

Strengthening water resource management for climate resilience and water security in semi-arid areas of West Africa

Experiences of implementing the
Securing Water Resources Approach

Learning brief

May 2025



1. Introduction

This learning brief explores WaterAid's efforts to enhance water resource management in West Africa's semi-arid regions over the past 15 years, with a focus on implementing the Securing Water Resources Approach (SWRA). The brief is aimed at practitioners who are seeking to enhance climate resilience and water security at basin, sub-catchment and local levels.

Since its introduction in 2011, SWRA has proven effective in improving water security and climate resilience in rural semi-arid areas. By integrating water, sanitation and hygiene (WASH) with integrated water resource

management (IWRM), SWRA connects the agriculture, livelihoods, environment and domestic water supply sectors to enhance resilience and water security in rural communities. This work is a concrete example of how WaterAid works in collaboration, across multiple sectors, to strengthen the systems required to deliver safe, sustainable and climate-resilient water supply services to those most vulnerable to climate threats. SWRA involves working with a wide variety of actors, including national governments, river basin authorities, sub-basin management committees, farmers, local government and water users at community level.

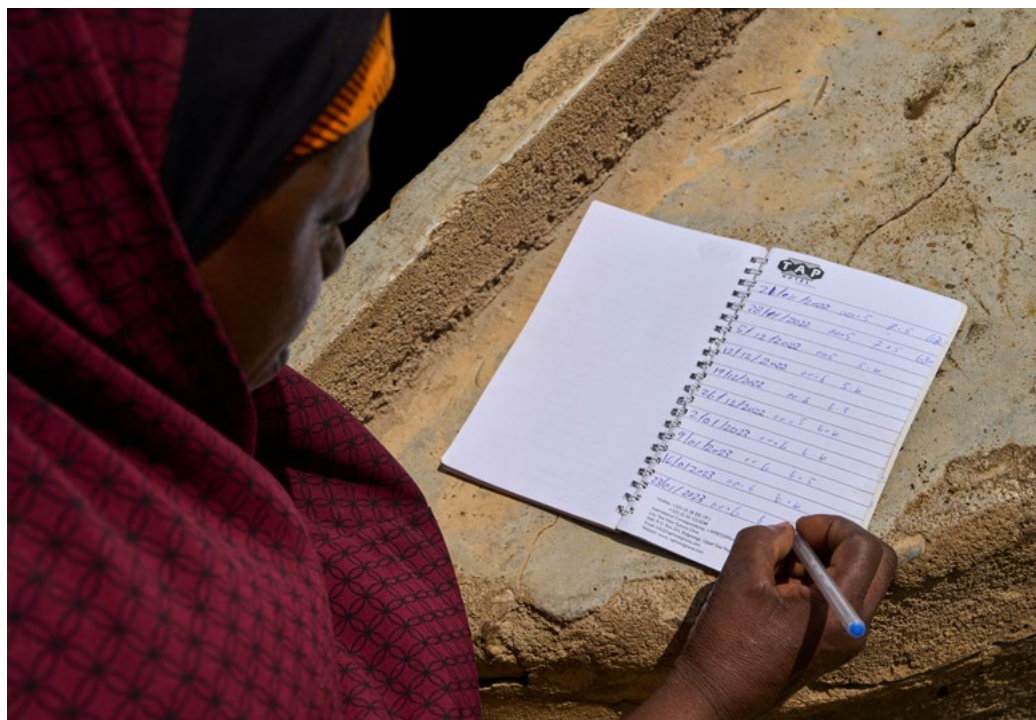


Inusah Ayendago, a farmer, reading a rain gauge in Galaka, Ghana.

WaterAid/ Nana Kofi Acquah

Safura Amadu making notes while measuring the well's water level. As part of WaterAid's work on climate adaptation in Galaka, she has been trained to monitor ground water levels and share this information with her community and the District authorities in Galaka, Ghana.

WaterAid/ Nana Kofi Acquah

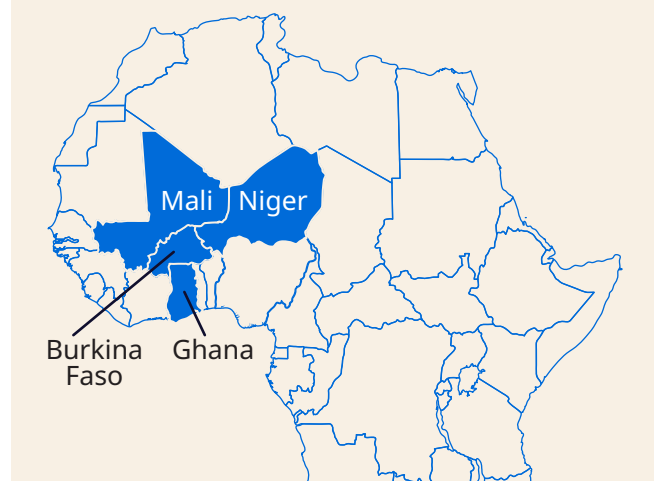


WaterAid's role in implementing SWRA involves facilitating stronger connections between water users and institutions tasked with water supply, agriculture, environmental management and water resource management by providing training on assessment of climate risk, water risk, water resource data collection and analysis, monitoring of water risk and strategic planning. WaterAid also supports financial resource mobilisation and empowers local actors to actively participate in evidence-based planning and decision making. Alongside building climate resilience and water security, SWRA aims to reduce localised conflict over water access.

Partnership with local government and river basic authorities has supported the application of SWRA far beyond the 350 communities where it was initially implemented in Burkina Faso, Ghana, Mali and Niger. It has since been adopted by some river basin authorities and the regional Conflict Observatory for wider application.

