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The Adoption of Climate Resilient Water Safety Plans in Ethiopia

LESSONS AND CHALLENGES FROM PROJECT EXPERIENCE

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SCRSWaSH
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NIRAS



Participants of community level CR WSP discussion meeting, Anko-Golma MVS community, Southern Ethiopia Region

In Ethiopia, Climate Resilient Water Safety Planning (CR-WSP) has been adopted as a component of the National Water Sanitation and Hygiene (WaSH) strategy, but implementation of these plans has proved challenging. This note summarises experience from two externally supported programmes that promote Climate Resilient Water Safety Planning and considers how progress in rehabilitating and protecting water catchments could be accelerated.

Introduction

While Ethiopia's highly variable climate has, historically, posed significant challenges, the nation's water resources are at greater risk than ever, due to warming temperatures and erratic rainfall. For example, the current drought, which began in late 2020 has affected more than 13 million people resulting in severe water shortages and disease outbreaks. Strengthening the resilience of Ethiopia's water sector is therefore essential. To highlight the pivotal role of water resource planning in the face of growing uncertainty caused by climate change, this note draws on experience from two externally funded projects implemented under Ethiopia's flagship One WASH National Programme (OWNP):

1. Community-led Water, Sanitation and Hygiene (COWASH).

COWASH Phase IV is a bilateral initiative between the Governments of Finland and Ethiopia, which is being delivered under the umbrella of the One WASH National Programme. Its overarching goal is to improve public health and well-being, social development and climate resilience in the communities of the project area. The objective is increased and sustained coverage of safe water supply, sanitation and hygiene in the rural areas of the selected woredas. COWASH IV is building on the work of the three earlier phases of COWASH and focuses on the achievement of targets through the establishment of an enabling environment and the implementation of community-managed project interventions. During phases 2 and 3, COWASH implemented CR-WSP in 38 micro-watersheds consisting of 153 water supply schemes serving 71,429 people. in 20 woredas of the five in 5 regions (Tigray, Amhara, SNNPR, Oromiya, Benishangul-Gumuz),

2. Strengthening Climate Resilient Systems for Water, Sanitation and Hygiene Services (SCRS-WaSH) Technical Assistance Project (TAP).

Funded by the United Kingdom's Foreign and Commonwealth Development Office, SCRS WASH supports the implementation of the climate resilient pillar of the Government of Ethiopia's One WASH National Programme. Specifically, it seeks to improve access to climate resilient water for almost 200,000 people in priority drought-affected areas. The technical assistance component, known as SCRS TAP, aims to strengthen the management of selected rural multi-village water supply schemes (MVS) in the Climate Resilient WaSH (CR-WASH) intervention areas of the programme. In contrast to COWASH, the number of users is larger; many schemes serve 5,000 to 10,000 people, but some serve hundreds of thousands. Larger schemes often have multiple water sources which can be as much as 50km from the population served.

Both projects support the preparation and adoption of Climate Resilient Water Safety Plans (CR-WSPs). In the case of COWASH, these focus on the immediate surroundings of water points and involve actions that can be managed by the local community. In the case of TAP, CR-WSPs are on a much larger scale, covering entire water catchments.

This brief provides an overview of experience to date in the development of CR-WSPs under the One WaSH National Programme and considers how challenges in ensuring their implementation might be overcome.



Participants of community level CR-WSP discussion meeting, Sankura MVS, Central Ethiopia Region

What is a CR-WSP?

Water Safety Plans (WSPs) have long been promoted by the World Health Organisation (WHO) as a risk assessment and management approach to safeguard the quality of drinking water supplies. Protecting sources and distribution networks from contamination is integral to the approach. While WSPs have been promoted heavily for urban water utilities, many development agencies and some governments also promote their application to rural water supply schemes, both for large networks operated by utilities under utility management, and smaller schemes managed by user communities.

Over the last ten years, the original WSP model promoted by the WHO has been modified in response to climate change. CR-WSPs extend the traditional WSP framework by addressing not only water quality, but also source sustainability. The development of a CR-WSP involves assessing the implications of climate change at every part of the water supply chain, from rainfall reaching the catchment through to the consumer. Depending on the location, risks can include not only reducing yields, but also extreme events such as flash flooding, which can cause major damage to water supply infrastructure.

Background to the use of CR-WSPs in Ethiopia

In Ethiopia, Water Safety Planning was officially introduced at the National level via the 2012 WAWSH Multi stakeholder Forum. Early adopters included a few NGOs and COWASH, which was implemented via local governments.

