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COMMUNITY BASED RESILIENCE ANALYSIS (CoBRA) ASSESSMENT REPORT
for
Zomba, Ntcheu and Nkhata Bay Districts
in
Malawi

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Contents

1. Introduction

This report outlines the findings of the first comprehensive Community Based Resilience Analysis (CoBRA) assessment undertaken in Malawi on 6th – 14th March 2017 with special focus on Zomba, Ntcheu and Nkhata Bay districts (Figure 1). It was carried out by the United Nations Development Programme (UNDP) Malawi Office and the Government of Malawi through the Ministry of Natural Resources, Energy and Environment under the resilience/adaptation flagship project-ADAPT-PLAN which is a new UNDP/GEF project concerned with mainstreaming adaptation into development planning at national and district level in Malawi. The assessment was supported financially by the Global Environmental Facility (GEF). It also received additional technical backstopping received from the UNDP Global Policy Centre on Resilient Ecosystems and Desertification (GC-RED) based in Nairobi.

Figure 1: Target Districts of CoBRA Assessment (Highlighted)

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 and applied in different locations within Kenya, Uganda, Ethiopia and two Districts of Machinga and Mangochi in the Southern Region of Malawi. The assessment findings have been incorporated into relevant resilience policies, plans and programmes/projects at various levels in the region. The assessment in Zomba, Ntcheu and Nkhata Bay districts of Malawi builds on these successful CoBRA experiences in Machinga and Mangochi districts and is not only meant to make direct input to the resilience/adaptation flagship project-ADAPT-PLAN project planning and interventions but also contribute to evidence-based policy advocacy in Zomba, Ntcheu and Nkhata Bay districts.

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.

2. Context and Approach

2.1. Characteristics of Field Site

Malawi is one of the poorest countries in the world, ranking 173 out of 188 countries and territories in the Human Development Index (a multidimensional measure of human development). The Gross national income per capita is just 747 U.S. dollars in 2016. Nearly 51 percent of the population resides below the national poverty line and an estimated 12 percent of the population is classified as ultra-poor (those suffering from chronic hunger most of the year). Malawi has made progress with respect to a variety of development indicators in the past three decades (for instance, life expectancy at birth has increased from 44.8 years in 1980 to 62.8 in 2014), but the country's level of development is well below average for sub-Saharan Africa. Moreover, a young, fast-growing population; geographic and climatic conditions; and poor infrastructure compound Malawi's development challenges.

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, was followed by a devastating drought that left at least 6.5 million people food insecure during the 2016/17 season[1].

Deforestation is a serious problem, as well. The country lost over half of its 4.4 million hectares of forest cover between 1973 and 1991, and the net deforestation rate remains at over 36,000 hectares a year. Deforestation is a particularly difficult problem; over 84 percent of homes use firewood as their main source of cooking fuel, which puts further strain on Malawi's forest reserves. Concerns about deforestation have led the government to reduce earlier efforts to turn forestland into farmland in an effort to expand agricultural production, with efforts instead being put into rehabilitating forests through replanting programs.

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 resulted in severe crop failure, particularly in the Southern Region and parts of the Central Region. The drought was 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 was estimated at USD 365.9 million. Imports of maize increased in 2016/17 marketing year to compensate for reduced 2016 harvest.

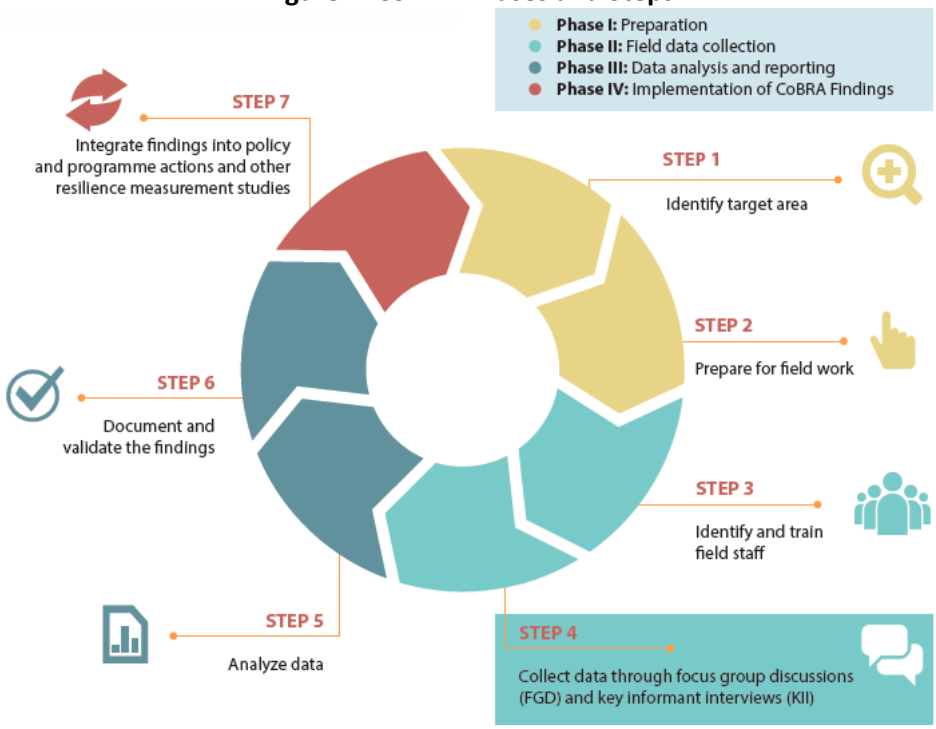
[1] The 2016 Malawi Vulnerability Assessment Committee (MVAC) Report on food security
[2] Government of Malawi, Post Disaster Needs Assessment (PDNA) report 2016.

The food security situation expected to improve in 2017 on account of expected average harvest. National production prospects are generally favourable and the 2017 maize harvest is expected to rebound from the previous year's drought-reduced level, with production preliminarily forecast at an about average level of 3.2 million tonnes. The anticipated recovery would mostly be on account of the wetter conditions this season that boosted vegetation conditions in cropped areas, implying a likely increase in yields in most parts of the country. However, in some northern areas, where the current seasonal rainfall volumes (October-February) have been below average, yields are expected to be constrained and production could decline in localized parts.

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 Zomba, Ntcheu and Nkhata Bay 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 February and March 2017. 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 March 2017. Following the initial analysis of field data (i.e., CoBRA Phase III Step 5) in March 2017, the preliminary results and findings were presented to the CoBRA assessment team – Zomba, Ntcheu and Nkhata Bay districts officials who took part in the data collection as enumerators/supervisors – for joint review and validation (i.e., CoBRA Phase III Step 6) on 17th May 2017. 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 Zomba, Ntcheu and Nkhata Bay districts in the Southern, Central and Northern Regions respectively, where *the resilience/adaptation flagship project-ADAPT-PLAN* is being implemented. A total of 19 Traditional Authorities (TAs) were selected for this assessment, including both the *ADAPT-PLAN* project target TAs and non-target TAs (as control sites) and 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

District	TAs	Population (2008)	#FGDs	#KIIs
Nkhata Bay	Timbiri	35,858	6	6
	Malanda	21,095	3	3
	Kabunduli	37,295	6	6
	Mbwana	16,156	3	3
	Fukamalaza	11,269	6	6
	Mankhambira	17,051	6	6
	Zilakoma	13,620	6	6
Ntcheu	Mpando	61,481	17	17
	Phambala	66,652	6	6
	Makwangwala	104,100	3	3
	Ganya	127,558	4	4
	Masasa	29,878	6	6
	Kwataine	68,230	3	3
Zomba	Mwambo	132,799	6	6
	Ngwelero	28,338	5	5
	M'biza	32,862	7	7
	Malemia	61,762	10	9
	Ntholowa	24,104	6	6
	Kuntumanji	31,464	6	6
TOTAL			**115**	**114**

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 28 enumerators, the officials deployed by Zomba, Ntcheu and Nkhata Bay districts' Council Administrations and NGOs operating in those districts. As outlined earlier, all the enumerators participated in the intensive CoBRA training on 6-9th March 2017, which combines desk-based and field-based sessions.

Figure 3. CoBRA Data Collection Process

The enumerators were divided into five 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 20-40 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 Zomba, Ntcheu and Nkhata Bay districts include, among others:

- **Time allocation**: Since the assessment areas are largely agricultural, 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.
- **Difficulties in travelling**: Due to long distances, poor road conditions, rural nature of sites and prevailing rains during the assessment period especially in Nkhata Bay district, it took very long to move from one TA/community to another, resulting in limited time for the discussions and interviews and into breakdown of vehicles that were transporting the enumerators. The validation workshop suggested allocating more time to the entire fieldwork process as a whole to give the enumerators adequate time to travel to far flung places.
- **Data entry**: Some of the enumerators did not take time to enter the data into the spreadsheets during the fieldwork period as is expected of them at the end of each interview day. This was due to power outages experienced across the country and a substantial number of data collection forms were not entered necessitating their entry after the assessment period by the consultant which then required a constant back and forth between consultant and several enumerators in case some areas required clarification.

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

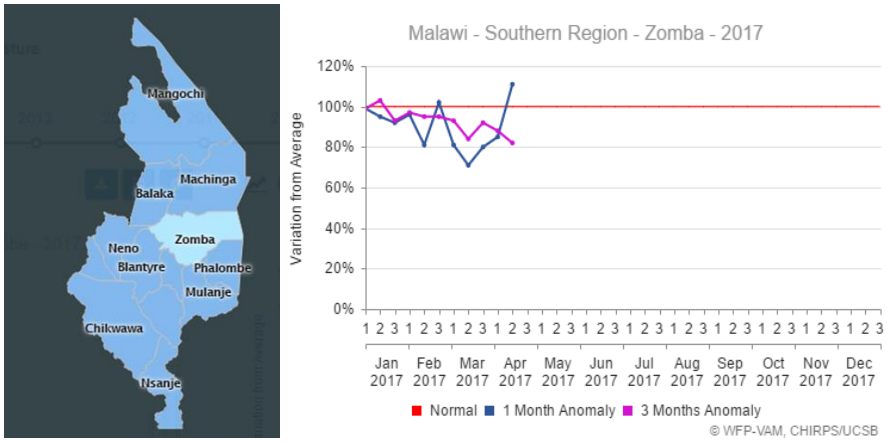
The main hazards reported in all the FGDs in Zomba, Ntcheu and Nkhata Bay districts were: 1) drought; and 2) flooding. Communities viewed these hazards to be the most significant contributors to agricultural production loss and the most devastating shocks limiting their development and prosperity. Communities also reported that even though the current season (2016/2017) experienced favourable climatic conditions, they viewed this as an exceptional year rather than a norm and indicated that it has been a long time since conditions were this favourable for agricultural production. Flooding was particularly seen to be serious in Nkhata Bay than the other two districts.

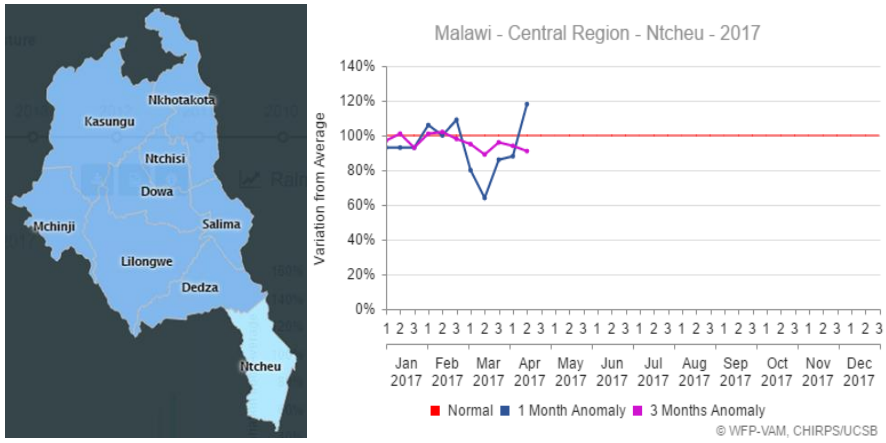
The weather reports for the first quarter of 2017 portray the inconsistent and erratic nature of the climate among these three districts (attributable to climate change) where rainfall patterns over the first quarter of the year have been largely below normal in Zomba, near normal in Ntcheu and above normal in Nkhata Bay districts. (Figure 4).

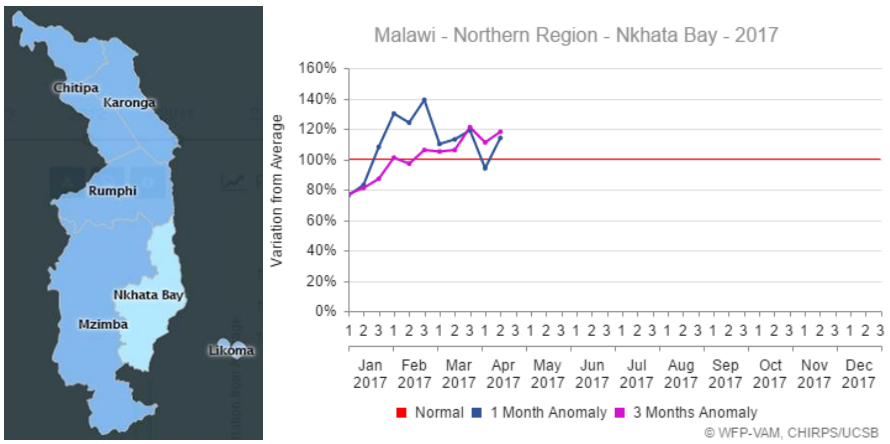
To a limited extent, the communities also reported armyworms, hailstorms, human diseases such as cholera and stormy winds (the latter especially so in Nkhata Bay District) as the other observed hazards.

With these results in mind, “resilience” in the context of in Zomba, Ntcheu and Nkhata Bay districts was 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 in Zomba, Ntcheu and Nkhata Bay districts - 2017







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 to give an overall picture of the most highly rated characteristics in Zomba, Ntcheu and Nkhata Bay districts respectively (Section 3.2.1 below). This is followed by an analysis by category of respondent, namely gender/age (Section 3.2.2) to disaggregate findings and identify differences across groups.

