern Region and parts of the Central Region. The drought has been characterized as an agricultural drought, as in large parts of the country precipitation commenced too late and was too erratic or occurred over a short period of time.

In response to the dry spells, the Government of Malawi declared a state of disaster in April 2016[2]. With damages amounting to USD 36.6 million and losses (projected to March 2017) amounting to USD 329.4 million, the total effect of the drought is estimated at USD 365.9 million. The productive sectors account for 81 percent of the effects, while the social and physical sectors account for 10 percent and 9 percent, respectively. The agriculture sector - including crops, livestock and fisheries - was the most affected, with damages and losses accounting for 70 percent of the total. Just over 60 percent of the losses can be attributed to crops. The irrigation and water supply and sanitation sectors are the second and third most affected, making up 8.7 and 5.4 percent of the total effects, respectively.

Humanitarian consequences include at least 6.5 million people (or 39 percent of the population) in Malawi's 24 drought-affected districts who are not be able to meet their food requirements during the 2016/17 consumption period, according to the 2016 Malawi Vulnerability Assessment Committee (MVAC) Report on food security. It is

---

[1] The 2016 Malawi Vulnerability Assessment Committee (MVAC) Report on food security
[2] Government of Malawi, Post Disaster Needs Assessment (PDNA) report 2016.

projected that in the first quarter of 2017, 28 percent of the population will not receive or have access to the minimum food and non-food requirements.

2.2.   CoBRA Methodology at a Glance

CoBRA methodology consists of four main phases, i.e., preparation, field data collection, data analysis and reporting, and implementation of CoBRA findings, along with seven sub-steps (Figure 2).

Figure 2: CoBRA Phases and Steps
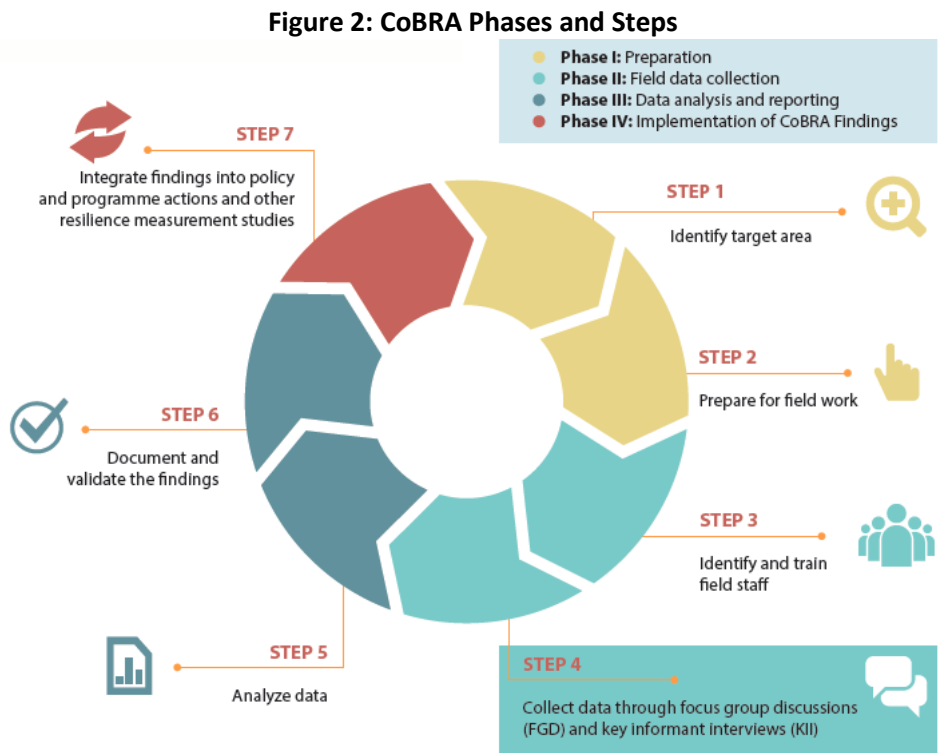
Development of the CoBRA concept for Machinga and Mangochi districts (i.e., CoBRA Phase I Step 1) and preparation for the field work (i.e., CoBRA Phase I Step 2) were carried out in the months of June and July 2016. Training of the CoBRA assessment team (i.e., CoBRA Phase II Step 3) and field data collection (i.e., CoBRA Phase II Step 4) were conducted in early August 2016. Following the initial analysis of field data (i.e., CoBRA Phase III Step 5) in September and October 2016, the preliminary results and findings were presented to the CoBRA assessment team – Machinga and Mangochi District Council officials who took part in the data collection as enumerators/supervisors – for joint review and validation (i.e., CoBRA Phase III Step 6) on 20 October 2016. Please refer to the CoBRA Implementation Guidelines for further details on the CoBRA phases and steps.

2.2.   CoBRA Field Data Collection Overview

The field data collection exercise was conducted in Machinga and Mangochi districts in the Southern Region of Malawi, where the *Climate Proofing Local Development Gains in Rural and Urban Areas of Machinga and Mangochi Districts Project* is implemented. A total of 10 Traditional Authorities (TAs) were selected for this assessment, including both the project target TAs and non-target TAs in a manner to balance geographic, agro-ecological and

demographic representations (Table 1) within the districts. In general, these TAs are highly dependent on rain fed, maize dominated agriculture, making majority of the populations highly vulnerable to climate variability/change induced droughts, floods and post-harvest grain losses.

Table 1: FGDs and KIIs Undertaken for Malawi CoBRA Assessment

Districts	TAs	Population (2008)	#FGDs	#KIIs
MANGOCHI	Mponda	124,747	6	6
	Chimwala	128,640	14	14
	Jalasi	84,873	2	2
	Bwananyambi	91,256	8	8
	Chowe	124,213	5	5
MACHINGA	Chamba	25,577	6	8
	Mlomba	69,316	9	10
	Nyambi	63,709	10	10
	Kapoloma	10,875	10	10
	Nsanama	39,444	5	5

Field data was collected through the methods of focus group discussions (FGDs) and key informant interviews (KIIs). Table 1 summarises the number and locations of FGDs and KIIs undertaken in each of the TAs and Figure 3 outlines the overview of the CoBRA FGD and KII procedures (See Annex 1 for further details on the CoBRA data collection steps). Data collection was undertaken by a total of 23 enumerators, the officials deployed by Machinga and Mangochi District Council Administrations. As outlined earlier, all the enumerators participated in the intensive CoBRA training on 8-11 August 2016, which combines desk-based and field-based sessions (See Annex 2 for the list of participants in the CoBRA training).

Figure 3. CoBRA Data Collection Process

FDG Step 1. Agree on the definition of resilience: What does a *resilient* community look like? What are the main hazards or shocks facing the community?

FDG Step 2. Identify resilience characteristics: What does a *resilient* community look like? What are the characteristics of a resilient community?

FDG Step 3. Prioritize resilience characteristics: What are the three most important characteristics of resilience in the community, ranked by importance?

FDG Step 4. Identify the households in the community that have achieved (fully or partially) the resilience characteristics and list their common features and attributes.

FDG Step 5. Identify interventions that have contributed to households resilience: What interventions have helped to enhance households' level of resilience, and what additional/future interventions would help to build resilience further?

KII with nominated resilient households: What factors or characteristics have contributed to your household's resilience? How did your household become resilient? Why do you think your family coped better with shocks and crises affecting the community? What interventions do you think would best build wider resilience in this community?

The enumerators were divided into four teams, which comprise four to six members depending on the CoBRA TA locations to be visited. Each team was given the responsibility for undertaking 10–14 FGDs and KIIs. It took the teams an average of 90-120 minutes to complete a FGD. Men, women and youth participated in separate discussions to solicit gender/age specific views and perspectives on resilience. An average of 30-60 minutes was spent to complete a KII with the representative of the FGD-nominated "resilient" households. At the end of the training, each team

identified a team supervisor among the members who was assigned to monitor the quality and accuracy of collected FGD and KII data closely.

2.3.   Constraints and Limitations of Data Collection Process

Some of the constraints and challenges encountered during the implementation of the CoBRA field data collection in Machinga and Mangochi districts include, among others:

- **Time allocation**: Since most of the assessment areas practice agriculture, it was critical for the enumerators to be sensitive to community time schedule and not to take FGD and KII participants away from the farms for too long;
- **Traveling**: Due to distances and road conditions, it sometimes took long time to move from one TA/community to another, resulting in limited time for the discussions and interviews;
- **Coverage**: Number of TAs to be visited and FGDs/KIIs to be conducted was limited due to financial, time and other logistical and technical factors. While the District Council officers, who participated in the assessment as enumerator and supervisors, validated that the CoBRA findings largely reflect the local realities, it is perceived that the bigger the sample size is, the more representative and hence the more accurate the results become.
- **Data entry**: Some enumerators did not follow the recommended data entry procedures thus the supervisors and the data analysis team needed to revert to them later for correction to avoid errors and omissions.

3.   FGD Findings

This section reports on the summarized findings from the CoBRA FGDs. Specifically, the findings are presented according to the following categories:

- **FGD Step 1**: What the main hazards or shocks facing the communities assessed? (Section 3.1)
- **FGD Step 2-4**: What are the characteristics of a resilient community? (Section 3.2)
- **FGD Step 5**: What does a resilient household look like? (Section 3.3)
- **FGD Step 6**: What existing interventions contribute to household resilience and what additional intervention would best build resilience? (Section 3.4)

The section also outlines the key feedback provided and consolidated inputs generated at the CoBRA field validation workshop.

3.1.   Main hazards or shocks

The main hazards reported in all the FGDs in both Machinga and Mangochi districts were: 1) drought; and 2) flooding. Communities viewed these hazards to be the most significant contributors to agricultural production loss and the most devastating shocks limiting their development and prosperity. Communities also reported that they are currently going through drought which is perceived to be just as bad as, if not worse than, the past droughts, a condition that was exacerbated by El Niño, as was officially declared in March 2015, before waning off after the first quarter of 2016.

In fact, the weather reports/forecasts show that the rains during growing seasons window of January-March (the time when maize is most sensitive to water deficits) and October-December 2016 (planting and early crop development) have been/are likely to be below normal in both Machinga and Mangochi. (Figure 4).

To a limited extent, the communities also reported armyworms, hailstorms, human diseases such as cholera, and strong winds as other observed hazards.

With these results in mind, "resilience" in the context of Machinga and Mangochi districts were described that *all households in the community are able to feed their families adequately every day and meet basic needs in a stable manner both in normal and drought/flood periods*.

