Gender, Indigenous People's presence and Water Assessment for Transboundary Shire Aquifer System

Component 3 of G4DR - D3.4

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Executive Summary

Incorporating gender and social inclusion (GESI) into water management, including groundwater management and across borders, is widely viewed as critical to unlocking the full benefits of interventions aiming to improve management toward realization of a range of worthwhile goals such as food security, climate resilience and poverty reduction. Nonetheless, guidance and recommendation tailored to interventions in specific zones of activity is often absent or vague, particularly in contexts of indigenous communities. The goal of this report is to generate tailored recommendations for incorporating GESI into activities in the Shire Basin (shared by Malawi and Mozambique), as part of Groundwater for aDvancing Resilience (G4DR) project activities.

To do so, we consulted various data sources on Malawi and Mozambique, which make up the Shire River Basin. These sources provided general information and insights into the basin, its people, and their livelihoods linked to GESI and groundwater management. Additionally, we conducted field visits and spoke with community members in two communities in the Shire, through focus groups to discuss pertinent issues in the context of: socioeconomics, education, land tenure, and poverty.

Community engagement generated at least four key insights common across focus group discussions. First, infrastructure is more resilient in contexts of multiple borehole options—i.e., some redundancy improves reliability. Second, community agency where participation is active—fostering inclusive participation is therefore critical. Third, maintenance needs to shift from reactive to pro-active. Fourth, knowledge and understanding is too often limited, which causes unnecessary confusion and uncertainty.

Ultimately, the report generated three categories of recommendations for enhancing GESI considerations in G4DR activities in the Shire. These categories of recommendations included: i) groundwater management, ii) community awareness and support, iii) gender and social inclusion. In this last category, key recommendations centred on:

- Intentional inclusion: Meaningful participation of women and youth in water governance is inconsistent and needs to be intentionally supported and protected.
- Gender-sensitive planning: Ensure infrastructure placement and roles consider women's lived realities and restrictions.

Contents

1. Introduction: Integrating gender equality and social inclusion into groundwater management

Groundwater is not merely a hydrological asset—it is a social, cultural, and economic lifeline. Its value cannot and should not be reduced to volumetric extraction figures alone. As the World Bank (2023) emphasizes, groundwater underpins water and food security, playing a vital role in poverty reduction, livelihoods enhancement, and climate-resilient development. For billions, especially in rural and peri-urban areas, it is the primary—sometimes only—source of clean water. Despite this, groundwater remains largely invisible in policy and governance, often mismanaged and overexploited due to its nature as a common-pool resource that lacks clear mechanisms for equitable and sustainable stewardship.

Within the framework of the Sustainable Development Goals (SDGs), groundwater is directly and indirectly tied to several key goals. It is foundational to SDG 6 (clean water and sanitation) but also contributes meaningfully to SDG 1 (poverty eradication), SDG 2 (zero hunger), SDG 5 (gender equality), SDG 11 (sustainable cities), SDG 13 (climate action), and SDG 15 (life on land). Realizing the transformative potential of groundwater for these goals requires an explicit and intentional focus on Gender Equality and Social Inclusion (GESI)—not as an afterthought, but as a central design and implementation principle.

1.1. Objectives and Approach

In this assessment, we examine how GESI dimensions intersect with groundwater management in the Shire Basin, shared by Malawi and Mozambique in order to generate recommendations for incorporating GESI into groundwater management in the Shire. Undertaken in the context of indigenous communities (Box 1), our analysis is guided by the following considerations:

- Context: i) How gendered inequalities in education, income, land tenure, and poverty influence groundwater access and decision-making; and ii) The role of intersectionality in shaping groundwater vulnerability and resilience.
- Gender and agricultural land and water uses: i) The divide between male-dominated commercial irrigation and female-led smallholder production; and ii) Constraints in women's access to irrigation infrastructure, pumps, and credit.

- Gender, sanitation, and health: i) How lack of groundwater access affects menstrual hygiene, maternal health, and disease burdens; and ii) The role of women in ensuring household water quality and health.
- Decision-making and empowerment: i) Degree and depth of women's and marginalized groups' involvement in groundwater committees, planning, and governance; and ii) Strategies for transformative inclusion, leadership development, and accountability.

Box 1: Statement on Indigenous and Local Communities in the Shire Basin

The Groundwater for Advancing Resilience (G4DR) project operates within defined basin case sites across its participating countries. These basins are among the most densely populated regions in their respective contexts, marked by long-standing histories of migration, intermarriage, and overlapping settlement patterns. Consequently, they are ethnically diverse and socially complex areas where community identities are mixed and fluid rather than clearly delineated. Many villages and settlements comprise members of multiple ethnic groups as well as migrants from neighbouring regions, forming a mosaic of cultural, linguistic, and social affiliations.

Within this setting, the term "indigenous communities" does not refer to a single, isolated group or tribe. Instead, it applies more broadly to larger ethnic groups and their associated village clans and lineages, whose members coexist within these shared landscapes. As such, in implementing its activities, the G4DR project inherently works with these indigenous and traditional peoples, though not by singling them out as separate entities. They are a prevalent and integral part of the population in all our basin sites, contributing to the diverse social and ecological knowledge systems that underpin local water management practices. Within the G4DR basins, the project context is therefore best understood in terms of a diversity of ethnic and traditional groups whose collective knowledge and practices are essential to sustainable groundwater management.