Using the example of the Liptako, Gourma and Nakanbe basins in Burkina Faso, this learning brief presents an overview of the water security challenges SWRA seeks to respond to, a description of how SWRA works, examples of its application in practice and alignment with a systems strengthening approach. It also features recommendations for practitioners seeking to build water security and climate resilience at catchment and the local level.

Figure 1: Countries where the Securing Water Resources Approach has been implemented in West Africa



2. Key messages

- The Securing Water Resources Approach (SWRA) provides a scalable framework for integrating water resource management into WASH programming, delivering measurable improvements in water security and climate resilience in semi-arid areas.
- Water resources, environmental concerns and climate risks are no longer siloed within a single WASH system building block, they are integrated across the entire WASH system, ensuring a more holistic and resilient approach.
- SWRA forms a navigable pathway through complex, unwieldy national institutional frameworks for IWRM, enabling effective practical coordination between different water use sectors.
- Improved water resource data collection fills local data gaps enabling more effective tracking of water risk over time and evidence-based water security planning.



Justine Sawadogo reading a rain gauge installed by WaterAid in Bonam, Burkina Faso.

WaterAid/ Basile Ouedraogo

3. Water security in a changing climate

Demand for water is increasing across different sectors in this era of climatic change, requiring a functional multi-sectoral approach to water security and management of water risk that enables tangible adaptations to climate change at the local level.

The Sahel and sub-Saharan region of West Africa is characterised by arid and semi-arid climates, where water availability is highly seasonal and increasingly unpredictable from year to year.¹ Rainfall varies significantly in frequency and intensity across short distances, and groundwater levels respond rapidly to recharge from rain and runoff in the wet season.² However, long dry seasons and recurrent droughts pose severe challenges to water security, particularly in rural areas where the population is growing at a rate of 3% per year, doubling every 25 years and intensifying pressure on local water resources.³ Seasonal flooding is also a risk in some areas.

Over 80% of the rural population depends on groundwater via wells and boreholes, but many communities lack the financial resources to install their own water services and instead rely on government authorities, NGOs, and development partners to gain access (Damiba et al., 2020). Water services have to meet multiple water needs including small scale irrigation, cattle watering, livelihoods and domestic supply. This can lead to competition between different water users for access to finite water sources, resulting in localised conflict which disproportionately affects marginalised groups, especially women and girls. Pollution from livelihood practices, such as illegal mining, inappropriate farming practices, further exacerbates water quality issues, making access to safe water even more challenging.



Mahamadi Kima, electromechanic and maintenance worker, working on the circuit breaker's box of a mini water supply system in the municipality of Baskouré in Burkina Faso.

WaterAid/ Basile Ouedraogo



Atidaa Otto monitoring water levels in Anafobisi village in Ghana.

WaterAid/ George Osei

Government agencies responsible for IWRM, land use and catchment management often struggle with limited funding and institutional reach, making it difficult to manage water demand and allocation effectively across larger catchment areas. Complex institutional frameworks for implementing IWRM make coordinating and practically implementing water resource management a challenge.

Traditional WASH projects, which typically operate at a localised sub-catchment level, often struggle to influence broader water resource management and land use planning. WASH projects collaborate primarily with communities and local government institutions whose jurisdictions do not align with larger sub-catchment or basin hydrological boundaries, thereby limiting the ability of WASH actors to impact regional water management strategies.

As a result, WASH interventions aimed at improving water resource sustainability tend to focus on small-scale activities, such as planting trees around water supply facilities. Such actions have limited impact on overall water availability and quality across larger areas.

Furthermore, institutional and resource constraints hinder coordinated water use across multiple sectors, including agriculture, environment and domestic supply. The fragmented nature of water governance in the region means that competition for water resources is not effectively managed, further exacerbating seasonal scarcity, conflict and inequalities in access.

SWRA addresses these limitations by shifting the focus to supporting institutions responsible for water resource management (basin authorities) and establishing mechanisms for coordinating and collaborating across water use sectors at sub-basin and local levels. This includes forming sub-basin committees (known as CLEs) that comprise stakeholders from various water use sectors (agriculture, livelihoods, environment, domestic supply) and implementing village-level water resource monitoring and risk management initiatives.

By operating at multiple levels (village, sub-basin, basin), SWRA promotes integrated and sustainable water resource management practices that transcend the boundaries of traditional WASH programming. The approach recognises the interconnectedness of water resources and the need for coordinated action at different scales to achieve broader water security goals. Existing community coping strategies and local knowledge are also acknowledged and enhanced.

Following its earlier support to community-based IWRM in 2011, WaterAid launched SWRA in 2013 and currently promotes it together with local authorities, basin authorities, and community-based organisations in four countries in West Africa (Burkina Faso, Mali, Niger, and Ghana). To date, SWRA has been implemented by more than 350 communities across these countries and integrated with the work of the Nakanbe, Liptako and Gourma basin authorities in Burkina Faso.

Box 1: Water security

The concept of water security is broad and has multiple definitions. WaterAid is focused on water for basic human needs and therefore defines water security as: 'Reliable access to water of sufficient quantity and quality for basic human needs, small-scale livelihoods and ecosystem services, coupled with well-managed water risk'. This definition highlights the importance of cross-sector collaboration and coordinated efforts to achieve sustainable water security. Three things are needed to achieve water security:

1. Reliable, resilient, inclusive water services.
2. Effective, equitable management of water resources (dependent upon healthy ecosystems).
3. Effective management of water risk.

