

# RESILIENT WATERS PROGRAM BASELINE STUDY

## XHUMAGA

USAID's Resilient Waters Program aims to build more resilient and water-secure communities in the Okavango and Limpopo river basins. Resilient Waters focuses specifically on transboundary water security and resource management; safe, sustainable drinking water and sanitation services; climate change adaptation; and conserving biodiversity and ecosystems.

The purpose of this document is to:

- Provide the community of Xhumaga with feedback from our study;
- Highlight priority areas for Xhumaga to become more resilient; and
- Facilitate a planning session based on the information collected.

### XHUMAGA AT A GLANCE

We interviewed **85 people** in Xhumaga

Most of the people interviewed were older than 35 years.

|                       |                     |
|-----------------------|---------------------|
| Younger than 35 (29%) | Older than 35 (71%) |
|-----------------------|---------------------|

Most of the people interviewed were female.

|            |              |
|------------|--------------|
| Male (23%) | Female (77%) |
|------------|--------------|

In Xhumaga, **employment and farming** are key sources of income.

### Understanding of resilience in Xhumaga



Sources of natural shocks and stressors in Xhumaga are **droughts, lions and elephants**.

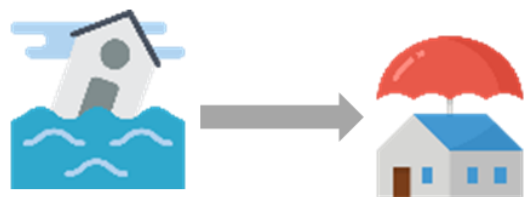


These shocks and stressors negatively impact households involved in agriculture, and other water-based livelihoods; and result in there being **limited water for the community**.



In Xhumaga, resilience is seen as **social protection from the government and help from neighbours**.

### What is resilience?



**Resilience** is the ability to respond to shocks and stressors. There are four dimensions of resilience.

### Absorptive Capacity



Can we **protect** ourselves and **cope** with events?



### Adaptive Capacity

Can we **adjust** the way we live after an event has happened?

### Anticipatory Capacity



Can we make a **plan** for other events that might happen to us?



### Transformative Capacity

Can we **change the way that we do things** based on what we have learned?



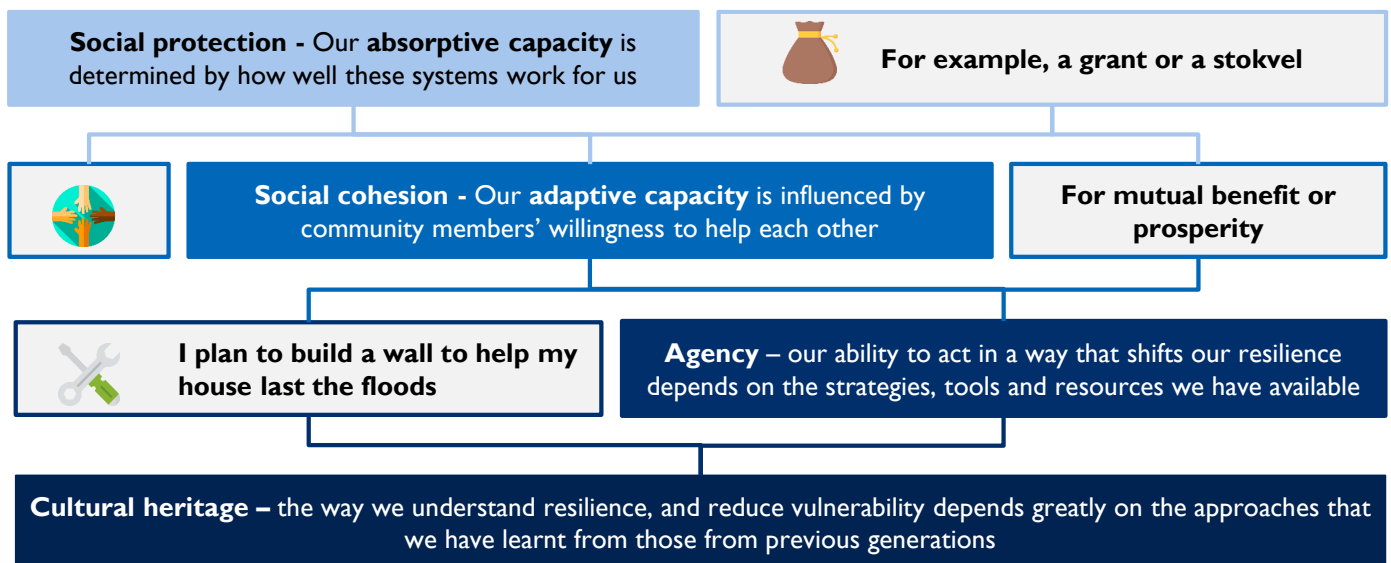
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## BASELINE STUDY