The findings and recommendations presented in this report take into full consideration this diversity of ethnic and cultural composition across the G4DR basins. All analysis and proposed actions reflect an awareness of the complex social fabric within which groundwater governance operates, ensuring that interventions are inclusive, context-sensitive, and responsive to the realities of mixed and interdependent communities. In doing so, the report acknowledges that local participation, knowledge, and customs are central to achieving equitable and sustainable outcomes.

The G4DR team is committed to upholding the principles of Free, Prior and Informed Consent (FPIC) in all community interactions and engagements. This includes ensuring that participation in project activities is voluntary, based on transparent communication, and undertaken with full awareness of the project's objectives, potential impacts, and expected outcomes. All field activities adhere to ethical standards of respect, inclusivity, and cultural sensitivity, recognizing and valuing the diverse identities, traditions, and governance systems present across the basin communities.

1.2. Gender and groundwater

Women and girls are central actors in groundwater use but remain marginalized in its governance. They are primarily responsible for domestic water collection, sanitation, small-scale farming, and family health, all of which are deeply reliant on groundwater. Yet, decision-making roles in groundwater governance structures, including community water user associations and local government forums, are often occupied by men. As a result, the systems governing this critical resource frequently fail to reflect or respond to women's priorities and lived realities.

Studies, including those by Nigussie et al (2018) and Nigussie and Mandara (2017), have shown stark gender disparities in:

- Uses of groundwater (e.g., irrigation vs. domestic and hygiene needs);
- Access to infrastructure and technologies, such as boreholes and pumps;
- Involvement in groundwater monitoring and planning;
- Voice and influence in decision-making bodies; and
- Capacity to adapt to changes like aquifer depletion and contamination.

Women's participation is often symbolic rather than substantive. Social norms, cultural expectations, time poverty due to care responsibilities, and lack of technical training serve as persistent barriers. Nigussie and Mandara (2017) reminds us that numerical representation alone—such as fulfilling quotas—does not guarantee empowerment. Genuine participation requires creating enabling environments that value women's knowledge, support their leadership, and address power asymmetries in both formal and informal governance systems.

1.3. Youth and groundwater

Youth represent both the present and the future of groundwater stewardship. In many regions, young people—particularly those in rural settings—are key labourers in smallholder agriculture, water fetching, and livestock care, all of which depend heavily on groundwater. However, youth are frequently excluded from groundwater governance, policy dialogues, and capacity-building programs (Nigussie and Mandara, 2017).

Key challenges include:

- Limited access to land and water rights, which constrains productive use.
- Lack of representation in water user associations or planning committees.
- Underrepresentation in groundwater-related vocational and technical education; and

- Few economic incentives or employment opportunities in groundwater management or conservation.

Integrating youth meaningfully requires targeted investments in skills development, access to data and innovation (e.g., digital water monitoring tools), entrepreneurship, and mechanisms that enable youth voice in institutional processes. This not only addresses intergenerational equity but also leverages the dynamism and innovation capacity of young people in adapting to groundwater challenges exacerbated by climate change and population growth.

1.4. Vulnerable and marginalized groups and groundwater

Beyond gender and age, vulnerability in groundwater access and governance is shaped by intersecting factors such as disability, ethnicity, caste, indigeneity, geographic isolation, and poverty status. Many marginalized communities live in areas where groundwater quality is poor, aquifers are overdrawn, or infrastructure is inadequate or discriminatory (Adams et al, 2018).

For example:

- Indigenous groups may have traditional water knowledge systems that are ignored in formal water governance.
- Persons with disabilities may face physical barriers in accessing community wells or boreholes.
- Ethnic minorities in politically marginalized areas may be bypassed in infrastructure planning.

Inclusion here must go beyond "invitation to participate"—it must involve deliberate efforts to recognize, accommodate, and empower these groups in water resource planning and benefit-sharing. Legal frameworks, institutional mandates, and implementation mechanisms must align to protect customary rights, ensure non-discriminatory access, and promote socially just water allocation.

2. Methods

By making GESI central to groundwater management, we not only address longstanding inequalities but also enhance the sustainability, resilience, and legitimacy of groundwater systems. Equitable access, inclusive governance, and socially responsive groundwater planning are prerequisites for achieving the SDGs and ensuring water security. For this assessment, we consulted various data sources on Malawi and Mozambique, which make up the Shire River Basin. These sources provided general information and insights into the basin, its people, and their livelihoods linked to GESI and groundwater management.