Figure 4: Rainfall and Rainfall Anomalies in Machinga and Mangochi - 2016
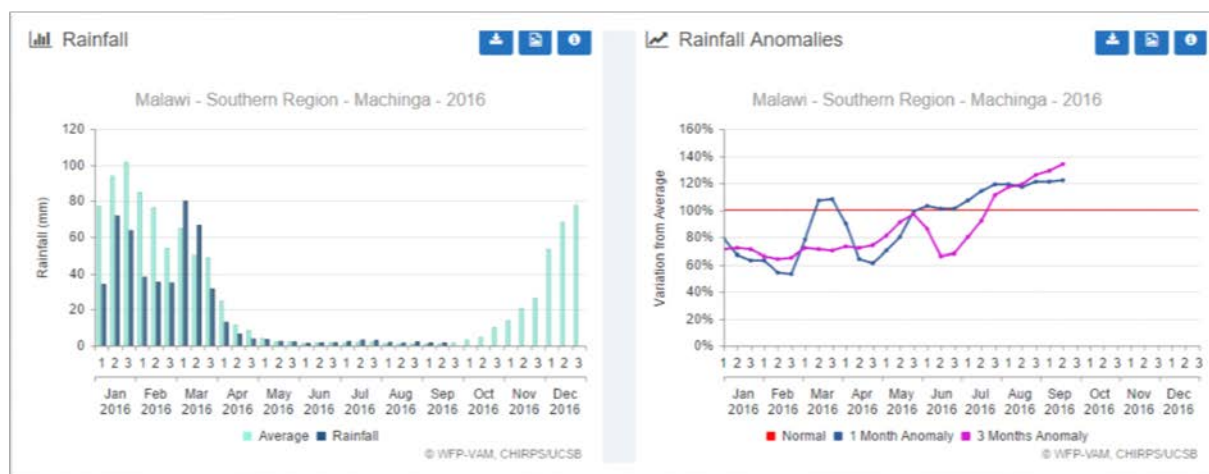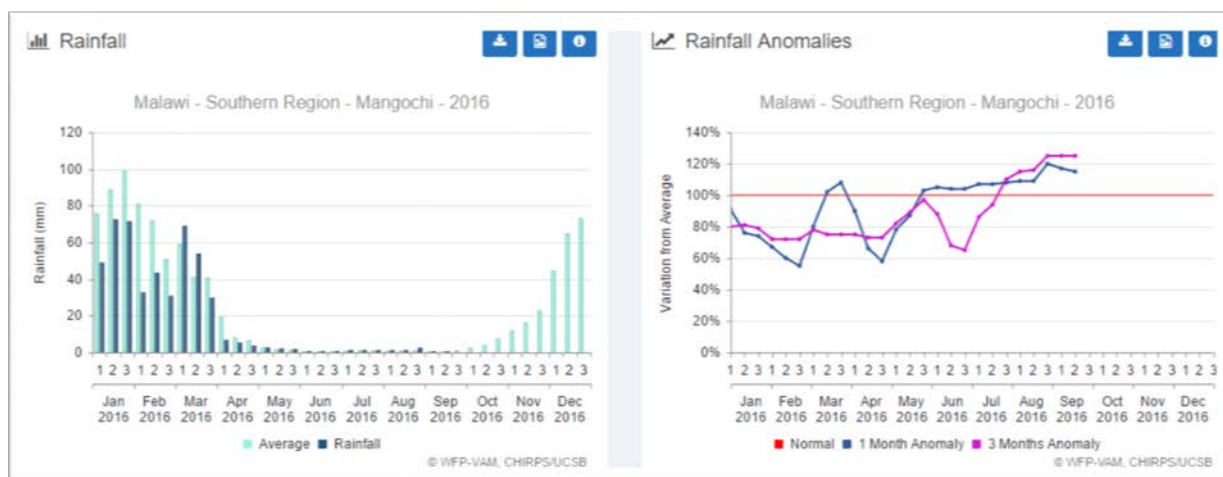
3.2. Characteristics of a Resilient Community

FGD participants were asked to list as many characteristics as they could think of to describe the building blocks of a resilient community. Typically, each group provided 15 to 30 characteristics. The participants were then requested to rank and score the characteristics by importance. Each focus group member was given six beans to rank the three most significant characteristics, giving three beans for the most significant characteristic in terms of priority for building resilience, two for the second and one for the third.

In the following subsections, the bean scoring results are first presented for the entire set of respondents, to give an overall picture of the most highly rated characteristics in Machinga and Mangochi districts respectively (Section 3.3.1). This is followed by an analysis by category of respondent, namely gender/age (Section 3.3.2) to disaggregate findings and identify differences across groups.

3.2.1. Analysis for overall respondents

Table 2 lists the top five most highly ranked characteristics used to describe the building blocks of a resilient community with the bean scores (See Annex 3 for the full list of the characteristics and corresponding bean scores). Figure 5 shows all the resilient community characteristics which received more than 50 bean scores.

Table 2: Top 5 Priority Community Resilience Characteristics – All Respondents

Resilience Characteristics	Full Statement	Beans Score
Food for humans	*All households would be able to feed themselves well every day.*	1466
Irrigation	*Farmers would be irrigating land to improve the production of crops for consumption and sale.*	991
Livestock herds	*Households would have large enough herds to sustainably support their families.*	664
Improved Agricultural Practices & Inputs	*Farmers would be more productive and profitable (i.e., would have inputs like quality tools, oxen, fertilisers and improved knowledge of good farming practices).*	651
Water for Humans	*The whole community would have access to sufficient, good quality water at all times of the year.*	592

Figure 5: Priority Resilience Characteristics Scores – All Respondents

Characteristic	Bean score
Food for humans	1466
Irrigation	991
Livestock herds	664
Improved agricultural practices & inputs	651
Water for humans	592
Business/Trade (Diversified Incomes)	404
Access to credit	374
Quality affordable healthcare	357
Forest management/ Tree cover	282
Quality housing	201
Tertiary education	152
Employment/ Wage labour	136
Access to markets	125
Primary education	121
Improved roads	114
Cash transfers	108
Secondary education	85
Electricity	77

The results reveal that the communities in the assessment areas look at resilience predominantly from food security perspective, since the disruption in precipitation patters often result in crop failure and food shortage and affect people's access a reliable supply of food. Strong focus on basic physiological and subsistence needs, such as food, water and shelter, might be associated with high and deteriorating poverty rates, deep climate vulnerability and limited socio-economic achievements in both Machinga and Mangochi districts.[3]

Prominent interests in food and on-farm characteristics such as irrigation, livestock herds and improved agricultural practices and inputs reflect predominance of agro-based livelihoods. It is also a reflection of the current state of food insecurity arising out of the multi-year drought and flood disasters that have hit these districts. This in turn could also imply the limited awareness of other (off-farm) economic opportunities or availability to diversify livelihood out of agriculture in the districts in general. This tendency is particularly applicable in rural communities. The data suggest that the largely peri-urban communities in Mangochi place a greater emphasis on diversification of income generating activities and are more business oriented.

A positive finding is that the communities already have deep understanding of the need to break the cycle of climate vulnerability not only responsively from the angle of results (e.g., food insecurity) but also proactively from the angle of causes. The results show their strong willingness to address those underlying factors which undermine community

---

[3] According to the Integrated Household Survey, poverty in Machinga district went down from 73.7% in 2005 to 75% in 2011, while that in Mangochi also deteriorated from 60.7% to 73.2%.

resilience (e.g., unavailability of reliable agricultural water supply [i.e., irrigation], limited use of advanced agricultural technology and practices, low livestock ownership, poor access to financial services and markets, etc.).

It is also important to note that, while less visible in the list, the characteristics related to education are significant amounting to 403 bean scores in total, when early childhood/primary/secondary/tertiary/adult educations are all aggregated. According to the Integrated Household Survey 2010-2011, as high as 87% and 91 % of populations have no educational certificates in Machinga and Mangochi districts respectively. Various socio-economic and cultural reasons Low educational attainment in the two districts. Scattering of bean scores among different levels of education may be due to extremely low educational accomplishments overall (i.e., any type/all types of educations are important) as well as lack of educated role models.

In comparing the bean scores between the two districts (See Table 3 and Figure 6 for Machinga, and Table 4 and Figure 7 for Mangochi), the results look largely similar with the same top two priority characteristics, namely food security and irrigation.

Table 3: Priority Resilience Scores Machinga

Resilience Statements	Bean Score
Food for humans	854
Irrigation	533
Water for humans	437
Livestock herds	321
Improved agricultural practices & inputs	263
Quality affordable healthcare	258
Forest Management/Tree cover	220
Business/Trade (Diversified incomes)	175
Access to Credit	124
Quality housing	111
Cash transfers	103
Primary education	88
Tertiary education	85
Access to markets	75
Improved roads	69
Employment/Wage labour	44
Better transportation	43
Adult education	35
Telecommunications	33
Electricity	31
Peace and security	24
Secondary education	13
Community skills and organisation	10
Good sanitation/Latrines	10
Animal health services	5
Early warning and disaster preparedness	5
Good governance	5
Early childhood education	4
Land ownership	3

Table 4: Priority Resilience Scores Mangochi

Resilience Statements	Beans Score
Food for humans	612
Irrigation	458
Improved agricultural practices & inputs	388
Livestock herds	343
Access to Credit	250
Business/Trade (Diversified Incomes)	229
Water for Humans	155
Quality affordable healthcare	99
Employment/Wage labour	92
Quality housing	90
Secondary education	72
Tertiary education	67
Forest management/Tree cover	62
Access to markets	50
Electricity	46
Improved roads	45
Primary education	33
Women in development and leadership	22
Land ownership	19
Fishing	15
Early childhood education	11
Adult education	6
Cash transfer	5
Early warning and disaster preparedness	4
Relief	3
Community skills and organisation	2
Telecommunication	1

Figure 6: Priority Statements That Define Community Resilience in Machinga District

Priority Statement	Bean scores
Food for humans	854
Irrigation	533
Water for humans	437
Livestock herds	321
Improved agricultural practices & inputs	263
Quality affordable healthcare	258
Forest management/Tree cover	220
Business/Trade (Diversified Incomes)	175
Access to credit	124
Quality housing	111
Cash transfers	103
Primary education	88
Tertiary education	85
Access to markets	75
Improved roads	69

Figure 7: Priority Statements That Define Community Resilience in Mangochi District

Priority Statement	Bean scores
Food for humans	612
Irrigation	458
Improved agricultural practices & inputs	388
Livestock herds	343
Access to credit	250
Business/Trade (Diversified Incomes)	229
Water for humans	155
Quality affordable healthcare	99
Employment/Wage labour	92
Quality housing	90
Secondary education	72
Tertiary education	67
Forest management/Tree cover	62
Access to markets	50

Overall, the CoBRA assessment team from both Machinga and Mangochi districts (i.e., District Council representatives) confirmed that the bean scoring results resonate well with the local reality the factors/characteristics prioritized by the communities are largely expected. The team analysed that recurring incidents of food shortages and insecurity in the past years due to climate disasters facing the districts such as dry spells, droughts and flash floods must have resulted in the communities' high prioritization on food. he increasing prevalence of the recurrent floods and droughts has had far-reaching consequences not only on food but also diminished available water resources in terms of reduced streamflow that the communities typically depend on for irrigation. Erratic rains have resulted in acute crop failure, food insecurity and malnutrition, especially among the vulnerable members of the communities such as women and the young.