We did a baseline study in 13 communities in seven countries in the Limpopo and Okavango river basins. We did this to find out how households understand resilience, how communities are building resilience, and what this means for our work. One of the areas that we surveyed was Xhumaga, Botswana on the banks of the Boteti River. The Boteti River separates the Makgadikgadi National Park from the Xhumaga community. The proximity to the national park (home to 2,242 African savannah elephants as well as a handful of lions) presents challenges to human livelihoods exacerbated by increasing competition over natural resources due to the overall reduction in rainfall during times of drought. Xhumaga falls into the Okavango river basin which covers parts of Angola, Namibia and Botswana.

## WHAT DETERMINES RESILIENCE?

Our baseline study found that resilience is determined by four factors: **1. Social protection, 2. Social cohesion, 3. Agency, and 4. Cultural heritage.**



## WHAT DID WE FIND OUT IN XHUMAGA?

In Xhumaga the major challenges or stresses experienced by households are wild animals (in particular elephants) and droughts which exacerbate the pre-existing stress of unemployment. The effects of shocks and stressors have been less access to food and water, less social support and less income / resources. The effects of the shocks and stressors were widespread.

## WILD ANIMALS AND UNEMPLOYMENT ARE THE BIGGEST CHALLENGES IN XHUMAGA



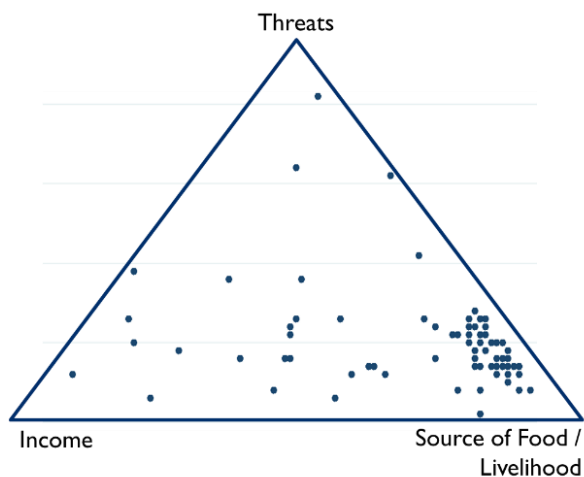
Wild animals (especially elephants) are the biggest source of stress for households in Xhumaga. These concerns related to personal safety, as well as safety of crops and livestock (the latter related to the threat of lions). Damage to crops or death of livestock contributes to additional stress due to reduced food security.

Unemployment was also identified as a core challenge to the households in Xhumaga. This concern appears to be related to both wild animals and drought. Due to the drought, members in the community can no longer sell fish for income. The same issue applies to crops or livestock which have been damaged or killed by wild animals.

## XHUMAGA AND NATURAL RESOURCES

**Natural resources are considered very important to residents in Xhumaga.**

The heatmap below shows that water is largely a source of livelihood and food in Xhumaga. Xhumaga is a water scarce area which has been affected by the drought in Botswana. Because the river has almost run dry, the people of Xhumaga are competing with wildlife for water.

