

# Tanzania snapshot on water and climate

## About the country snapshot

This country snapshot provides an at-a-glance understanding of the current national water and climate resilience status. It presents the latest information across key climate-smart decision-making categories (water resources and water and sanitation, SDG 6, climate change and disaster risk reduction, financing, governance, gender mainstreaming and social inclusion) in an easily digestible format, extracting the most important details from national and/or international analysis. No data was independently collected for this baseline snapshot, which will be complemented by a follow-up snapshot in mid-2024 to assess incremental progress in our journey to resilience.

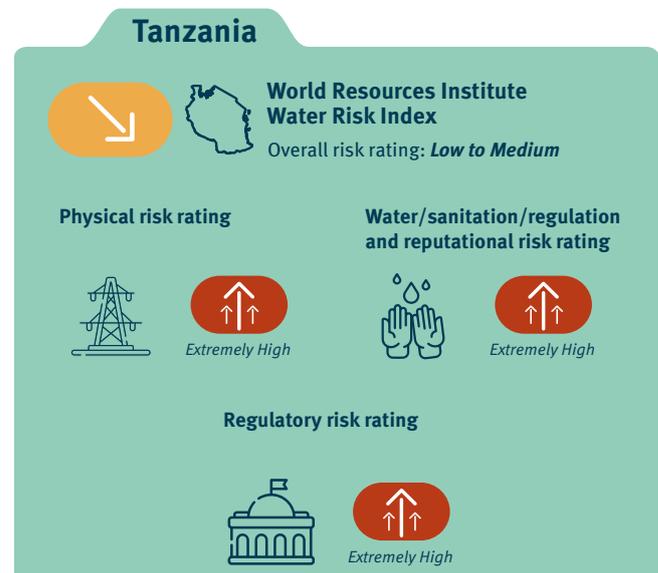
## 1. Tanzania water resources and water, sanitation, and hygiene

Tanzania is water-rich compared with almost all its semi-arid neighbours. It sits on Africa's three largest lakes: Lake Tanganyika, Lake Nyasa, and Lake Victoria, and has high rainfall. **Less than 10 percent** of surface water is abstracted, and 85 percent of water resources have good ambient quality. Of the water that is abstracted, close to 90 percent is used for agriculture, forestry, and fisheries; 9 percent is used for services such as potable water; and less than 1 percent goes to industry. Nonetheless, increased dams and abstraction of surface water for flood irrigation and hydropower in the Pangani and Rufiji Basins have disrupted river flows and threaten biodiversity, while agricultural and mining run-off, untreated municipal and industrial wastewater, and inadequate sanitation compromise surface and groundwater quality.

Population growth and increased urbanization, combined with a steady reduction in government expenditure on water, is a growing concern. Financial allocations for water declined from **3.8 percent to 2.4 percent** between 2014 and 2018 (more recent data are unavailable). Meanwhile, the population doubled from 20 million in 2000 to 40 million in 2020 and is expected to reach 89 million by 2035 (Tanzania National Bureau of Statistics, 2018), half of whom will be urban residents. The cost of meeting urban water and sanitation requirements is much higher than for rural areas. Due to population growth, Tanzania will have to be reclassified from water-rich to water-scarce by 2035 (Ministry of Water, 2020, p. 33).

Although the **World Resources Institute (WRI) Tanzania Water Risk Index** provides a score of low to medium, the physical risk factors associated with unimproved water, lack of sanitation, and regulatory and reputational risk are all rated as extremely high.

This brief reviews data from existing global frameworks that are used at the country level to plan, finance, and manage water resources to meet the challenges related to climate change and development.



## 2. Sustainable Development Goal 6: Joint Monitoring Programme and Global Environmental Management System

The **Water Sector Status Report 2015–2020** prepared by an interdisciplinary team at the Ministry of Water reports that Tanzania had 138,987 water points, of which 42,035 (30 percent) were non-functional. For the Dar es Salaam water utility, non-revenue water – water lost due to leakages, illegal connections, road construction, metering inaccuracies, bursts, blockages, natural disasters, and water theft – dropped from 56.7 percent in 2014 to 48.37 percent in December 2019, against a target of 25 percent. This means that roughly half the water produced by Tanzania’s largest utility cannot be accounted for through billing systems. The Report calls for innovations to help tackle this issue, including use of the private sector, application of results-based contracts, use of appropriate pipe materials, better budget allocation, and water demand management strategies.

