BASEflow

2023 ANNUAL REPORT

> Sustainable Development Goal 6 is compelling us to look beyond water infrastructure and channel our energies to other crucial areas e.g., water resources management, that are becoming even more important for sustaining water access.
>
> ***Muthi Nhlema***

CONTENTS

- 4 Message from Our Team Leader
- 5 Our Vision & Mission
- 6 2023 Impact in Numbers
- 7 Timeline of Activities
- 8 Impact Stories
  - 8-9 From Paradise to Reality: Water Insights in Zanzibar
  - 10 Presidential Zikomo Award
  - 11 BASEflow Construction Launch
  - 12-13 Restoring Water Supply in Cyclone-Hit Mulanje
  - 14 Trócaire Irish Civil Society Programme
  - 15 Village Savings: Community Self-Reliance and Water Management
  - 16-17 Championing Hydrogeology at Dzaleka Refugee Camp
- 18 Financials
- 19 Strategic Partners, Networks and Government Partners
- 20 Clients
- 21 Contact Details


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2023: MAINTAINING HOPE IN TIMES OF UNCERTAINTY

Muthi Nhlema

TEAM LEADER

I know what is expected of this part of the Annual Report.

This opening statement is supposed to be upbeat, uplifting and celebrating BASEflow's achievements this past year. Usually, I would highlight our accomplishments with glowing statistics and overwhelm you with data that showcases our boundless successes, bookended with a photo of myself, grinning from ear to ear.

However, this time, I do not intend to do that.

This is not to say BASEflow had no success in 2023—far from it! This year saw us grow significantly in terms of strategic partnerships, recognition and, most importantly, making an impact where it truly matters.

We entered a new strategic partnership with Trócaire, a collaboration grounded in mutual respect and a shared commitment to providing sustainable groundwater supplies to rural communities.

We continued the momentum from our "Year of Recognition" by receiving two more accolades: the Presidential Zikomo Award for our social enterprise initiatives and the Best Poster Award at the Zanzibar Water Conference, affirming our capacity for producing knowledge outputs based on our field experiences.

In collaboration with the Ministry of Water and Sanitation, we also launched a new project aimed at revitalising Malawi's groundwater monitoring network, a frontline asset to ensure groundwater security and improve our understanding of the condition of our groundwater resources.

While these accomplishments are significant and worth celebrating, they pale in comparison to the relentless destruction wrought by Cyclone Freddy, the worst cyclone event in Malawi's history. Unfortunately, this disaster continues a trend from the previous year's Cyclone Ana, but with even greater human and material losses. This trend is unlikely to end soon and will erode any gains made as we inch closer to the 2030 Sustainable Development Goal (SDG) deadline for universal access to water and sanitation. It's enough to dampen my hope for the future, but I am cautiously hopeful.

As Cyclone Freddy carved deep gullies into the mountains surrounding Blantyre city, I hope it also left an indelible scar on the collective consciousness of my country. It is easy for us to forget and move on, but we must not. We cannot afford to move on from this. We cannot allow ourselves to become bedfellows with tragedy – helplessly leaving our lives in the hands of fate. The water future of generations depends on our remembering the lessons from Freddy and understanding what they mean for our water infrastructure, service delivery and community engagement.

We owe it to the rural poor we all claim to be helping.

As my team and I close out the final year of our 5-year strategic plan, I realise that the next few years will be crucial. We need to do more, forge more partnerships like Trocaire, drive more innovations like the flood-proofed handpump, and make substantial investments like BASEflow Construction – not just to rebuild what has been destroyed, but to go beyond slogans and to build back better truly.

As we move into this uncertain future, our mission remains to position groundwater as Malawi's most important natural asset for building resilience for the long term. My hope may be cautious, but our resolve remains unshaken.