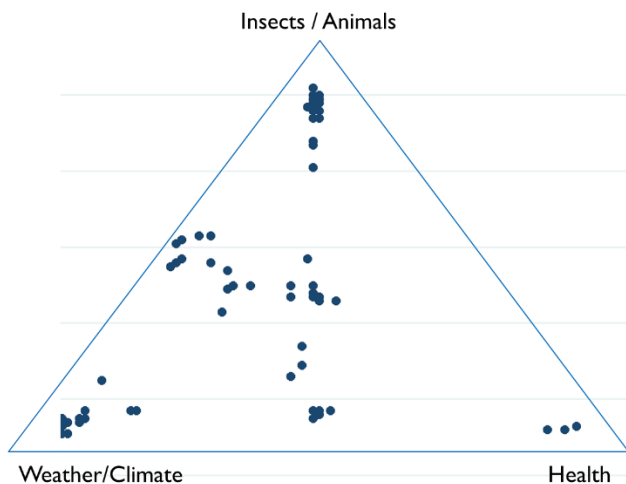


- Animals are primarily seen as a threat due to human-wildlife conflict in the area.
- Plants are seen as both a source of income and a source of food.

## THE CAUSES OF SHOCKS AND STRESSORS

**Wild animals and weather/climate are the main forms of shocks and stressors**

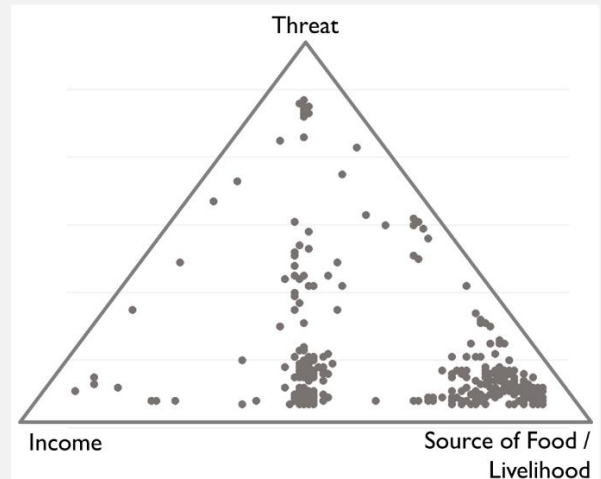
Xhumaga is heavily affected by close proximity of elephants and other wild animals, as well as drought conditions.



## XHUMAGA COMPARED TO THE OKAVANGO RIVER BASIN

**As in Xhumaga, natural resources are central to the livelihoods of households in the Okavango River Basin.**

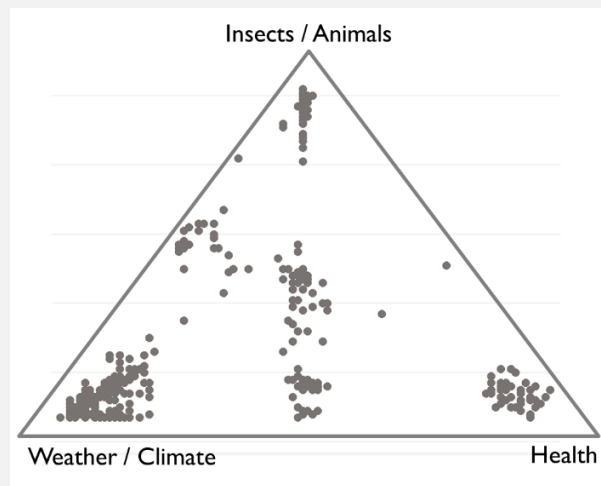
As in Xhumaga, water is largely seen as a source of livelihood in the Okavango River Basin. Compared to Xhumaga, water is slightly more of a threat in the basin as a whole.



- When compared to Xhumaga, animals are seen more as a source of food than a threat.
- As in Xhumaga, plants are seen as a source of income and food.

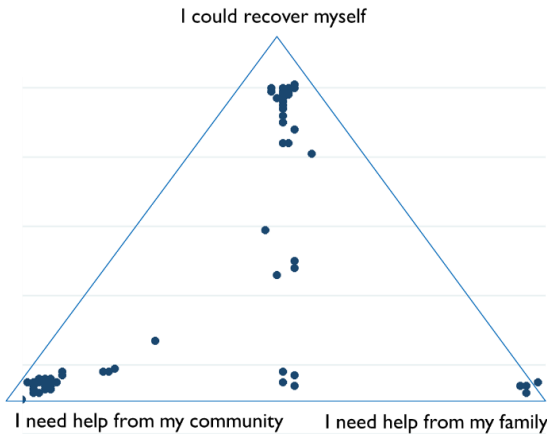
## THE CAUSES OF SHOCKS AND STRESSORS

When compared to Xhumaga, in the Okavango, the causes of shocks and stressors are more evenly distributed between insects / animals, weather / climate and health. When compared to the Okavango River Basin, a larger proportion of households in Xhumaga cited animals as primary source of shocks and stressors.



