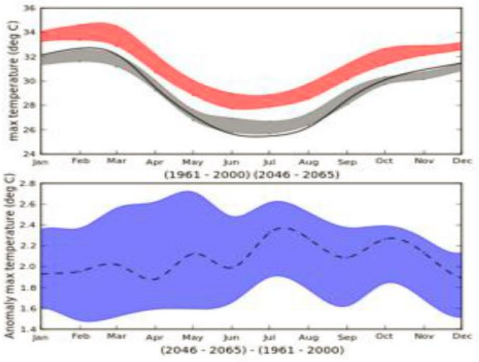
Case Study Bulletin 3

Community Climate Vulnerability and Capacity Assessment

Mkindo sub-catchment, Wami Ruvu Basin



At a glance

Climate change is a major threat to improved health, livelihoods, and economic growth in Tanzania. Our climate is naturally highly variable with regular drought and flood events. Man-made climate change is likely to increase the severity and intensity of these events (see Box 1).

Through working with partners at iWASH, the Ministry of Water and the Mkindo Water User Association, the Uhakika wa Maji team have developed a transferable methodology to help water users take action on climate change. This Community Climate Vulnerability and Capacity Assessment (CVCA) supports water using communities to analyse their main areas of vulnerability and to target capacity support and action.

The methodology was developed and tested in Sugaji and Mkindo wards in Turiane Division in the Wami Ruvu basin, which faces growing drought and flood risk and conflict over water resources during dry periods.

The work shows how drought and floods exacerbate existing water challenges and have regular and significant impacts for local communities. By applying the CVCA the Mkindo Water User Association was able to work with the wider community to map and prioritise the main climate related impacts facing local people. Participatory plans were developed for how the community can better plan for and mitigate impacts of climate.

The case study shows the important role which can be played by community planning and Water User Associations within the national response to climate change. It emphasises the important roles and accountabilities within government which need to be fulfilled - such as provision of information, financial support and advice - to enable WUAs and communities to play a constructive role in climate resilience and water security.

Box 1. A snapshot of climate change and impacts in Tanzania

Temperature

- Mean annual temperatures are likely to increase in Tanzania over the next 20 to 100 years at a rate which has been unprecedented, by up to 1.5 °C in the next 20 years and by up to 4.3 °C by the 2080s. Warming is expected to be greater inland and in the north and north east.

Rainfall

- Changes in rainfall patterns, total amounts and rainfall intensity are expected, with central and southern Tanzania facing a shorter, more intense wet season, and more rainfall in the north. However, there is much uncertainty about future changes in rainfall.

Extreme events and flooding

- Models suggest an increase in heavy rainfall and greater flood risks. Droughts will continue and could become more intense and frequent.
- By 2080 sea level will rise by between 0.1 and 1 m bringing flooding to coastal areas, particularly in low lying densely populated areas like Dar es Salaam.

Economic impacts

- Climate variability and extreme droughts and floods already cost in excess of 1% of GDP and affect millions of people.
- If action isn't taken climate change and extreme events will cost a further 1 or 2% GDP/year by 2030 and may prevent Tanzania from achieving poverty reduction and growth goals.

From Economics of Climate Change study, GoT/GCAP et al. 2013

This bulletin was produced by the Uhakika wa Maji Programme, a joint initiative between Shahidi wa Maji, TaWaSaNET and Water Witness International. Uhakika wa Maji undertakes high quality action research to generate evidence and advocacy materials to improve water resource managemnent and water security for all Tanzanians.

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...kwa sababu sisi sote tupo mtoni

Background to the case

Kigugu village has a population of 3,465 and is supported by the Nguku irrigation scheme drawing water from Mkindo River. The scheme serves 60 households across 50 acres with a target of covering 250 acres under BRN. The majority of villagers engage in traditional irrigation with water from Divue River. 2000 people from Bungoma village depend on Mkindo and Dizungwa Rivers for their water use. Floodplain incursion, pollution from sugar plantation and mining activities upstream, and climate related issues such as drought and floods, exacerbate existing water management challenges.

The Uhakika team conducted several community meetings in March and August 2015 to record the issues and visit the affected sites, WUA and village offices for data recording. More than 180 people attended.

The CVCA used participatory community mapping in both villages to understand the water resources management challenges and the impacts of climate change to the communities with a reflection of when events had occurred, where, the effects and how they had impacted the communities.

Community maps documenting water resources management issues and climate impacts were presented and validated by communities. A number of actions were proposed and WUA leaders were supported to draft action plans for the two villages. The communities were eager to learn more about they can prepare for extreme events and future visits to respond to this demand are scheduled.

How is climate change impacting Mkindo?

Fact 1. Livelihood and food insecurity as a result of flooding

Flooding is a major climate impact felt by both Kigugu and Bungoma villages causing hunger due to loss of crops, waterborne diseases such as diarrhoea and destruction of important pathways that support farmers in transporting of their crops from the farms.

- In Kigugu, floods occur each year during heavy rains.
- 1978 was a particularly bad year because of El Nino and the village lost 20 acres of cropland affecting about 200 people; roads were destroyed; Mkindo River bridge was washed away and cases of diarrhoea occurred.
- In Bungoma, heavy rains in 1998 destroyed 500 acres of paddy rice, 60 houses and livestock were swept away.
- Floods cause reduced harvests of paddy rice, typically 6 bags of 100kg each per acre instead of 25 bags of the same.
- Mvomero District Council supplied food aid and allocated plots to households whose houses were swept away.

Fact 2. The challenges of drought preparedness and management

Drought was highlighted as a major challenge for Mkindo River users as the river tends to run dry during dry spells, reducing crop production and food intake by the community.

- Drought affects Kigugu village which depends on Mkindo river with low flows from July to October each year.
- Lower crop yields, reduced number of meals per day and malnutrition are the top drought impacts for Kigugu village.

What needs to change?

Locally: Water User Associations and methodologies like the CVCA can play a key role in building resilience to climate variability. To maximise potential:

a. Communities should be assisted with a better understanding of climate change and how they can adapt.
b. The Basin Water Board, Mvomero District Council and NGOs should capacitate the Mkindo WUA with climate change knowledge and resources that will enable them to extend CVCA at the local level and implement plans generated.
c. The WUA should incorporate CVCA and response planning for the villages in their strategy to assist local planning and decision making.

Nationally: Climate impacts are most likely to occur through variability in water flows and availability. Improving the response depends on reaching local water users to assess their vulnerabilities and build resilience.

a. WUAs need support to understand climate impacts and their roles in sustainable water use during unpredictable weather.
b. The Vice President's Office which leads the climate change response should work with the Basin Water Boards and WUAs to assess needs and develop response plans within priority sub-catchments facing greatest risks.
c. CVCA tools should be modified to suit the language and budget for CVCA at local level should be allocated to WUAs guided with simplified climate trend information to assist planning of farming methods and choices of investments.
d. Institutional responsibilities for drought and flood management and roles of the Basin Water Boards must be clarified.

PRIORITY ACTION: Communities and Water User Associations play a key role in mitigating the impacts of climate variability and change through improved water resource management and need adequate funding and support.