A WORLD WHERE NO WELL RUNS DRY

Our mission is to improve the sustainability of groundwater sources for rural populations to access safe drinking water

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2023 IMPACT

11 BOREHOLE DRILLINGS SUPERVISED

WATER POINTS REHABILITATED AFTER FLOODS **44**

163 HYDROMET STATIONS MAPPED

WATER POINT COMMITTEE MEMBERS TRAINED IN CBM **290**

364 BOREHOLES UNDERWENT FORENSICS

NUMBER OF BENEFICIARIES AT REHABILITATED WATER POINTS

24,500

TIMELINE OF ACTIVITIES

IMPACT STORIES

FROM PARADISE TO REALITY: WATER INSIGHTS IN ZANZIBAR

Our hydrogeologist, Given Ngwira, took her first trip to Zanzibar in August 2023 to attend "Accelerating Change: Realizing Sustainable Management of Groundwater Resources and Resilient Water Services for All." The picturesque island is surrounded by the Indian Ocean and paradise looked unaffected by water challenges. However, a starkly different reality and critical discussions were about to be revealed.

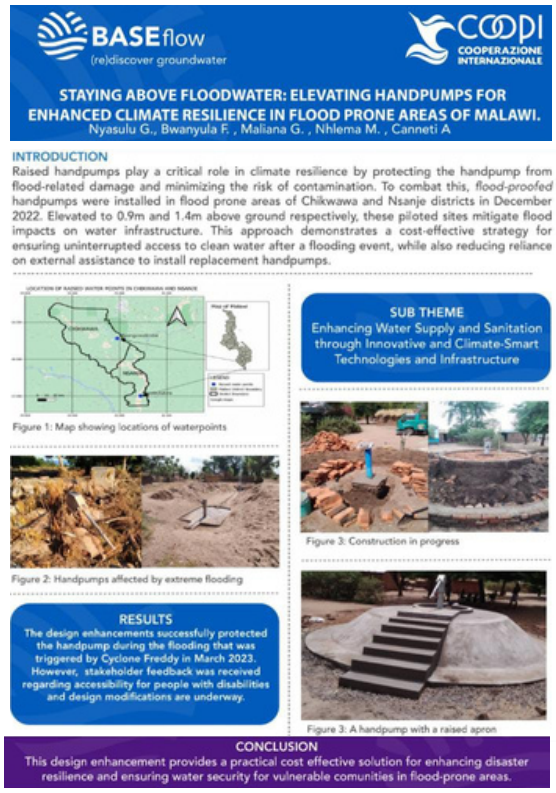
> **I felt a deep empathy for the residents of Zanzibar. I was struck by the island's vibrant culture and stunning scenes, yet beneath this beauty lay the pressing issue of water scarcity. It was a stark reminder of the difference between perception and reality.**
>
> — Given Ngwira, Hydrogeologist

The conference opened with the Director General of the Zanzibar Water Authority outlining his struggles with salinity and the complexities of sourcing fresh water. The island relies on boreholes, natural springs and caves for fresh water. The current supply falls short by about 40% for the Zanzibar population of nearly 1.9 million people.

The most impactful moment came during a presentation by a professor from the University of Leeds presenting on water security and sustainable development. The unsettling reality of the SDG 6.5.1 on Integrated Water Resources Management is the failure to address competing water demands. It exposed the politics behind the indicator where even developed countries, including the United Kingdom, falsely claim to have achieved 100% coverage. The difference between reported and actual conditions flagged the need for a more honest and comprehensive approach to water management.

A major highlight of the trip was the award for Best Poster Presentation. Given showcased BASEflow efforts in Malawi to tackle water access in flood-prone areas with the innovative approach of elevating hand pumps.

> **It was a wonderful moment. It was not just about the award, but raising awareness about our work and inspiring action for sustainable solutions. This experience was a deeply personal triumph.**
>
> — Given Ngwira, Hydrogeologist



BASEflow (re)discover groundwater

COOPI COOPERAZIONE INTERNAZIONALE

STAYING ABOVE FLOODWATER: ELEVATING HANDPUMPS FOR ENHANCED CLIMATE RESILIENCE IN FLOOD PRONE AREAS OF MALAWI.