3.2.1. Analysis for overall respondents

Tables 2a-2c lists the top six most highly ranked characteristics used to describe the building blocks of a resilient community with the bean scores (See Annex 2a-2c for the full table of bean scores). Figures 5a-5c show the resilient community characteristics which received more than 50 bean scores.

Table 2a: Top Priority Statements That Define Community Resilience -Zomba

Short statement	Long statement	Bean scores
Irrigation	Farmers would be irrigating land to improve the production of crops for consumption/sale.	**474**
Healthcare for humans	The community would have access to quality and affordable basic health care locally.	**411**
Productive farms / 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).	**409**
Food for humans	All households would be able to feed themselves well every day.	**377**
Forest management/ Tree cover	Local forests and other natural resources are well managed so that they do not become degraded over time	**355**
Housing/shelter	Everyone would live in good quality housing.	**353**

Table 2b: Top Priority Statements That Define Community Resilience -Ntcheu

Short statement	Long statement	Bean scores
Short statement	**Long statement**	**Bean scores**
Water for humans	The whole community would have access to sufficient, good quality water at all times.	**432**
Healthcare for humans	The community would have access to quality and affordable basic health care locally.	**388**
Productive farms / 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).	**374**
Food for humans	All households would be able to feed themselves well every day.	**238**
Forest management/ Tree cover	Local forests and other natural resources are well managed so that they do not become degraded over time	**232**
Irrigation	Farmers would be irrigating land to improve the production of crops for consumption and sale.	201

Table 2c: Top Priority Statements That Define Community Resilience – Nkhata Bay

Short statement	Long statement	Bean scores
Livestock herds	Households would have large enough herds to sustainably support their families.	**433**
Productive farms / 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).	**398**
Access to saving groups and credit	People have good access to affordable credit and would be saving money (banks/ microfinance institutions /community savings and credit groups[VSL]).	**301**
Diversified income / alternative livelihoods	Many households would be involved in other income generating activities / small businesses and trading.	**226**
Irrigation	Farmers would be irrigating land to improve the production of crops for consumption and sale.	**215**
Housing/shelter	Everyone would live in good quality housing.	**166**

Figure 5a: Scores for Priority Statements that Define Community Resilience in Zomba District

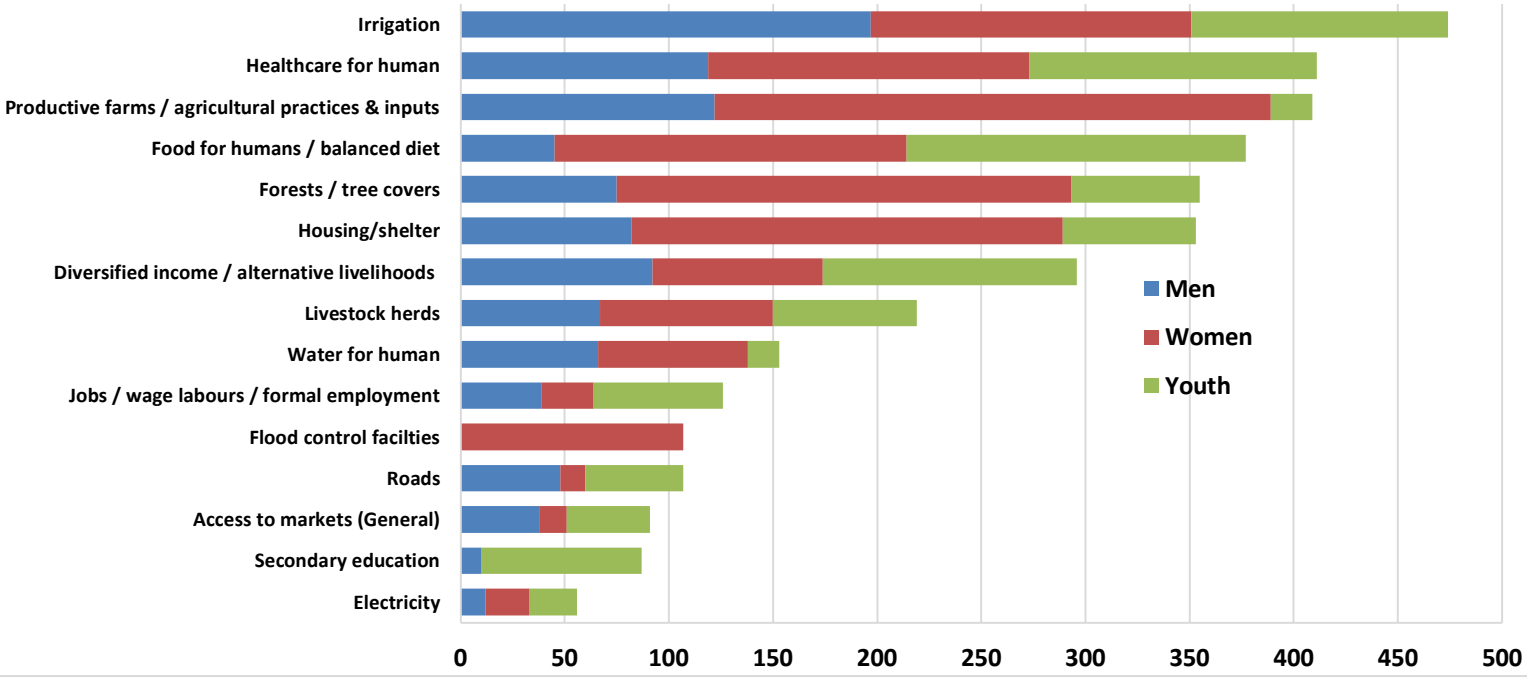


Figure 5b: Scores for Priority Statements that Define Community Resilience in Ntcheu District

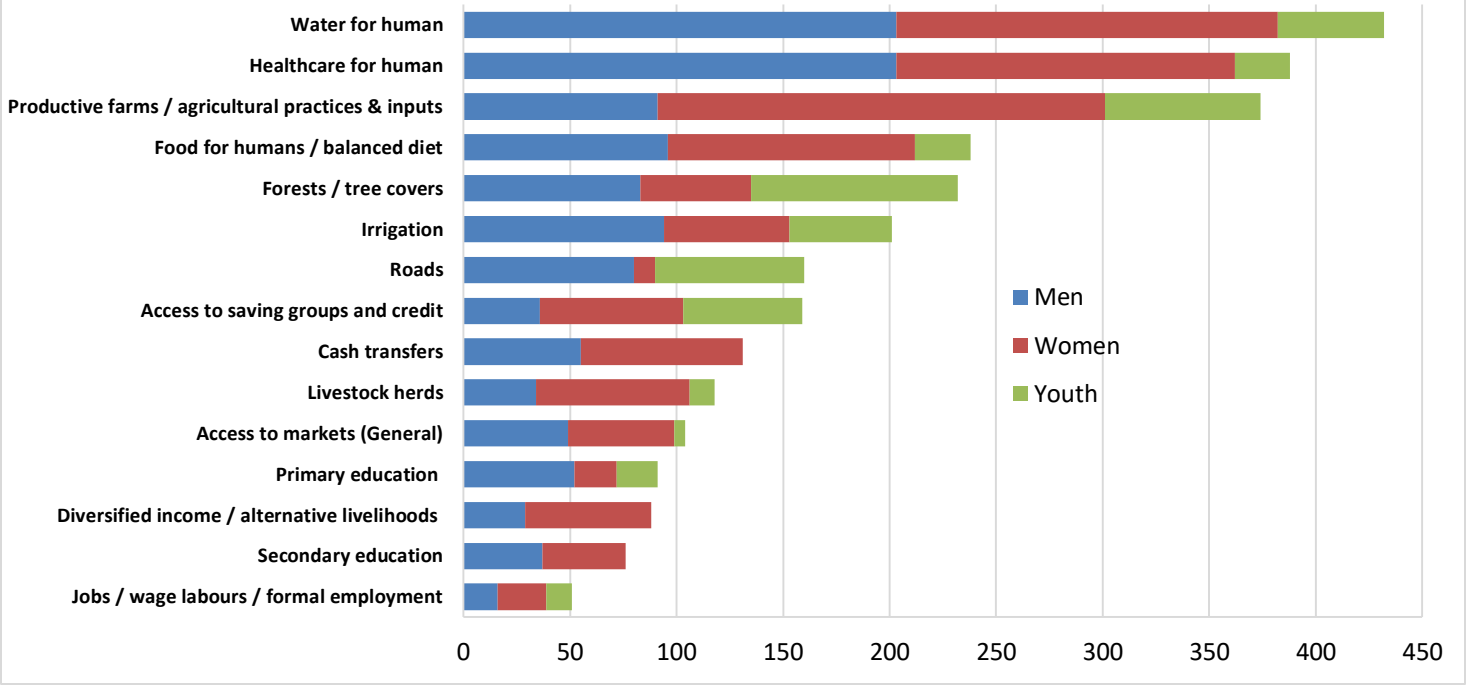
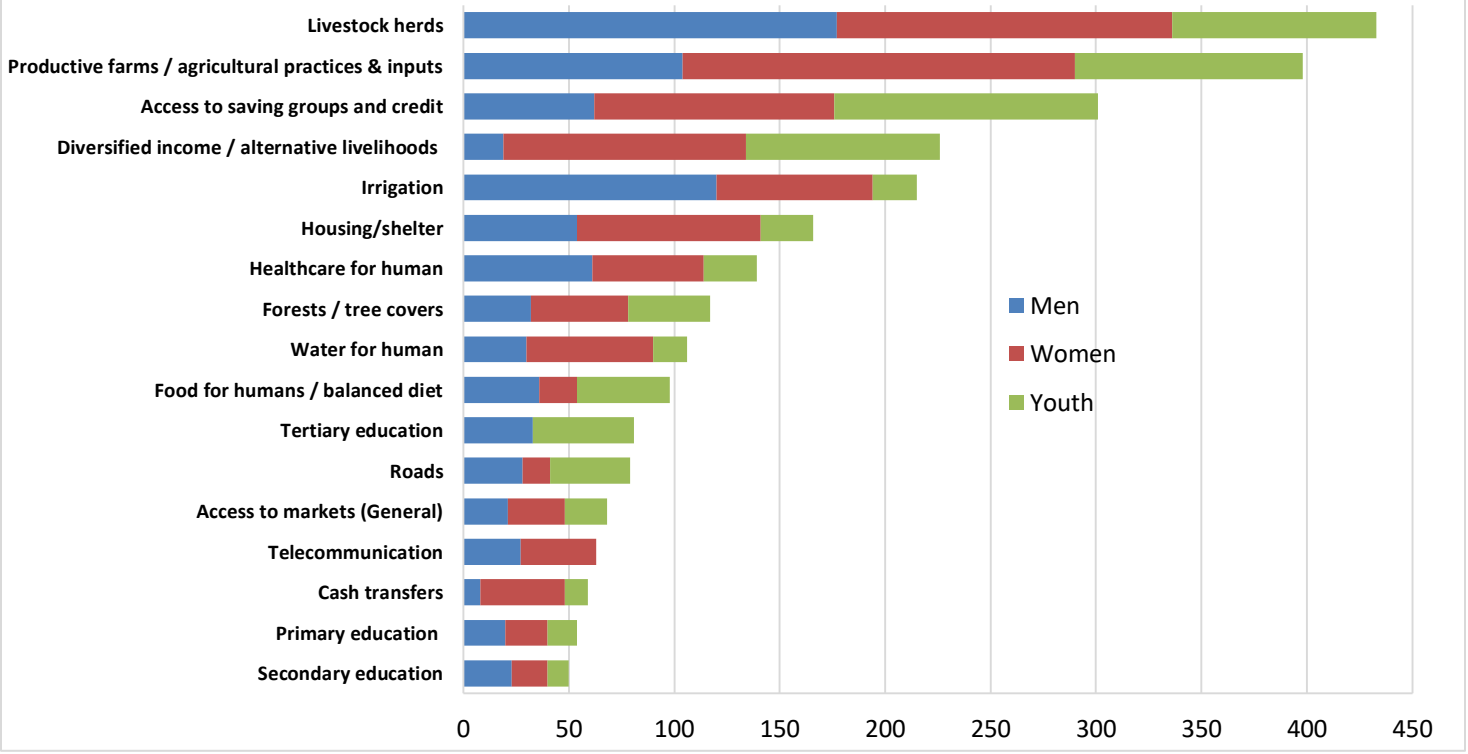


Figure 5c: Scores for Priority Statements that Define Community Resilience in Nkhata Bay District



The results reveal that the communities in the assessment areas look at resilience predominantly from food security perspective, since the disruption in precipitation patterns often result in crop failure and food shortages and affect people's access to reliable supply of food. In all the three cases irrigation, productive farms and improved agricultural practises appeared within the top priority. This focus on food security was however more pronounced in Zomba and Ntcheu where secure food access for humans also appeared at the top of the list. Strong focus on basic physiological and subsistence needs, such as food and water for agriculture (irrigation) and (humans) might be associated with high and deteriorating poverty rates, deep climate vulnerability and limited socio-economic achievements in Zomba and Ntcheu districts.

A prominent interest in food and on-farm characteristics such as irrigation, livestock herds and improved agricultural practices and inputs further reflects a predominance of agro-based livelihoods. It is also a reflection of the recurrent 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 limited opportunities/awareness of other (off-farm) economic opportunities or availability to diversify livelihoods out of agriculture in general. This tendency was particularly pronounced communities the Southern Region (Zomba and Ntcheu).

The data suggest that whilst factors of production such as irrigation and improved agricultural inputs featured prominently across board within the three districts, the Northern Region communities of Nkhata Bay place a greater emphasis on diversification of income generating activities and are more business oriented than the other two districts. Furthermore, diversification into livestock keeping emerged prominently and was the most desired building block of resilience in Nkhata Bay district.