## RECOVERY FROM SHOCKS AND STRESSORS

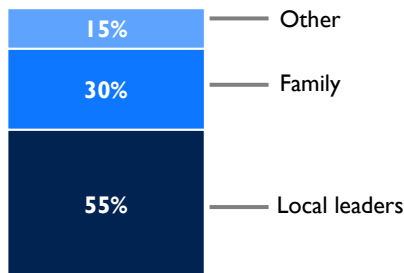
Households in Xhumaga were either able to recover themselves, or needed help from both their community and their family.



## SUPPORT AND PLANNING FOR SHOCKS AND STRESSORS IN XHUMAGA

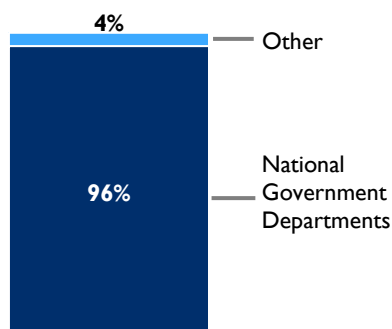
28% of households have people that they can turn to for support.

There are therefore low levels of support in Xhumaga. Of those that **do have people to turn to**, most could turn to family and the community.



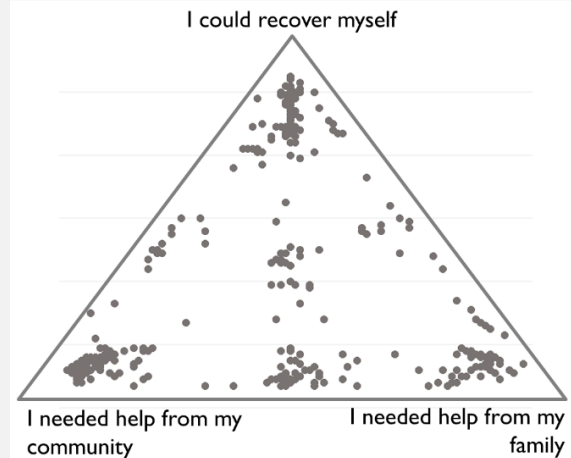
87% of households have organizations that they can turn to for support.

Of the 87% who have people to turn to, National Government Departments (particularly the Botswana Department of Wildlife and National Parks) is largest source of support.



## XHUMAGA COMPARED TO THE OKAVANGO RIVER BASIN

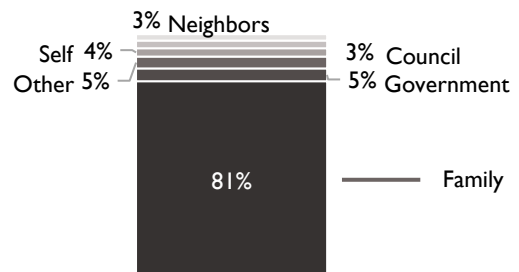
When compared to Xhumaga, households in the Okavango rely more on their families to recover from shocks and stressors.



## SUPPORT AND PLANNING FOR SHOCKS AND STRESSORS THE OKAVANGO BASIN

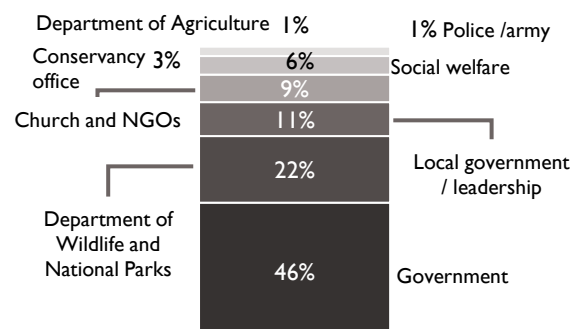
48% of households in the Okavango River Basin have people that they can turn to for support.