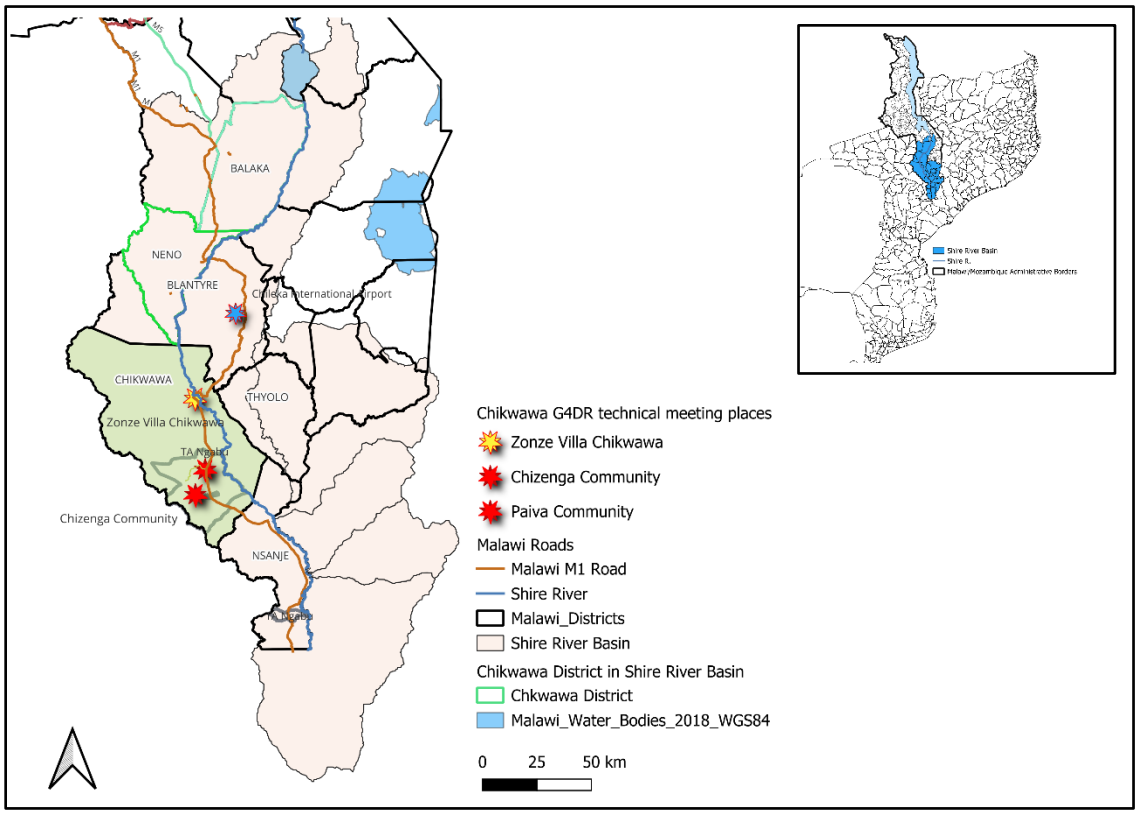

Figure 1: Map of Shire River Basin with points where the G4DR technical meeting and field visits took place.

Additionally, we conducted field visits and spoke with community members in two communities to discuss pertinent issues. The goal of the discussions were not to gather extensive data, but rather to gain on-the-ground insights into issues already identified through data and literature. Figure 1 shows the location of the two villages that we visited, namely: Chizenga Community and Paiva Community. Findings from these discussions will be presented in Section 3 of this document (Annex 1 provided more details with regards to these visits).

3. Findings

3.1 Socio-economic context

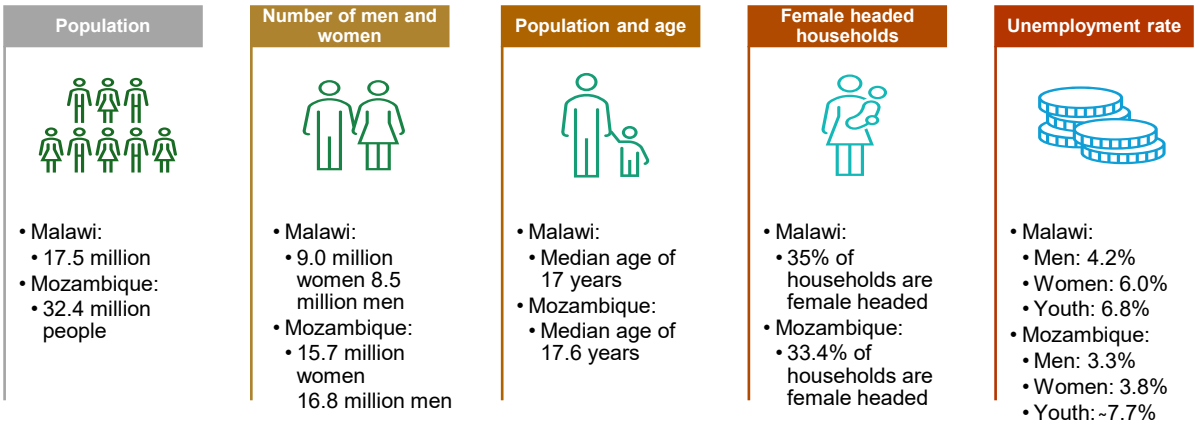

Figure 2: Representation of socio-economic context data for Malawi (National Statistical Office of Malawi, 2018) and Mozambique (World Bank, 2024)

In Malawi (Figure 2), gendered inequalities are pervasive across various dimensions, including education, income, land tenure, and poverty. Women in Malawi face significant barriers to education, with higher illiteracy rates compared to men (National Statistical Office of Malawi, 2018). This educational disparity limits their access to information and opportunities for capacity development, which in turn affects their ability to participate in groundwater management and decision-making processes. Income inequality is also pronounced, with women earning less for the same work and spending more time in unpaid labour (National Statistical Office of Malawi, 2018). This economic disparity further exacerbates their vulnerability and limits their ability to invest in groundwater infrastructure and technologies.

In Mozambique, gender inequality is similarly pervasive, with women having lower schooling levels (World Bank, 2024) and limited access to skills development opportunities (World Bank, 2020). The gender division of labour in Mozambique creates a situation where women carry both productive and reproductive responsibilities, limiting their time for personal development and participation in groundwater governance (World Bank, 2020). Additionally, women in Mozambique face significant barriers to land ownership due to customary inheritance laws and sociocultural norms that favour male ownership. This lack of control over land and resources further limits their ability to make decisions about groundwater use and management (Santpoort et al, 2021).