Overall, the CoBRA assessment team from Zomba, Ntcheu and Nkhata Bay confirmed that the bean scoring results resonate well with the local reality as the factors/characteristics prioritized by the communities are largely expected. The team determined 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 production especially in the Southern Districts of Zomba and Ntcheu that typically have relatively poor production potential especially in the Lake Chilwa Basin in Zomba. Most households in these districts depend on more than just crop production to meet their food and cash requirements and are regular recipients of food assistance among other safety-net based interventions. The poor production potential combined with increasing land pressure means that, year by year, the need to diversify away from crop production becomes more acute. Livestock sales, small-scale trade, self-employment (such as brick making), and a range of casual seasonal employment opportunities in form of piecework weeding or ridging on the fields of other smallholders/ agricultural estates (*ganyu*), mostly on local farms provide households with additional cash income.

Specifically the suggested key explanations for the top resilience statements are as follows:
In **Zomba** district:

- Irrigation is critical and significant to the communities here because the district has consistently experienced frequent dry spells and view irrigation as the most dependable mechanism to enable them to secure reliable agricultural production.
- On prioritization of health care for humans, it was reported that there is a dearth of adequate health facilities as these facilities are few and far in between meaning most people have to travel long distances to access such facilities.
- Productive farms and improved agricultural practises in district were prioritised because the district depends almost entirely on agriculture and most of the businesses are agro-based.
- Food for humans was prioritized due to the frequency of poor harvests and the tendency of the district to receive food aid almost every year to fill the resulting food gap.

- Forests were prioritised in this district because of the high deforestation and recognition of the need to restore the environment, watersheds and secure a reliable source of wood-fuel for the homestead uses.

Alternately, there were some resilience building statements that seemed to offer a high potential to enhance resilience in Zomba but were not prioritized. These included:

- Small scale business- The reasoning behind the poor prioritization of this was twofold. One was largely due to high poverty rates prevailing in this district and therefore lack of start-up capital for businesses. Secondly, it was suggested that there exist a substantial number of social safety net interventions taking place in Zomba whereby the communities regularly receive cash e.g. cash transfer programme, food-aid, FFA, Masaf 4, MFERP among others. The high dependence on these programmes by the communities seems to have hampered their ability to appreciate the benefits of small businesses and other income generation activities and have instead largely focused on the donations they receive from these safety net programmes.
- Factories-The lack of factories in the district, lack of knowledge and proximity to the commercial city of Blantyre where all processed goods are sourced meant that factories and manufacturing was not a priority here.
- Land Ownership- This did not also emerge as a priority give that most land is ancestral land (customary land) and inherited by offspring and there is limited opportunity to expand or lease additional land for agricultural production or other purposes.
- Aquaculture and construction of flood control structures though proposed did not feature high in the priority list as they were deemed to be too labour-intensive due to the manual nature in construction of these despite their potential to enhance nutrition (fish protein) and arrest the frequent flooding here respectively. The focus on all labour was largely into maize farms which are the one only culturally preferred food source/staple.

In **Ntcheu** district:

- Water for humans and the need for access to reliable, sufficient, good quality water at all times of the year emerged as the topmost priority for communities in this district. This was attributed to the fact that the water aquifer is quite low in Ntcheu due to the topography the district's topography is dominated by the Rift Valley Escarpment) and water in wells and other sources dries rather up quickly during the year resulting in scarcity of this resource for most months of the year. This low aquifer also means that opening up of new water sources is difficult and there are therefore inadequate water points to adequately provide for the communities here.
- Healthcare for humans was prioritized because of the lack of adequate health facilities as these facilities are few and far in between meaning most people travel long distances to access such facilities under difficult terrain of the Rift Valley Escarpment.
- Productive farms and improved agricultural practices and inputs were prioritised because even though the district depends largely on agriculture, production is still low because the land holdings of most farmers are quite small whilst cultivation is also hampered by the difficult terrain that traverses the district. Most production can therefore be found in low-lying areas which are quite limited for the large population here.
- Forest management and tree cover was prioritised in order to conserve the degraded areas are rapidly expanding due to fast pace in cutting down of trees, something that is largely attributed to the predominance of charcoal production in this district.
- Finally it was noted that while the communities in Ntcheu prioritized food for humans thereby implying inadequacy in food, the feedback workshop noted that this area was on average food self-sufficient because it is a key producer of vegetables and other horticultural products whilst it is also the main producer of Irish Potatoes in Malawi. This prioritizing for food for humans can therefore be explained by cultural food preferences whereby communities prefer maize and therefore do not view their other

produce such as potatoes as significantly contributing to their food self-sufficiency and almost all Irish Potatoes produced here is thus exported for sale to other parts of the country.

Since livestock is particularly important in Ntcheu (*The Ngoni tribe traditionally rear large herds of beef cattle*), it would seem that the stocking of large enough herds to sustainably support families would emerge as a top priority. This was however not observed during this CoBRA assessment. Several factors likely explain this loss in importance of livestock among the *Ngoni*. First, the pure livestock keeping tradition is slowly dying away as communities diversify into other forms of agricultural production largely farming. Secondly since the livestock kept here are predominantly beef cattle that take a quite a number of years to mature without any immediately visible benefits, it seems that the communities did not see these as representing a pathway to resilience. The communities seemed to be largely interested in resilience priorities with immediate and visible benefits. This can be also said of the low prioritization that was given to education indicators not only in Ntcheu but also in the other two districts.

This result suggest that there is an opportunity to expand the scope on the livestock being reared to include small stock that produce more frequently (sheep and goats), poultry and dairy livestock that can produce milk on a regular basis.

Nkhata Bay District presented a significantly different set of resilience building priorities. This district is predominantly a high agriculture production zone, which makes it one of the richest zones in Malawi. In terms of crop production, it has a diversified portfolio of crops with cassava, maize, bananas, sweet potatoes, beans, and tobacco being the main crops grown in the zone. The zone has a food surplus because of the predominance of the drought-resistant cassava which most households rely on even in bad years (this food self-sufficiency is further reflected in the FGD results where food for humans emerged way below the list of priority statements). Households in this zone grow and sell a greater variety of crops than in other zones, enabling them to receive profitable returns. They are also significantly engaged in fishing in Lake Malawi. This also allows them to diversify their diets, not relying as much only on maize and cassava, and helps them respond better to any climatic shocks. Though very limited in numbers, the main livestock kept are cattle, goats, pigs, and poultry. Pigs are usually stall-fed while the rest are mainly fed by free range or grazing with a bit of stall feeding.

Specifically:

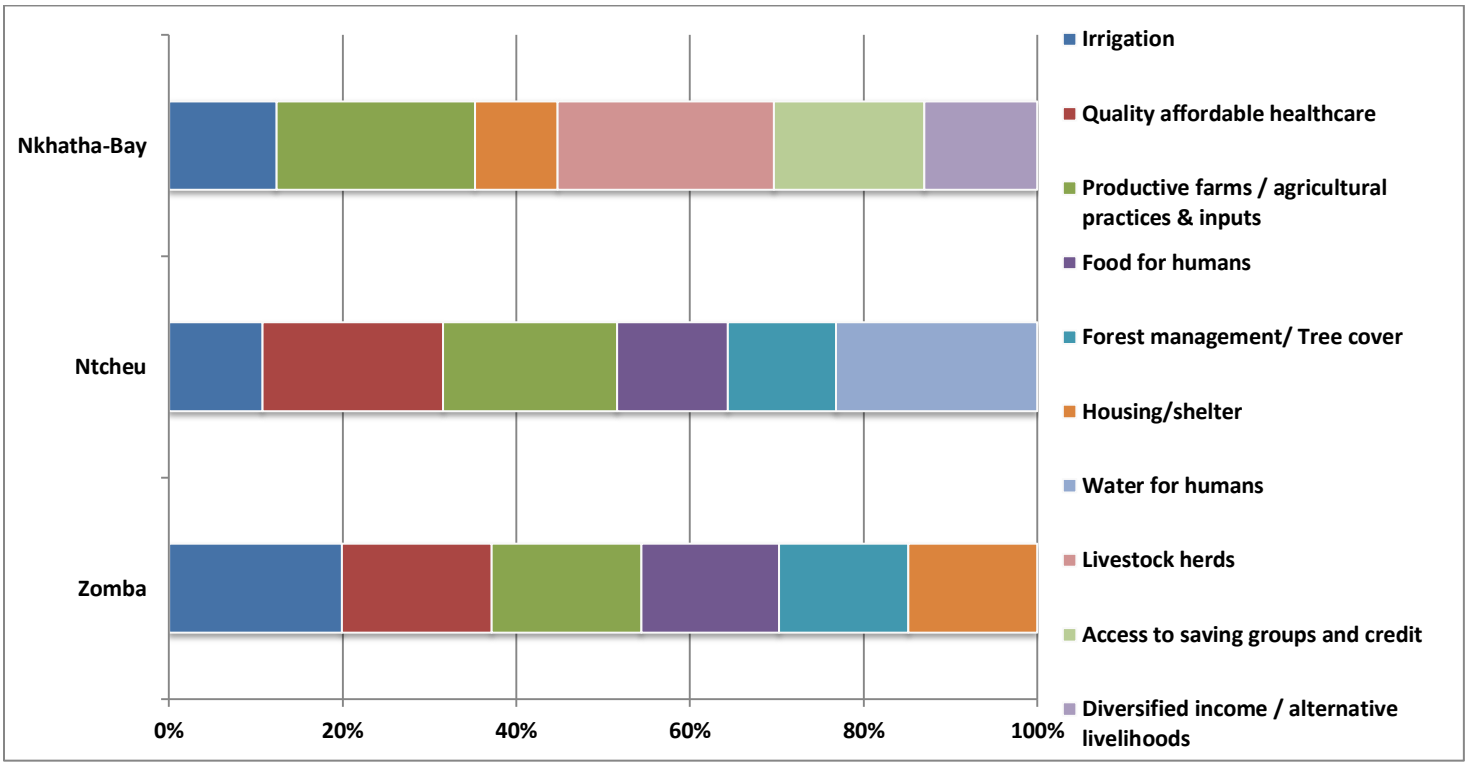
- Livestock and the enhancement of the communities' ability to have large enough livestock herds was the highest rated resilience statement. This was a result that significantly deviated from results in the other two districts. The reason for this preference for livestock is due to the fact that livestock numbers have been and are quite low here[3] because the key livelihoods have largely concentrated on farming and fishing, whilst most of the lands are forested inhibiting free range grazing. The communities have however in recent times being enlightened and are interested in significantly expanding into livestock keeping as a means of diversifying their livelihoods resilience beyond crop production and fishing.
- Secondly, while there is still a predominance of focus into productive farms, improved agricultural practices and irrigation as means for supporting the dominant livelihood activity of farming, communities in Nkhata seemed to be focusing beyond farming to build resilience by means of diversification of income sources via alternative livelihoods and income generating activities and access to credit, all factors that appeared as top priority resilience statements.

This focus on income diversification and income generating activities is attributed to the fact that communities in Nkhata Bay are a largely food secure district and they can therefore shift their focus away from food needs onto these business related activities. Secondly Nkhata Bay population have higher literacy rates (some interviews were conducted in English!) compared to other parts of Malawi attributed to presence of a large number of Community Based Childcare Centres (CBCCs) provided by the government, NGOs and faith based organizations. The availability of comparably significant employment opportunities in such enterprises as tea,

[3] Nkhata Bay District has only approximately 8,000 heads of cattle and 19,000 sheep and goats (pers. comm.)

tobacco and rubber estates in the district combined with a large number of migrant working youth population to places like South Africa has also gone to play a significant role in exposing a large population here to opportunities outside farming and into entrepreneurship.

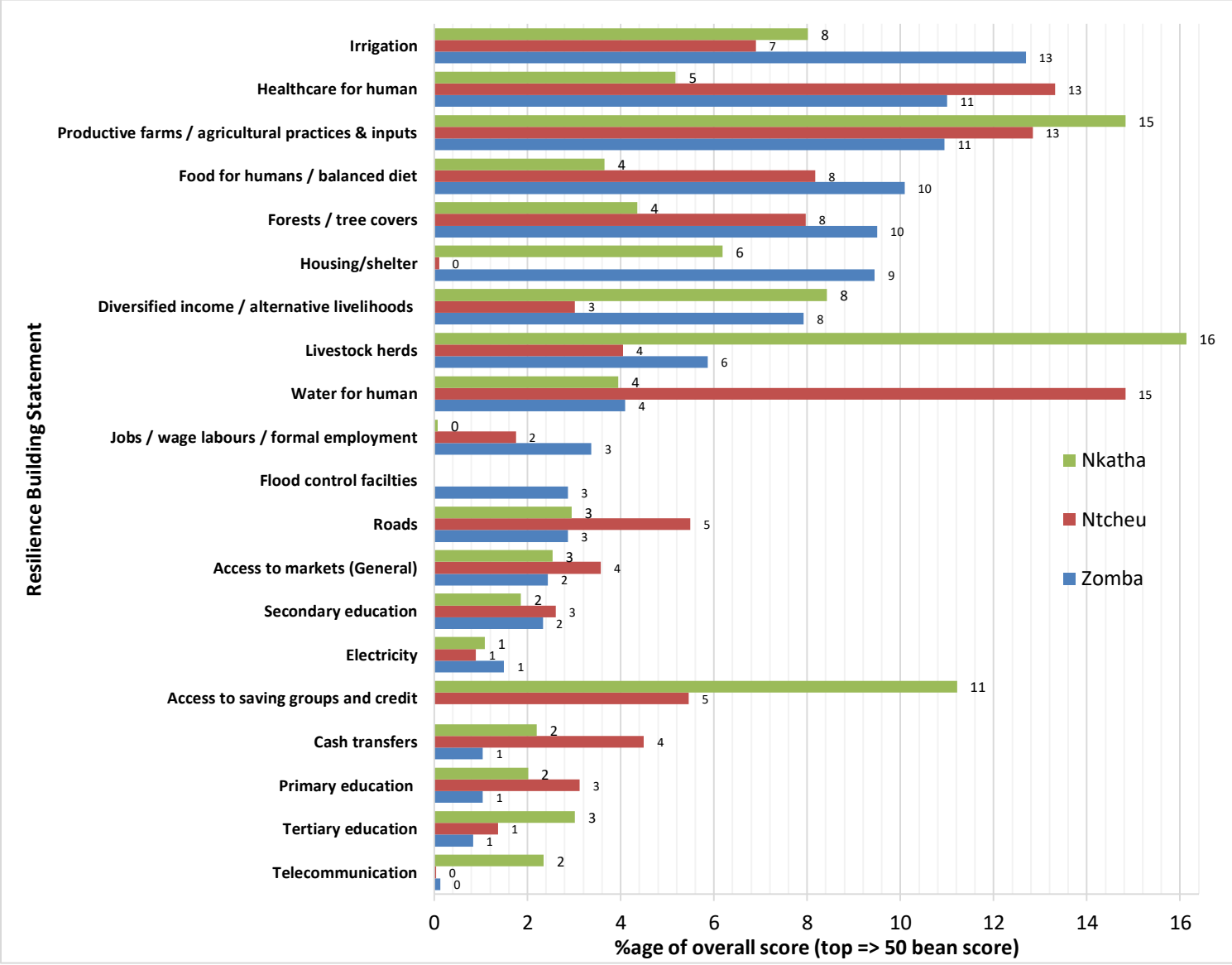
Fig 6: Percent comparison of top 6 Priority Community Resilience Characteristics- Zomba, Ntcheu & Nkhata-Bay



As a summary, in comparing the top bean scores among the three districts (See Figures 5a-5c), the results look largely similar for the Southern Districts (Zomba & Ntcheu) with similar top priority characteristics, namely irrigation, healthcare, productive farms/improved agricultural practises and food security. There is however a distinct difference between the top priorities of these two districts and those of Nkhata Bay District. Within the latter district, Livestock keeping emerged as the top priority statement whilst access to saving and credit and diversified income/alternative livelihoods (businesses) also emerged among the top priority statements here.