Nyasulu G., Bwanyula F. , Maliana G. , Nhlema M. , Canneti A

INTRODUCTION

Raised handpumps play a critical role in climate resilience by protecting the handpump from flood-related damage and minimizing the risk of contamination. To combat this, *flood-proofed* handpumps were installed in flood prone areas of Chikwawa and Nsanje districts in December 2022. Elevated to 0.9m and 1.4m above ground respectively, these piloted sites mitigate flood impacts on water infrastructure. This approach demonstrates a cost-effective strategy for ensuring uninterrupted access to clean water after a flooding event, while also reducing reliance on external assistance to install replacement handpumps.

Figure 1: Map showing locations of waterpoints

Figure 2: Handpumps affected by extreme flooding

SUB THEME

Enhancing Water Supply and Sanitation through Innovative and Climate-Smart Technologies and Infrastructure

Figure 3: Construction in progress

RESULTS

The design enhancements successfully protected the handpump during the flooding that was triggered by Cyclone Freddy in March 2023. However, stakeholder feedback was received regarding accessibility for people with disabilities and design modifications are underway.

Figure 3: A handpump with a raised apron

CONCLUSION

This design enhancement provides a practical cost effective solution for enhancing disaster resilience and ensuring water security for vulnerable comunities in flood-prone areas.

Poster presented at the conference

Global Water Partnership

The conference in Zanzibar was a transformative experience for BASEflow's Hydrogeologist. It deepened her understanding of global water challenges and reinforced the need to commit to finding sustainable solutions. The island contradictions provided a moving backdrop on a journey that was as much about sharing personal growth as it was about professional achievement.

ZIKOMO

BASEflow was thrilled and honoured to receive a prestigious **Zikomo Presidential Award** for 2023. The award ceremony was held under the banner of "Celebrating Self-Reliance" and BASEflow was one of 13 recipients honoured for innovative solutions to social problems facing Malawi.

> **Being recognised as one of the best social entrepreneurial organisations for our impactful work on Water Resources and Water Supply Management is incredibly humbling and gratifying. All of us at BASEflow celebrate this Award with all our partners in the water sector who work tirelessly to ensure a better water-secure future for Malawians.**
>
> — Steve Kumwenda, Water Resources Programme Manager

BASEflow has worked for years with various collaborators to monitor and safeguard groundwater management. The approach includes monitoring, extensive data analytics, and the use of cutting-edge technologies to track and inform decisions. Effective resource management benefits both government and communities.

For information about the Zikomo Awards, visit the Malawi Government Facebook Page: https://shorturl.at/lvCO9.

Most Active WASH NGO – WESNET – 2021

MINIMAX Award WASH Category – Global Water Partnership – 2022

Presidential Zikomo Award – Office of President and Cabinet – 2023

Best Poster Award – Zanzibar Water Conference – 2023

BREAKING GROUND

BASEflow Construction was launched in November 2023. The new social enterprise arm specialises in rehabilitation and installation of water supply infrastructure in rural Malawi. The vision is to revolutionise the quality of installations and tailor innovative solutions to the needs of both communities and industry.

Our team of experienced engineers, hydrogeologists and environmentalists pledge to deliver projects that meet rigorous government standards for quality, efficiency and sustainability, while also prioritising resilience against climate change.

As we move from blueprints to shovels, this endeavour ushers in a new era of resilient water infrastructure with improved access to clean, reliable water for all rural communities.

Our pledge is to deliver projects that meet rigorous government standards for quality, efficiency and sustainability, while also prioritizing resilience against climate change.

A VITAL RECOVERY STEP

Restoring Water Supply in Cyclone-Hit Mulanje:

In the aftermath of the most devastating cyclone to hit Malawi, the most urgent need was to re-establish essential services. Needs in Mulanje District could not be understated as Cyclone Freddy had destroyed boreholes and disrupted access to safe drinking water.

With financial support from the Hilton Foundation, BASEflow worked closely with the Mulanje District Water Office to restore access to safe drinking water and strengthen community resilience in T/A Njema.