Intersectionality plays a crucial role in shaping groundwater vulnerability and resilience. In Malawi, factors such as age, marital status, and socioeconomic condition intersect to create unique challenges for different subgroups of women (National Statistical Office of Malawi, 2018). For example, young unmarried women face multiple constraints, including low education, premature marriages, and early pregnancies, which limit their ability to participate in groundwater management (Fisher and Carr, 2015). Similarly, women heads of households face labour constraints that limit their ability to engage in activities that require strength, resulting in increased operational costs.

In Mozambique, vulnerability in groundwater access and governance is shaped by intersecting factors such as disability, ethnicity, caste, indigeneity, geographic isolation, and poverty status (Conceição Rebelo, 2024; UNICEF, 2022). For example, indigenous groups may have traditional water knowledge systems that are ignored in formal water governance, and persons with disabilities may face physical barriers in accessing community wells or boreholes (WaterAid Mozambique, 2024). Addressing these intersecting factors is essential for promoting equitable and inclusive groundwater management.

3.2 Implications of gendered inequalities for groundwater management in the Shire

This section explores the implications of gender gaps in education, income, land tenure, and poverty among female-headed households on groundwater access and management in the Shire region. By examining the disparities between Malawi and Mozambique, the section highlights the challenges and opportunities for improving gender equality and ensuring sustainable groundwater management.

3.2.1 Education gap – implications for groundwater access and management in the Shire

Malawi has a 17% gender gap in literacy, favouring men (National Statistical Office of Malawi, 2018), while Mozambique's gap is higher at 27%, indicating greater educational inequality (UNESCO/DFID, 2020). **The implication of this is that low** literacy and skill levels among women (especially in Mozambique) limit their participation in groundwater governance, data collection, maintenance, and innovation.

- **Management risk:** Technological solutions (e.g., borehole repair, groundwater monitoring) may **exclude women** unless training and awareness are adapted to their needs.
- **Opportunity:** Targeted **capacity-building and literacy programs** could empower women and youth as groundwater stewards.

3.2.2 Income gap – implications for groundwater access and management in the Shire

In both Malawi and Mozambique, women earn significantly less than men. For example, women in Malawi earn 64 cents for every dollar earned by male wage workers—indicating a 36% wage gap (World Bank, 2021c), while UN Women ESARO (2024) reports that women in Mozambique earn 81 cents per hour relative to every dollar earned by men, and 68 cents per month (due to fewer hours worked). This is due to overrepresentation in informal sectors, limited access to productive assets, and discrimination in formal employment, which limits their financial resources to pay for water tariffs, invest in private water connections, or maintain boreholes. For example, the World Bank reports that Malawi women have less access to land, inputs, finance, and technology—fuelling wage and productivity gaps (World Bank, 2021a); and in Mozambique only 6% of women hold wage jobs, vs. 24% of men; most women work informally and are underpaid (World Bank, 2021b).

- **Management Risk:** This may lead to unsustainable cost recovery, system breakdowns, and reliance on unsafe sources.
- **Opportunity:** Subsidies or flexible payment schemes, paired with support for women-led water enterprises, could improve access and resilience.

3.2.3 Land tenure gap – implications for groundwater access and management in the Shire

In Malawi, around 32% of women own land (African Development Bank & UN Women, 2020), while in Mozambique, only 20% of DUATs (land use rights) are registered to women (Santpoort et al, 2021), indicating more entrenched inequality in land access in Mozambique due to patriarchal customary systems. This lack of land rights is a critical barrier to economic empowerment, as women, who are often primary users of groundwater for agriculture, have no authority over water use or irrigation infrastructure.

- **Management risk:** Groundwater planning may exclude women from irrigation schemes, misallocate resources, or worsen inequality.
- **Opportunity:** Land tenure reform and inclusive water user associations can promote equitable and efficient water allocation.

3.2.4 Poverty among female-headed households – implications for groundwater access and management in the Shire

In both Malawi and Mozambique, female-headed households are among the most economically vulnerable, with 57% (National Statistical Office of Malawi, 2018) and 55% (World Bank, 2024) living below the poverty line, respectively. These households often reside in underserved rural areas, lack transport, and cannot contribute to infrastructure upkeep.

- **Management risk:** Risk of groundwater source abandonment, poor WASH outcomes, and child malnutrition increases.
- **Opportunity:** Tailoring water point design, siting, and management to prioritize vulnerable households can enhance equity and functionality.

3.3 Shire: Gender and agricultural land and water uses

In Malawi, agriculture is the mainstay of the economy, with women representing 52% of the population and playing an essential role in household food production and small-scale trading activities (COWI A/S., 2017; Government of Malawi, Ministry of Water Development and Irrigation, 2013). However, there is a significant divide between male-dominated commercial irrigation and female-led smallholder production. Men are more likely to engage in commercial irrigation, while women are primarily involved in smallholder production, which is often constrained by limited access to resources and infrastructure (COWI A/S., 2017; Government of Malawi, Ministry of Water Development and Irrigation, 2013).

In Mozambique, women constitute 61% of the agricultural labour force and are primarily engaged in cultivating food crops for household consumption (USAID, 2021). However, men have higher engagement in the production of cash crops, with the assistance of their wives (World Bank, 2020). This divide is further exacerbated by unequal access to quality seeds, agricultural inputs, and technical assistance (USAID, 2021).