Figure 6 shows the percentage distribution of resilient community characteristics which received more than 50 bean scores in each of the three districts.

Fig 7: Percentage comparison of Priority Community Resilience Characteristics- Zomba, Ntcheu & Nkhata-Bay



Some of the observations made from the results include:

- Communities in Zomba and Ntcheu districts seem to be more vulnerable facing difficulties in accessing basic human services such as food, clean water and health facilities which are fundamental not only to resilience building but also to long-term poverty alleviation and sustainable development. The possible reasons behind the difference between these two districts and Nkhata Bay is both climatic (available precipitation and thereby food self-sufficiency) and also in terms of access to other opportunities such as more employment opportunities in Nkhata Bay and the presence of the lake for fishing.

- Focus groups in both Zomba and Ntcheu districts also rated forest management/tree cover relatively highly, which indicates these districts' population's high reliance on wood both as a source of livelihoods (e.g., charcoal production) and household fuel. The result also indicates their deeper understanding of the importance of forests as sources of water recharge for domestic and agricultural purposes. In Nkhata Bay

however, the favourable rainfall conditions there have ensured that there is still significant forest and tree cover across the district and expansion of this characteristic did not therefore emerge as a noteworthy priority.

- Communities in Nkhata Bay 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 the significant difference between the two districts in the South and Nkhata Bay whereby the latter is exposed to more economic opportunities due to food self-sufficiency, access to more employment opportunities, presence of fishing activities in the Lake Malawi and a higher literacy rate. Furthermore, while interior villages and farms can only be accessed by poor feeder roads, key urban and peri-urban centres in the zone are well networked with mostly good roads which make it easier for it to be linked to the major highway which connects the central and northern regions. Mzuzu City is the main market, and it attracts a lot of produce from within the district.

- Quality Housing was scored above median by both Zomba and Nkhata districts but not Ntcheu, a result that was out of the norm for this and previous CoBRA assessments in other districts of Malawi. It is not clear why this result emerged in this manner but possibly because of success of the the Decent and Affordable Housing (Cement and Malata) Subsidy Programme (DAHSP) of the Government of Malawi in Ntcheu. 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. In Nkhata Bay district, the communities reported that the frequent presence of flooding accompanied by strong winds and hailstorms necessitated the need for good quality housing.

In conclusion, it seems 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 resilience e.g. unavailability of reliable agricultural water supply (through irrigation and forest conservation and watershed management), limited use of advanced agricultural technology and practices, low livestock ownership, poor access to financial services and markets, etc.). Diversification of income generating activities (businesses) is also viewed as a significant resilience building block across the districts (8% in both Zomba and Nkhata districts-Fig. 7).

3.2.2. Analysis by Gender and Age

This section presents the bean scores by gender and age groups. The results illustrated in Table 3 demonstrate the different priorities that men, women and youth (mixed gender) place on community resilience characteristics. The data suggests the following:

- In the three districts of Zomba, Ntcheu and Nkhata Bay, all the three groups (men women and youth) largely prioritize almost the exact same resilience statements. The difference among the groups occurred in the order in which these items were prioritized.
- In **Zomba**, both women and men placed a great emphasis on factors of production (productive farms and irrigation) putting these at the top of the list than the youth who placed food for humans at the top of their priority list. In comparing men and women however, women placed food for humans higher up their priority list than men.

  It seems that both men and women thus tended 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 women in on productive farms-cum- agricultural practices –um- inputs and irrigation is linked to the fact that agriculture is the main source of livelihoods here and there is heightened focus on the mechanisms to enhance production. It also shows that men and women are the ones responsible for this production which is why youth placed it at the bottom of their top five priority list preferring instead to highlight food for humans (typically in form of donations) at the top. This probably also indicate that youth rarely have control over factors of production e.g. farms.

  Women still however placed food for humans higher in the list than men which reflected the historical gender roles where the women are responsible for making sure there is adequate food on the table for the entire family.
- In **Ntcheu** women prioritized resilience characteristics which help improve the on-farm production more than men who placed productive farms towards the end of the top 5 priority list. Youth on the other hand placed the forward looking forests / tree covers expansion at the top of their priority list.

  This again reflects the significant women's historical gender roles in Malawi where they are responsible for both producing crops, processing basic 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. Youth in Ntcheu on the other hand focused on long term forward-looking resilience characteristic related to tree/forest cover expansion in order to protect the environment and watersheds that would serve them as a future generation. This result clearly demonstrates the strong willingness of youth to focus on forward looking long-term resilience building strategies.
- In **Nkhata Bay** District, both men and women similarly prioritized characteristics which help improve their on-farm production in this agro-based livelihood zone. More important though expansion of livestock production also happened to be a key element. The difference between the genders appeared in men placing livestock at the top of the priority list. This is largely due to the fact that men are responsible for the rearing and managing the proceeds from livestock and it is therefore a characteristic they prioritize most over and above the crop husbandry that they already undertake as a family. Furthermore women and youth here further prioritized access to credit and business opportunities, trade and diversified incomes higher up than men.

  These results clearly demonstrate the strong willingness of youth and women, who have less access to/control over land, to diversify out of traditional subsistence agriculture-based livelihoods to off-farm income-based livelihoods (even within the agricultural value chain). Local women and youth were highly interested in acquiring loans to help them set up businesses. The sedentary and collective action nature of women (they are not as mobile as men who move out in search of employment opportunities) gives them more chances to get loans from lending institutions and they want an expansion of these opportunities while youth on the other hand seek to economically empower themselves through small businesses and are much drawn to the financial economy.

Table 3: Priority Characteristics by Gender/Age Group in Zomba, Ntcheu and Nkhata Bay Districts

	Zomba		Ntcheu		Nkhata Bay	
Gender/Age	**Resilience Characteristics**	**Bean Scores**	**Resilience Characteristics**	**Bean Scores**	**Resilience Characteristics**	**Bean Scores**
Women	Productive farms / agricultural practices & inputs	267	Productive farms / agricultural practices & inputs	210	Productive farms / agricultural practices & inputs	186
	Forests / tree covers	218	Water for human	179	Livestock herds	159
	Food for humans / balanced diet	169	Healthcare for humans	159	Diversified income / alternative livelihoods	115
	Irrigation	154	Food for humans / balanced diet	116	Access to saving groups and credit	114
	Healthcare for humans	154	Forests / tree covers	52	Irrigation	74
Men	Irrigation	197	Water for human	203	Livestock herds	177
	Productive farms / agricultural practices & inputs	122	Healthcare for human	203	Irrigation	120
	Healthcare for humans	119	Food for humans / balanced diet	96	Productive farms / agricultural practices & inputs	104
	Forests / tree covers	75	Productive farms / agricultural practices & inputs	91	Access to saving groups and credit	62
	Food for humans / balanced diet	45	Forests / tree covers	83	Diversified income / alternative livelihoods	19
Youth	Food for humans / balanced diet	163	Forests / tree covers	97	Access to saving groups and credit	125
	Healthcare for humans	138	Productive farms / agricultural practices & inputs	73	Productive farms / agricultural practices & inputs	108
	Irrigation	123	Water for human	50	Livestock herds	97
	Forests / tree covers	62	Healthcare for humans	26	Diversified income / alternative livelihoods	92
	Productive farms / agricultural practices & inputs	20	Food for humans / balanced diet	26	Irrigation	21

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 that have **a business** or engage in **other income generating activity**
- Households which **own livestock**
- 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 practice **irrigated farming**
- Households which are **food secure** with stable nutritious food supply
- Households which receive **remittances** through a member (or members) who has **employment**

The above results reflect the local reality and show that resilience is clearly linked to incomes and assets. Majority of households Malawi 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.[4] 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 among the three districts, Zomba and Nkhata Bay district turned out to be more pessimistic with over 60% of the focus groups indicating the decreasing number of resilient households. In contrast there was slightly more optimism in Ntcheu district where 39% percent of the population indicated that resilience was increasing.

In terms of gender/age groups (Table 4), there did not seem to be any significant discernible trend in terms of the perception of the direction that resilience was taking except for the youth in all the three districts who were more pessimistic and indicated that resilience was decreasing. The largest proportion of respondents that indicated that resilient households in the communities were decreasing was observed in youth in Zomba (82%) and Women in Nkhata Bay (82%).

[4] 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.

Figure 8: Change in Proportions of Resilient Households in the Communities

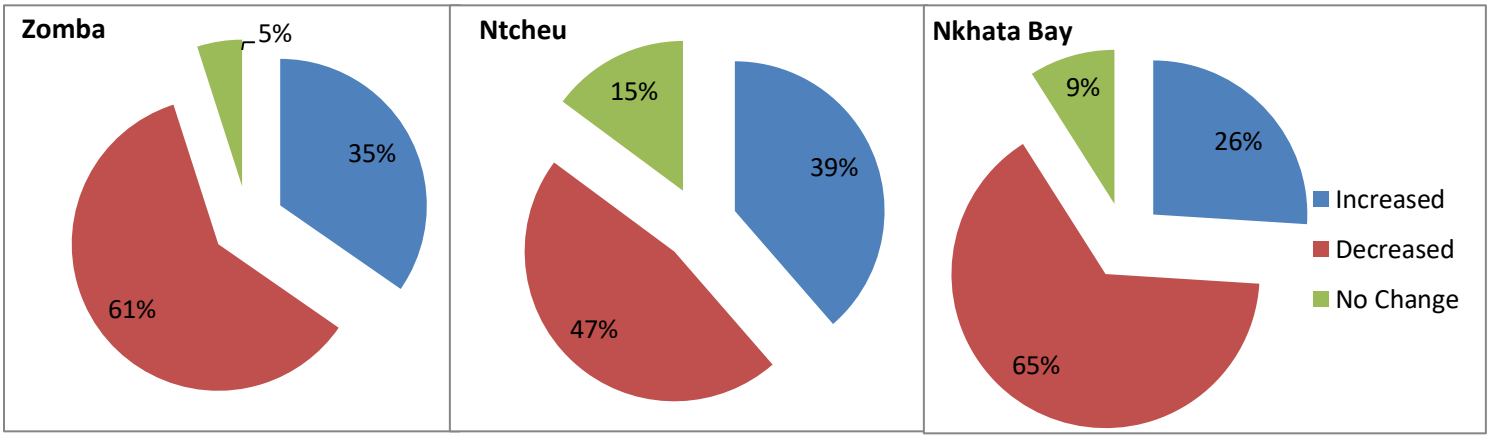


Table 4: Change in Proportions of Resilient Households in the Communities by Gender/Age Group

Gender /Age	Zomba			Ntcheu			Nkhata Bay		
	Increased	Decreased	No Change	Increased	Decreased	No Change	Increased	Decreased	No Change
Men	36%	57%	7%	47%	35%	18%	42%	58%	0%
Female	50%	42%	8%	40%	47%	13%	18%	82%	0%
Youth	18%	82%	0%	29%	57%	14%	18%	55%	27%

Generally, the main reason given by most respondents for decreasing resilience related to the fact the Districts have been experiencing a variety of multi-year climatic hazards, which include intense rainfall, floods, within season and annual recurrent droughts and deterioration in living standards in general. Malawi in general has experienced consecutive climate change related shocks namely floods and droughts. This has made most communities (especially in **Ntcheu and Zomba**) 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. Even in the more food secure district of Nkhata Bay, the rainy season arrived late on two consecutive seasons in both 2015 and 2016.

Specifically, the most optimistic of the three locations was Ntcheu with 39% of the FGDs indicating resilience has increased. Ntcheu has seen an upsurge in production of Irish potatoes over the last few years and it has become the main producer of this produce in Malawi. Almost all production is exported to other parts of the country which brings a significant amount of cash to Ntcheu District's economy. This is seen to have contributed to the positive attitude regarding the increase in resilient households in the community.

On the other hand, the validation workshop felt that the pessimistic views regarding the resilient households in Nkhata Bay district (over 65% indicating that resilient households are decreasing) is largely related to the fact of the three districts studied, Nkhata Bay receives the least number of interventions such as safety net programmes

and communities here mostly give a pessimistic view of their conditions during such exercises in the hope the hope that they may be able to attract these and other kinds of programmes to their localities even though conditions on the ground suggest that such may not be required.`

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. 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. Figures 9a through to 9c show the most commonly rated interventions in Zomba, Ntcheu and Nkhata Bay districts respectively.