25 WATER POINTS RESTORED in 20 VILLAGES for 15,000 PEOPLE

A comprehensive assessment of boreholes and gravity-fed systems pinpointed the extent of damage and priority areas for intervention. Key stakeholders in the District Water Office and the Department of Disaster Management Affairs (DODMA) assisted to map water systems, determine pump functionality and test water quality.

Flood proofing

Boreholes submerged during the floods had aprons elevated 1 to 1.5 meters above the waterline. The elevated boreholes were designed to be user-friendly for the elderly or physically challenged and contribute to reduced waterborne diseases.

The new elevated boreholes will improve access to safe drinking water and contribute to reduced waterborne diseases. Improving public health fosters sustainable development.

> **We were thrilled to have BASEflow in our community. They involved us in the entire repair process. I oversaw their work and was impressed by their dedication and teamwork. They ensured a strong and durable structure. We are very happy with the safe and reliable services they provided. As they left, we parted ways as friends and family.**
>
> **Village Headman**

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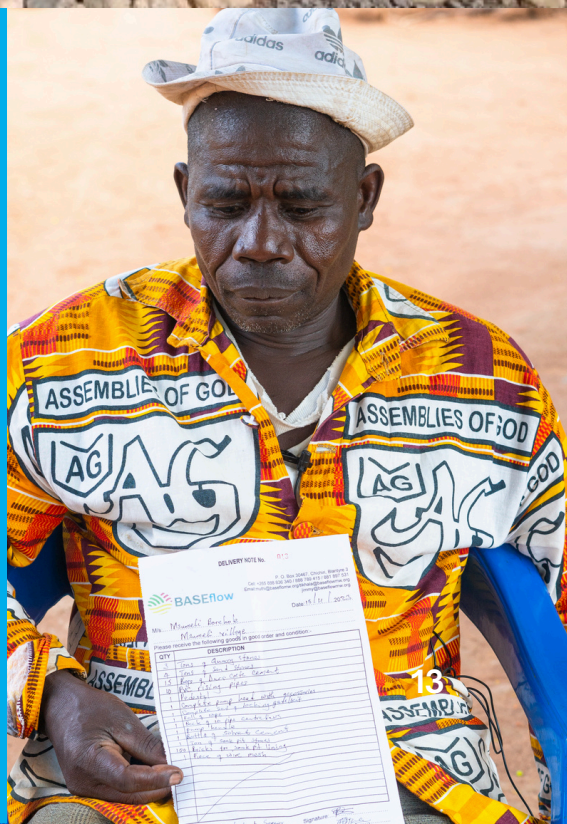


TRÓCAIRE IRISH CIVIL SOCIETY PROGRAMME

BASEflow provided technical assistance to Trócaire partners, CADECOM and CICOD, to implement the Irish Civil Society Programme in the Districts of Balaka, Machinga and Chikwawa.

Comprehensive borehole rehabilitation efforts targeted 19 boreholes in critical need of repair. Replacing water pump parts alleviated significant challenges around decreased yield, infrastructure deterioration and overall system inefficiencies. Additionally, the upgraded boreholes now feature design elements for vulnerable groups. The project benefited 7,526 people in the Traditional Authorities of Phalula, Chanthunya, Mposa, Chamba, Ngabu, and Masache.