In Malawi, women face significant constraints in accessing irrigation infrastructure, pumps, and credit (COWI A/S., 2017; Government of Malawi, Ministry of Water Development and Irrigation, 2013). Female-managed plots are less productive than those managed by males due to lower use of inorganic fertilizer, lower use of household adult male labour, and restricted access to agricultural tools (COWI A/S., 2017; Government of Malawi, Ministry of Water Development and Irrigation, 2013). Additionally, women have limited participation in household and community decision-making, which further limits their access to resources.

In Mozambique, women face similar constraints, with limited access to land ownership, agricultural inputs, and technical assistance. Despite their prominent role in food production, women have lower access to irrigation infrastructure and credit, which limits their ability to improve their agricultural productivity and economic opportunities (World Bank, 2020).

3.4 Gender, sanitation, and health

In Malawi, lack of access to clean water and sanitation services disproportionately affects women and girls (Government of Malawi, Ministry of Water and Sanitation, 2023). Poor access to water services means that women and girls often walk long distances to collect water, which impacts their ability to attend school and participate in economic activities. This lack of access also affects menstrual hygiene, maternal health, and increases the burden of waterborne diseases (UNICEF Malawi, 2019).

In Mozambique, the water, sanitation, and health situation are dire, with nearly 50% of the population lacking access to clean drinking water and over 70% lacking access to basic sanitation facilities (UNICEF, 2016). Women and girls are primarily responsible for water collection, which exposes them to significant health risks and limits their ability to engage in education and economic activities. The lack of proper sanitation facilities in schools also affects menstrual hygiene management, leading to higher absenteeism among adolescent girls (Britsch, 2022; USAID, 2021).

In both Malawi and Mozambique, women play a crucial role in ensuring household water quality and health. They are primarily responsible for collecting water, managing sanitation, and maintaining hygiene practices within the household. However, their efforts are often constrained by limited access to clean water sources and inadequate sanitation infrastructure. Improving access to clean water and sanitation services is essential for enhancing women's ability to ensure household water quality and health.

3.5 Decision-making and empowerment

In Malawi, women and marginalized groups have limited involvement in groundwater committees, planning, and governance (Adams et al, 2018). Despite policies that mandate the inclusion of women in decision-making structures, their participation is often symbolic rather than substantive (Government of Malawi, Ministry of Water and Sanitation, 2023). Social norms, cultural expectations, and lack of technical training serve as persistent barriers to their meaningful participation.

In Mozambique, women and youth are similarly underrepresented in groundwater governance structures. Patriarchal norms and values limit women's decision-making power within households and communities, and young people are rarely included in governance structures (World Food Programme, 2022). This lack of representation limits the effectiveness of groundwater management and the ability to address the needs and priorities of women and marginalized groups.

To promote transformative inclusion, leadership development, and accountability, it is essential to create enabling environments that value women's knowledge, support their leadership, and address power asymmetries in both formal and informal governance systems. This includes targeted investments in skills development, access to data and innovation, and mechanisms that enable women's and youth's voices in institutional processes. Additionally, promoting gender-sensitive policies and programs that address systemic barriers to women's participation in groundwater management is crucial for achieving equitable and sustainable outcomes.

3.6 Summary of field visit discussions

Based on the field visits in Paiva and Chizenga Communities in Malawi, here are some common issues that can be discerned:

3.6.1 Multiple water sources support resilience

- Having several boreholes or water options strengthens community resilience by providing fallback options when one source fails.
- Diversity of access points reduces individual burden and helps avoid overuse of a single source.

3.6.2 Community participation boosts agency

- Active involvement in water committees empowers community members—especially when inclusive—giving them a greater sense of control over water decisions.
- Participation helps foster local ownership and responsiveness to immediate issues.

3.6.3 Lack of structured foresight or maintenance planning

- While committees are active, long-term planning is weak or ad hoc.
- There appears to be no routine maintenance schedules or contingency planning, which undermines sustainability over time.
- Resilience is reactive, not proactive — communities are equipped to respond, but not necessarily to anticipate and prevent failures.