Concerning the past/ongoing beneficial interventions, as shown in the figures, the three districts rated most highly the same combinations of interventions in different orders:

- Productive farming interventions, largely in the form on own production, labour (*ganyu*) (e.g., advanced/climate-proofed tools, equipment, and 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]).
- Irrigation interventions, both the improvement/expansion of existing systems and creation of new facilities.
- Small-scale non-farm activities business/job/market related Interventions such as the creation of small scale businesses and wage labour opportunities, business skills and market development were also quoted as critical in both districts
- 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.

When the results are analysed through the lens of three different types of resilience capacities, namely absorptive, adaptive and transformative capacities (see Annex 3 for more details on resilience capacity categories), those past/ongoing initiatives which improve absorptive capacity were highly rated generally in the three districts.

The focus groups 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 droughts, floods and unpredictable weather patterns. 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, improved agricultural practises and inputs and livestock sector support (e.g., increase in herd size), etc.

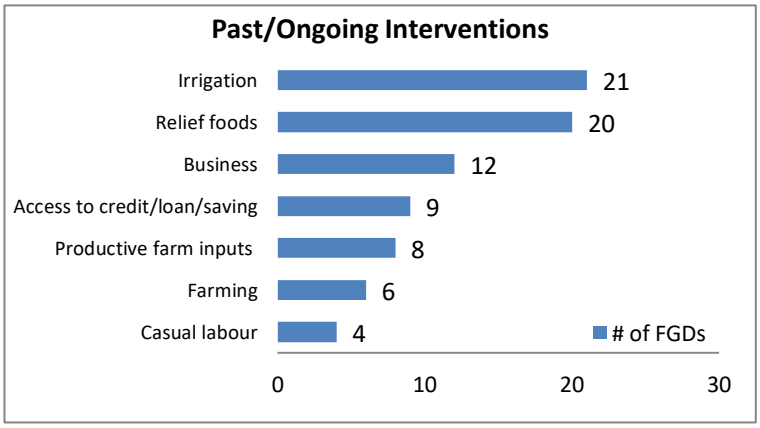
A lot of focus was also given for transformative capacity building interventions, which assist in creating a fundamentally new system so that the drought/flood shock will no longer have any impact, i.e., the initiatives leading the local livelihoods less weather/rainfall-sensitive, such as off-farm economic 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.

Social protection initiatives such as distribution of food and other relief items that 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 were also prioritized under ongoing intervention but least preferred for desired interventions. These interventions also help communities to protect development gains by providing alternatives to negative adaptation activities that would further erode their resilience.

It is important to note that the communities' prioritization among absorptive, adaptive and transformative capacity building are influenced highly by their livelihood strategies and the need to improve on these. Given that these communities are largely agro-based and in the face of recurrent food insecurity attributed to climatic factors over the past several years, initiatives contributing to ensure stable level and expansion of agricultural (on-farm) production and productivity generally emerged at the top across-board. The 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). It was heartening to observe that those activities/interventions contributing to off-farm income generating activities (e.g., access to credit, business/trade, etc.) were highly prioritized by communities across all the three districts.

In terms of the desired interventions that are perceived to best build community resilience in future, priorities of the focus groups clearly shift away from social protection and safety nets/relief related interventions to two key areas; adaptive and transformative capacity building interventions and improved access to basic services. Therefore support contributing towards the enhancement of agro-based livelihoods (e.g., irrigation, productive farming, and livestock) and diversification of economic activities (e.g., business/job/market, loan/credits/saving) are highly recommended. The communities' further emphasized delivery of basic services i.e. health, education, and reliable and clean water services as critical components for strengthening resilience.
Two unique desired interventions that emerged were Peace and Security for Ntcheu and Roads in Nkhata Bay districts. Ntcheu suffers from frequent incidences of thefts (particularly of livestock) attributed to it being on the border with Mozambique and thieves frequently disappear across the border after stealing livestock hence desire for security. Nkhata Bay on the other hand highlighted construction/improvement of road network as the most desired intervention because the accessibility to farmlands is extremely poor in this area and there are very few access roads to the farms to collect produce and take to the markets.

Figure 9a: Top Resilience-Building Interventions Most Commonly Cited by Focus Groups in Zomba District



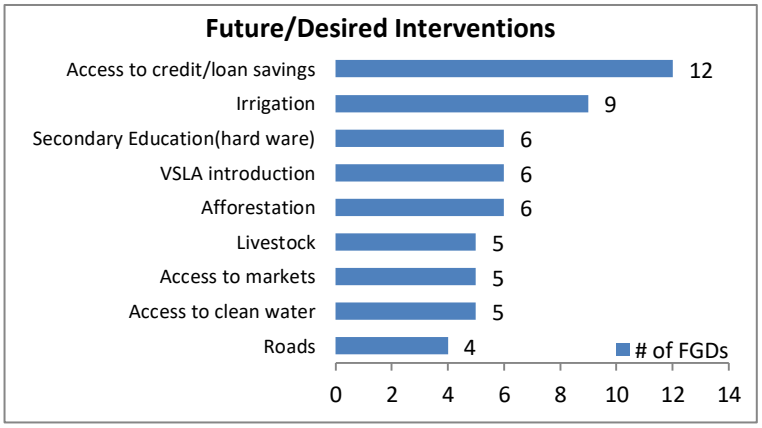
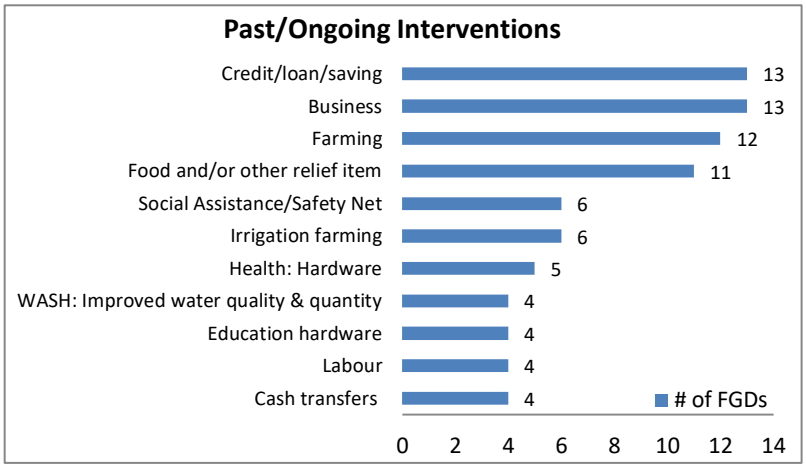


Figure 9b: Top Resilience-Building Interventions Most Commonly Cited by Focus Groups in Ntcheu District



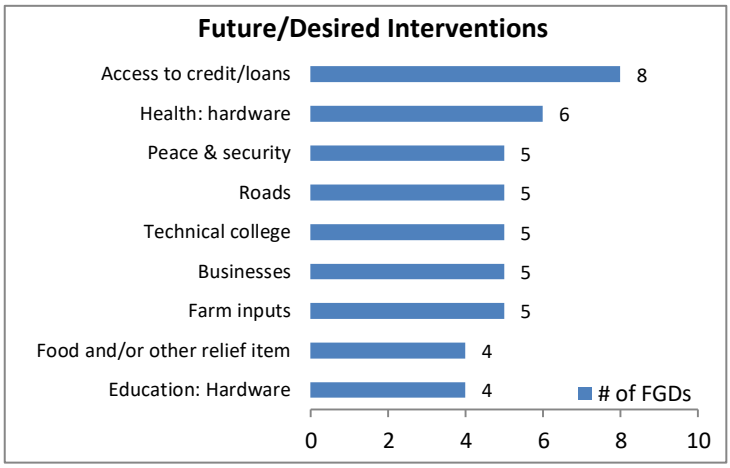
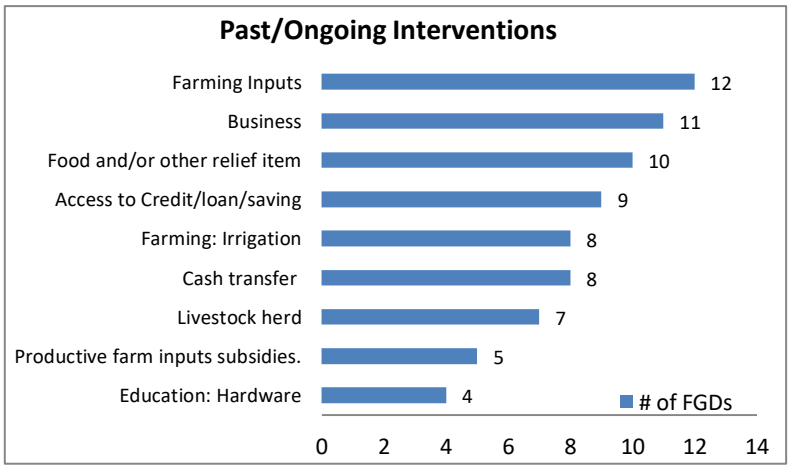
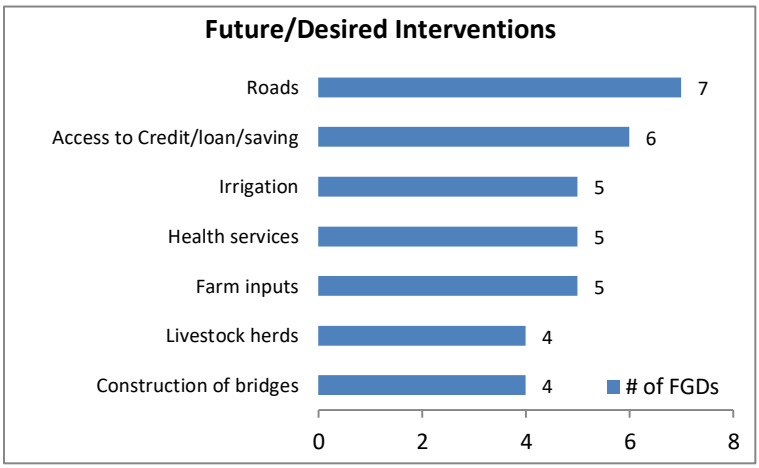


Figure 9c: Top Resilience-Building Interventions Most Commonly Cited by Focus Groups in Nkhata Bay District





4. Key Informant Interviews (KIIs) Findings

As shown in Table 5 below, a total of 114 key informant interviews (KII) were undertaken in Nkhata Bay, Ntcheu and Zomba districts with members of the households, which were identified by the participants of the focus group discussions (FGDs) as "resilient". Criteria of key informant interview households (HHs) were largely related to stable access to basic human needs, such as food and shelter, regardless of shocks and stresses affecting the communities.

Table 5. CoBRA KIIs locations

District	TA	No. of KIIs	Total
Nkhata Bay	Mbwana	4	36
	Makhambira	5	
	Kabunduli	6	
	Timbiri	6	
	Malanda	3	
	Fukamalaza	6	
	Zilakoma	6	
Ntcheu	Mpondo	17	39
	Makwangwala	3	
	Ganya	4	
	Masasa	6	
	Phambala	6	
	Kwataine	3	
Zomba	Mbiza	7	39
	Ngwelero	5	
	Malemia	9	
	Kuntumanji	6	
	Mwambo	6	
	Ntholowa	6	
		Total	114

KIIs examined the following four areas:

- Composition of the households;
- Economic activities of the households;
- Pathways to resilience;
- Ability to cope with recent shocks and hazards; and
- Priority interventions recommended by resilient households.

4.1. Composition of the households

The KII record sheet records the size, nature and education level of the "resilient HHs" interviewed. These HHs were quite diverse in terms of HH size, ranging from two to 20 members with an average 6.7 members. 17 HHs, or 15% of the interviewed were female-headed.

Results on the highest level of education attained by the member(s) in the resilient HHs are also dynamic, ranging from those which contain members who completed tertiary education to those whose members are all

illiterate/received no formal education. However, it was found that almost all HHs (i.e., 98.4%) have member(s) in formal education system and over 80% of the HHs has at least one member who completed primary or higher education (Figure 10). Table 6 compares the highest education level within the resilient HHs among the three districts. No significant difference was observed in terms of the education level between male-headed and female-headed HHs

Figure 10: Highest Education Level within the Key Informant Household

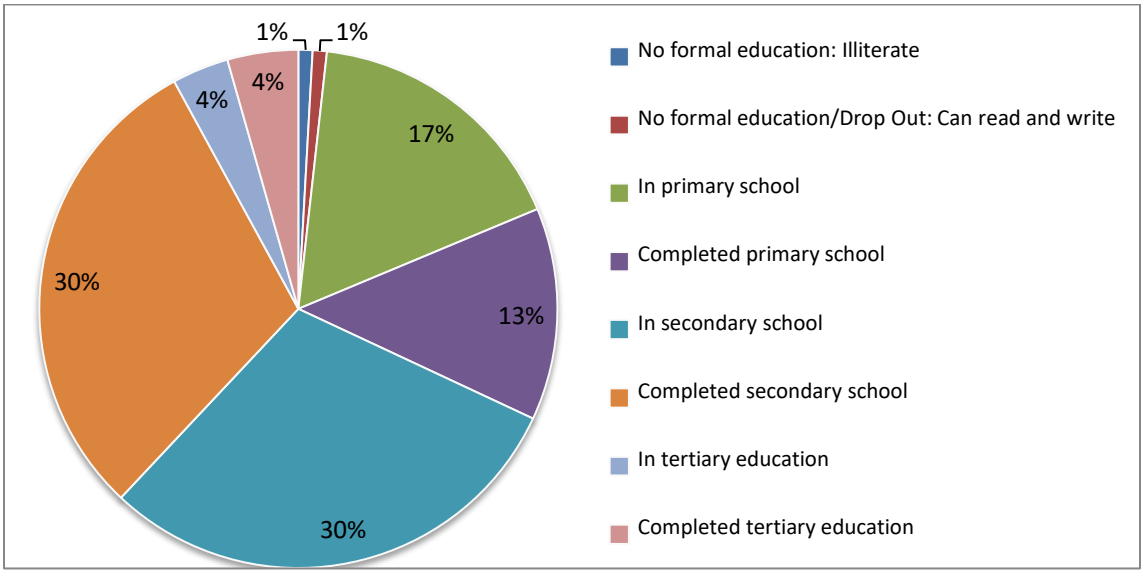


Table 6: Highest Education Level within the Key Informant Household across Districts