Of those that have people to turn to in the Okavango River Basin, the vast majority (81%) could turn to family – compared to 30% in Xhumaga.



54% of households in the Okavango River Basin have organizations that they can turn to for support.

Similar to Xhumaga, of those that have organizations to turn to, the majority could turn to government institutions. Unlike Xhumaga, households in the Okavango have a more diverse set of organizations to turn to.



## PLANNING FOR THE FUTURE

Overall, households in Xhumaga felt they need **more social protection from government and wildlife organisations** as their primary threat comes from wild animals. They felt this would help them respond better to threats in future.

Households in Xhumaga are dependent on the local leaders to share information about what is happening in the community and country.

**38%** of households in Xhumaga have a plan for future natural shocks and stressors. Of the 38% of households in Xhumaga that have a plan, the use of chillies as a deterrent for elephants in the area was common although the households did display some concern about the success of this effort. There was a high proportion of households whose feedback is captured as various ad hoc efforts. These included ploughing fields earlier, digging wells and exploring solar energy. More than 90% of the community respondents indicated that their actions were not sufficient to prepare. Examples of the plans that people reported include:

- **Various ad hoc efforts:** Ploughing fields earlier, digging wells, exploring solar energy solutions
- **Chillies:** Grow and use chillies to deter elephants in the area
- **Government assistance:** Resort to contacting government representatives for help.
- **Improved fencing:** Erecting more effective fencing (ideally electric) for separating animals, such as elephants, from human settlement areas.

20

Various ad hoc efforts

11

Use chillies

5

Government assistance

4

Improved fencing

Number of people

**A lack of resources and support prevents people in Xhumaga from implementing their plans.**

## HOW COULD XHUMAGA BECOME MORE RESILIENT?

Our research has found that communities that are resilient to natural shocks and stressors can 1. Protect themselves from events and adjust their way of living after an event has happened; 2. Make a plan for other events; and 3. Change the way that they do things. More specifically:

**Communities that can protect themselves from events and adjust their way of living after an event have:**

- Strong communication channels
- Strong social networks
- Access to functional institutions

**Communities that can plan for other events that might happen have:**

- A plan for shocks and stressors

**Communities that can change the way they do things:**

- Manage ecosystems well
- Manage water systems well
- Adapt agricultural practices to climate change
- Adapt livelihoods strategies

In Xhumaga, residents overwhelmingly rely on government to help protect themselves and their livelihood from wildlife. However, they express very little reliance on each other. Looking at initiatives that can build community is an important part of building resilience in Xhumaga.

To improve their resilience, residents in Xhumaga may benefit from the following actions which have been developed understanding the context of the community, its climate and initiative feasibility:

- **Wildlife deterrence strategies:** human-wildlife conflict in and around the Xhumaga community is worsening as competition over the limited natural resources increases. As such, it is important for the community to develop strategies which will support the resilience of both communities and their wildlife counterparts in the context of worsening climate conditions. Examples of such strategies include strengthening communication challenges with wildlife organisations, and implementing innovating elephant deterrent techniques, such as using chillies.
- **Adaptive farming:** given the increasing human-wildlife conflict and severe drought, historical farming methods are unlikely to bring forth the same yields, and could cause danger by attracting elephants. As such, prioritising appropriate crops is important.
- **Adaptive built environment:** Given the movement of elephants through the community, efforts should be made to direct wildlife in a way that minimizes conflict, through both deterrent strategies such as walls and blockades, and attraction back to protected areas.
- **Community engagement opportunities:** Residents of Xhumaga were less than half as likely to rely on neighbours, friends, or family for support as other places in the Okavango. Bringing the community together could create opportunities for stronger collaboration.

Based on the findings of our research, the effects of shocks and stressors were experienced in the form of reduced food and water, social support and income / resources. The initiatives highlighted above seek to enable the community of Xhumaga to improve their preparation for future shocks, and to recover from these shocks quicker. This is enabled by creating more resilient methods of communication, food production and water collection.

## OVERVIEW OF USAID'S RESILIENT WATERS PROGRAMME