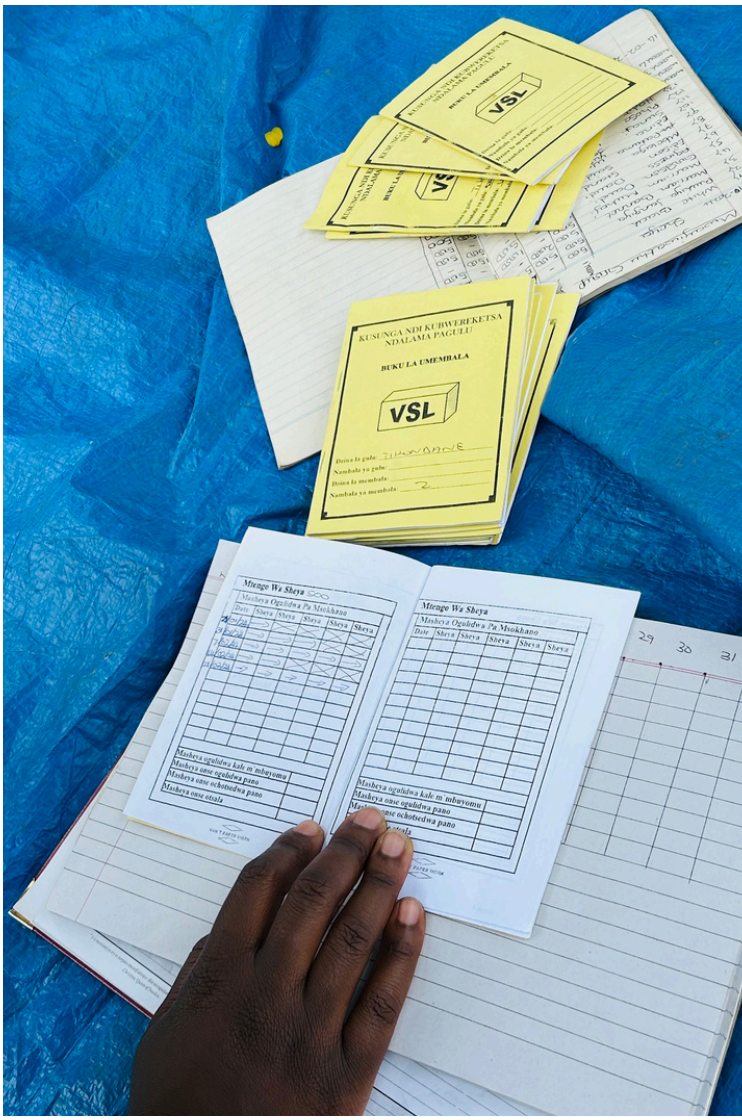
Training was also conducted on Community-Based Management (CBM) to empower Water Point Committees (WPCs) and local communities. Topics included sustainable financing, management of water supply systems, technical expertise, and hands-on practice at newly rehabilitated boreholes.

In the Chizenga community of Chikwawa District, the team also restored a reticulated water supply system. This required an assessment of issues that had halted the scheme and construction of a tank tower. By the end of January 2024, the Chizenga water supply system was fully restored and providing quality clean water to nearly 2,000 people.

EMPOWERMENT

Village Savings: Community Self-Reliance and Water Management

To improve water management practices, the Trócaire ICSP project also introduced a Village Savings and Loans (VSL) approach called 'Banki Pa Mjigo' or borehole banking. Banki Pa Mjigo is a viable solution for communities with rehabilitated boreholes to access financial resources and technical support to manage their water points effectively.