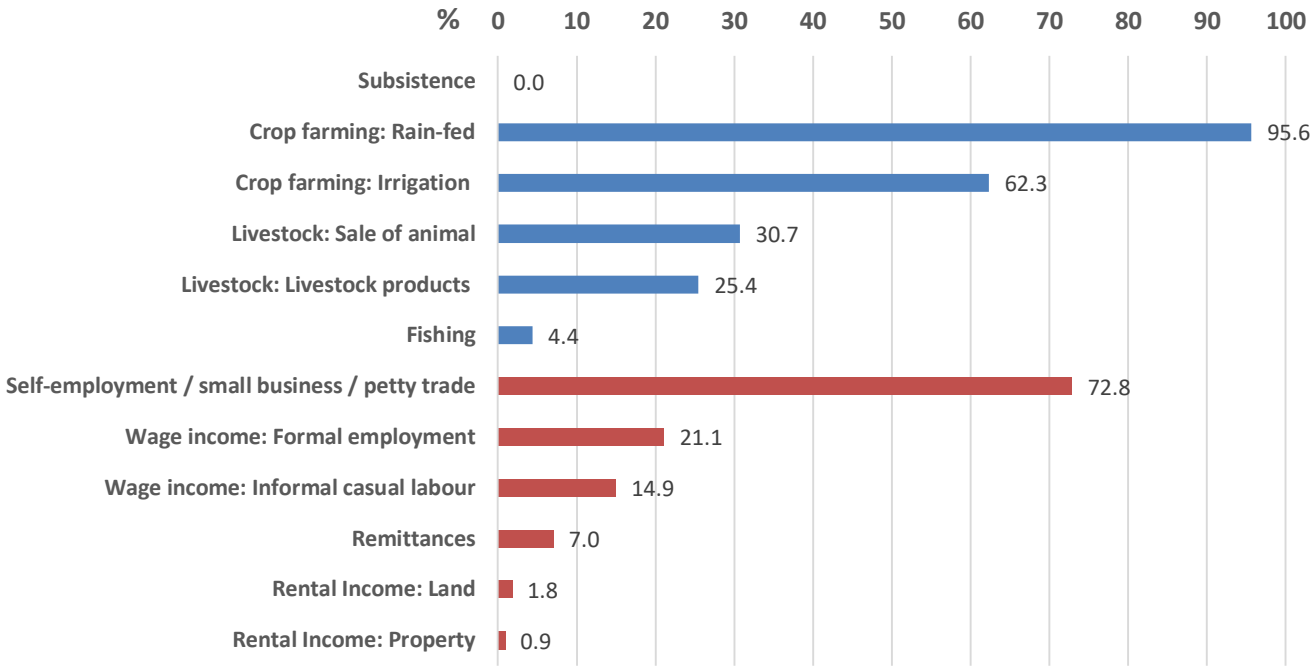
Education Level	Nkhata Bay	Ntcheu	Zomba
No formal education: Illiterate	0	2.6	0
No formal education/Drop out: Can read/ write	0	0	2.6
In primary school	14.3	15.4	20.5
Completed primary school	20.0	15.4	5.1
In secondary school	20.0	20.5	48.7
Completed secondary school	34.3	38.5	17.9
In tertiary education	5.7	5.1	0
Completed tertiary education	5.7	2.6	5.1
Total (%)	**100**	**100**	**100**

4.2. Economic activities of the households

Key informants were asked to list all the economic activities which the household members have been engaged in. Figure 11 illustrates the types of activities carried out by the key informant HHs in the three districts. All the interviewed HHs engage in crop farming as part of their livelihoods, mostly either rain-fed agriculture, or a combination of rain-fed and irrigation agriculture. Only one HH conducts solely irrigated crop farming. About half

of the interviewed HHs (52.6%) also undertake other agricultural activities such as small scale livestock husbandry and fishing to complement their livelihoods.

Figure 11. Economic Activities of Key Informant Households



Overall, all the HHs interviewed reported to be engaged in multiple income generating activities and none of the nominated "resilient HHs" live on subsistence basis (Figure 12). The vast majority of these HHs (99/114 HHs or 86.8%) across the three assessment districts have income sources from both agro-based on-farm activities (e.g., crop, livestock, fishery) and cash-based off-farm activities (e.g., business, wage, remittance, rental income, etc.). These results clearly show that the diversification of economic activities is a key strategy for resilience, with most retaining their traditional agricultural activities as the primary means of livelihoods, while earning additional incomes through less weather dependent sources. Figure 13 illustrates the three most important means of livelihoods of resilient households.

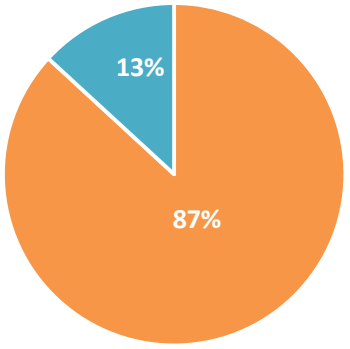


Figure 12. Resilient Households' Sources of Income

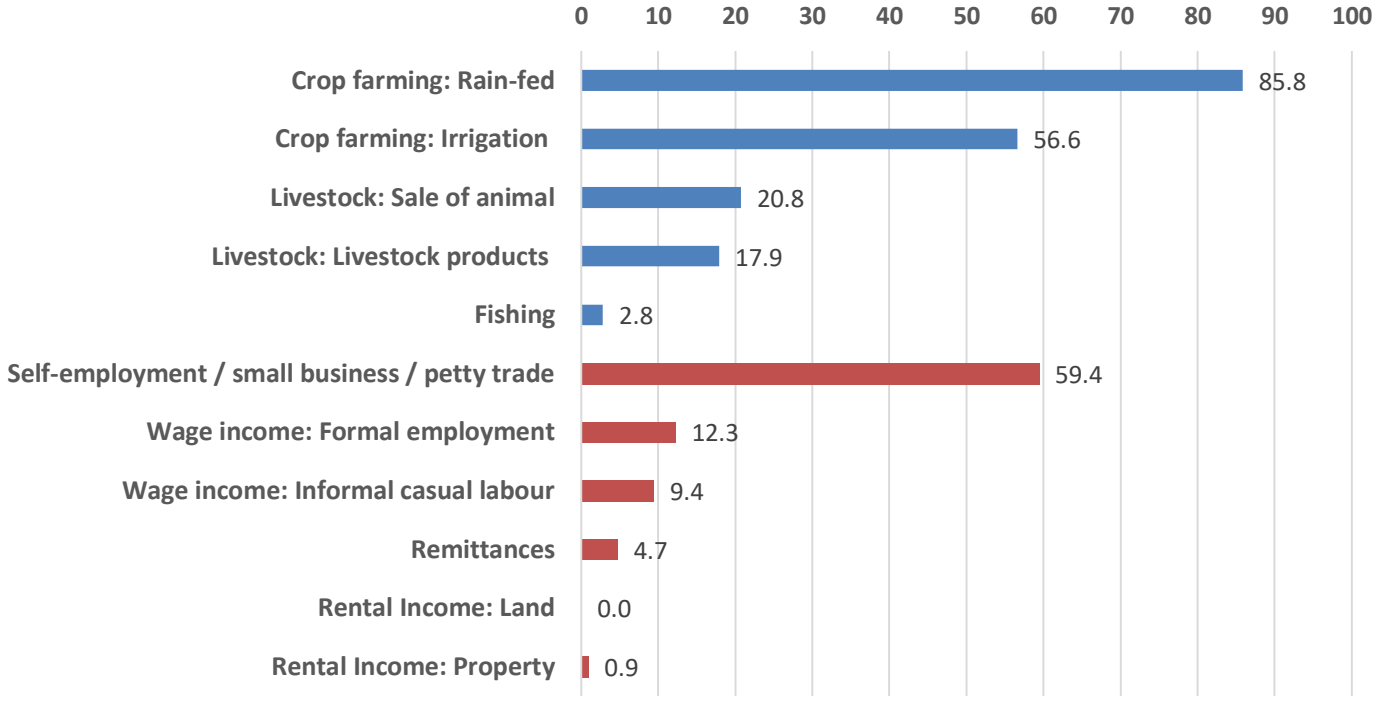
Combine on-farm and off-farm Incomes

Combine on-farm incomes

Business activities conducted by the KII HHs are diverse, encompassing sale of livestock and farm produce, with livestock being particularly important in Ntcheu (*Ngoni*) and Nkhata Districts. Others included motorcycle transport hire, sale of bricks, sale of charcoal, food/grocery shops, butchery, farm etc. Most wage earners were casual or temporary laborers carrying out carpentry, construction of houses, etc.. Some HHs also earn wages

based on formal employment (21.1% of HHs) and informal activates (14.9% of HHs) such as casual or temporary labors. No private sector employment was mentioned, reflecting the dearth of any significant private sector employers in the three districts.

Figure 13: Three most important means of livelihoods



About 33.6% of the respondents reported that their HHs received social assistance/productive safety net support more than once in the past five years. Almost half of them received only once in the past, while the most frequency supported HH receives MWK 7,200 in every two weeks since October 2016 due to ongoing local situation. By comparing the results as per districts, Nkhata Bay has the highest number of HHs receiving social assistance/productive safety net support (40.0% of HHs), followed by Ntcheu (35.0% of HHs) and Zomba (23.1% of HHs).

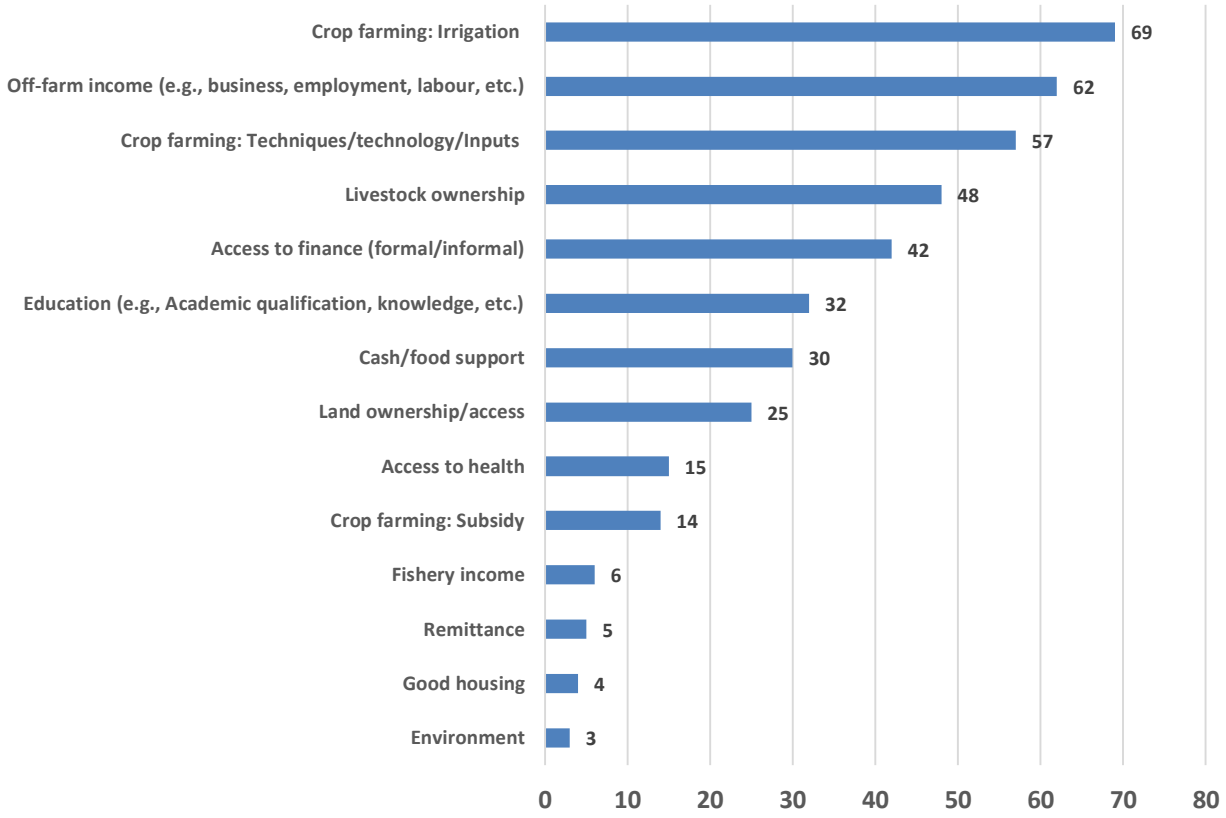
Meanwhile, 25.9% of the respondents report that they received emergency relief support, either food of other items, more than once in the same period. Frequency of such support ranges from once in the past five years to once every month. It is important to note that the number of HHs receiving emergency relief support was by far the highest in Zomba districts (50% of HHs), comparing with Nkhata Bay district (11.7% of HHs) and Ntcheu district (16.2% of HHs).

4.3. Pathways to resilience

Figure 14 provides the full list of the key factors contributing to the households' resilience, cited consistently by the key informants. Almost all the KII HHs practicing irrigated crop farming (69/114 HHs or 60.5%) reported irrigation as the main building block of their HH resilience. Irrigation contributes to make agro-based livelihoods stable, allowing continuing both producing crops to fulfill dietary requirements and selling crops for income throughout the year including the dry season/drought period.

More than half of the interviewed HHs (62/114 HHs or 54.4%) also pointed the importance of stable income secured in all seasons through off-farm activities such as small scale business, wage employment and casual labour opportunities.