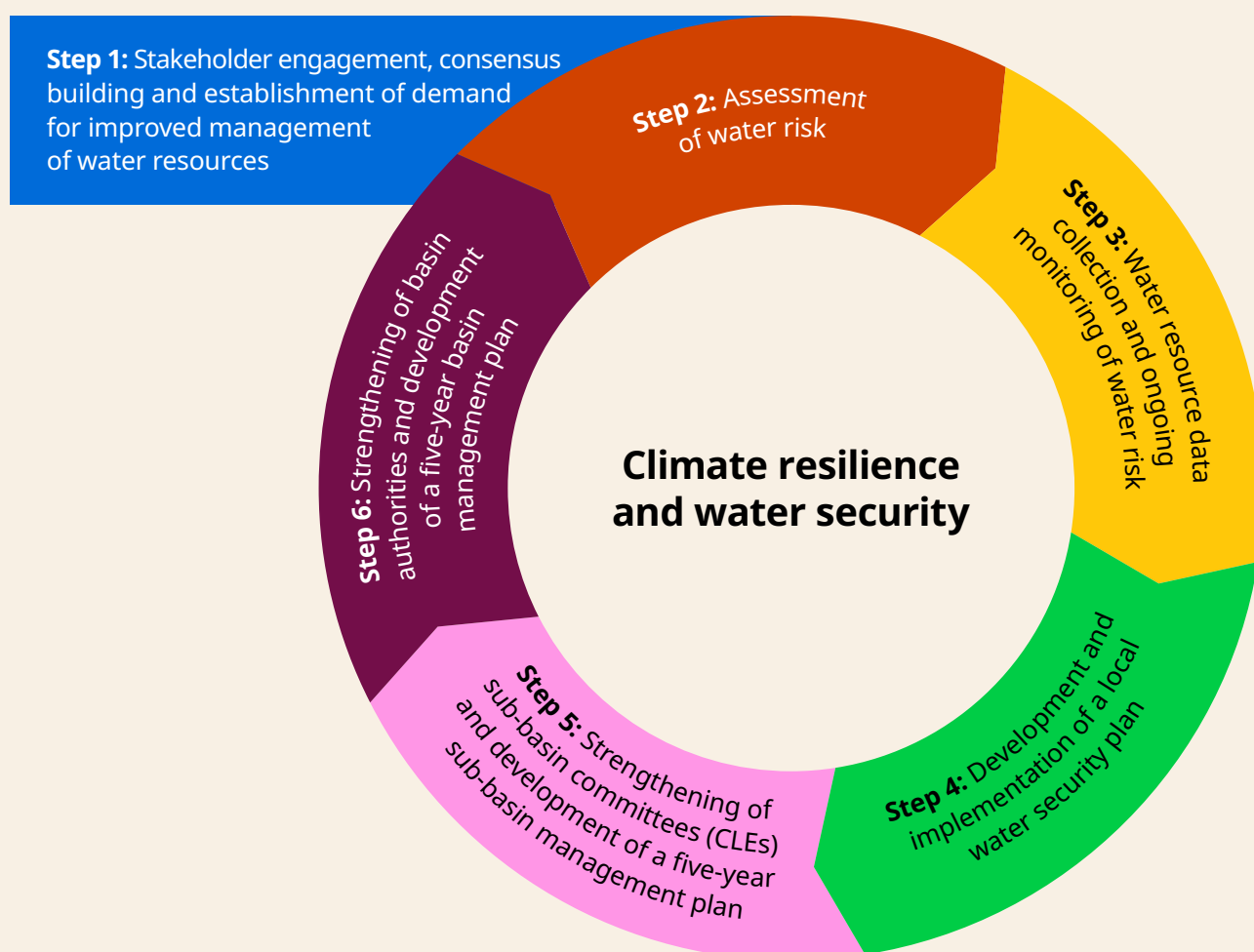
Box 2: Climate resilient WASH

The Sanitation and Water For All Partnership define climate resilient WASH as follows: 'Climate-resilient WASH services anticipate, respond to, cope with, recover from, adapt to or transform based on climate-related events, trends and disturbances, all while striving to achieve and maintain universal and equitable access to safely managed services, even in the face of an unstable and uncertain climate, where possible and appropriate, minimising emissions, and paying special attention to the most exposed vulnerable groups'.

4. How the Securing Water Resources Approach works

The following steps are involved when implementing SWRA in a river basin.

Figure 2: Steps for implementing the Securing Water Resources Approach



Step 1: Stakeholder engagement, consensus building and establishing demand for improved water resource management

This initial stage focuses on agreeing the geographical area to work in and identifying essential stakeholders, including national and local government officials, river basin authorities, and community members, who will own and scale up efforts to improve climate resilience and water security. Gaining political and institutional buy-in is crucial, as it ensures that initiatives are supported and integrated into existing national processes. Demand for improved management of water resources tends to be high in dryland areas where people struggle to access water for various purposes on a daily basis. WaterAid establishes the level of stakeholder demand for improved water security in villages and sub-catchments within target basins by exploring questions about the incidence of prolonged dry periods, unpredictable and variable rainfall, competition and conflict over access to water, environmental degradation, existing coping strategies and local support structures.

Step 2: Assessment of water risk

The purpose of this step is to arrive at village level consensus over what the main threats to water security are. Different water users have different water use priorities and different perspectives of what might be driving water insecurity. A shared understanding of the main threats to water security helps to align everyone behind a plan of action aimed at tackling threats. WaterAid facilitates a process of participatory risk assessment with different groups of water users in focus villages including farmers and women's groups. Threats to water security are identified and the areas where they occur are mapped out. A historical view informed by local knowledge is used to build up a picture of the main threat areas which could include climate change and climate variability, land use change, environmental degradation, over use of water, pollution, limited investment in water service provision and maintenance, competing demands and conflict. Threats associated with these issues manifest as water shortages, floods and contamination of water bodies. Once a clear picture of threats is established a water user committee of volunteers is set up (usually based on an existing community level structure) to act as a decision-making body for local management of water resources. The committee has representatives from women's groups and farmers.



Djibril Barry (middle, left), project coordinator at WaterAid and Abraham Dalla (middle, right), a technical member of Nima Zaabo's local water committee (CLE), supporting Bilabega Zembende (left) and Justine Sawadogo (right), community relays of the village of Bonam in Burkina Faso.