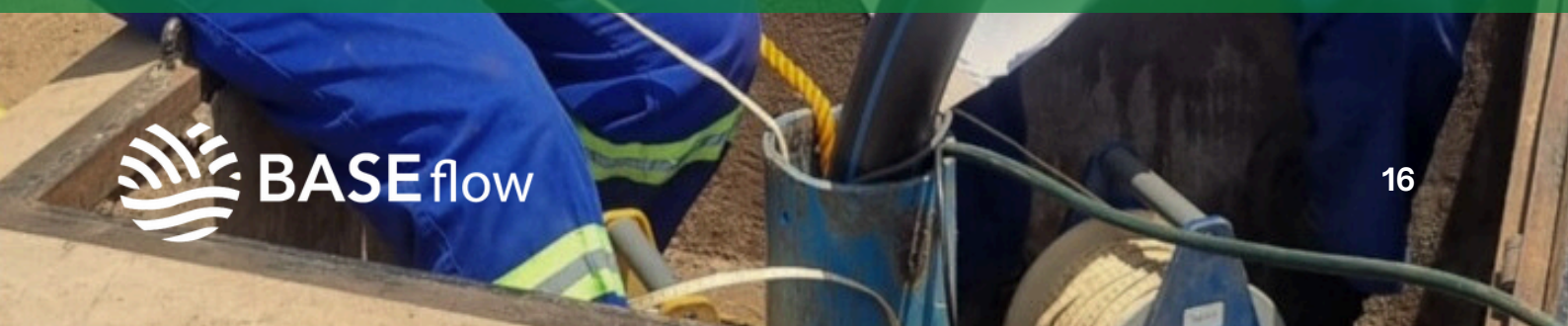


> "During this season, people always say they do not have enough money to pay a tariff because winter is the hunger season. Families will always prioritise food over water. With this new savings system, we can loan out the funds we have already collected at the borehole, and still grow the fund through the interest provided."
>
> — Mariam Bannet, Secretary of the Tikondane Banki Pa Mjigo group in Machinga

A total of 209 WPC members were trained in Community Based Management (CBM), tariff setting, borehole banking, water point sanitation and hygiene, and borehole repair. Community responsibility, commitment, and ownership were promoted.

CHAMPIONING HYDROGEOLOGY AT DZALEKA REFUGEE CAMP

With growing interest in solar-powered groundwater systems comes a pressing need to practically understand aquifer systems. UNHCR Malawi worked with BASEflow to host a Regional WASH Training for staff at their Lilongwe Head Office and at the Dzaleka Refugee Camp in Dowa. The training included 20 participants from various Sub-Saharan African countries and was led by Hydrogeologist Ellen Milnes from the Geneva UNHCR Technical Hub.



Mastering Water Pumping Tests

The training agenda focused on the principles and practical aspects of conducting water pumping tests. BASEflow provided hands-on experience, demonstrated the importance of correct placement of pumps and showed how to maintain water levels during tests to ensure correct measurements and prevent pump damage.

The "Golden Rules" were emphasized:

1. Pump Placement: Avoid positioning within the screened section or at the borehole bottom.
2. Water Levels: Maintain above the first screen and ensure they don't fall below one - third of the saturated borehole depth, ideally not exceeding 30 meters.

Participants conducted a four-hour Step Drawdown Pumping Test, followed by an 18-hour Constant Rate Pumping Test. They also gained valuable experience in data collection and analysis. The training combined theory and practice to enhance participant skills to manage solar-powered groundwater systems.

International collaboration blended local and regional expertise for a comprehensive understanding of hydrogeological contexts. The training was an opportunity for BASEflow staff to build professional capacity around quality hydrogeological services.

FINANCIALS

BASEflow Spending Profile

NGO 2023

Total Income	913,058,890
Expenditures	844,365,916

NGO 2022

Total Income	360,845,380
Expenditures	283,170,796

SERVICES 2023

Total Income	94,508,892
Expenditures	109,304,329

SERVICES 2022

Total Income	217,023,112
Expenditures	194,889,557

ZIKOMO KWAMBIRI

STRATEGIC PARTNERS

The James Hutton Institute

CONRAD N. Hilton FOUNDATION

mWater

The Scottish Government
Riaghaltas na h-Alba

Segal Family Foundation

SEPA
Scottish Environment Protection Agency

Trócaire
TOGETHER FOR A JUST WORLD

WaterStep
Save Lives with Safe Water

NETWORKS

RWSN
Rural Water Supply Network

GROUNDWATER MANAGEMENT INSTITUTE

WES NETWORK
WATER AND ENVIRONMENTAL SANITATION

GOVERNMENT PARTNERS

UNITY AND FREEDOM

MINISTRY OF HEALTH

NWRA
NATIONAL WATER RESOURCES AUTHORITY
SUSTAINING WATER RESOURCES

UNITY AND FREEDOM

MINISTRY OF WATER AND SANITATION

WATER SERVICES ASSOCIATION OF MALAWI
WASAMA

THANK YOU

CLIENTS

COOPI COOPERAZIONE INTERNAZIONALE

DesignOutreach

GARDAWORLD

Green Development

Habitat for Humanity Malawi

together with Heart to Heart Foundation

inter aide
Lancement et suivi de programmes concrets de développement

Embassy of Japan

Self Help Africa

unicef

UNDP

WaterAid

WATER WITNESS

WASTE Advisers

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