Figure 14: Key Contributing Factors to Household Resilience (# of Households)



Since all the assessment districts are largely agro-based, agriculture related factors were frequently mentioned. Besides irrigation, half of the respondents (57/114 HHs or 50%) shared various farming methods, inputs, techniques and technology as a means to cope with shocks and stresses. 12.3% of KII HHs (14/114 HHs) reported that they benefited from agricultural subsidy to maintain stable crop farming income.

More than 40% of the HHs (42.1%) noted access to formal and informal credit/saving/financing mechanism as critical building block of resilience not only to purchase necessities but also to start up, strengthen and expand on-farm and off-farm income generation activities. More than one third of the HHs (48/114 HHs or 36.8%) mentioned 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. Access to education was also highly valued by some respondents (32/114 HHs or 28.1%) as academic skills and qualification often lead people to more diverse livelihood opportunities.

In terms of the pathway to the current resilient status, almost three quarter of the nominated “resilient households” (74.3%) perceived that they are either always relatively resilient (31.2%) or almost always relatively resilient (43.1%), and have coped relatively better in comparison to the rest of the households, regardless of the types of shocks and stresses faming their communities in the recent years (Figure 15). Many households stressed their ‘hard-working nature’ as the core ingredient of their persistent resilience implying that resilience capacity

may be obtained/maintained in the long run. However, 25.7% of the HHs felt that they are not necessarily always resilient. The respondents often pointed the increasing frequency and intensity of climatic hazards in the recent years as the key challenge, threatening their household stability.

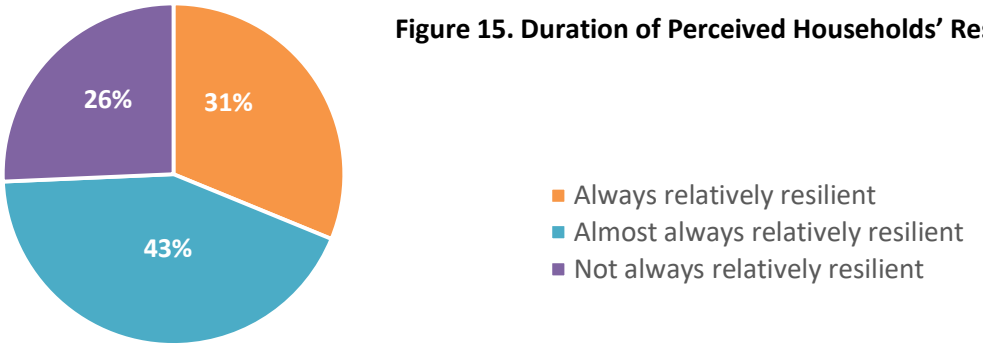
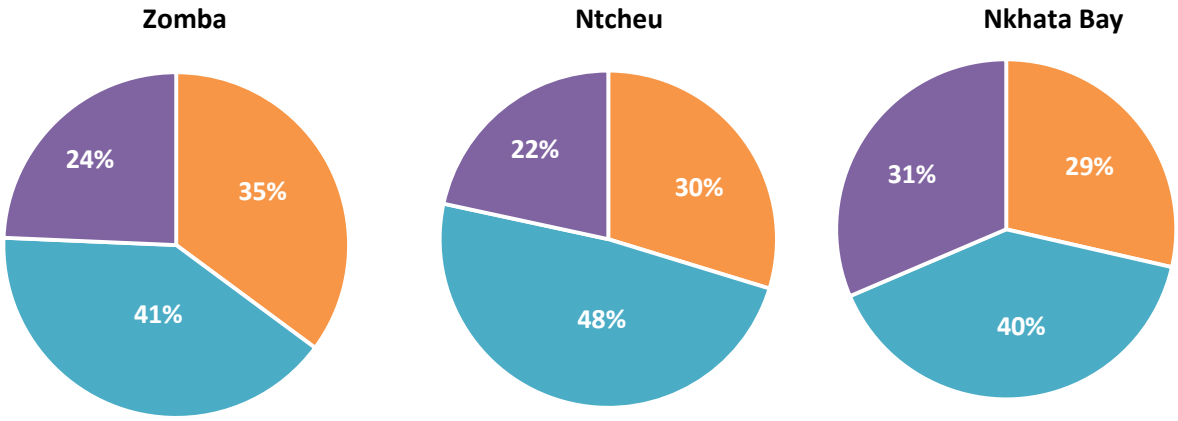


Figure 15. Duration of Perceived Households' Resilience

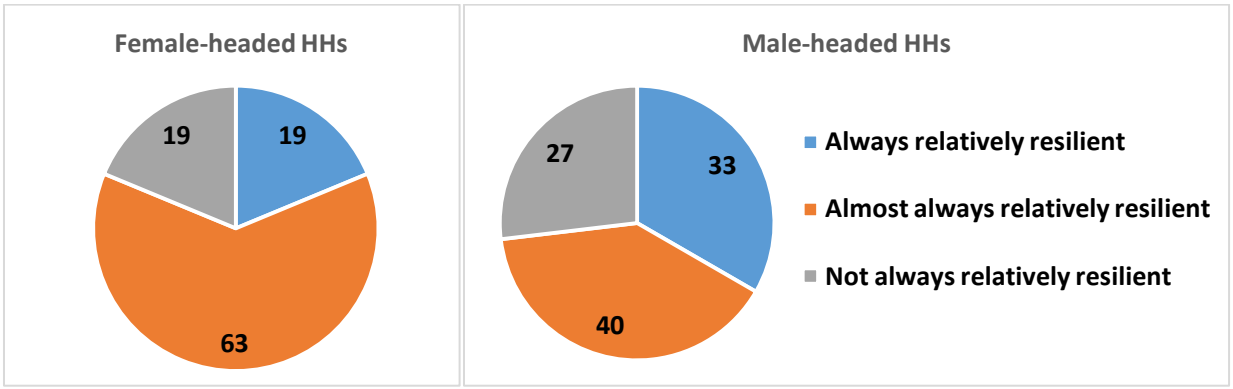
When the responses are compared among three districts, it looks the HHs in Nkhata Bay are the least confident about their ability to keep resilient (Figure 16).

Figure 16. Comparison of Perceived Households' Resilience among Three Districts



When the responses are compared between female-headed and male-headed HHs, it turned that female-headed HHs are more positive about their ability to cope with shocks and crises within their communities. As shown in Figure 17, over 80% of the key informants perceiving that they are either always relatively resilient (18.8%) or almost always relatively resilient (62.5%).

Figure 17: Comparison of Perceived Households' Resilience between Female-headed and Male-headed HHs (%)



4.4. Priority 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. Table 7 and Figure 18 provides the list the most frequently cited interventions by the KII HHs (i.e., more than 5 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.

Table 7: Priority Interventions Recommended by KII HHS to Build Resilience

Priority Resilience Building Interventions	No. of HHs
Businesses (e.g., Skill development, improved business environment, etc.)	49
Farming: Irrigation	44
Farming: Labor & non-labor inputs/technology/techniques and subsidy	39
Credit/loan/saving: Access to formal or informal services (e.g., village savings, micro-banks, etc.)	36
Livestock: Quantitative (e.g., Increase herd size, restocking of livestock, etc.)	31
Environment (e.g., Natural resources management, land rehabilitation, reforestation, etc.)	15
WASH: Improved water quality and quantity (e.g., Boreholes, taps, piping, tanks, dams, etc.)	13
Food and/or other relief item distribution	12
Health: Hardware (e.g., Construction/refurbishment of health facilities)	11
Social assistance/productive safety net (e.g., Social cash transfer, cash for work, etc.)	11
Farming: Improved market access	10
Housing (e.g., support in building safe and strong shelter)	10
Road (e.g., Construction, improvement, etc.)	10
Health: Software (e.g., Improvements to health services and staffing)	7
Education: Hardware (e.g., Construction/refurbishment of school facilities, etc.)	6
Education: Software (e.g., Staffing/quality improvement, scholarships, bursaries provision, etc.)	6
Job/Employment/Labor (e.g., Increased formal/informal job opportunities)	6
Empowerment (e.g., Improved community organization/self-help group, gender equality, etc.)	5

- **Businesses**: Interventions related to expansion of business opportunities and jobs were most widely cited (49 HHs). These interventions included business training, creation of new business opportunities and an enabling business environment including job opportunities, etc.
- **Farming: Irrigation**: Interventions around creating new/expanding existing irrigation facilities were also most frequently cited (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.
- **Farming: Labor & non-labor inputs/technology/techniques and subsidy**: Interventions to improve farm production and productivity were the third most rated (39 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.

- **Credit/loan/saving: Access to formal or informal services**: Interventions to improve access to formal and informal loan and credit services were equally highly rated (36 HHs). These include support in creating and improving the quality of village saving and loans associations. These were seen as an opportunity to inject capital into new and ongoing businesses enterprises already cited above.
- **Livestock: Quantitative**: Interventions around livestock sector were also highly rated (31 HHs), usually in relation to the support in expanding the herd, improving livestock farming/management skills, and creating/expanding livestock markets.

Figure 18: Priority Interventions Recommended by KII HHS to Build Resilience

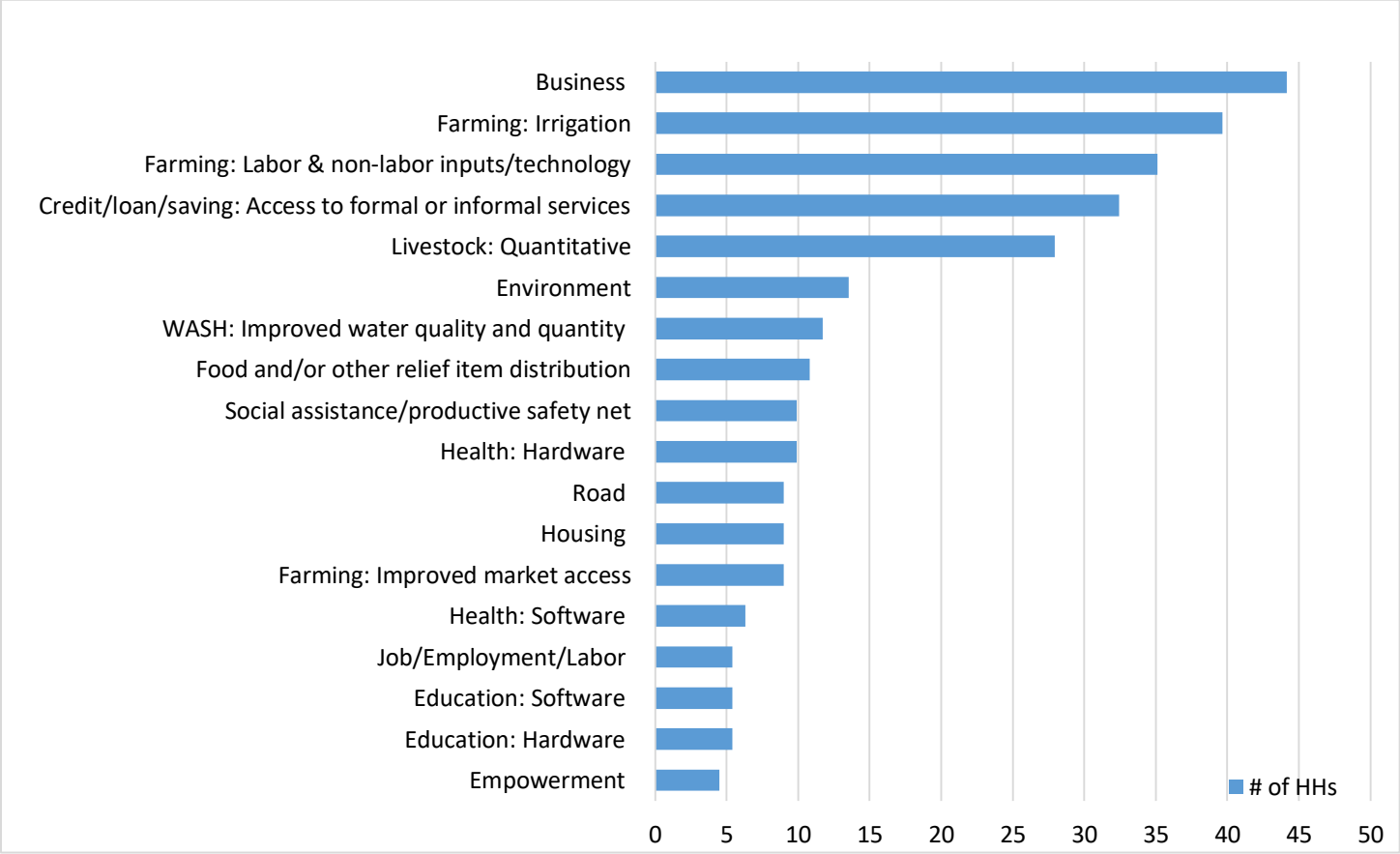


Table 8: Comparison of Priority Resilience Interventions among Three Districts

Nkhata Bay		Ntcheu		Zomba	
Priority Interventions	**No.**	**Priority Interventions**	**No.**	**Priority Interventions**	**No.**
Farming: Labor & non-labor inputs	20	Business	16	Business	16
Business	17	Credit/loan/saving	16	Farming: Irrigation	16
Livestock: Quantitative	13	Farming: Irrigation	16	Livestock: Quantitative	9
Credit/loan/saving	12	Farming: Labor & non-labor inputs	11	Farming: Labor & non-labor inputs	8
Farming: Irrigation	11	Livestock: Quantitative	9	Credit/loan/saving	8
Environment	8	Health: Hardware	8	Food and/or other relief item distribution	8
Farming: Improved market access	5	WASH: Improved water quality and quantity	8	Social assistance/ productive safety net	8

When the recommendations on resilience building interventions are compared between female-headed and male-headed HHs (Table 9), it is found that the results are largely the same with business support being perceived as the highest priority intervention. Both types of HHs also highly prioritize support to enhance crop-farming practices through irrigation and other labour/non-labour inputs.