WaterAid/ Basile Ouedraogo

(L-R) Abraham Dalla, a technical member (CPAS) of the Nima Zaabo's local water committee (CLE), supporting Bilabega Zembende and Justine Sawadogo, community relays (volunteers) of the village of Bonam in Burkina Faso.

WaterAid/ Basile Ouedraogo



Step 3: Water resource data collection and ongoing monitoring of water risk

Effective monitoring of water resources is crucial for sustainable water management. In this step, WaterAid carries out training with the water user committee on ongoing monitoring of rainfall, groundwater levels, surface water levels, water quality and assessment of water demand with volunteer farmers and women's group representatives. The water user committee appoints volunteers to undertake the ongoing monitoring. Simple tools such as rain gauges, dip meters, water whistles, improvised water level meters and weirs are used. Training is also carried out on recording of results at the local level in partnership with national metrological agencies. Involvement of metrological agencies in carrying out this training and installing rain gauges is important for the credibility of data. Training is also provided on recoding of this data in the national meteorological templates and also analysis and interpretation. Water user committees use the data collected for risk-based water security planning.

Step 4: Develop and implement a local water security plan

Data collected in step 3 feeds into development of a five-year village level water security plan which sets out actions that can be taken at the local level aimed at mitigating threats to water availability. The plans also set out actions requiring assistance from local government authorities, sub-basin committees and basin authorities. This process is based on the principle of subsidiarity whereby actions that can be undertaken by local actors are carried out by local actors and those that can't be undertaken at the local level are implemented by higher authorities. The plans are submitted along with water resource data to the sub-basin committees for consolidation into a sub-basin catchment management plan. Local level actions are implemented by villages whereas actions requiring broader support from sub-basin committees and basin authorities are highlighted for inclusion in sub-basin plans. See section 5 for more details on the types of activity that feature in the local water security plans.

Step 5: Strengthening sub-basin committees and developing a five-year sub-basin management plan

WaterAid facilitates the formation and strengthening of sub-basin committees, known as CLEs. These CLEs represent clusters of villages within a sub-catchment as well as water user representatives from key sectors such as agriculture, livelihoods, environment, and domestic supply within the sub-basin. Local government representatives from local authorities within the sub-basin also participate. Additionally, technical experts from regional government departments specialising in agriculture, environmental management, livelihoods, and domestic water supply provide guidance and expertise. The sub-basin committees consolidate water security plans and data from villages within the sub-basin into a 5-year sub-basin management plan which includes provisions for water service. These plans are submitted with water resource data from the sub-basin to basin authorities for funding and technical support.

Step 6: Strengthening basin authorities and developing a five-year basin management plan

WaterAid supports basin authorities with training on multi-year water resource data analysis, strategic planning and proposal writing to improve their ability to leverage donor funding. In some instances, WaterAid provides support with establishing new groundwater monitoring stations to increase the resolution of national groundwater monitoring data. The basin authority uses plans submitted by the CLEs to develop a basin-wide five-year plan with costed activities. The basin authority uses rainfall, surface and groundwater level data as well as demand forecasts to project the likely water resource situation over the five-year period of the basin plan. Funds are decentralised to the CLEs to implement their sub-basin management plans, and technical support is provided by the basin authorities.



A group of community relays (volunteers) learning to process and report on the collected rainfall data in the commune of Kando in Burkina Faso.

WaterAid/ Basile Ouedraogo

Figure 3: How the Securing Water Resources Approach integrates with national water resource management processes in Liptako Basin, Burkina Faso