The Joint Monitoring Programme [report covering 2000–2020](#) demonstrates that Tanzania’s two decades of population

growth and economic expansion (with substantial population transfers from rural to urban centres) have put a strain on existing water and sanitation services. Steady growth began in 2000 and levelled off in 2019 (see Figure 1).

Sustainable Development Goal (SDG) 6 targets related to the **Global Environmental Management System (GEMS)**, which reviews the status of water resources, report that Tanzania has low water stress as less than 10 percent of renewable water is extracted. The proportion of water bodies with good ambient quality exceeds 85 percent.

The degree of integrated water resource management (IWRM) implementation is modest, below that of neighbouring countries, although the procedures for public participation in water, sanitation, and hygiene (WASH) and water resources management are largely in place. Actual participation has undergone significant shifts (see Figure 2 overleaf).

Figure 1: Proportion of population using an improved drinking water source and improved sanitation

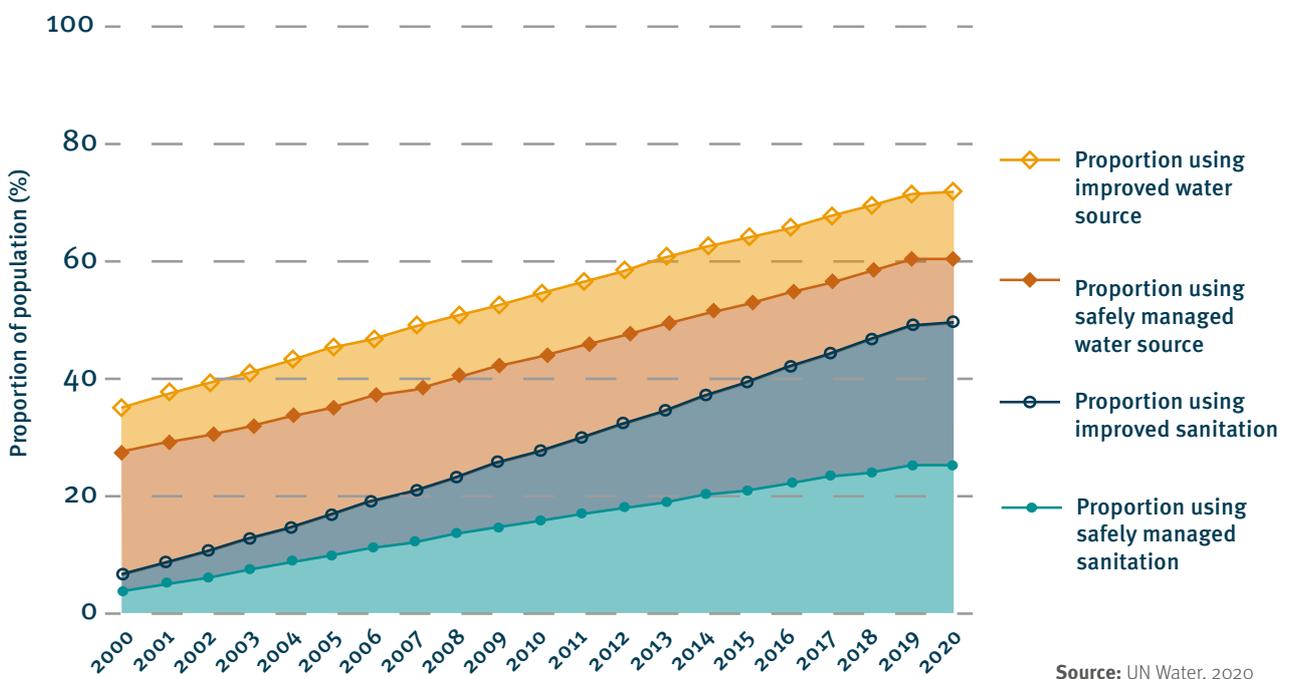
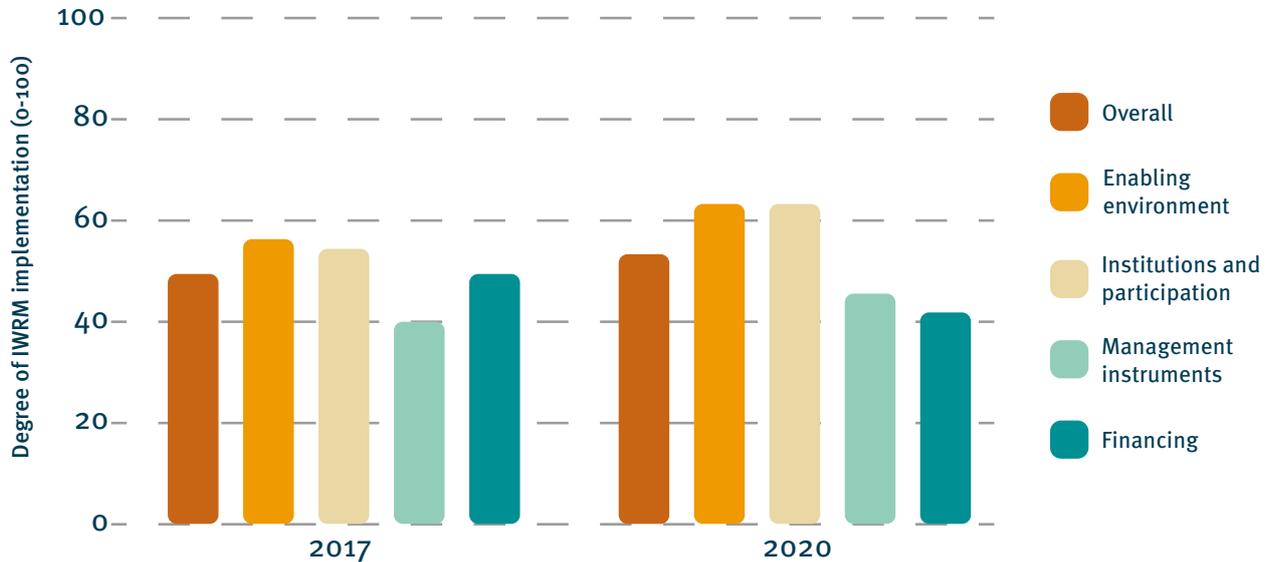