Table 9: Comparison of Priority Resilience Interventions between Female-headed and Male-headed HHs

Female-headed HHs		Male-headed HHs	
Priority Interventions	**No.**	**Priority Interventions**	**No.**
Business	8	Business	41
Farming: Labor & non-labor inputs	8	Farming: Irrigation	38
Farming: Irrigation	6	Credit/loan/saving	31
Credit/loan/saving	5	Farming: Labor & non-labor inputs	31
Livestock: Quantitative	4	Livestock: Quantitative	27

5. Conclusions

Some of the key findings from the CoBRA in Zomba, Ntcheu and Nkhata Bay 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. Prominent differences, as well as commonalities, in understanding of the resilience concept are also observed at district level. In Zomba and Ntcheu for example, resilience characteristics are determined to a large extent by the agro-based livelihood strategies found there. While there exists clear similarities around these livelihoods with Nkhata Bay, clear differences also emerge whereby there is a lot of focus on livestock and non-agro based livelihoods (businesses) in the latter district which is self-sufficient in food and has a variety of other opportunities. 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 Zomba, Ntcheu and Nkhata Bay. Those households which have firm asset base, such as land, quality housing, livestock herds, bicycles or other means of transport, as well as stable income sources (businesses and IGA's 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 absorptive 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, almost all of the KII respondents indicated that their households engage in both on-farm (e.g., productive crop farming, livestock rearing) and off-farm (e.g., business, petty trade, wage employment, casual labour) economic activities. Given that farm holdings tend to be small, it is highly difficult for communities in Malawi, 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/stresses.

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 pesimistic responses may not only be driven by recurrent climate hazards facing Zomba, Ntcheu and Nkhata Bay 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.

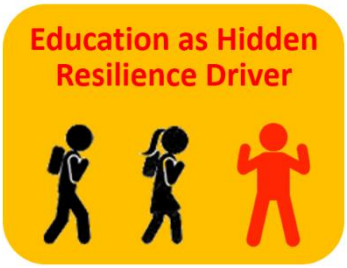
Demands to Shift from Absorptive to Adaptive/Transformative Capacity Building

Among various past and ongoing resilience building interventions delivered to Zomba, Ntcheu and Nkhata Bay districts, communities particularly rated highly the support related to 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 but 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.

It seems that conditions for this shift from Absorptive/Adaptive to Transformative would be much easily appreciated and hastened by a robust self-sufficiency in food (among other opportunities) as could be observed in Nkhata Bay District.

Emerging Awareness on Importance of Education as Resilience Driver

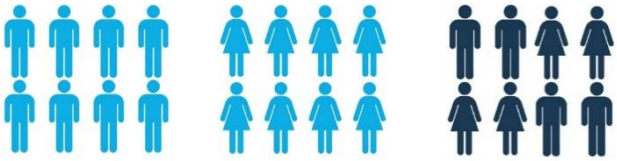
Education is a powerful driver of development, a key pathway to access to a wide range of opportunities, and a strong instrument through which to build up asset/income bases and hence enhance resilience. Even though the favourable climatic conditions among other opportunities in Nkhata bay seems to have played the most significant role in enhancing that community's resilience in comparison to the other two districts, it was consistently mentioned that the high literacy rates



there have played a key role in guiding people's focus toward transformative resilience capacities (e.g. Off-farm income, access to finance, etc.) which are quite critical to resilience building. The generally low educational attainment in Zomba and Ntcheu can be attributed to limited availability of educated role models contributing to high dropout rates. However the communities' awareness of education as the building block of resilience was however still prominent and their demands for future interventions in education sector (Secondary Education in Zomba and Technical College in Ntcheu) were substantial and among the top desired interventions for the future.

Annex 1: CoBRA Data Collection Steps

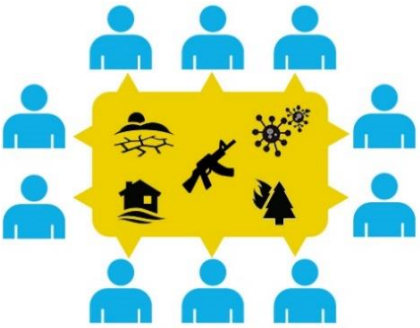
Focus Group Discussion (FGD)



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:

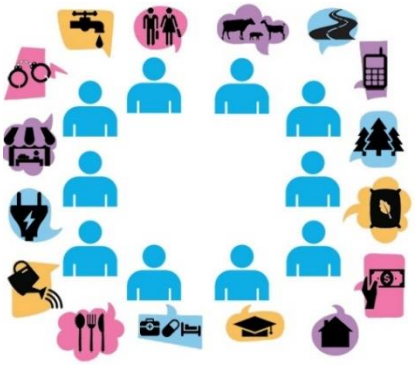
- ✓ Welcome and thank participants for their time;
- ✓ Introduce themselves and brief on the background and purpose of the CoBRA assessment



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:

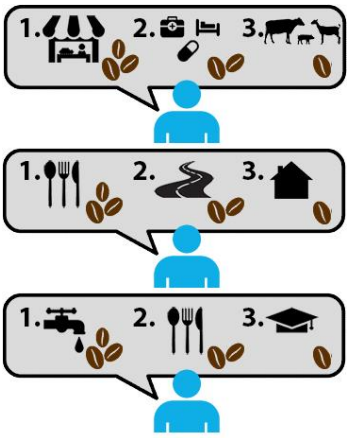
- ✓ What are the main crises/hazards affecting the community as a whole or large proportions of households?
- ✓ What would a 'resilient' community look like?
- ✓ What does the term, 'resilience', means for the community in local context in the face of aforementioned crises/hazards?



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 2a: Full Table of Bean Scores-Zomba

Statement category	Total Bean Score	Men	Women	Youth
Irrigation	474	197	154	123
Healthcare for human	411	119	154	138
Productive farms / agricultural practices & inputs	409	122	267	20
Food for humans / balanced diet	377	45	169	163
Forests / tree covers	355	75	218	62
Housing/shelter	353	82	207	64
Diversified income / alternative livelihoods	296	92	82	122
Livestock herds	219	67	83	69
Water for human	153	66	72	15
Jobs / wage labours / formal employment	126	39	25	62
Roads	107	48	12	47
Flood control facilities	107	0	107	0
Access to markets (General)	91	38	13	40
Secondary education	87	10	0	77
Electricity	56	12	21	23
Primary education	39	18	10	11
Cash transfers	39	17	0	22
Transportation assets (bicycles, motorcycles)	36	14	10	12
Environment / natural resources	34	7	27	0
Tertiary education	31	3	0	28
Community skills/ organizational structures	24	7	17	0
Sanitation/latrines	21	2	17	2
Aquaculture	16	0	0	16
Adult education	13	2	11	0
Water for livestock	10	10	0	0
CBCC	10	0	10	0
Peace and security	9	5	4	0
Access to market (Livestock)	6	6	0	0
Maize Mills	6	0	6	0
Telecommunication	5	5	0	0
Healthcare for animal	4	4	0	0
Sporting activities	4	0	4	0
Fuel efficient cooking / using less firewood	3	3	0	0
Governance / no corruption	3	3	0	0
Construction of Dykes	3	0	3	0
Nursery school (ECD)	3	0	0	3
RECREATION	2	0	0	2
Small scale business	2	0	0	2
Factories plants, machineries, equipment	1	0	0	1
Land ownership/ access	1	1	0	0
Family planning	1	0	0	1

Annex 2b: Full Table of Bean Scores-Ntcheu

Statement category	Total Bean Score	Men	Women	Youth
Water for human	432	203	179	50
Healthcare for human	388	203	159	26
Productive farms / agricultural practices & inputs	374	91	210	73
Food for humans / balanced diet	238	96	116	26
Forests / tree covers	232	83	52	97
Irrigation	201	94	59	48
Roads	160	80	10	70
Access to saving groups and credit	159	36	67	56
Cash transfers	131	55	76	0
Livestock herds	118	34	72	12
Access to markets (General)	104	49	50	5
Primary education	91	52	20	19
Diversified income / alternative livelihoods	88	29	59	0
Secondary education	76	37	39	0
Jobs / wage labours / formal employment	51	16	23	12
Sanitation/latrines	47	33	0	14
Tertiary education	40	35	2	3
Motorbikes / vehicles / transport	29	5	24	0
Access to market (Livestock)	26	26	0	0
Electricity	26	23	3	0
Environment / natural resources	22	4	10	8
Vocational training	22	0	0	22
Adult education	15	4	11	0
Governance / no corruption	11	11	0	0
Peace and security	11	6	0	5
Pesticides for bug control	11	0	0	11
Disaster early warning / risk management	10	0	0	10
Pasture / fodder / rangeland	6	0	0	6
Family planning	3	0	0	3
Housing/shelter	3	0	3	0
Healthcare for animal	2	2	0	0
Women/gender	2	0	2	0
Nursery school (ECD)	1	0	1	0
Factories plants, machineries, equipment	1	1	0	0
Land ownership/ access	1	0	1	0
Telecommunication	1	1	0	0

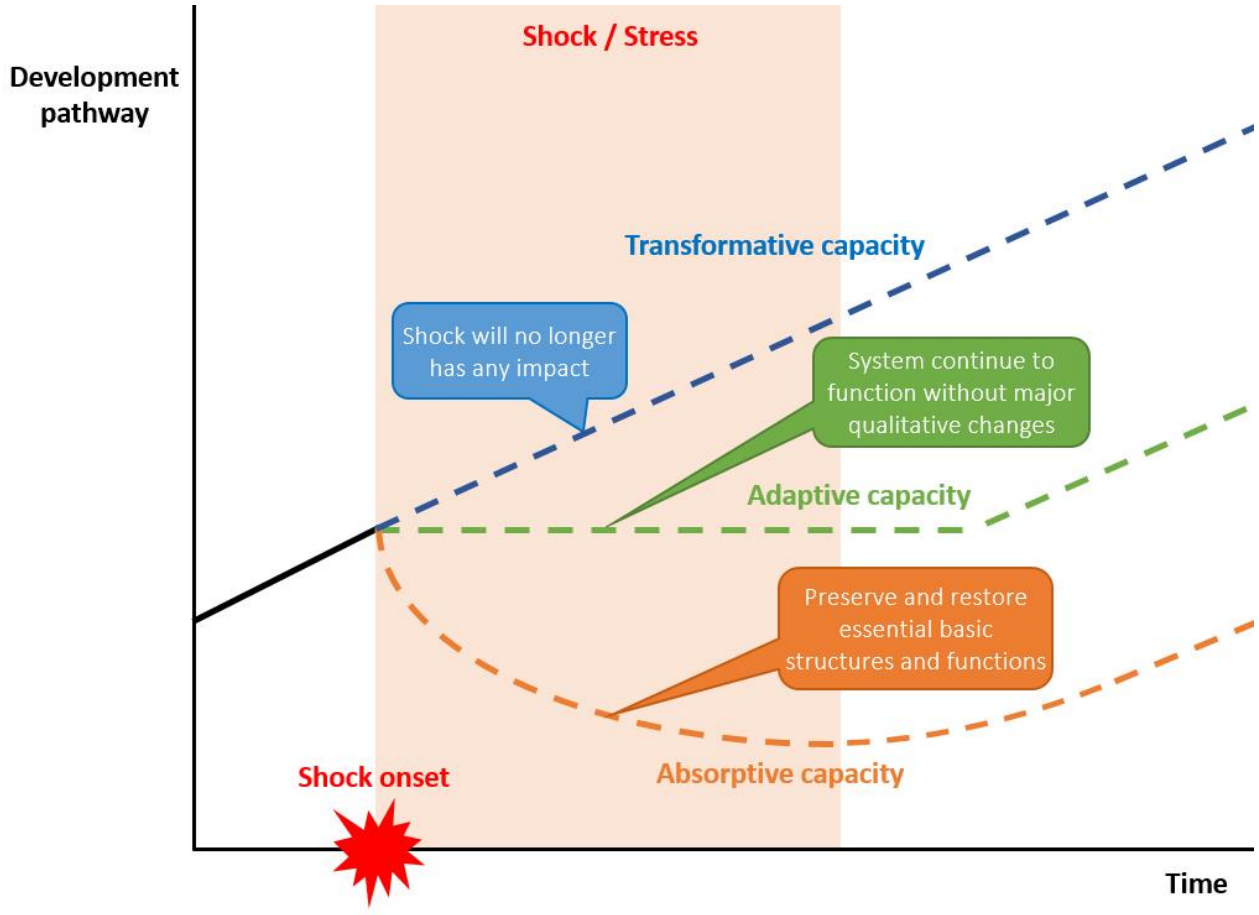
Annex 2c: Full Table of Bean Scores-Nkhata Bay

Statement category	Total Bean Score	Men	Women	Youth
Livestock herds	433	177	159	97
Productive farms / agricultural practices & inputs	398	104	186	108
Access to saving groups and credit	301	62	114	125
Diversified income / alternative livelihoods	226	19	115	92
Irrigation	215	120	74	21
Housing/shelter	166	54	87	25
Healthcare for human	139	61	53	25
Forests / tree covers	117	32	46	39
Water for human	106	30	60	16
Food for humans / balanced diet	98	36	18	44
Tertiary education	81	33	0	48
Roads	79	28	13	38
Access to markets (General)	68	21	27	20
Telecommunication	63	27	36	0
Cash transfers	59	8	40	11
Primary education	54	20	20	14
Secondary education	50	23	17	10
Electricity	29	5	4	20
Community skills/ organizational structures	28	12	1	15
Sanitation/latrines	28	3	0	25
Governance / no corruption	26	6	0	23
Motorbikes / vehicles / transport	17	6	0	11
Disaster early warning / risk management	13	6	0	7
Bee-keeping	12	9	3	0
Water for livestock	9	0	0	9
Adult education	9	0	9	0
Peace and security	4	4	0	0
CBCC	2	0	2	0
Jobs / wage labours / formal employment	2	2	0	0
Environment / natural resources	1	1	0	0

Annex 3: Resilience Capacities

According to the Organisation for Economic Co-operation and Development (2014), resilience can be boosted by strengthening three different types of capacities:[5]

- ***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.



[5] 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 Zomba, Ntcheu and Nkhata Bay 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.