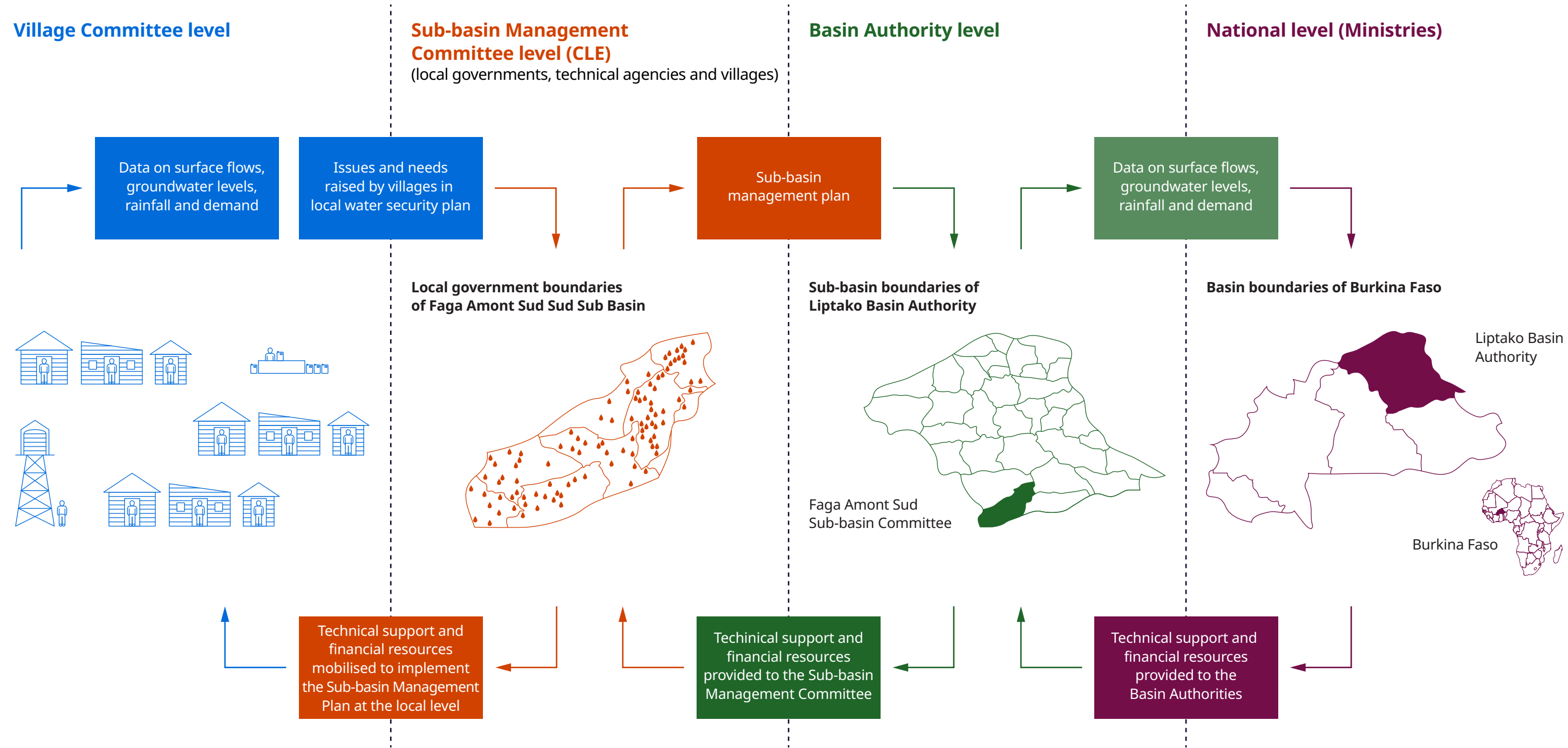


Table 1: Roles and responsibilities of different actors implementing the Securing Water Resources Approach

Actor	Responsibility
Community	<ul style="list-style-type: none"> Participating in assessment of threats to water resources and water supply services. Monitoring of groundwater levels, rainfall, surface water, water demand and land use. Using monitoring data to inform actions that protect water resources, extend and upgrade water supply coverage, manage land use, and prioritise allocation of water for different uses. Developing local operating principles that govern water use for different purposes, particularly in times of scarcity. Identifying issues that require assistance from local government and sub-basin management committees. Providing water resource monitoring/land use data to sub-basin management committees and basin authorities.
Local government	<ul style="list-style-type: none"> Supporting water access conflict resolution, should it be required at village level. Investing in improvements to domestic water supply services at village level, including major maintenance and assistance with the design of facilities for multiple water uses.
Sub-basin management committee (CLE)	<ul style="list-style-type: none"> Reviewing inputs from villages within the CLE and identifying activities to improve land and water resource management practices in the sub-basin. Developing a sub-basin plan for improving land and water management practices in the sub-basin, including improvements to domestic water supply service access. Coordinating the implementation of land and water management improvements within the sub-basin plan, working closely with local governments, technical agencies, the basin authority and villages.
Basin authority	<ul style="list-style-type: none"> Carrying out a multi-year trend analysis of water resource data supplied by CLEs, as well as surface and groundwater monitoring stations. Liaising with sub-basin committees to discuss the implications of trends identified in the data, and refining sub-basin plans for better management of land and water resources. Providing assistance (training, strategic support and financial resources) to sub-basin committees to implement their plans, including elements that relate to watershed and land management improvements, and water resource monitoring.
Ministry of Water and Environment	<ul style="list-style-type: none"> Providing financial and technical support to basin authorities and local government authorities, enabling them to implement improvements in water security.

5. Actions taken after implementing the Securing Water Resources Approach

Implementing local and sub-basin level water security plans in the Nakanbi, Liptako and Gourma basins typically involved undertaking an array of actions to reduce water insecurity and improve resilience to water stress. Examples of these actions are captured in Figure 4.



A water storage tank and the washing area in Touna, Mali.
WaterAid/ Basile Ouedraogo

Figure 4: Actions implemented within a sub-basin

Local actions

- 💧 **Demand management:** Water rationing and banning certain water uses in times of scarcity (e.g., brickmaking).
- 💧 **Water allocation:** Designating certain water sources (e.g., hand pumps) for domestic use only during very dry periods. Prioritising water access for women and girls at hand pumps. Introducing timetables for when different water users can fetch water.
- 💧 **Water services:** Designing water sources to safely accommodate multiple uses of water (domestic, livelihood, agricultural), to avoid damage to facilities and conflict between users. Extending the coverage of water facilities. Improving maintenance support to keep water facilities functional. Undertaking repairs to dams and de-silting reservoirs.
- 💧 **Agriculture and land management:** Implementing water harvesting structures (e.g., check dams), land management techniques that reduce run off and erosion, and encourage infiltration (e.g., contour bunds, infiltration ponds (filled with rocks). Planting vegetative strips around fields. Planting market gardens for generating additional income.
- 💧 **Risk management:** Anticipating flood events and siting water supply infrastructure away from areas likely to be inundated.
- 💧 **Conflict reduction and dispute resolution:** Establishing arbitration processes to resolve disputes and intervening to resolve water-related conflicts.

Sub-basin (CLE) actions

- 💧 **Zoning of land:** Designating areas around water bodies (rivers, streams, lakes, wetlands, reservoirs) as riparian zones that are protected from encroachment and grazing to improve bank stability, reduce erosion and siltation, and safeguard water quality. Enforcing riparian zoning.
- 💧 **Land management:** Providing technical support and guidance for constructing check dams, contour bunding, infiltration ponds (filled with rocks) and planting vegetative strips to reduce runoff, erosion and improve water infiltration.
- 💧 **Crop water use:** Promoting cultivation of less water intensive and drought resilient crops.