Some of the observations made from the results include:
- Communities in Machinga district seem to be more vulnerable facing difficulties in accessing basic human services such as food, clean water, health facilities and basic education, which are fundamental not only to resilience building but also to long-term poverty alleviation and sustainable development. The validation workshop listed multiple reasons behind the difference between the two districts in terms of access to water, such as the level of accessibility to lake and other fresh water sources (e.g., water points), depth of water table, number and size of water related interventions (e.g., Mangochi Basic Services Programme), etc.
- Focus groups in Machinga district also rated forest management/tree cover relatively highly, which indicates the district population's high reliance on woods as a source of livelihoods (e.g., charcoal production). The result also indicates their deeper understanding of the importance of forests as sources of water recharge for domestic and agricultural purposes.
- Communities in Mangochi district expressed high degree of interest not only in resilience characteristics which will help improve existing livelihood activities (e.g., irrigation, improved agricultural practices and inputs, increased livestock herds, etc.) but also in those contributing to off-farm income generating activities (e.g., access to credit, business/trade, etc.). These characteristics linked to off-farm incomes highlight a significant difference between the two districts whereby Mangochi is exposed to more economic opportunities due to the presence of Lake Malawi in the District. Communities in Mangochi have been benefiting significantly from activities associated with the lake such as fishing in both Lake Malawi and Shire River and tourism taking place around the lake. These benefits include employment, exposure, infrastructural development and engagement in closely associated small and medium-sized enterprises (SMEs). In particular, the Lake's presence here provides economic benefits to the residents directly through employment in the tourism establishments and indirectly through involvement in SMEs supporting the tourism industry. SMEs like small-scale commercial agriculture, craft-making and curio selling, lake transportation and tour guiding have come into existence related to tourism.
- Quality Housing was scored above median by both districts, possibly because of the Decent and Affordable Housing (Cement and Malata) Subsidy Programme (DAHSP) of the Government of Malawi. Popularly known as Malata and Cement Subsidy programme, this flagship programme provides subsidized cement, iron-sheets and other related building materials for the low income households to build and improve their own houses.

3.2.2. Analysis by Gender and Age
This section presents the bean scores by gender and age groups. The results illustrated in Table 5 demonstrate the different priorities that men, women and youth (mixed gender) place on community resilience characteristics in Machinga and Mangochi districts. The data suggests the following:
- In both Machinga and Mangochi, women place great emphasis on food security. Their strong focus on ensuring food and nutrition security may be as a result of the historical gender roles of the assessment areas. In rural Malawi, women are historically responsible for both producing crops, processing basic

13

household food, providing meals, ensuring dietary diversity and children's health, etc. Furthermore, women's prioritization might have reflected the power dynamics between men and women within households and focused on the fields where they have decision-making power. The *Multi-Sector Country Gender Profile for Malawi* states:

> "*The gender implications … seem to be similar within the framework of women's control over the land, its uses and decisions concerning what crops to grow. They also have limited control over the money from sales of agriculture produce. Moreover, men have may have the overall say on the type of crops to be produced which will have an impact on issues of household food security.*"[4]

- Men tend to prioritize characteristics which help improve their on-farm production and productivities and, in turn, lead to higher food security as well as additional income. Higher focus of men and youth in Machinga on forest management/tree cover should be linked to the fact that charcoal burning has long been practiced in the district as one of the main sources of livelihoods. The differences in responses between men and women may be a representation of general differences in customary gender roles within the agro-based livelihood system.

- In Mangochi, business opportunities, trade and diversified incomes including access to credit seem to have become important to both Women and Men as opposed to Machinga where focus is largely on food security and associated primary factors of production at the subsistence farm level.

- Whilst youth value irrigation and other factors which contribute to better on-farm productions just like adults, they ranked highly non-agricultural characteristics related to education, forest and environmental management, business opportunities. These results clearly demonstrate the strong willingness of youth, who have less access to/control over land, to diversify out of traditional subsistence agriculture-based livelihoods to off-farm income-based livelihoods. Relatively lower rating on food security also shows the developmental perspectives of the youth, focusing on underlying invisible causes of vulnerability rather than visible symptoms of results.

Table 5: Priority Characteristics by Gender/Age Group in Machinga and Mangochi Districts

Gender/ Age	Machinga		Mangochi	
	Resilience Characteristics	Bean Scores	Resilience Characteristics	Bean Scores
Women	Food for humans	609	Food for humans	386
	Water for humans	216	Improved agricultural practices & inputs	237
	Irrigation	215	Irrigation	160
	Livestock herds	185	Business/Trade (Diversified Incomes)	142
	Improved agricultural practices & inputs	120	Livestock herds	104
Men	Irrigation	215	Irrigation	191
	Food for humans	209	Livestock herds	177
	Water for humans	142	Food for humans	147
	Forest management/Tree cover	119	Improved agricultural practices & inputs	132
	Improved agricultural practices & inputs	114	Access to credit	105
Youth	Irrigation	103	Irrigation	107
	Water for humans	79	Food for humans	79
	Quality affordable healthcare	69	Tertiary education	67
	Forest management/Tree cover	46	Livestock herds	62
	Business/Trade (Diversified incomes)	40	Access to credit	61

---

[4] African Development Fund (2005). Multi-Sector Country Gender Profile for the Republic of Malawi. Available at http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/malawi.pdf.

3.3. Features of Resilient Households

Focus group participants were asked to describe the characteristics of households that are more resilient compared to others within their communities, i.e., the households that have already attained many, if not all, of the resilience characteristics prioritised. The top three characteristics of a resilient household, cited consistently by focus groups, included the following:

- Households which **own livestock**
- Households that have **a business** or engage in **other income generating activity**
- Households which practice **irrigated farming**
- Households which have **physical assets**, particularly **good quality shelter** (e.g., iron sheet roofed housing, etc.) as well as **large land**, **means of transport** (e.g. bicycle, motorcycle, vehicle, etc.)

A few other household characteristics were also mentioned but significantly less often:

- Households which are **food secure** with stable nutritious food supply
- Households which receive **remittances** through a member (or members) who has **employment**

The validation workshop reaffirmed that the above results reflect the local reality and show that resilience is clearly linked to incomes and assets. Majority of households in Machinga and Mangochi districts are under chronic poverty. Most of them practice rain-fed smallholder agriculture as a subsistence activity, with traditional farming systems, rather than a business that makes profits, limited-based.[5] Future Agriculture paper (2012) states that only about 15% of the maize produced in Malawi is marketed, while the rest is used to meet subsistence needs.

With low level of income and assets ownership, poor households have challenges in making personal investments to address either results or causes of their climatic vulnerability and ensure food and other physiological security throughout the year. In contrast, resilient households appear to have more ability to capitalize on their income and assets to improve existing and expand new livelihood activities, which enable them to absorb, adapt to and/or transform from recurrent climatic shocks and maintain stability in food security both in normal and crisis periods. This trend may perpetuate the divide that already exists in the communities between the vulnerable/poor/marginalized and the resilient/wealthy/elite.

Focus groups were further questioned about whether the number of resilient households was increasing, decreasing or staying the same in the past years. As Figure 8 illustrates, the communities in the assessment areas provided negative perspectives in general. While there is consistency of negative sentiments in responses between the two districts, Machinga district turned out to be more pessimistic with three quarter of the focus groups indicating the decreasing number of resilient households, in contrast to Mangochi district where the same observation was limited to slightly more than two third of the focus groups.

---

[5] Chirwa, E. W. and Matita, M. (2012). From Subsistence to Smallholder Commercial Farming in Malawi: A Case of NASFAM Commercialisation Initiatives. Available at http://www.future-agricultures.org/publications/research-and-analysis/1566-from-subsistence-to-smallholder-commercial-farming-in-malawi-a-case-of-nasfam-commercialisation/file.

In terms of gender/age groups (Table 6), women tended to be the least positive with 100% and 83% of the focus groups in Machinga and Mangochi districts respectively felt that resilience is decreasing in their communities. Youth focus groups in Mangochi district are the only exception where all groups sensed an increase in resilience households.
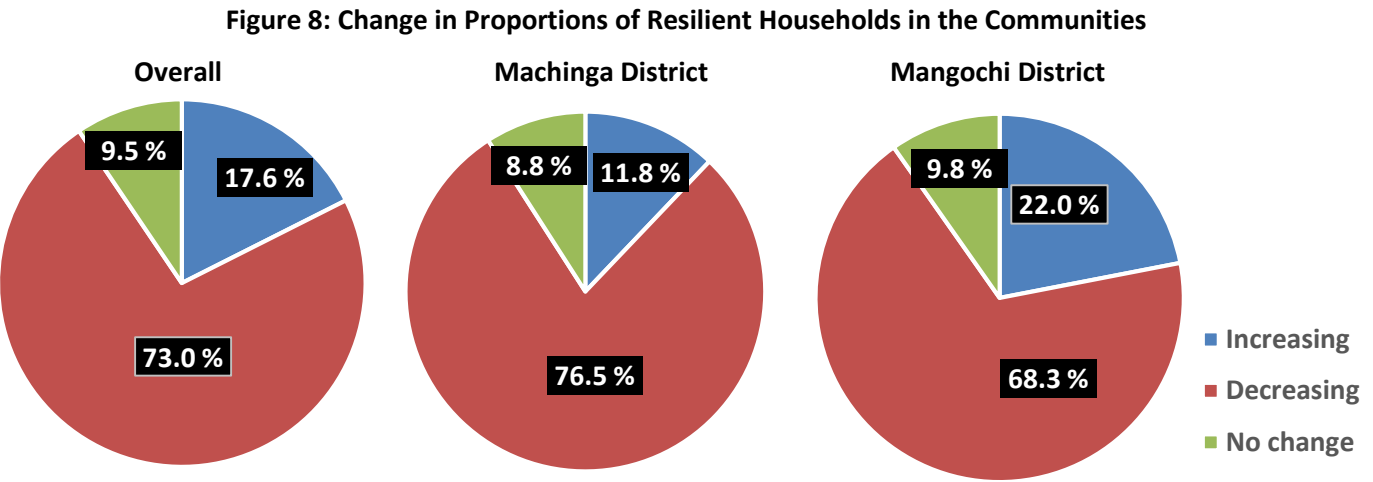
Figure 8: Change in Proportions of Resilient Households in the Communities

Table 6: Change in Proportions of Resilient Households in the Communities by Gender/Age Group

Gender/Age	Machinga District			Mangochi District		
	Increasing	Decreasing	No change	Increasing	Decreasing	No change
Women	0%	100%	0%	11%	83%	6%
Men	23%	69%	8%	6%	76%	18%
Youth	14%	57%	29%	100%	0%	0%

The main explanation given by respondents for decreasing resilience related to the fact the two Districts have been experiencing a variety of multi-year climatic hazards, which include intense rainfall, floods, within season and annual recurrent droughts. The districts experienced two consecutive climate change related shocks namely floods and drought in 2015 and 2016 respectively. This has made most communities experience chronic food insecurity on a year-round-basis owing to the effects of these floods and droughts. The increasing prevalence of the recurrent floods and droughts has had far-reaching consequences not only on food but also diminished available water resources in terms of reduced streamflow that the communities typically depend on for irrigation. Erratic rains have resulted in acute crop failure, food insecurity and malnutrition, especially among the vulnerable members of the communities such as women and youth.

The validation workshop commented that the negative opinions by women on household resilience om general is largely attributed to the fact that women remain vulnerable and poor as they are more dependent on natural resources and the deteriorating climatic effects on food insecurity factors is affecting them more compared to men. Women have disproportionately high exposure to risk due to cultural norms that bring about systemic inequities between women and men in such areas as management of income and ownership of land. Households headed by women are common in Machinga and Mangochi, either because their husbands migrated out for urban/rural labour, or because they took over male responsibilities for agricultural production and marketing, household purchases, and social and community duties as a single parent.