From 2015-19, the UK government, in partnership with WHO, provided support to a CR-WASH pilot project in Ethiopia, Tanzania, Nepal and Bangladesh. In Ethiopia, the project produced a number of policy level documents, including a National CR-WSP Strategic Framework and guidelines for both rural and urban water supply schemes. The Ministry of Water, Irrigation and Electricity (now Ministry of Water and Energy MoWE) then began CR-WSP pilots in 14 urban utilities and 17 rural water a total of 31 sites in five regions (Oromia, Amhara, SNNPR, Tigray, and Benshangul Gumuz) befitting over 1.25 million people. The project also provided CR-WSP training for sector personnel and utility staff. UNICEF, WaterAid, COWASH, German Agro Action, the Millennium Water Alliance and Drop of Water all participated.



Prosopis juliflora, a dominant invasive species severely impacts water availability and the provision of ecosystem services in the water scarce regions of Afar and Somali regions of Ethiopia.

Policy and institutional framework

The strategic framework and guidelines produced under the UK-funded pilot are still in use by the MoWE. The intention is for the strategic framework to be implemented as part of the OWNPP. Within the framework, two sets of guidelines (produced in 2015) are being used by the Ministry: One for urban, utility managed schemes, and the other for rural water supplies under community management.

CR-WSP development: Experience to date

COWASH experience

COWASH first introduced CR-WSPs in 2014 in one Woreda of the Amhara region; it then went on to develop them at the micro-watershed level in 20 woredas across its five project regions of Amhara, Tigray, Benishangul-Gumuz, Southern Nations, Nationalities and Peoples (SNNPR) and Oromia. The plans were associated with 32 micro-watersheds comprising of 153 water supply schemes serving a total of just over 70,000 people.

The CR-WSP guidelines used in Ethiopia were developed by the MoWE with support from COWASH in providing associated training for regional, zonal, woreda and kebele personnel, plus affected communities. More recently, COWASH has also produced a working manual on WSP4+ and provided training for stakeholders from regional to community level. As a result, there is now a good level of awareness of the purpose and scope of CR-WSPs among project stakeholders in locations where COWASH is active.

Under COWASH, the first step in developing a CR-WSP is known as Social, Environmental and Climate Risk Screening and Management (SECRSM). This is carried out as part of the field appraisal, with the CR-WSP formulated and adopted once the water supply scheme is operational.

Moving from adoption to the implementation of CR-WSPs, however, has proved challenging; it has only occurred in a minority of the targeted woredas. One factor in this is that, even for plans on a fairly small scale, implementation tends to require funds and expertise beyond what is available in the community.



Communities in Wondogenet Woreda, Sidama Region, fetching water from newly constructed water points.



Community members and their livestock gathering near a reservoir in search for water; Idashale-Dhandhamane-Obosha MVS, Somali region

TAP experience

TAP supports the development of CR-WSPs in locations where it is helping to strengthen the management of MVSs. The process takes in the whole water supply catchment since some schemes cover an extensive area and/or access water from sources quite remote from the communities served.

For each plan, an initial risk and vulnerability assessment is conducted, which includes source yield trend analysis, an assessment of the local hydrogeology and characteristics of the source aquifer, and risks to its sustainability due to climate variability or environmental degradation (for example, deforestation) in the catchment. Degradation is important as it affects the amount of water lost through runoff rather than replenishing the aquifer. Runoff can also damage water supply infrastructure, resulting in leaks, contamination and even service interruption. Gender and differential impacts of climate change and environmental degradation also assessed.

TAP also draws on climate information in the development of the CRWSPs by assessing historical variability and seasonality of precipitation for each source catchment using meteorological station data from the Ethiopian Meteorological Institute, and other sources when available, as well as data products based on satellite, and interpolated station data. Accordingly, expected changes in precipitation patterns over the 21st century are further assessed using an ensemble of statistically downscaled CMIP6¹ global climate models.

TAP also uses Geographic Information Systems (GIS) to prepare maps and delineate watershed boundaries. Proposed mitigation actions are subsequently geo

¹. Climate scenarios from the Coupled Model Intercomparison Project Phase 6 (CMIP6) global climate models (GCMs), whose results were used in the latest Intergovernmental Panel on Climate Change (IPCC) Assessment Report (AR6).

located on these maps for easy reference.

The assessment process is led by TAP, in close consultation with various government and community stakeholders. The following measures are in place to promote local ownership of the process and the resulting plan:

- Regional, zonal and woreda experts are encouraged to participate throughout the process;
- Two community groups, one from an upstream area of the source catchment, and the other located downstream, contribute to the risk and vulnerability assessment, with each group comprising ten men and ten women;
- Utility staff and Board members are also brought in, and their local knowledge harnessed; and
- Each draft CR-WSP is validated via a stakeholder workshop involving government partners from regional and woreda levels in addition to managers and technical staff of utilities.