How water resource monitoring data informs local action

One of the main challenges the water sector currently faces is the dearth of water resources data. In many low- and middle-income countries, data on water resources and water use across time and space are neither collected at scale nor accessible, particularly outside large urban centres.⁴

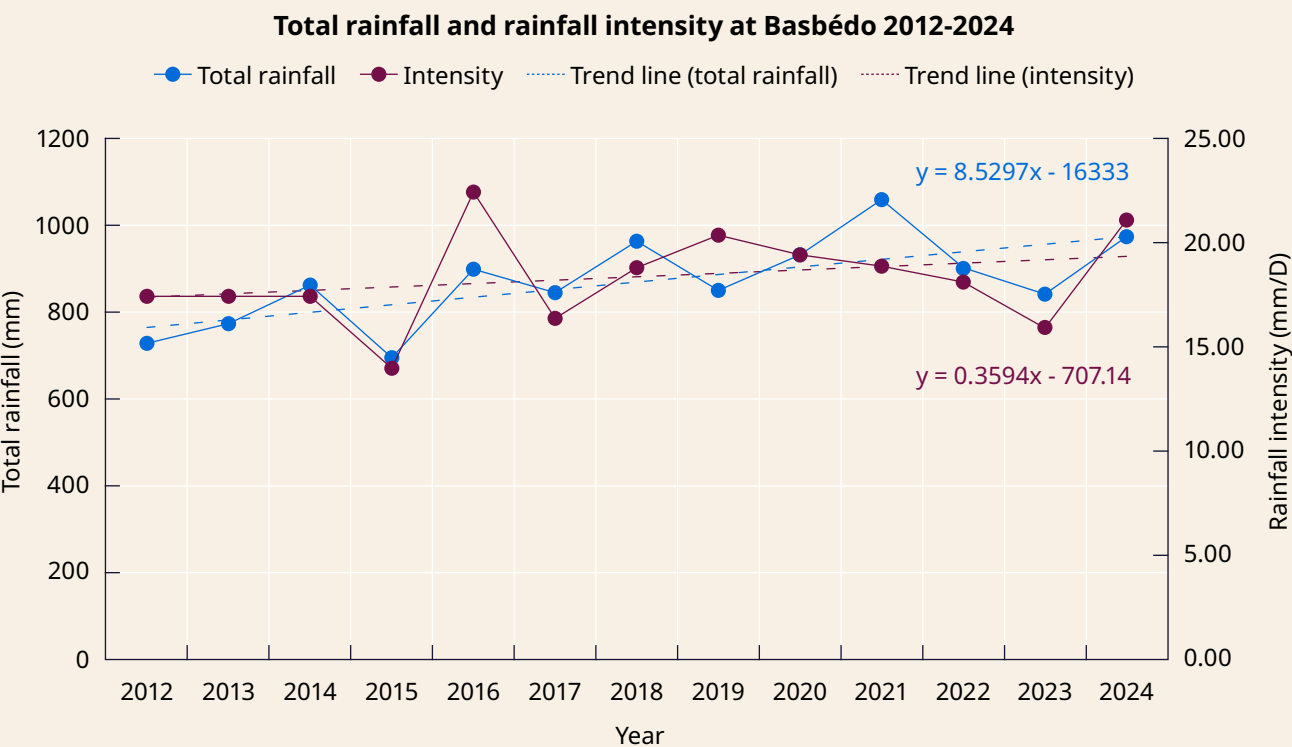
This lack of hydrometeorological data brings high levels of uncertainty to decision making across a catchment, especially when assessing climate-related risks.⁵ An ensemble of global climate models can be applied to partially redress this gap, but climate models face several challenges that limit their utility, such as biases in precipitation simulation and increased uncertainty when down-scaled.⁶ In the case of West Africa, projections are particularly unclear, with some models anticipating increased precipitation in the Sahel and others forecasting greater drought.³

SWRA has enabled water resource data to be generated where it would not otherwise be happening. Figures 5 and 6 show a 12-year sample of rainfall and groundwater data from Basbedo Village in Burkina Faso, collected using SWRA.

It should be noted that 12 years is not a long enough period of time to filter out natural climate variability and identify changes to the climate. This would require a data set covering at least 30 years. However, there are still some very useful observations that we can see from the 12 years data set featured in figures 5 and 6. We can see:

- Total annual rainfall is increasing over the 12 years period.
- Rainfall intensity is increasing over the 12 years period.
- Groundwater levels in the location being monitored have decreased so much that the dug well used for groundwater monitoring has run dry.

Figure 5: Total annual rainfall and rainfall intensity in Basbedo village, 2012–2024 (L Damiba 2025).