The workshop participants analysed further that men and youth on the other hand have opportunities to provide labour to others for both farm and non-farm activities inside and outside their villages. Less negative perceptions among these two groups are attributed to some extent to the increase in number of Malawian men and youth migrating to urban or other rural areas, or abroad (e.g., South Africa), to seek better opportunities such as employment in the informal sector. Although the local situations may be unfavourable with high illiteracy rates, adverse climatic conditions, limited economic activities, low access to public services, etc., men and youth in the region are able to take the option of overcoming these challenges through seasonal or permanent migration more flexibly than women given traditional gender roles and responsibilities. In addition, the youth in general tends to be more optimistic about the future as they do not need to face as many day-to-day household challenges and responsibilities in comparison to adults. For example, most of the youth believe they will be richer materially and that there will be more opportunities for them e.g. more jobs in future if they migrate to South Africa.

While communities' general negative responses are clearly linked to chronic poverty and long-term climatic vulnerability facing the communities, these views raise questions to the effectiveness and efficiency of the past and ongoing resilience building interventions taking place in the areas. Impacts and results of different support and services delivered to the communities and different gender/age groups will need to be analysed more in depth from both quantitative and qualitative perspectives. Please see Section 3.4 below for further observations on this matter.

3.4. Interventions to Drive Resilience Building

Finally, focus groups were asked to list all types of services and interventions they had benefited from in the last two to five years towards building of community resilience (i.e., attainment of resilience characteristics as shown in Section 3.2). They included projects that were not only implemented by Government, private sector, faith based organizations and NGOs but also those that were a consequence of internal community initiatives. A reasonably wide range of sectoral and public, non-governmental and private interventions was mentioned. From this long list, each focus group was asked to identify jointly: 1) the three most beneficial services/interventions currently or previously provided; and 2) the three most important services/interventions which they feel should be prioritized in the future for further resilience strengthening. Figure 9 and 10 show the most commonly rated interventions in Machinga and Mangochi districts respectively.

Concerning the past/ongoing beneficial interventions, as shown in the figures, both districts rated most highly the same combinations of interventions in different orders:
- Social assistance interventions through productive safety net support such as social cash transfers, cash for work, etc., such as the Malawi Social Action Fund (MASAF).
- Food and other relief items distribution, including school feeding support.
- Irrigation interventions, both the improvement/expansion of existing systems and creation of new facilities.
- Productive farming interventions, both labour inputs (e.g., advanced/climate-proofed tools, equipment, techniques) and non-labour inputs (e.g., improved and diversified seeds and seedlings, higher quality fertilizer, other subsidized farm inputs, such as Farm Input Subsidy Program [FISP]).

Business/job/market related Interventions such as the creation of small scale businesses and wage labour opportunities, business skills and market development (e.g., through Agricultural Development and Marketing Corporation [ADMARC]) were also quoted as critical in both districts.

When the results are analysed through the lens of three different types of resilience capacities, namely absorptive, adaptive and transformative capacities (Please see Annex 4 for more details on resilience capacity categories), those

past/ongoing initiatives which improve absorptive capacity were highly rated generally in both districts, and particularly in Mangochi district. Typically, the initiatives such as cash transfer and distribution of food and other relief items contribute to lessen the impacts of climatic shocks and stresses (e.g., food insecurity) by helping the affected households to keep meeting the immediate dietary and other basic human needs and preserve/restore essential basic community structures and functions. These interventions also help communities to protect development gains by providing alternatives to negative adaptation activities that would further erode their resilience.

The focus groups also valued the adaptive capacity building interventions, with which the communities can continue to operate without major qualitative changes in function or structural identity even in the face of drought and flood hazards. In the agro-based society, they are typically the initiatives contributing to ensure stable level of agricultural (on-farm) production and productivity despite high climate variability. These include the ones related to productive farming, large/small-scale irrigation interventions, and livestock sector support (e.g., increase in herd size and improvement of access to livestock market), etc.

Less focus was given for transformative capacity building interventions, which assist in creating a fundamentally new system so that the drought/flood shock will no longer have any impact, i.e., the initiatives leading the local livelihoods less weather/rainfall-sensitive, such as off-farm economic activities. These include support in creating large/small-scale business and casual/longer-term employment opportunities and improving access to formal/informal loan, credit and saving facilities.

It is important to note that the communities' prioritization among absorptive, adaptive and transformative capacity building are influenced highly by their experiences. Given the frequent crisis status of the assessment areas in the past years, the communities might have benefited more from emergency cash transfer and relief support as part of humanitarian aids than other long-term development oriented projects. In other words, low rating of certain types of interventions could mean that either the communities did not value such support (i.e., no demand) or they simply have not been exposed to such support (i.e., no supply).

In terms of the future interventions that are perceived to best build community resilience, some of the highly evaluated past/ongoing interventions are not necessarily equally highly recommended in the future. *Inter alia,* in both districts, priorities of the focus groups clearly shift away from absorptive capacity building interventions to adaptive/transformative capacity building interventions. Support contributing towards the enhancement of agro-based livelihoods (e.g., irrigation, productive farming, livestock) and diversification of economic activities (e.g., business/job/market, loan/credits/saving) are relatively highly recommended. In the case of Machinga district, the communities also emphasized water/forest sector interventions (e.g., forest/tree/environment management, WASH) in line with their priority resilience characteristics.

While the communities often recommended the continuation and up-scaling of some past/ongoing interventions based on their successful results and positive impacts, their responses also shed light on those interventions which have not yet been implemented, or brought very large benefits, in the past in the districts. In Machinga district, for example, improvement in access to education (combing primary, secondary, tertiary, adult and vocational) and health (e.g., quality and quantity of health facilities, ambulance service, etc.) are highly desired. Communities in Mangochi valued highly the support related to livestock (e.g., livestock distribution and pass-on programmes for goats and poultry, creation/expansion of livestock markets, etc.), housing (e.g., housing materials provision/subsidy). Communities' aspiration for the change in types of external support and interventions may reflect their frustration towards worsening local resilience status, as shown in Figure 8.

Figure 9: Resilience-Building Interventions Most Commonly Cited by Focus Groups in Machinga District
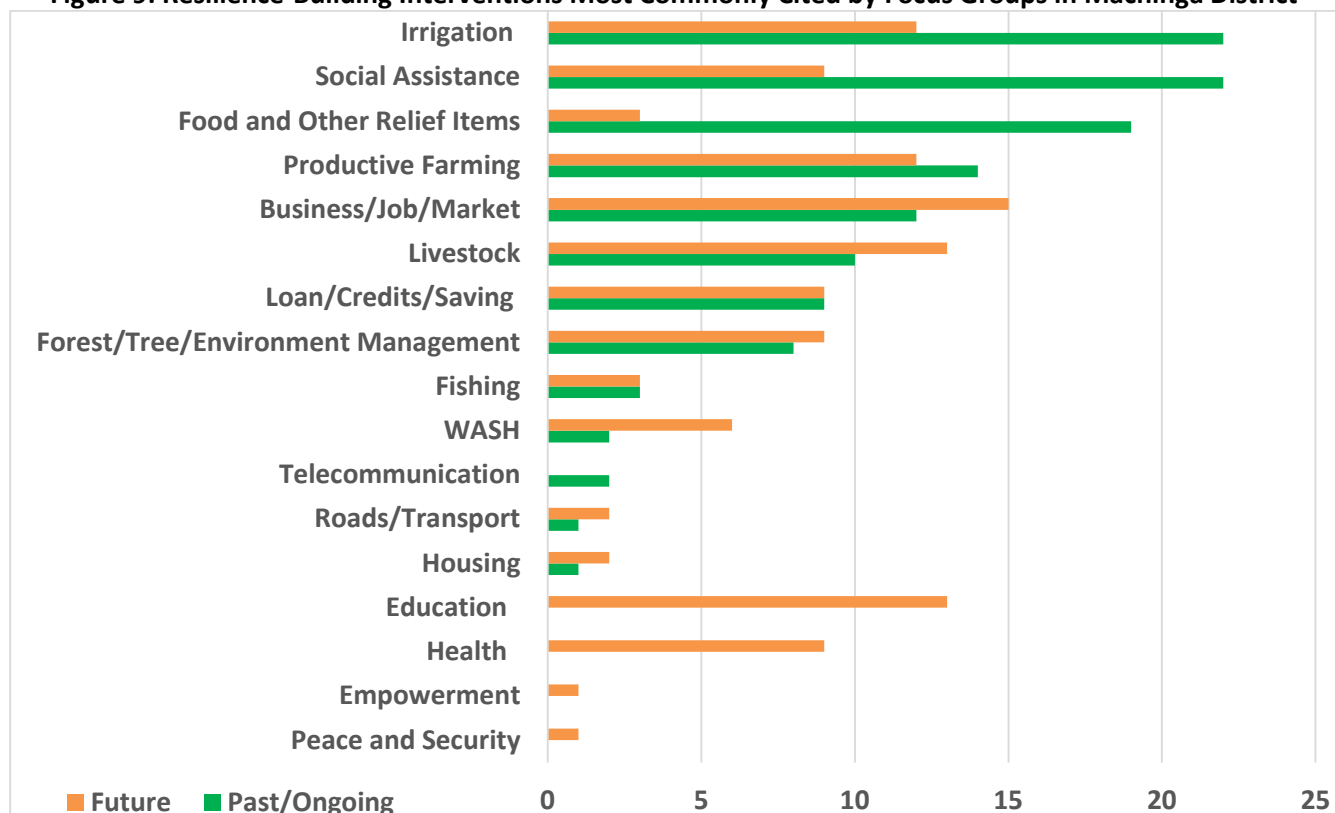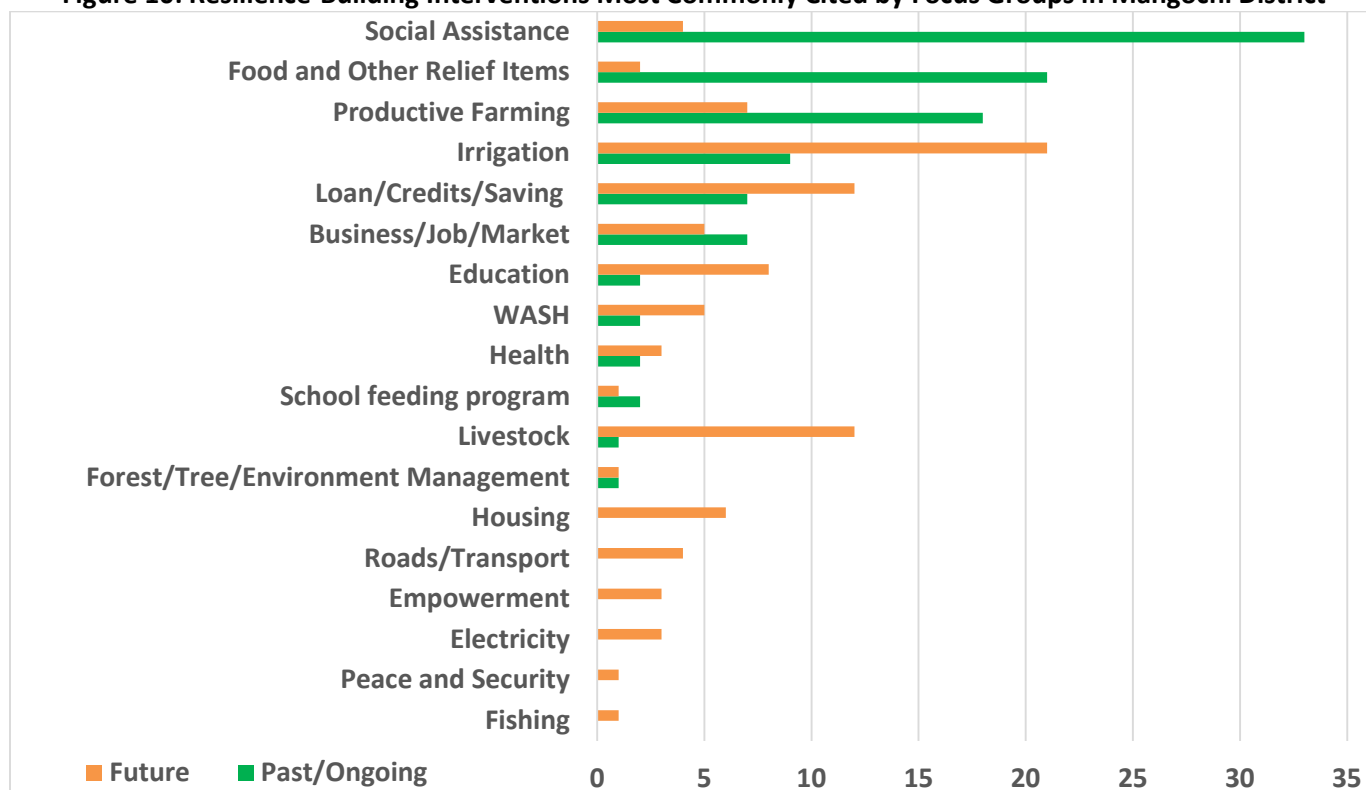