Figure 2: Degree of IWRM implementation in Tanzania



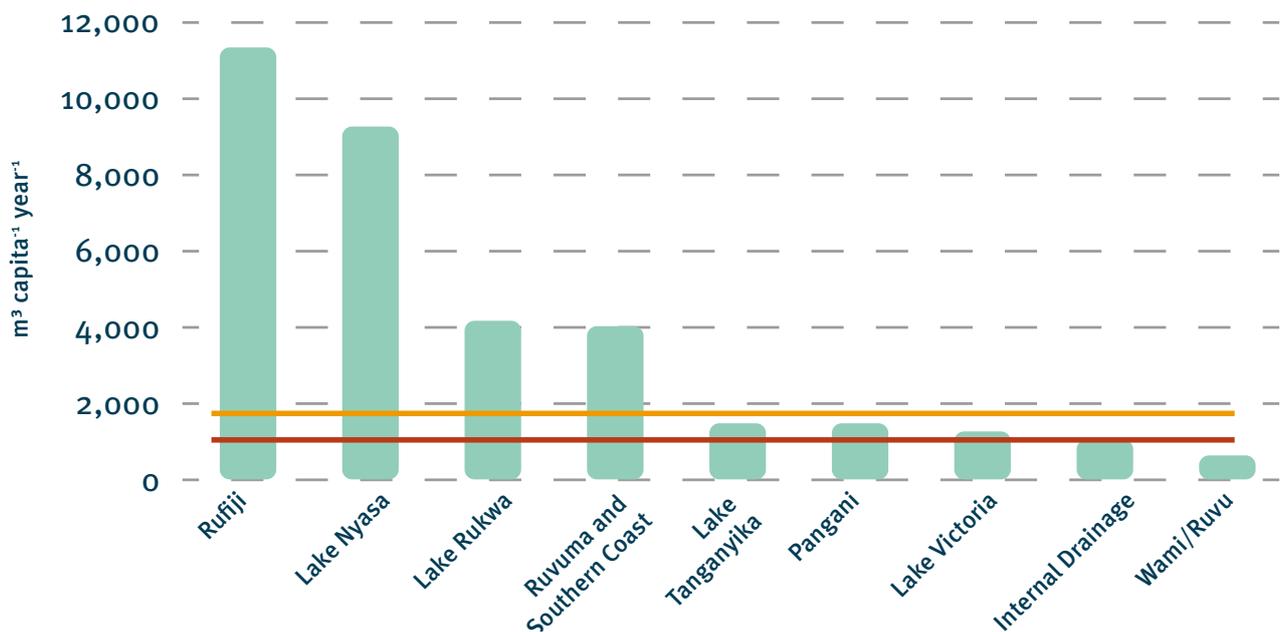
Source: UN Water, 2020

According to the 2021–2026 National Climate Change Response Strategy, lack of water resources monitoring is a major hindrance to planning for adaptation across different economic, social, and environmental sectors. Although several projects have strengthened the Rufiji and Pangani hydrological monitoring networks, in other basins many flow monitoring stations are dysfunctional due to insufficient resources. Few regions monitor groundwater. Low resources and underequipped laboratories hinder water sampling and measurement. The main water sources

(catchments, groundwater recharge zones, and wetland areas) are not identified, monitored, or protected.

As visible in Figure 3 below, the distribution of water resources is uneven, with more than half of Tanzania’s drainage basins falling below the Falkenmark Water Stress indicator of 1,700 m<sup>3</sup> per capita per year, with three on the margin or below the water scarcity level of 1,000 m<sup>3</sup> per capita per year by 2018 (Ministry of Water, 2020, p. 32).