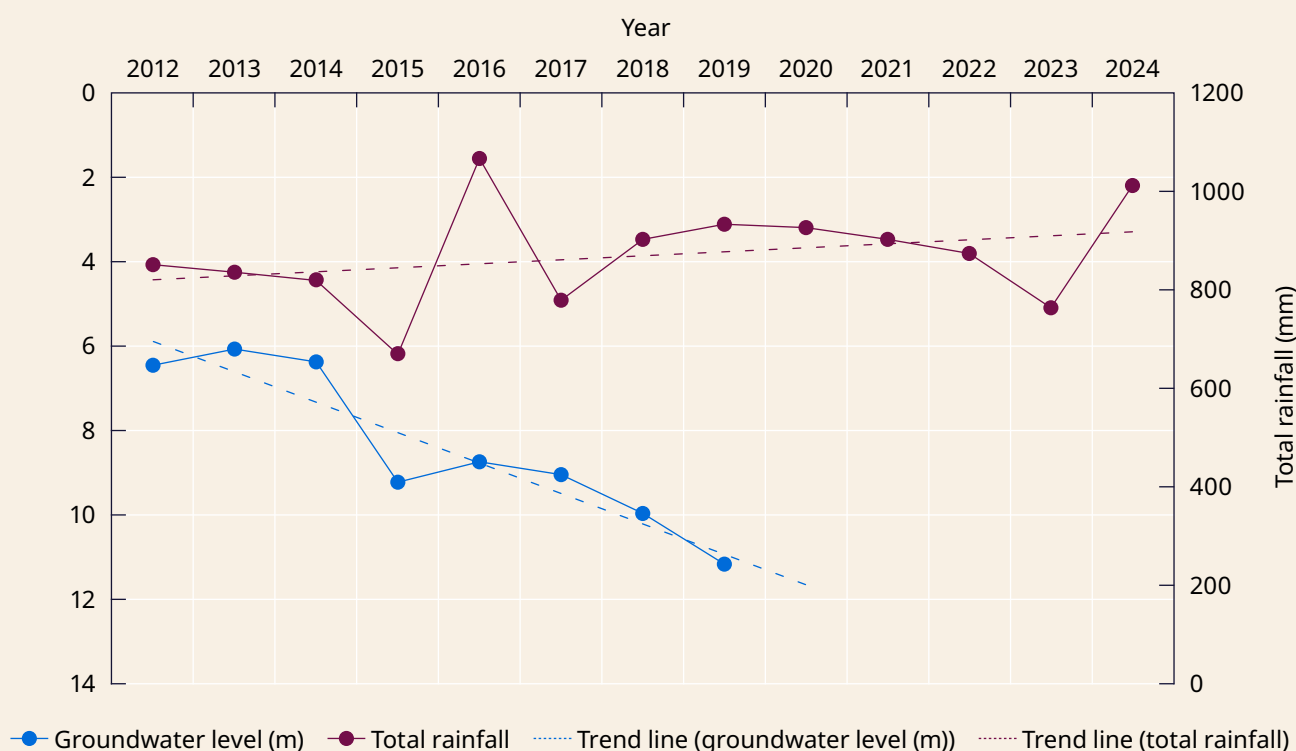


Possible explanations for this paradoxical relationship between increased rainfall and falling groundwater levels could include:

- Increased run off and reduced infiltration/ groundwater recharge due to increased rainfall intensity and compaction of soils.
- Changes to land use resulting in higher runoff and reduced infiltration/ groundwater recharge.
- Changes to vegetation resulting in increased evapotranspiration and reducing groundwater recharge.
- An increase in human demand for water leading to falling water levels.

This data makes the case for investment in deeper boreholes and water harvesting initiatives that reduce run off and encourage water infiltration.

Figure 6: Total annual rainfall plotted against groundwater levels in a dug well in Basbedo Village, Burkina Faso (L. Damiba 2025).



6. How the Securing Water Resources Approach strengthens systems for climate resilience and water security

Strong WASH systems are needed for WASH services and behaviours to be climate resilient.⁷ Water supply services will not be resilient to climate change if continuous arrangements are not in place for professionalised service management, maintenance, financing, technical support and regulation. Effective arrangements for water resource management and catchment protection are also required. A focus on climate resilience brings an added layer of risk management amid climate uncertainty. This was incorporated into work by Day⁸ and WaterAid,⁹ as well as UNICEF and Global Water Partnership.¹⁰

The concept of 'systems thinking' is well established in the health sector and has gained traction in the WASH sector in recent years. In a WASH context, system strengthening involves addressing barriers to reliable, inclusive, resilient service provision and behaviour change within a complex system of actors, factors and interactions. Many representations of the WASH system feature a building block focused on environment and water resources in acknowledgement of the crucial role that these factors play in underpinning reliable, inclusive and resilient service provision. However, restricting water resource management, environmental management and climate risk to

one area (or building block) in the WASH system is limiting. Often, it does not result in adequate consideration of what needs to be in place to fully enable effective stewardship of water resources and the environment to minimise climate risk.

Applying SWRA involves an expanded view of the WASH system whereby all building blocks and interactions attend to issues of water resource management, catchment management and management of water risk. SWRA involves strengthening the following system building blocks and the interactions between them:

1. Institutional arrangements and capacity
2. Coordination and integration
3. Active and empowered people
4. Gender and social inclusion
5. Monitoring
6. Policy, strategy and planning
7. Financing
8. Service delivery and behaviour change
9. Government leadership
10. Accountability and regulation

System barriers related to environment and water resources are therefore tackled in each building block.



Safura Amadu measuring the well's water level. As part of WaterAid's work on climate adaptation in Galaka, she has been trained to monitor ground water levels and share this information with her community and the District authorities in Galaka, Ghana.

WaterAid/ Nana Kofi Acquah

Institutional arrangements and capacity, coordination and integration

Institutional frameworks for management of water resources are often complex to navigate with multiple institutions representing different water use sectors. Coordination and joint planning is often challenging and requires resources for convening. Fortunately in Burkina Faso, water services, water resource management and environment all come under the institutional responsibility of the Ministry of Environment, Water and Sanitation but there is still a need to link with agriculture and livelihoods. The sub-basin management committees (CLEs) provide the forum for cross sector coordination. SWRA facilitates this coordination and formation of stronger ties within a clear institutional framework with clear roles and responsibilities.

Active and empowered people and communities

At village level, SWRA empowers women, girls, marginalised groups, farmers and other livelihood water users to engage in participatory assessments of water risk, hydrometric monitoring and risk-based planning. It also supports actions aimed at improving water services, equitable management of water resources, livelihoods and land use. When threats to water services and water resources cannot be addressed locally, communities

elevate calls for assistance through the sub-basin management committees.

Gender and social inclusion

SWRA recognises that women and girls often bear a disproportionate burden of water risk in low-income, rural settings. The approach therefore prioritises the water needs of women and girls and works to promote their meaningful participation in local level water governance. Further work is necessary to strengthen the participation of women at higher administrative levels. Local-level operating principles are established to safeguard water access for women and girls in times of scarcity, when competing water needs are at their peak.