Figure 10: Resilience-Building Interventions Most Commonly Cited by Focus Groups in Mangochi District

4. Key Informant Interviews (KIIs)

As shown in Table 1, a total of 78 interviews were undertaken in Machinga and Mangochi districts with members of households identified by the participants of the focus group discussions (FGDs) as "resilient". Criteria of key informant interview households (KIL HHs) were largely related to stable access to basic human needs, such as food and shelter, regardless of shocks and stresses affecting the communities.

KIIs examined the following four areas:
- Composition and economic activities of the households (Section 4.1);
- Pathways to resilience (Section 4.2);
- Ability to cope with recent shocks and hazards (Section 4.3); and
- Priority interventions recommended by resilient households (Section 4.4).

4.1. Composition and Characteristics of Resilient Households

The KII record sheet records the age, gender, education level and economic activity of all members of the "resilient households" interviewed. The "resilient households" were quite diverse in terms of household size (ranging from 2 to 12), age, gender (including both male-headed and female headed) and education level (ranging from those which contain members completing tertiary education to those which have no member with formal education). In comparison to the HoA, "resilient" households in Machinga and Mangochi districts tend to have lower educational accomplishment. About 60% of KII HHs had at least one member who completed primary or higher education.

Key informants were asked to list all the economic activities which the household members have been engaged in. All 78 KII respondents had household members engaged in one or more of the following (Figure 11):

- Crop farming (72/78 HHs) and 53% of farming households practice irrigation;
- Livestock raising (40/78 HHs);
- Fishery (7/78 HHs);
- Business or petty trade (57/78 HHs); and/or
- Wage employment or casual labour (25/78 HHs);

Figure 11. Economic Activities of Resilient Households
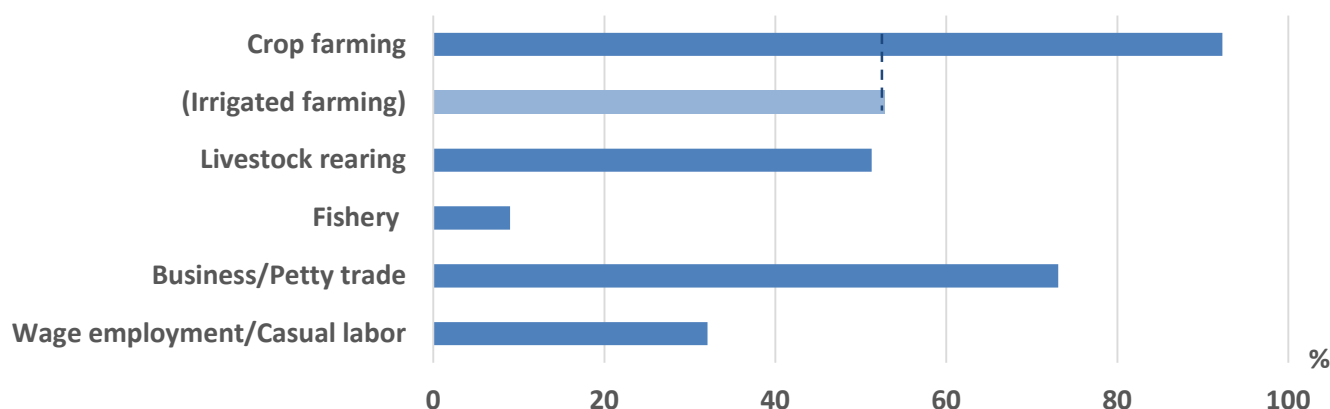
In addition to the above economic activities, 10 KII households receive remittances from family members or relatives residing outside Machinga and Mangochi districts (e.g., urban areas or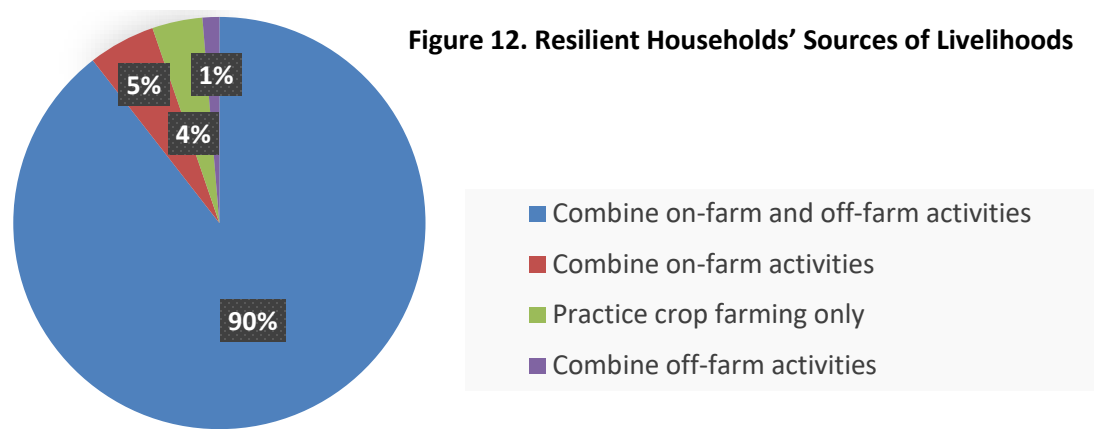 abroad such as South Africa). All remitters in the KII households completed primary education or hold higher level of educational qualifications.

Overall, the vast majority of the households interviewed (73/78 HHs or 94% of KII HHs) reported to be engaged in multiple income generating activities. Most of these households (68HHs or 87% of KII HHs) have income sources from both agro-based on-farm activities (e.g., crop, livestock, fishery – one or combination) and cash-based off-farm activities (e.g., business, wage, remittance). Only three households depend their livelihoods solely on crop farming and all of them practice irrigated farming. No "resilient households" interviewed in Machinga and Mangochi survive only on livestock and fishery production alone. One household maintain their livelihood exclusively through off-farm business, wage employment and casual labour activities (Figure 12). These results clearly show that the diversification of economic activities is a key strategy for "resilient households", with most retaining their agricultural activities as the primary source of livelihoods, while earning incomes through less weather dependent wage and/or business.

Figure 12. Resilient Households' Sources of Livelihoods

- Combine on-farm and off-farm activities
- Combine on-farm activities
- Practice crop farming only
- Combine off-farm activities

Business activities conducted by the KII HHs are diverse, encompassing bike hiring, farmland renting, wood curving, tailoring, secondhand clothes/shoes selling, bakery, food/grocery selling (e.g. mandazi), butchery, farm products/fish/firewood selling, etc. Most wage earners were casual or temporary labours carrying out carpentry, electronics repairing, tin-smithing, etc. Only one respondent mentioned more formal employment opportunity, working at the Community Based Care Centre. No private sector employment was mentioned, reflecting the dearth of any significant private sector employers in both Machinga and Mangochi districts.

It may be important to note that only one household reported firewood collection and selling as part of their livelihoods, especially considering that the over exploitation of natural/forest resources has long been a severe environmental challenge in the surveyed districts. "Resilient household" showed that they may depend less on natural/forest resources possibly because they earn sufficient income/fulfill their basic human needs through other diversified sources.

4.2.   Pathways to Resilience

Figure 13 provides the full list of the key factors contributing to the households' resilience, cited consistently by the key informants. Majority of KII HHs (86%) reported stable income secured in all seasons through small scale business, wage employment and casual labour opportunities as the main building block of their households' resilience.

Figure 13: KII Household Resilience Contributing Factors

| Factor	Value
Off-farm income *Business, wage employment, casual labour, etc.*	67
Crop farming techniques *Soil enrichment, crop rotation, seed selection, etc.*	42
Livestock ownership *Used for manure production & business property*	40
Irrigation	38
Access to finance Village Savings & Loan, micro-finance, bank loans	27
Remittance *From family members and extended relatives*	10
Transport *Ownership of motorbikes and bicycles*	8
Access to education	8
Fishery income	7
Land ownership *Used for agriculture and farmland renting*	6
Cash/food assistance *Food distribution, cash transfer, cash for work, etc.*	4
Access to health	3

Since Machinga and Mangochi districts are largely agro-based, agriculture related factors were also frequently mentioned. More than half of the interviewed households (54%) shared various farming methods and techniques as a means to cope with shocks and stresses. These include, among others, soil conservation/enrichment techniques (e.g., use of fertilizers and manures, conservation tillage, etc.), crop rotation and diversification (e.g., drought resistant, hybrid, high value, cash crops species, etc.). 51% of KII HHs reported the importance of livestock ownership, not as a food source but as a business property used for manure production and for trading with which to purchase different goods and access to various services. Furthermore, 49% of KII HHs noted irrigation as critical contributing factor to make agro-based livelihoods resilient and stable, allowing to continue both producing crops to fulfill dietary requirements and selling crops for income throughout the year including the dry season/drought period. Considering that all the interviewed pointed to at least one of these top four contributing factors, establishing a robust basis for on-farm and off-farm income generation seems to be a critical step to make households more resilient.

In terms of the pathway to the current resilient status, a great majority of the "resilient households" (98%) perceived that they are always/almost always 'resilient', and have coped relatively better in comparison to the rest of the households, regardless of the types of shocks and stresses facing their communities in the recent years (Figure 14). Many households stressed their 'hard-working nature' to build up, protect and expand their asset and income bases

as the core ingredient of their persistent resilience implying that resilience capacity may be obtained/maintained in the long run.