Figure 3: Per capita annual renewable water resources



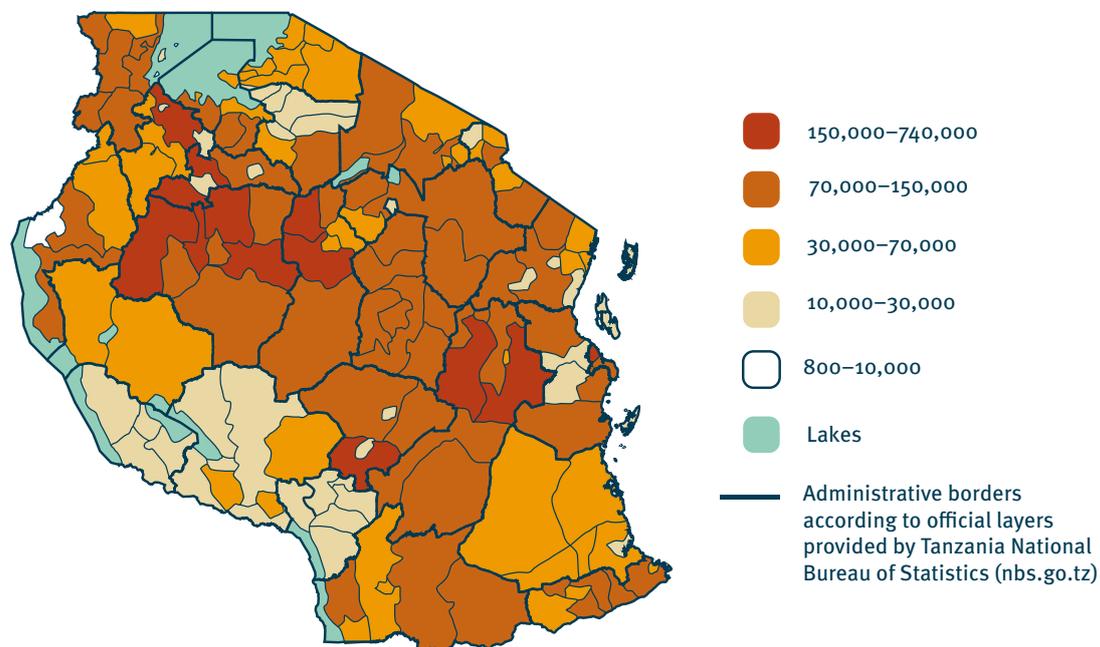
Source: Ministry of Water, 2020

### 3. Climate change and disaster risk reduction

Tanzania submitted its Nationally Determined Contribution (NDC) in July 2021. It builds on the Tanzania National Climate Change Response Strategy (2021) and several preceding commitments that recognize the country's high exposure and vulnerability to climate change. The NDC strategically positions Tanzania to benefit from adaptation to climate change (primarily in agriculture, water, health, and ecosystems) while gaining technology and finance, as well as investments for mitigation through energy and transport transformation towards renewable energy. The NDC estimates the current yearly cost of climate impacts at half a billion dollars, which is expected to double by 2030.