3.6.4 Lack of knowledge and information

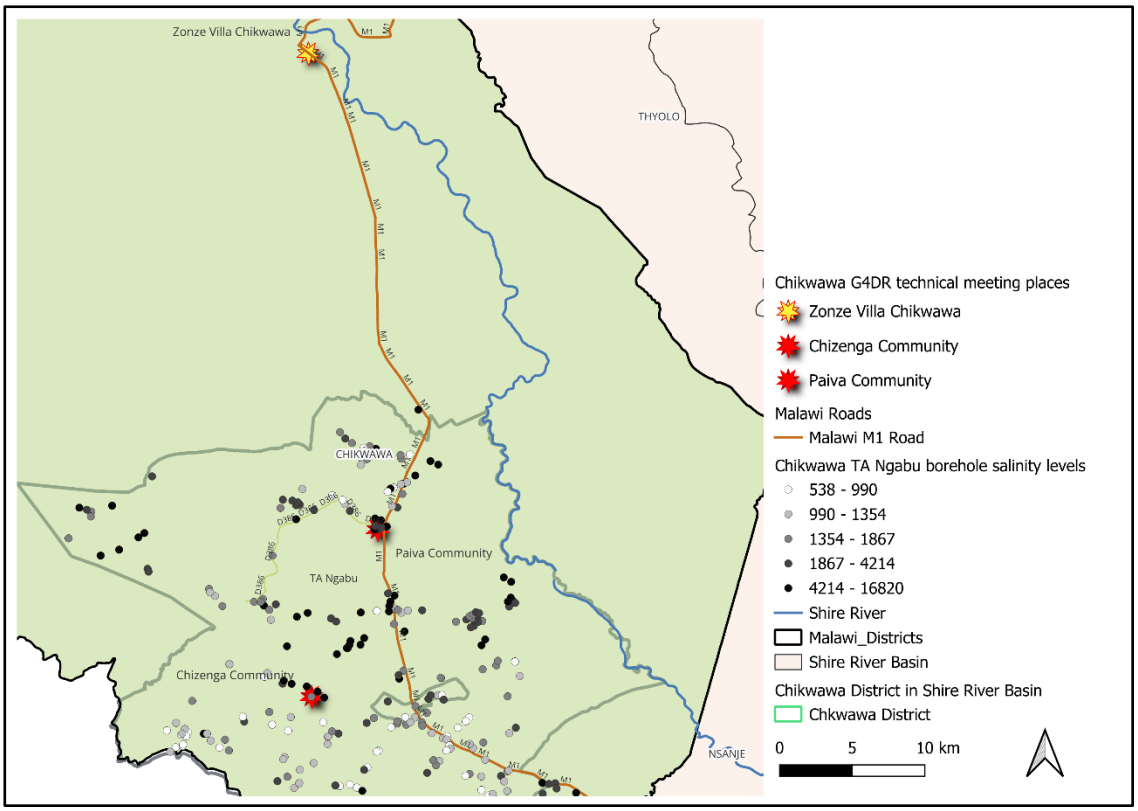

Figure 3: Section of Shire River Basin (Chikwawa District, Malawi) indicating boreholes with high levels salinity (black dots) particularly in Paiva and Chizenga communities

- Generally, there is a limited scientific understanding of groundwater among people, leading to confusion and uncertainty about where potable water can be found through boreholes.
- For instance, the widespread salinity of boreholes means that freshwater sources are scarce and often located far away. Figure 3 illustrates this with a map section of the Shire River Basin (Chikwawa District, Malawi), highlighting boreholes with high salinity levels (black spots), particularly in the Paiva and Chizenga communities we visited.

Table 1. Summary of field visit discussions

Issue Area	Common Insight
Infrastructure resilience	Multiple boreholes provide redundancy and reliability
Governance and participation	Community agency is higher where participation is active
Maintenance and planning	Planning is inconsistent; maintenance is reactive rather than proactive
Knowledge and information	Limited scientific knowledge cause confusion and uncertainty

4. Recommendations

In this section, we provide two sets of recommendations. The first set addresses broader and more general GESI-related issues in relation to groundwater access and management. The objective behind these recommendations is to highlight the pervasive and systemic issues that still plague the Shire Basin, and they can also be used for wider reference. The second set of recommendations is very focused and specific to the G4DR project. They are tailored to what the project can realistically achieve and make an impact with during its course, considering the contextually relevant issues of the Shire Basin itself.

4.1. Broad recommendations

4.1.1 Improve access to safe water

- Drill additional boreholes: Increase the number of boreholes in strategic locations to reduce pressure on shared ones and ensure a consistent supply of freshwater.
- Prioritize proximity: Locate boreholes near homesteads and women's gardens to reduce the burden and time poverty associated with water collection.

- Introduce rainwater harvesting: Implement rainwater harvesting tanks to diversify household water sources and provide a reliable alternative during dry seasons.

4.1.2 Strengthen gender-responsive water governance

- Meaningful inclusion: Ensure women have substantial roles in water committees, not just nominal representation.
- Training programs: Provide training for women in water governance, borehole management, and financial oversight to build their capacity and confidence.
- Feedback mechanisms: Establish direct communication channels for women to express their needs and concerns without relying on male intermediaries.

4.1.3 Ensure equitable tariff and use systems

- Transparent payment systems: Develop transparent payment systems that do not disproportionately disadvantage poorer households, especially those headed by women.
- Subsidized access: Consider subsidized access or flexible payment plans for vulnerable groups to ensure they can afford water services.
- Support women-led enterprises: Encourage and support women-led water enterprises to enhance their economic empowerment and resilience.

4.1.4 Support livelihoods through water

- Dedicated agricultural boreholes: Develop boreholes specifically for agricultural use, particularly for irrigation linked to agroecology initiatives.
- Inclusive planning: Ensure women farmers are actively involved in the planning and management of agricultural water infrastructure.
- Microfinance and training: Provide microfinance opportunities and training for women in water-related agricultural activities to boost their productivity and income.

4.1.5 Enhance community resilience

- Planned maintenance systems: Shift from ad hoc to planned maintenance systems, including regular inspection schedules, to ensure the sustainability of water infrastructure.
- Local technician training: Promote the training of local technicians, with a focus on including women and youth, to build local capacity for water system maintenance.

- Community-led water mapping: Support community-led water mapping and planning exercises with a GESI lens to ensure that the needs of all community members are considered.

4.2. Specific recommendations for G4DR

4.2.1 Groundwater management

- Expand knowledge on groundwater distribution: Enhance the understanding of the spatial distribution of groundwater availability to inform better management practices.
- Guidance on borehole drilling: Develop and disseminate guidelines for drilling boreholes that minimize the risk of encountering saline water.
- Addressing saline borehole sites: Develop strategies for managing situations where potential borehole sites near communities are likely to yield saline water.