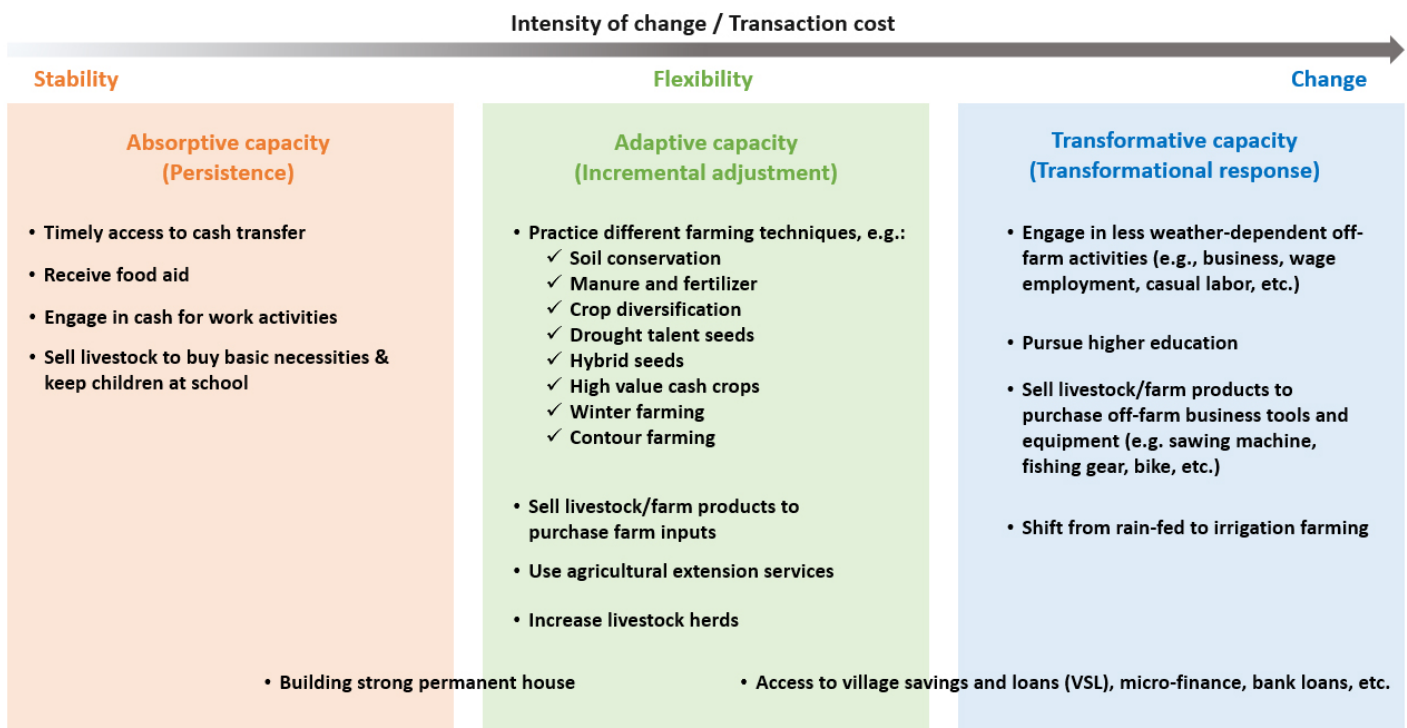**Figure 14. Duration of Households' Resilience**
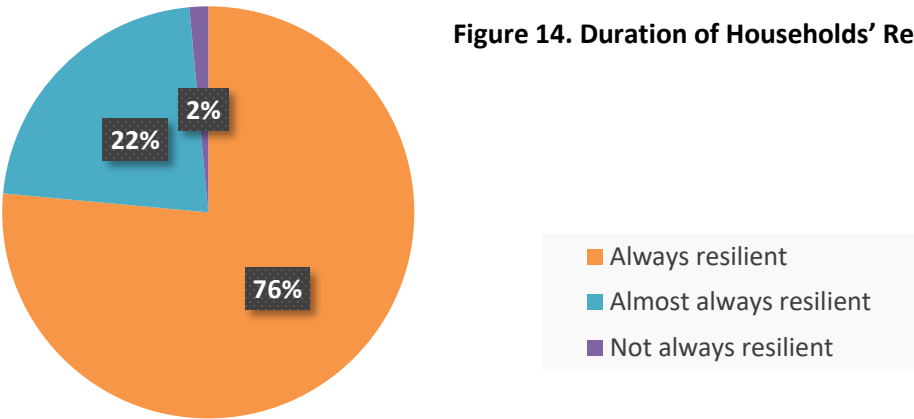
Most of the respondents cited that they used multiple sources of income strategically to build their resilience capacities. Diversifying income generating (largely on-farm and off-farm) activities means that the households are able to amass savings that are used to meet their households' basic needs, including food and shelter, through the difficult periods. They are also able rely on other sources if one was reduced or affected by certain shocks and stresses. Typically, KII HHs explained that income from either of these sources had been saved and used to start/grow businesses, invest in agricultural production or grow livestock herds. 47% of KII HHs also benefit from formal and informal saving and loan facilities, such as village savings and loan associations and commercial banks and other self-help groups, and/or receive support from family or relatives in terms of remittances in starting up, expanding or diversifying their economic activities.

4.3.   Ability to Cope with Recent Shocks and Hazards

KII revealed that the "resilient households" have been proactively practicing a wide range of measures to cope better with a series of past shocks and stresses. By applying diverse set of measures in parallel, which are both short-term/long-term, labour-intensive/less labour-intensive, and expensive/less costly, KII HHs have been taking a strategic step-by-step approach naturally and step-by-step to build their absorptive, adaptive and transformative capacities in an integrated and holistic manner, without depending on external materialistic/monetary support (Figure 15). For example, in the midst of drought/flood events, households sell animals as a coping strategy and use the proceeds to pay for the household's basic needs such as food, house repair fees and school fees (i.e., Absorptive capacity), while in the normal period, income from livestock trading is typically used for farm inputs (i.e., Adaptive capacity) and for business tools and equipment (i.e., Transformative capacity).

Limited reference was made to external cash/food assistance (4 HHs) as a strategy to cope with recent shocks and stresses. This may be due to the fact that the KII HHs are socio-economically better situated and thus do not require direct charitable monetary or materialistic support. In addition, because of their economic status, they may also not be eligible to, or used to, those humanitarian interventions which have been periodically implemented in Machinga and Mangochi districts such as cash/food for work schemes, cash transfers (such as the Hunger Safety Net Programme), etc.

Figure 15. Steps followed by Resilient Households in Becoming Resilient

Intensity of change / Transaction cost →

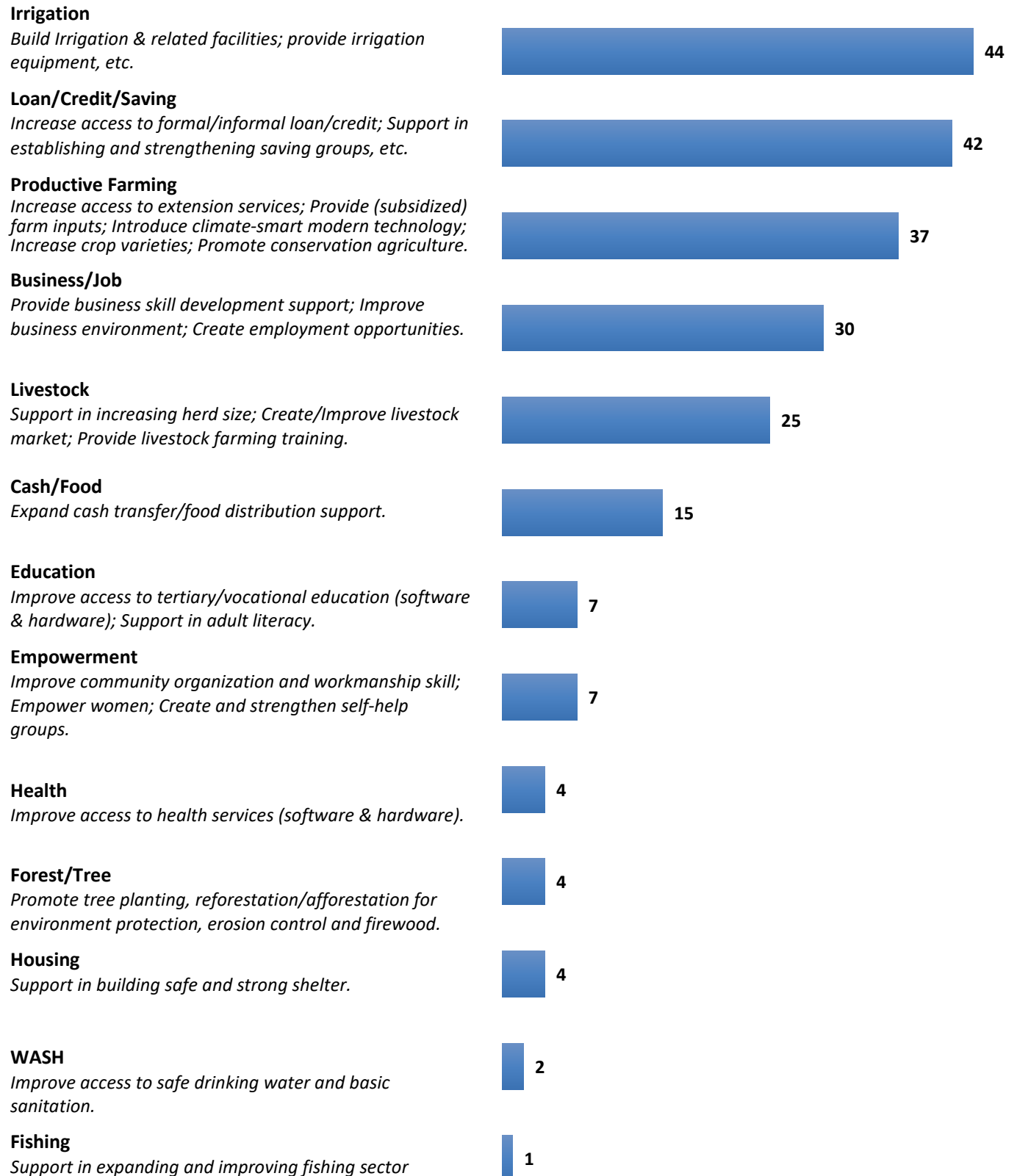| Stability	Flexibility	Change
Absorptive capacity (Persistence)	**Adaptive capacity (Incremental adjustment)**	**Transformative capacity (Transformational response)**

• Timely access to cash transfer
 	
• Receive food aid
 	
• Engage in cash for work activities
 	
• Sell livestock to buy basic necessities & keep children at school
	• Practice different farming techniques, e.g.:
	  ✓ Soil conservation
	  ✓ Manure and fertilizer
	  ✓ Crop diversification
	  ✓ Drought talent seeds
	  ✓ Hybrid seeds
	  ✓ High value cash crops
	  ✓ Winter farming
	  ✓ Contour farming
	
	• Sell livestock/farm products to purchase farm inputs
	
	• Use agricultural extension services
	
	• Increase livestock herds
		• Engage in less weather-dependent off-farm activities (e.g., business, wage employment, casual labor, etc.)
		
		• Pursue higher education
		
		• Sell livestock/farm products to purchase off-farm business tools and equipment (e.g. sawing machine, fishing gear, bike, etc.)
		
		• Shift from rain-fed to irrigation farming

• Building strong permanent house	• Access to village savings and loans (VSL), micro-finance, bank loans, etc.	

4.4.   Priority Resilience Building Interventions

Each key informant was asked to list up to the three most important changes or interventions, which are perceived to best improve their communities' resilience and enable people in their communities to better cope with future shocks and stresses. Figure 16 provides the full list of 13 types of priority interventions cited by the KII HHs. Interventions most frequently mentioned were justified on the basis that they would increase productive assets and skills, whereby to expand their sources of income and stabilize/improve their livelihoods.