2020), and this inclination corresponds to the reports of the Intergovernmental Panel on Climate Change (Government of Tanzania, 2021). Extreme precipitation events will account for a rising amount of yearly precipitation, providing the greatest hazard to urbanized regions, valleys, floodplains, and coastlines. As rainfall intensity increases, the Ruvuma River will face more extreme seasonal flow fluctuations and flooding. Frequent and severe flooding in Dar es Salaam is detrimental to the national economy and infrastructure. A catastrophic flood in 2018 affected at least 39 percent of the city's population and caused economic damage of between US\$107 and US\$227 million.

Figure 4: Annual average number of people affected by drought 1979–2018 (UNDRR Tanzania Risk Profile)



Climate change is increasing precipitation, but it will also increase the frequency of major droughts. In the 2060s, Tanzania's climate would likely warm by 1.0°C to 2.7°C, and annual precipitation will increase by 50 to 140 mm. Warmer temperatures will increase evaporation rates, which will somewhat balance precipitation increases. Due to greater inter-annual and inter-seasonal precipitation variability, the likelihood of extreme drought is projected to increase by 4 to 13 percent. In a significant portion of the country, the risk of drought is already high. Figure 4 illustrates the vulnerability to drought that the population of Tanzania has experienced.

In East Africa, Tanzania is the nation most affected by flooding, and climate change threatens to increase the frequency and severity of floods and storm surges. For example, most of the extreme weather events in Tanzania, including record-breaking rainfall, have been observed in the past six years (2015, 2016, 2017, 2018, 2019, and

The National Climate Change Response Strategy 2021 provides an indicative list of communities and educational institutions affected by extreme events in the last five years to demonstrate the deteriorating situation.

To enhance disaster preparedness, Tanzania, with the support of the Global Environment Facility and the United Nations Development Programme, has been implementing the [Strengthening Climate Information and Early Warning Systems](#): a US\$27 million project co-chaired by the Office of the Vice President and Prime Minister's Office. The project is aimed at addressing challenges in data management and information production, the inability to translate information into knowledge, and inadequacies in knowledge management for organized action on early warning for development-based risk reduction and climate adaptation.

## 4. Financing

The 2015–2020 Water Sector Report observes that while 11 percent of the water sector budget for the period was funded by the government, 89 percent was donor funded. That does not take into account the numerous non-governmental organization and civil society projects whose funds are not recorded in national accounts.

For climate change, the National Climate Change Strategy (2012) estimated that the annual expenses linked with climate change impacts amount to between 1 percent and 2 percent of gross domestic product. In addition, the 2010 study conducted by the Stockholm Environment Institute (no update available, still being used in the current NDC), indicates that increasing adaptive capacity and enhancing resilience against future climate change in Tanzania will cost between US\$100 and US\$150 million a year. In addition, it is predicted that the implementation of Tanzania's NDCs will cost US\$14 billion. Since 1991, Tanzania has received over US\$1 billion in grants and US\$8 billion in co-financing for 108 projects from the Global Environment Facility, including ten climate change-related projects.

However, Tanzania has not yet received funding from the much larger Global Climate Facility because it has no accredited institution. However, this is now being addressed: Tanzania has prepared a [readiness proposal for the Global Climate Facility](#) that includes national designated authority capacity building, engagement of stakeholders, accreditation of two

national implementing entities, and preparation of bankable projects.

With the assistance of the Global Water Partnership, the Government of Zanzibar has established a Zanzibar Water Investment Programme to mobilize over US\$665.5 million between 2022 and 2027, towards securing a clean and sustainable water supply for the island's population and fast-growing economy. The Global Water Partnership (2022) reports that the German Government has already invested €660,000; and the Government of Tanzania US\$98.6 million in just one year.