By the end of December 2023, TAP had produced 22 CR-WSPs and a further eight are to be completed by August 2024 for the remaining MVS. So far, the stakeholders listed above have engaged positively in the formulation of the plans, but implementation is yet to begin. Some of the MVS supported by TAP have piped networks as long as 200 km and are in catchments ranging in size from 45,000 to 200,000 hectares. Many MVSs serve both rural areas and towns, and even a zonal capital in one case. Where substantial works are needed across a catchment or sub-catchment, implementation will inevitably be a major undertaking with considerable human and financial resource implications. Even for smaller catchments, or sub-catchments, watershed protection, or rehabilitation, can be an expensive undertaking. Costs vary depending on catchment size and the severity of degradation. For example, for a large catchment area of 57,774 ha, the material costs can be as high as £1,000,000; while a smaller

catchment of 2,175 ha, is estimated to require £65,000 in material costs to carry out catchment rehabilitation and preservation.

Common challenges in CR-WSP implementation

Sector experience has shown that there are significant obstacles to secure the implementation of CR-WSPs in Ethiopia, whether they are on a small scale or cover an entire catchment. In particular:

While a national CR-WSP Strategic Framework has been adopted, it is not being actively implemented.

The Federal and Regional Task Forces, established as part of the Framework, are currently non-functional, and the focus of government efforts in the WASH sector remains on infrastructure development more than the establishment of sustainable services. There also remains a lack of clarity as to which institutions have lead responsibility for CR-WSP implementation, bearing in mind that water catchments almost always cover a much larger area than a single water supply scheme. Moreover, the interventions needed are not confined to water supply infrastructure, but require coordinated action with other sectors such as agriculture and forestry.

There is insufficient leadership and cross sectoral co-ordination to take forward CR-WSP implementation at the Woreda, or the regional level. A common vision as to what is needed to make catchment restoration and protection a reality is required.

In some cases, area closure would, in principle, be the most cost-effective way of reversing land degradation, but this is not practicable where (as is usually the case) people are settled and are farming the land, herding their livestock or using the land as a source of fuel wood.

Dense impenetrable thickets of invasive trees and shrubs compete with other water users and thus disrupt ecosystem functioning and services in the water scarce regions of Afar and Somali regions of Ethiopia.





The extent of flood risk and damage to water pipelines of Mugwayn-Fiq-Hamaro MVS, Somali Region (August 2023). The pipelines are likely to be washed away during the next heavy flooding event if urgent measures are not taken to protect them.

Locally led, conflict sensitive, and gender responsive approaches are therefore needed for CR-WSP implementation in order to avoid unintended negative impacts such as exacerbating inequalities or tensions amongst diverse stakeholder groups.

Implementing CR-WSPs demands extensive resources and necessitates collaborative coordination among government line departments and communities. Neither COWASH nor TAP have the resources to support the implementation of CR-WSPs, some of which require action beyond the period of donor funding: CR-WSPs developed under COWASH typically have a five-year vision, while those under TAP are for ten years. The two projects can only advocate for action and provide strategic guidance to utilities and government partners; however, actual implementation rests with the government, utilities and communities, with each playing a role. In the case of COWASH and TAP, communities are expected to provide labour, while government is responsible to provide resources (tools, planting materials, etc.) and technical support. The utilities, and their respective woreda water office partners, are expected to work closely together in advocating and engaging with higher level government line departments to support inter sectoral coordination. In particular, the Ministry of Agriculture is the primary stakeholder in watershed management and should therefore be deeply involved in implementation. However, the level of awareness concerning the need for environmentally sustainable practices, which take into account climate-related risks, is still lacking. Outreach and information activities are needed to sensitise government officials, local leaders and communities to jointly work together in the implementation of CR-WSPs.

Potential ways forward

Generating the commitment and resources needed for the implementation of CR-WSPs is evidently a challenge, but there are a number of constructive steps that can be taken at the local, regional, and national levels to translate these plans into action.

Local level

1. Communities (in the case of COWASH) and MVS utilities (in the case of TAP) should engage with the relevant Woreda Water Offices to identify what support they can provide to enable action in the short term, even if implementation of the full plan is not yet possible. TAP is already encouraging this in its dialogue with local stakeholders.
2. There are potentially opportunities for harnessing human and financial resources from other ongoing programmes. For example:
 - In recent years, a number of watershed conservation programmes have been funded by donors, some in the form of food, or cash for work, schemes targeting food insecure households.
 - Donor funded projects and local governments sometimes mobilise community labour during agricultural slack periods for terrace construction, tree planting, etc. It might be possible for CR-WSPs prepared by TAP and/ or COWASH to make links with such projects, where available. Examples include the Productive Safety Net Programme (PSNP) and Climate-Action-Through-Landscape-Management Programme (CALM), both supported by the World Bank; and the GIZ-supported Sustainable Land Management (SLM) Programme.
 - NGOs working in target districts might also be able to contribute funding and training and/ or support community mobilisation.
 - As climate change has differential gendered impacts, women's representation and their role in the adaptation process should be maximised
 - Moreover, indigenous knowledge relevant to climate change adaption should be explored and promoted.