- **Irrigation**: Interventions around creating new/expanding existing irrigation facilities were cited most frequently (44 HHs). These include not only infrastructure development (e.g., irrigation reservoir, shallow well irrigation system, etc.) but also skill for effective water harvesting and management.

- **Loan/credit/saving**: Interventions to improve access to formal and informal loan and credit services were equally highly rated (42 HHs). These include support in creating and improving the quality of village saving and loans associations.

- **Productive farming**: Interventions to improve farm production and productivity were the third most rated (37 HHs). Many of the interventions relate to increasing access to extension services, seed varieties, (subsidized) farm inputs, hardware/software support in adopting modern farming technology. Interest was also expressed in climate smart agriculture and conservation agriculture.

- **Business/Job**: Interventions to related to business and job were also widely cited (30 HHs). These interventions included business training, creation of enabling business environment and job opportunities, etc.

- **Livestock**: Interventions around livestock sector were also highly rated (25 HHs), usually in relation to the support in expanding the herd, improving livestock farming/management skills, and creating/expanding livestock markets.

Figure 16: Priority Resilience Building Interventions by KII HHs

Irrigation
Build Irrigation & related facilities; provide irrigation equipment, etc.
44

Loan/Credit/Saving
Increase access to formal/informal loan/credit; Support in establishing and strengthening saving groups, etc.
42

Productive Farming
Increase access to extension services; Provide (subsidized) farm inputs; Introduce climate-smart modern technology; Increase crop varieties; Promote conservation agriculture.
37

Business/Job
Provide business skill development support; Improve business environment; Create employment opportunities.
30

Livestock
Support in increasing herd size; Create/Improve livestock market; Provide livestock farming training.
25

Cash/Food
Expand cash transfer/food distribution support.
15

Education
Improve access to tertiary/vocational education (software & hardware); Support in adult literacy.
7

Empowerment
Improve community organization and workmanship skill; Empower women; Create and strengthen self-help groups.
7

Health
Improve access to health services (software & hardware).
4

Forest/Tree
Promote tree planting, reforestation/afforestation for environment protection, erosion control and firewood.
4

Housing
Support in building safe and strong shelter.
4

WASH
Improve access to safe drinking water and basic sanitation.
2

Fishing
Support in expanding and improving fishing sector
1

5.   Conclusions

Some of the key findings from the CoBRA in Machinga and Mangochi districts are as follows:

Context Specificity of Resilience Concept

The CoBRA study revealed a substantive degree of variation concerning the understanding of the concept of resilience (to droughts and floods in particular) within the two districts, among different gender/age groups. Views and perceptions towards resilience could differ, depending on local socio-economic conditions, climatic and ecological trends, traditional cultural dynamics and other variables. Reflecting the contextual gender/age-based roles and relationships, for example, women, men and youth respectively have different perceptions in terms of the building blocks of resilience and changes in the level of community resilience. Due to their high vulnerability level, women tend to have pessimistic views in comparison to men and youth groups. Prominent differences, as well as commonalities, in understanding of the resilience concept are also observed at district level. In Mangochi, for example, resilience characteristics are associated to large extent with a wide range of ecosystem services provided by Lake Malawi. These results demonstrate the need for a common but differentiated approach in addressing drought and flood resilience building at policy, planning and programming levels in view of the unique contextual needs, aspirations and priorities among different gender/age groups.

Resilience Enhanced through Robust Asset and Income Bases

The CoBRA study provided strong evidence that drought/flood resileicne is closely associated with household income and asset levels in the context of Machinga and Mangochi. Those households which have firm asset base, such as land, quality houseing, livestock herds, bicycles or other means of transport, as well as stable income sources, including remittance, tend to be able to cope better with drought/flood related shocks and stresses and maintain the household's food security level. A balance between secure asset ownership and income base is considered as a key, given their complementarities and mutually reinforcing effects. During normal, non-crisis period, natural and physical assets are often used to start, expand and stabilize income generating activities, while saving may be invested in additional livelihood assets. These asset/income creation and enhancement efforts serve as a major contribution to building adaptive and transformative resilience capacities. During drought/flood period, part of asset and/or income bases may be utilized to develop abaorptive capacity, which ensure secure access to food and other necessities and enable households to withstand and quickly recover from shocks.

Resilience Enhanced through a Combination of On-Farm and Off-Farm Incomes

Among other features, resilient households, who have attained many, if not all, of the resilience characteristics, were consistently described as having higher incomes because they benefited from a combination of income generating/business activities, over and above agriculture. Indeed, over 90% of the KII respondents indicated that their households engage in both on-farm (e.g., productive crop farming, livestock rearing, fishery) and off-farm (e.g., business, petty trade, wage employment, casual labour) economic activities. Given that farm holdings tend to be extremely small, it is highly difficult for the communities in Machinga and Mangochi districts, where climate variability is high, to fulfil food and other basic physiological human need by subsistence rain-fed farming alone. Diversity of household livelihood strategies through multiple income sources, both on- and off-farm, is thus extremely critical factor as it enables households to spread risk against various shocks/tresses.

Widening Divide between Resilient Households and the Non-Resilient Households
Most of KII respondents perceived that their households are always or almost always resilient by coping relatively better with drought and flood related shocks and stresses than the rest of the households in the community in the recent years. Meanwhile, the great majority of the community members in the assessment areas indicated through FGDs that the proportion of resilient households are either decreasing or not changing. The communities' general pecimistic responses may not only be driven by recurrent climate hazards facing Machinga and Mangochi in the recent past but also be a reflection of the negative spiral that many rural chronically poor households with subsistence agro-based livelihoods have been trapped in.

As mentioned above, resilient households often capitalize on their assets and income and improve existing and expand new livelihood activities, which enable them to absorb, adapt to and/or transform from the impacts of frequent drought/flood. By contrast, those households with low level of income and assets ownership experience challenges in creating robust livelihood system and maintain stability in food security not only during crisis but even in normal periods. These findings stress the need for future resilience building interventions to be delivered in a manner to bridge the wide gap that already exists within the communities between the resilient and the non-resilient by helping to strengthen the asset and income level at household level.

Demands to Shift from Absorptive to Adaptive/Transformative Capacity Building
Among various past and ongoing resilience building interventions delivered to Machinga and Mangochi districts, communities particularly rated highly the support related to social assistance (e.g., social cash transfers, cash for work), food and other relief items distribution, irrigation and labour/non-labour farm inputs. These have led directly to reliable food supply and higher agricultural productivity in both normal and climate crisis periods. Communities are supportive of continuing and scaling up some of these successful interventions to some extent. At the same time, however, they made strong recommendations to shift away from those food and cash-based support which may help the affected households to absorb the immediate impacts of drought/flood crises may not necessarily contribute to adapt to and transform from future impacts. Resilient households also emphasized their transformative capacity (e.g., off-farm income, access to finance, etc.) and adaptive capacity (e.g., crop farming techniques, livestock ownership, irrigation, etc.) as the key factors driving their resilience and ensuring their ability to tackle effectively and efficiently with droughts and floods than other households in the communities.

Emerging Awareness on Importance of Education as Resilience Driver
Education is a powerful driver of development, a key pathway to access to a wide range of opportunities, and a strong instrument through which to build up asset/income bases and hence enhance resilience. Despite extremely low educational attainments and limited availability of educated role models in both Machinga and Mangochi, the communities' awareness of education as the building block is quite prominent and their demands for future interventions in education sector are substantial, i.e., second highest rated future intervention in Machinga and fourth in Mangochi. While the existing resilience households identified through the CoBRA study in the two districts do not necessarily have higher educational backgrounds, it will of critical importance to make future policy and programmatic decisions based on these community desires as well as to study further the correlation between education and drought/flood resilience.
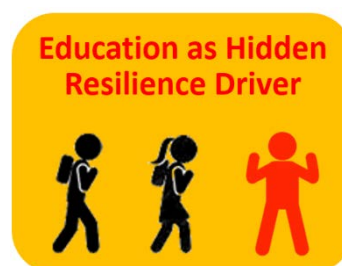
Annex 1: CoBRA Data Collection Steps

Focus Group Discussion (FGD)

Step 0: Welcome, Introduction and Explanation

Focus groups are divided into three different categories: 1) adult men; 2) adult women; and 3) youth (including both male and female). The FGD facilitators would:
- ✓ Welcome and thank participants for their time;
- ✓ Introduce themselves and brief on the background and purpose of the CoBRA assessment

Step 1: Agree the definition of resilience

In this step, the complex concept of "resilience" is contextualized and translated into plain terms that are understandable for the focus groups. The facilitators may ask the following questions:
- ✓ What are the main crises/hazards affecting the community as a whole or large proportions of households?
- ✓ What would a 'resilient' community look like?
- ✓ What does the term, 'resilience', means for the community in local context in the face of aforementioned crises/hazards?

Step 2: Identify resilience characteristics

In this step, focus groups identify and make a long list of the key factors/characteristics contributing to their local resilience. As participants state each factors/characteristic, the relevant corresponding graphic card can be placed on the ground (or tables) in front of the group. If no appropriate graphic exists, the facilitators should draw an appropriate graphic on a blank card to represent that factor/characteristic. The facilitators may ask the following questions:
- ✓ What would the community be like if full 'resilience' was achieved?
- ✓ What makes a household resilient?
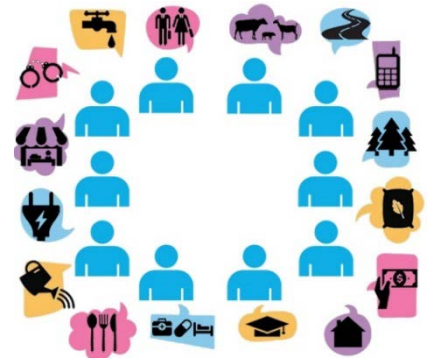
Step 3: Prioritize resilience characteristics

Once the list of factors/characteristics is complete and exhaustive enough, the FGD participants are requested to consider which of all these factors are the most important, i.e. if only three of these statements could be achieved which would they choose. To do this, each participant receives 6 beans. Using the graphic cards, they put 3 beans for the most important, 2 beans for the 2nd most important and 1 bean for the 3rd most important.

Once all beans have been placed, the scores are counted and the cards are placed in order from highest to lowest scoring in front of the participants. The participants shall explain and give specific examples on how the three highest scored factors/characteristics have contributed to their definition of resilience.
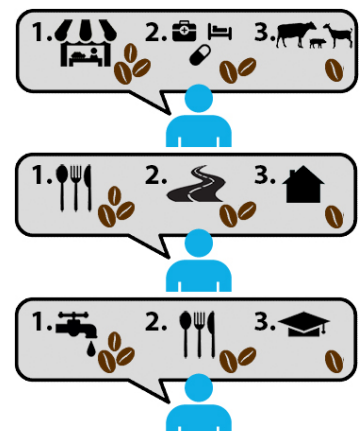
Step 4: Identify the households in the community that have achieved (fully or partially) the resilience characteristics

In this step, the focus group participants are requested to think about the households in their community who have attained all or many of the priority resilience characteristics, and describe the common features and attributes shared among these households. The facilitators may ask the following questions:

✓ Are there households who have attained all or many of the resilience characteristics? Describe what they are like and what they do.

✓ Has the proportion of resilient households increased, declined or stay the same in the last 5-10 years?