4.2.2 Community awareness and support

- Local sensitization on water quality: Conduct community awareness programs on water quality risks and the benefits of local water storage solutions.
- Provide community support through knowledge products at community level: There's widespread willingness to adopt groundwater-based solutions, but information gaps exist regarding quality, sustainability, and planning.

4.2.3 Gender and social inclusion

- Intentional inclusion: Meaningful participation of women and youth in water governance is inconsistent and needs to be intentionally supported and protected.
- Gender-sensitive planning: Ensure infrastructure placement and roles consider women's lived realities and restrictions.

5. Conclusion

Applying a GESI lens to groundwater management in Malawi and Mozambique is not only a matter of rights but a necessity for effective, resilient water systems. Women and youth must be central to policy, planning, and management. Equitable, inclusive water governance enhances sustainability, strengthens livelihoods, and ensures water security for all.

6. Reference List

Adams, E. A., Juran, L., & Ajibade, I. (2018). Spaces of exclusion in community water governance: A feminist political ecology of gender and participation in Malawi's urban Water User Associations. Geoforum, 95, 133-142.

African Development Bank & UN Women. (2020). *Republic of Malawi Country Gender Profile.* Government of Malawi. https://www.afdb.org/en/documents/malawi-country-gender-profile-2020

Britch, K. 2022. WASH Practices in Mozambique. Ballard Brief. https://ballardbrief.byu.edu/issue-briefs/wash-practices-in-mozambique

Conceição Rebelo, M.S.d.C. (2024) 'Mozambique public investment in the water and sanitation sector and the targets of SDG6', *UCL Open Environment*, 6, p.e067.

COWI A/S. (2017). *Shire Valley Irrigation Project: Gender and Youth Strategy Final Report*. Government of Malawi, Ministry of Agriculture, Irrigation and Water Development https://svtp.gov.mw/wp-content/uploads/2020/08/GENDER-YOUTH-STRATEGY_Final_Report.pdf

Fisher, M. and Carr, E.R. (2015) *The influence of gendered roles and responsibilities on access to and use of climate information: evidence from Malawi*. CCAFS Working Paper no. 106. Copenhagen: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Available at: https://cgspace.cgiar.org/handle/10568/65640 (Accessed: 4 July 2025).

Government of Malawi, Ministry of Water and Sanitation (2023) *Revised National Water Policy – 28 January 2022*. Lilongwe: Ministry of Water and Sanitation. Available at: https://water.gov.mw/index.php/en/downloads/policy-documents (Accessed: 4 July 2025).

Government of Malawi, Ministry of Water Development and Irrigation. (2013). *Shire River Basin Management Programme (Phase I) Project: Final Environmental and Social Assessment Report*. Water, Waste & Environment Consultants

Nigussie, L.; Barron, J.; Haile, A. T.; Lefore, N.; Gowing, J. 2018. *Gender dimensions of community-based groundwater governance in Ethiopia: using citizen science as an entry*

*point.*Colombo, Sri Lanka: International Water Management Institute (IWMI). 24p. (IWMI Working Paper 184).

Nigussie, L. and Mandara, C.G. (2017). Women and rural water management: Token representatives or paving the way to power? Water Alternatives, 10(1): 116-133

UN Women ESARO (2024) *Gender Pay Gap and Labour Market Inequalities in Mozambique*. Nairobi: UN Women ESARO. Available at: UN Women (Accessed: 4 July 2025).

UNESCO / DFID (2020) *Literacy rates by sex, Mozambique*. In: *World Data on Education*. Paris: UNESCO. Available at: UNESCO data (Accessed: 4 July 2025)

UNICEF Malawi. (2019). *Water, sanitation and hygiene (WASH) thematic report: January–December 2018*. United Nations Children's Fund (UNICEF). https://open.unicef.org/sites/transparency/files/2020-06/Malawi-TP6-2018.pdf

UNICEF Mozambique (2022) *Safe and equitable WASH services and live in safe and sustainable climate and environment*. [online] Available at: [UNICEF Mozambique] (Accessed: 4 July 2025).

UNICEF, 2016. WASH situation in Mozambique. https://www.unicef.org/mozambique/en/water-sanitation-and-hygiene-wash

USAID (2021) *Mozambique Smallholder Farmer Production and Productivity Activity Fact Sheet*.

WaterAid Mozambique (2024) *Breaking Barriers: Addressing WASH Challenges for People with Disabilities in Mozambique and Africa*, 4 December. [online] Available at: [WaterAid Mozambique] (Accessed: 4 July 2025).

World Bank (2021a) *Malawi Economic Monitor: Addressing Macro and Gender Imbalances*. Lilongwe: World Bank.

World Bank (2021b) 'Time for bold action to advance gender parity in Mozambique'. *Opinion*, 8 March.

World Bank (2021c) *Unlocking Malawi's Economic Growth by Bridging the Widening Gender Gaps in the Labour Workforce*. Lilongwe: World Bank. Available at: World Bank (Accessed: 4 July 2025).

World Bank 2020. Gender View: Gender responsive natural resource and landscape management, https://documents1.worldbank.org/curated/en/481751590469652942/pdf/Gender-Responsive-Natural-Resource-and-Landscape-Management-A-Mozambique-Pilot-Program.pdf

World Bank. (2024) *Mozambique population*. Available at: https://data.worldbank.org/indicator/SP.POP.TOTL?locations=MZ (Accessed: 4 July 2025).