Regional level

1. There are some regional government-led annual conservation drives, whereby rural communities are mobilised for roughly one month in January to carry out conservation work. These, too, could be encouraged in TAP/ COWASH areas.
2. It is important for the Regional Water and Energy Bureaus to own the CR-WSPs and take the lead in facilitating the implementation process in their respective regions. Given their constitutional power, regional governments are best placed to enforce policies, and provide such policy and administrative

² An NDC, or Nationally Determined Contribution, is a climate action plan to cut emissions and adapt to climate impacts. Each Party to the Paris Agreement is required to establish an NDC and update it every five years.

support, funding, and capacity building to woredas for the institutionalisation of CR-WSPs as part of CR-WASH Strategic Framework. Regions also have the power and means to enforce regional inter-sector coordination, and linkages with similar ongoing and planned bilateral and multilateral programmes supporting nature based climate resilience building in their respective regions.

National level

1. TAP, COWASH, and other similar programmes in the sector, should help to **create greater awareness within government (especially MoWE) on what is required to rehabilitate and protect water catchments in light of climate risks.** A national meeting on the subject could be a way of revitalising dialogue and action under the National CR-WSP Framework and would be supportive of the Government of Ethiopia's climate commitments as set out in the Nationally Determined Contributions² (NDCs), updated in 2021.

Such a meeting should also be used to pursue better inter sectoral co-ordination, especially between the water and agriculture ministries, given that the latter has a mandate for watershed conservation and is the focal Ministry for projects such as PSNP, CALM and SLM. The Ministry of Agriculture also has an organisational presence at the community level, unlike MoWE an advantage when seeking to mobilise community labour and build their capacity for planning and implementation.

2. Explore climate financing for implementation.

The recently formulated WASH Finance Strategy represents a holistic approach to funding Ethiopia's Ten Year WASH Strategy. It addresses both the costs associated with climate resilient WASH initiatives and provisions for unforeseen climate related challenges. Recognising climate finance as a pivotal resource to attract additional funding to the sector, the strategy underscores its

interconnected nature with other prioritised finance options. To ensure that Ethiopia optimally leverages climate finance for the effective implementation of CR-WSPs, the following recommendations are proposed:

- **Utilise the One WASH National Program Phase III as a strategic opportunity:** Ensure that the implementation of CR-WSPs is incorporated into the design of the upcoming phase of the One WASH National Programme.
- **Seek targeted funding from climate financiers:** Strategically target climate financiers by allocating resources specifically for climate resilient water resource management activities. This involves advocating for the significance of climate resilience in the WASH sector and demonstrating how climate finance can directly contribute to sustainable and resilient water supply.
- **Align with Ethiopia's Nationally Determined Contribution (NDC):** Align WASH projects with Ethiopia's NDC and its Implementation Plan, emphasising the sector's substantial contribution to overarching climate goals. This alignment enhances the potential for attracting climate finance, considering NDCs as key focal points for international climate funds.
- **Invest in capacity building and advocacy:**
 - Strengthen local capacity within the sector to develop climate rationales, collect necessary data, design projects, and submit proposals, for accessing climate funds. Effective coordination and integration of NDCs into the planning process are crucial for successful climate finance attraction.
 - Enhance negotiation and advocacy capacities within the water sector to effectively engage with climate financiers. This includes articulating the sector's needs, demonstrating alignment with climate goals, and showcasing the positive impact of WASH initiatives on climate resilience.

Landscape of Anko-Golma MVS source watershed, Southern Ethiopia Region. A recently deforested area facing numerous challenges including accelerated flood, soil erosion and landslide, reductions in river flows and spring discharges as reported by the local communities.

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Strengthening Climate Resilient Systems for Sustainable Delivery of SCRS-WaSH Technical Assistance Project (SCRS WaSH TAP)

The UK-funded Strengthening Climate Resilience Systems in Water Sanitation Hygiene (SCRS-WaSH) programme (2019 – 2026) aims to assist the Climate Resilient pillar of the Government of Ethiopia's flagship One WaSH National Programme. Under the SCRS WaSH programme, NIRAS is implementing the rural-focused Technical Assistance Project (2021-2024) to strengthen climate resilient delivery systems in 13 drought-prone regions.

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Community-led Accelerated WASH Project, Phase IV (COWASH IV)

The Community-led Accelerated WASH Project, Phase IV (2021-2025), is a bilateral collaboration between Ethiopia and Finland working to improve access to water, sanitation and hygiene (WASH) services in 104 woredas across eight regions of Ethiopia. COWASH IV is building on the work of its previous three phases (2011-2021) which delivered rural communities with over 19,000 water points, institutional facilities and rehabilitated schemes benefiting almost five million rural inhabitants.

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