Step 5: Identify interventions that have contributed to households

In this step, the focus groups provide the list of *past or ongoing* interventions/changes/actions that have made the most difference in increasing resilience in this community in the last 5 years. This list may not only include development/humanitarian supports but also encompass communities' own efforts and/or external changes generated by private sector, etc. Among the long list of the interventions/changes/actions, the participants are then asked to come up jointly with the three most important ones in building resilience. They are also requested to recommend three interventions/changes/actions for the *future* to help build resilience further in the community. The facilitators may ask the following questions:

✓ What interventions have helped enhance resilience, and what additional/future interventions would help to build resilience further?

✓ Explain how the support has contributed/will contribute to build resilience.

Key Informant Interview (KII)

Following the FGD, semi-structured KII(s) is/are held with adult members of households within the surveyed communities that are identified and nominated by the FGDs as "resilient." The interviews solicit details on:

✓ Household composition, education level and livelihood/economic activity of each member of the household;

✓ Factors that have contributed to the household's resilience;

✓ Pathways to resilience, i.e., steps taken by the household to become resilient;

✓ Actions or strategies the household took to cope better with recent crises/hazards and crises affecting that community; and

✓ Interventions and support that would best assist others in their community to become more resilient.

Annex 2: CoBRA Malawi Training Participants

| NO.	NAME	POSITION	TELEPHONE
1	Michael Chimbalanga	Director of Planning and Development MHG	0888765454
2	George Mwadzaangati	District fisheries officer Machinga	0999274654
3	Anthony Zimba	DCDO	0995233559
4	Memory Kamoyo	Environmental officer -EAD	0999337704
5	Monica Kagwira	SAFO -MH	0888544748
6	Stanley Chikozola	SALRCO-MH	0999285642
7	Margret Ziba	ADFO-MHG	0888444955
8	Samuel Jimu	DIO- MH	0888569306
9	Barnett Kaphuka	ADFO-MH	0888138838
10	Ben Tonho	EDO -MHG	0999278385
11	Francis Mastala	CPO	0999680108
12	James mapiri	BLS	0999275148
13	Assan Ngombe	Policy Specialist	+254704047212
14	Yuko Kuraach	Policy Specialist	+254722563308
15	Daniel Sambakunsi	DIO-MHG	0991145040
16	Evans Njewa	EAD	0994853245
17	George Zibophe	ADFO-MH	0999609739
18	Steve Meja	DWDO-MHG	0999304222
19	Marvin Mkondwa	TRADE OFFICER MHG	0882989552
20	Shepherd Jere	DISASTER MGT OFFICER	0881142387
21	Aubrey Jazza	Lands Officer MHG	0999369782
22	Charrison Tengatenga	PM-CCP Machinga DC -UNDP	0888351533
23	Jane Swira	PM-CC	0888306238
24	Ben Twinomugisha	Analyst CC+DRR UNDP	0994387798
25	Martin Namaona	Crops officer	0884963645
26	Tadeyo Shaba	PM -CCP Mangochi -UNDP	0996312819
27	Dr.Laban MacOpiyo	CoBRA Consultant	+254728466622

Annex 3: Full List of Statements That Define Community Resilience

Short statement	Long statement	Bean scores
Food for humans	*All households would be able to feed themselves well every day.*	1466
Irrigation	*Farmers would be irrigating land to improve the production of crops for consumption and sale.*	991
Livestock herds	*Households would have large enough herds to sustainably support their families.*	664
Improved agricultural practices & inputs	*Farmers would be more productive and profitable (i.e., would have inputs like quality tools, oxen, fertilisers and improved knowledge of good farming practices).*	651
Water for humans	*The whole community would have access to sufficient, good quality water at all times of the year.*	592
Business/Trade (Diversified Incomes)	*Many households would be involved in other income generating activities / small businesses and trading.*	404
Access to credit	*People have good access to affordable credit and would be saving money (banks/ microfinance institutions /community savings and credit groups[VSL]).*	374
Quality affordable healthcare	*The community would have access to quality and affordable basic health care locally.*	357
Forest management/ Tree cover	*Local forests, rangelands and other natural resources are well managed so that they do not become degraded over time*	282
Quality housing	*Everyone would live in good quality housing.*	201
Tertiary education	*All children would be able to complete tertiary education.*	152
Employment/ Wage labour	*Many households would be involved in other income generating activities / small businesses and trading.*	136
Access to markets	*The community would have easy access to markets to buy goods and sell their produce.*	125
Primary education	*All children would be able to complete primary education.*	121
Improved roads	*There would be quality roads to our community.*	114
Cash transfers	*Households receive cash transfers.*	108
Secondary education	*All children would be able to complete secondary education.*	85
Electricity	*The community would have access to affordable electricity supply.*	77
Better transportation	*It would be common to own a motorbike or vehicle or other means of motor transport or have stable access to these.*	43
Adult Education	*Any illiterate adults would have the opportunity to get education.*	41
Telecommunication	*There is reliable mobile phone network to all communities all the time.*	34
Peace and security	*The whole community would enjoy continual peace and security.*	24
Gender mainstreaming/ Women in development	*Women would be fully involved in local development and leadership.*	22
Land ownership	*Everyone has secure access / ownership of land / property.*	22
Fishing	*Fishers would be more productive and profitable (i.e would have [access to] inputs like fishing gears)*	15
Early childhood education	*All children would be able to complete Early Childhood Education.*	15
Community skills and organisation	*Community would have the skills and organisational structures to plan and implement solutions to their own problems.*	12
Access to sanitation	*Everyone would have good sanitation and latrine.*	10
Early warning and disaster preparedness	*The community has comprehensive, reliable and timely information about climate predictions and external changes.*	9
Animal Health Services	*The community has access to quality affordable animal health services whenever they need them.*	5
Good governance	*Communities would be served by efficient and non-corrupt community leaders and management structures.*	5
Relief	*Households receive relief support.*	3

Annex 4: Resilience Capacities

According to the [Organisation for Economic Co-operation and Development (2014),](#) resilience can be boosted by strengthening three different types of capacities:[6]

- *Absorptive capacity*: The ability of a system to prepare for, mitigate or prevent negative impacts, using predetermined coping responses in order to preserve and restore essential basic structures and functions. This includes coping mechanisms used during periods of shock. Examples of absorptive capacity include early harvest, taking children out of school, and delaying debt repayments.
- *Adaptive capacity*: The ability of a system to adjust, modify or change its characteristics and actions to moderate potential future damage and to take advantage of opportunities, so that it can continue to operate without major qualitative changes in function or structural identity. Examples of adaptive capacity include diversification of livelihoods, involvement of the private sector in delivering basic services, and introducing drought resistant seed.
- *Transformative capacity*: The ability to create a fundamentally new system so that the shock will no longer have any impact. This can be necessary when ecological, economic or social structures make the existing system untenable. Examples of transformative capacity include the introduction of conflict resolution mechanisms, urban planning measures, and actions to stamp out corruption.

---
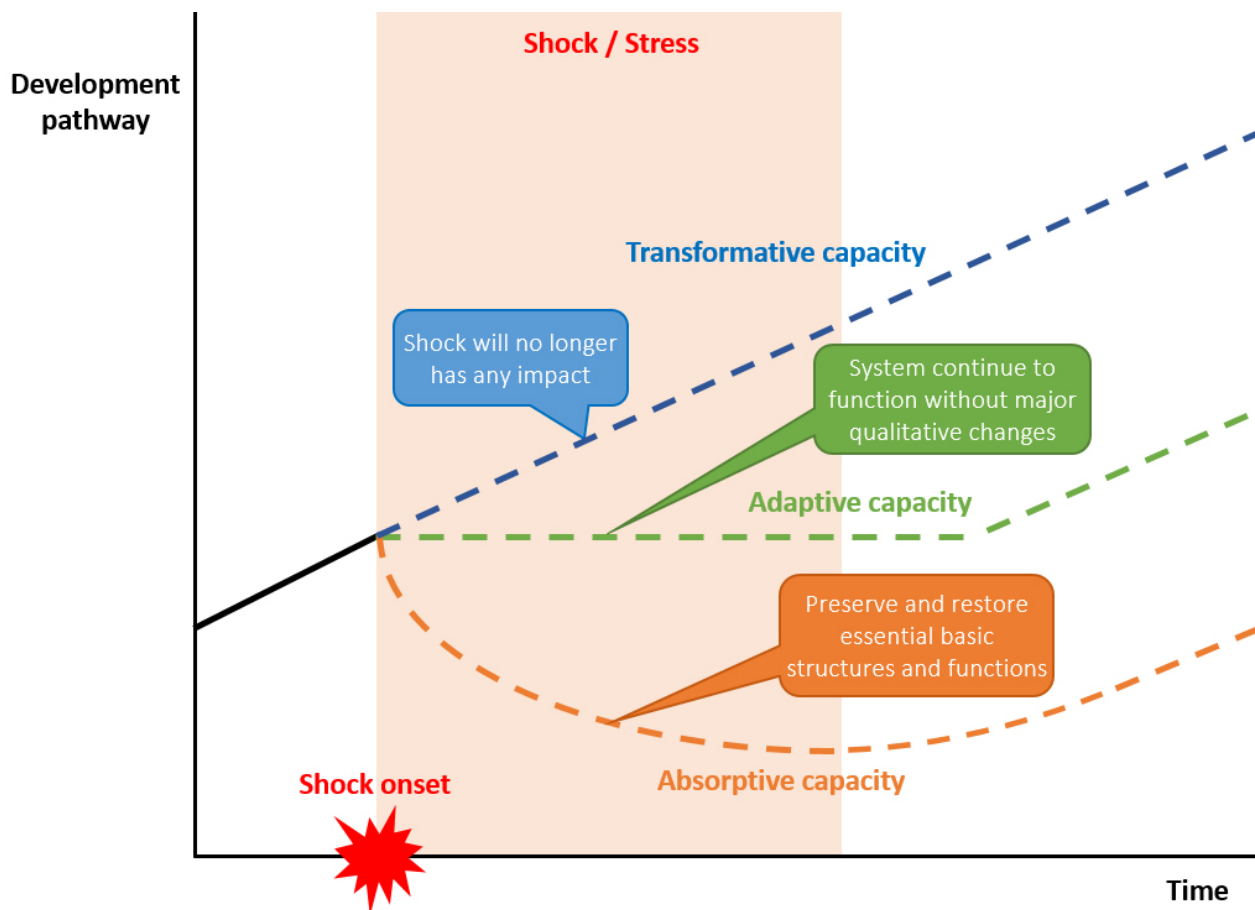
[6] OECD (2014). Guidelines for Resilience Systems Analysis: How to Analyse Risk and Build a Roadmap to Resilience. OECD Publishing: Paris.

Malawi is largely characterized by rain-fed subsistence agro-based livelihoods. In view of the main hazards or shocks facing Machinga and Mangochi districts, i.e., drought and flood (Section 3.1), those contribute to **absorptive capacity** building are the ones related to saving lives and meet basic physiological needs, for example, by responding to immediate dietary requirements and rehabilitate damaged properties. Those contribute to **adaptive capacity** building are the ones related to maintaining the functionality of agro-based livelihoods and food security level even in the face of future floods and droughts. Those contribute to **transformative capacity** building are the ones related to creating a fundamentally new system (e.g., off-farm livelihoods) so that the communities will no longer feel the threats of climate-related hazards.