World Food Programme 2022. Mozambique Annual Country Report – Country Strategic Plan 2022-2026. https://reliefweb.int/report/mozambique/mozambique-annual-country-report-2022-country-strategic-plan-2022-2026

7. Annexe 1

Field visits were conducted in two communities in the Shire Basin, namely Chizenga Community and Paiva Community (see Figure 1 in text).

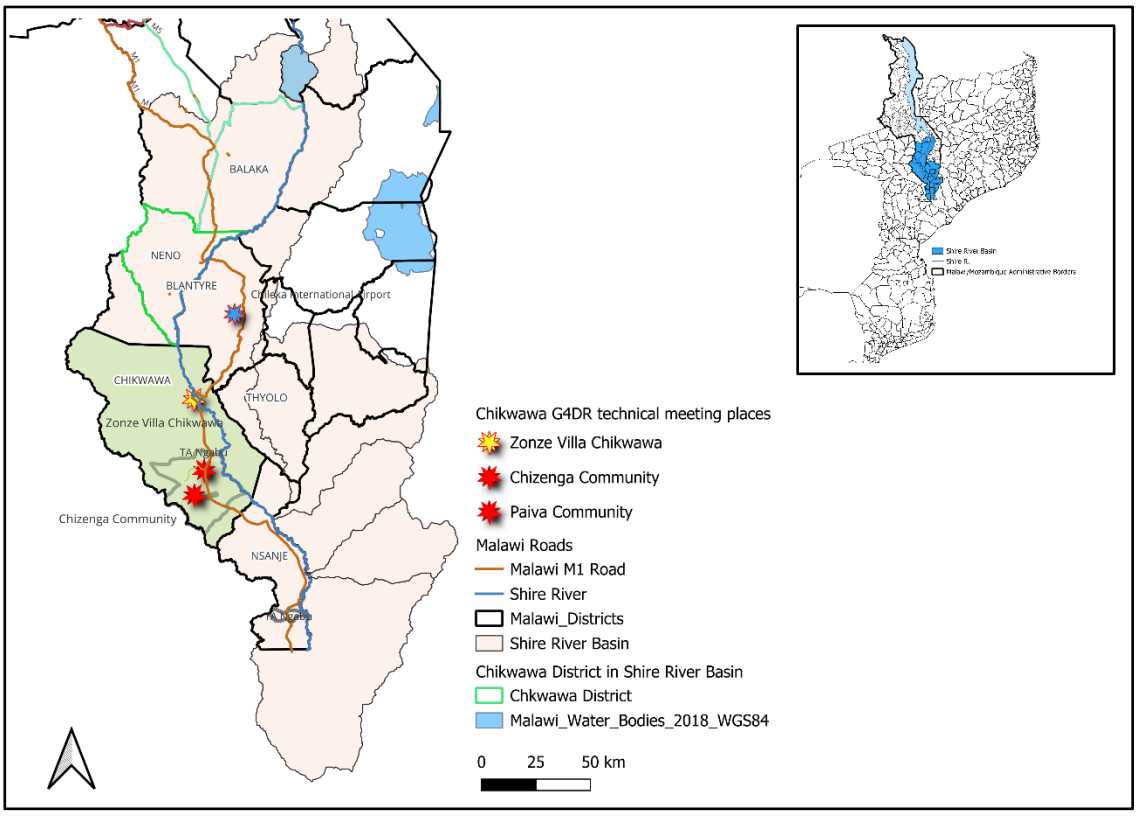

Figure 2: Map of Shire River Basin with points where the G4DR technical meeting and field visits took place

In each of these communities, a group discussion was conducted. The primary aim was to gain on-the-ground insights into issues already identified through data and literature, rather than to collect extensive data. Although the team aimed to keep the group size between 10 and 15 participants, many people showed interest in the project and voluntarily joined the discussions. Given the exploratory nature of these discussions, the team felt comfortable with this approach and made every effort to include diverse voices."

	Chizenga Community	Paiva Community
Selection	G4DR country coordinator, local government representative and committee chairs	G4DR country coordinator, local government representative and community Chief
Number of participants	Approx 18 people in attendance consisting of men and women	Approx 11 women in attendance
Representation	Water Committee Agro-ecology committee	Women in the community

Group discussion themes:

1. **Awareness and Perception of Groundwater**
    - Understand people (emphasis on youth or women) know about groundwater's role in their community and its risks/opportunities.
    - Misconceptions, myths, or traditional beliefs related to underground water.
2. **Water Access, Usage, and Burden**
    - Explore women's daily interactions with groundwater: fetching water, household usage, irrigation support, etc.
    - Understand time, distance, and safety concerns in accessing water for the community.
3. **Decision-Making and Leadership in Water Governance**
    - Assess people's (emphasis on youth or women) current participation in water-related committees or decisions.
    - Understand social or cultural barriers to leadership roles in local water governance (emphasis on youth or women).
4. **Impacts of Climate Change on Livelihoods**
    - Discuss how climate variability (droughts/floods) has affected farming, food security, and domestic roles.
    - Identify coping strategies and indigenous knowledge systems.
5. **Inclusion in Training and Capacity Building**
    - Gauge interest and accessibility to training, new technologies (e.g., solar pumping), and groundwater monitoring tools.

- Explore barriers and motivations for participating in groundwater-related capacity-building.