Monitoring

SWRA complements national hydrometric monitoring by generating local-level time series data on rainfall, groundwater levels and surface flows. It also complements monitoring of water supply service status, providing information on where new services are required and maintenance is needed. Information on water demand, land use and functionality of water services is collected. National metrological authorities support rain gauges being installed in communities to ensure rainfall data is collected and recorded in line with national standards.

Planning

Monitoring data is used to inform plans for improvements to water services and equitable management of water resources, as well as improvements to land use at sub-basin level. A multi-sector water security plan is produced by the sub-basin committees that is submitted to basin authorities for resourcing.

Financing

Basin authorities use catchment management plans as a basis for allocating financial resources and support to sub-basin committees (CLEs) who then use these resources to target assistance to communities. This process is aided by the fact that the Ministry of Environment, Water and Sanitation (who fund the basin authorities) decentralise funds for both water supply service level improvements and improvements to catchment management to the sub-basin committees and local government authorities within them. Funding from other actors is also leveraged against the catchment management plans.

Service delivery and behaviour change

Improvements are implemented to water supply service coverage, water supply management and maintenance, water resource management, cultivation, land use and catchment protection.

Government leadership

SWRA ultimately aims for basin authorities to take the lead, providing continuous support to sub-basin management committees and communities within their jurisdiction.



Djibril Barry (inclined person in the middle), project coordinator at WaterAid, together with staff from the Liptako Water Agency, members of the technical commission (CPAS) of the Nima Zaabo's local water committee (CLE), teaching the reading of the newly installed rain gauge to the community relays (volunteers) of the village of Boala, Burkina Faso.

WaterAid/ Basile Ouedraogo

8. Challenges

The following challenges have been experienced whilst implementing SWRA in the Liptako, Gourma and Nakanbe basins in Burkina Faso:

- **Insurgency and insecurity:** The region has faced a deteriorating security situation in recent years, with escalating violence leading to displaced rural populations in some areas. This insecurity inhibits SWRA being applied and reduces the ability of basin authorities and local governments to implement activities aimed at strengthening water security and climate resilience.
- **High staff turnover in basin authorities and technical agencies:** This undermines institutional ownership and continuity of the SWRA process. It also necessitates refresher training in how to apply SWRA. Despite this, the approach has been institutionalised within basin authorities and they have continued to run with it, even after WaterAid has left. Fortunately, there is less turnover of trained volunteers at village-level, meaning the approach continues to deliver benefits even if gaps emerge higher up.
- **Recognition of community generated data:** There is sometimes scepticism about the validity of community-generated water resource data in basin authorities. This challenge is mitigated by involving technical agencies and the metrological service in training community-level data collectors and calibrating instruments.
- **Dependence on volunteerism at community level:** Collecting water resource data is carried out on a voluntary basis and there is a risk that people will lose interest if they do not see any immediate benefit in continuing to collect data. This risk is mitigated by involving farmers, who have a strong incentive to collect and use the information for planning their crop planting.



Justine Sawadogo, standing at the edge of Bonam dam in Burkina Faso.

WaterAid/ Basile Ouedraogo

9. Recommendations

The following practical recommendations are focused on strengthening water resource management as part of WASH programmes:

1. Facilitate local-level participatory climate/ water risk and vulnerability assessments covering all water use sectors (domestic, agriculture, livelihoods, environment). Any identified risks or vulnerabilities can then determine what adaptation strategies are needed to reduce risk and vulnerability.
2. Work collaboratively with basin authorities and sub-basin management committees to strengthen systems for risk and vulnerability assessment, hydrological monitoring and data collection. Importantly, water management data systems should be capable of assessing and integrating community-derived data for wider application.
3. Facilitate community-level decision making processes to agree on how water resources are governed.
4. Understand traditional processes for natural resource management and use these to inform the delivery of better water management strategies and governmental support.
5. Facilitate local-level monitoring of water resources and water demand, providing information for informed decisions about water risk over time. Local and national water management authorities are the obvious partners for this work, alongside community-based structures.
6. Promote WASH as a delivery mechanism for local-level water resource management.
7. Apply a 'multiple use services' approach to delivering water services to ensure that they meet different water needs.
8. Encourage local government and basin authorities to support communities to resolve disputes and water management challenges that are not possible to resolve at the local level.
9. Identify and support local government champions of SWRA, with a view to replicating it in other areas.



Justine Sawadogo, a community relay (volunteer), presenting to the village assembly the rainfall data in the commune of Boulsa, Burkina Faso.

WaterAid/ Basile Ouedraogo

10. Conclusion

Over more than a decade of implementation, the Securing Water Resources Approach (SWRA) has demonstrated that strengthening local systems, building institutional partnerships, and empowering communities can significantly improve water security and climate resilience in semi-arid areas of West Africa.

By integrating WASH and IWRM at multiple levels—from village to basin—SWRA moves beyond siloed programming, enabling practical, evidence-based solutions to complex water resource challenges. While implementation has not been without obstacles, the approach offers a replicable and scalable pathway for addressing water risk in fragile and climate-vulnerable contexts. Continued investment in system strengthening, local capacity, and water resource monitoring will be critical to sustaining and expanding these gains.



Awa Diarra, the women's association secretary, watering crops inside the women's market garden, in the village of Tigama, Mali.

WaterAid/ Basile Ouedraogo

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WaterAid has one goal:

To change the world through
clean water, decent toilets
and good hygiene.

Authors

This report was written by Lucien Damiba, Djibril Barry, Vincent Casey, Joe Gomme and Joseph Thompson.

Front cover image: Safura Amadu (left) and Haruna Alalbilla (right) measuring the well's water level. As part of WaterAid's work on climate adaptation in Galaka, they have been trained to monitor ground water levels and share this information with their community and the District authorities in Galaka, Ghana.

WaterAid/ Nana Kofi Acquah