A particularly interesting WASH-IWRM project was the Zanzibar Water Supply And Sanitation Project, financed by the African Development Bank loan of US\$25 million and co-financed by grant and beneficiary contributions of US\$8.3 million. Although the entry into force was December 2008, the first disbursement was delayed until July 2012, during which time the cost of some key components had escalated. The project therefore had to be scaled down and the rainwater harvesting component was stymied by women saying it was culturally unacceptable to bathe with rainwater. Meanwhile, the African Development Bank suspended the project when the Government of Zanzibar declared that water would be free for all citizens, compromising the ability to pay back the loan. The project was finally closed in June 2015.

## 5. Governance

Climate change planning is coordinated by Office of the President's Division of Environment; however, the Disaster Management Department of the Prime Minister's Office is primarily responsible for coordinating disaster prevention, preparedness efforts, activities to minimize the negative effects of hazards, disaster risk mainstreaming, and effective precautionary measures. It is also responsible for the efficient organization and delivery of emergency services, in recognition that the resilience of a country and its capacity to respond to climate change is enhanced by disaster risk management systems that incorporate effective and robust mechanisms for action.

Tanzania's Local Climate Finance Initiative aims to help local governments obtain and use climate funding for climate-resilient enterprises and communities. These climate projects contribute to the resilience of local populations and economies to climate change by using a country-based framework to channel climate funds to local government agencies.

The National Climate Change Response Strategy 2021 underscores the serious lack of capacity, stating "it is not uncommon to find that most climate change initiatives at sector and local level are coordinated by staff who do not have formal training or awareness on climate change", including the climate change desk officers in the sector ministries.

For the water sector, following the sustained poor operational performance, the government set up the [Rural Water and Sanitation Agency](#) (RUWASA) through the Water Supply and Sanitation Act 2019, which sought to enhance ownership and citizen participation through Water Point Management Groups and Community-Owned Water Supply Organizations (COWSOs). RUWASA also took over 212 problematic projects from local authorities, with the expectation that as a technical, specialized agency it could provide much better development and management of water and sanitation services. Similarly, 98 Water Supply and Sanitation Authorities that were formed as autonomous operational entities to manage WASH

services have been merged under a cluster arrangement to create 25 such entities (Ministry of Water, 2020, p. 24).

Due to significant capacity gaps and fragmentation at the community level, the Ministry of Water has now embarked on clustering the COWSOs into Community-Based Water Supply Organizations, which will be key to sustainably scaling water service delivery to many more Tanzanians (Government of Tanzania, 2019). To date, this activity has supported RUWASA to form 15 Community-Based Water Supply Organizations under the new Water Act.

Given the large contribution and interest from donors, the Ministry of Water and the Development Partners Group, with 19 international agencies that support WASH and IWRM, have set up a consultative platform to promote coordination for the efficient use of financial and technical resources (Ministry of Water, 2020, p. 29).

A similar platform brings together civil society organizations in the water sector. Established in 2008, Tanzania Water and Sanitation Network has 35 members that engage with government, donors, and communities to enhance dialogue and coordination implementation.

## 6. Gender mainstreaming and social inclusion

The 1977 Tanzanian Constitution encourages women's full participation in social, economic, and political life. Tanzania has adopted and ratified international and regional commitments on gender mainstreaming, including the Convention on the Elimination of all Forms of Discrimination Against Women, the African Union Charter on Human and Peoples' Rights, the Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa, the African Union Gender and Climate Change Policy (2009), and the Southern African Development Community Declaration on Gender and Development (1998). The National Policy on Women Development and Gender (2009) prioritizes gender equality and monitoring in national projects. The policy also directs implementing agencies to integrate gender into their policies, plans, strategies, and programmes to meet international, regional, and national commitments. The National Development Vision 2025, which builds on the National Strategy for Growth and Reduction of Poverty II, is an example of a framework that incorporates gender mainstreaming, gender equality, and women's empowerment into all social, political, and cultural contexts.

Observing that National Adaptation Plans of Action and other guidelines developed had not taken into account how to

implement gender mainstreaming, nor provide monitoring tools, the Office of the Vice President led a multi-stakeholder process to formulate the 2013 National Strategy on Gender and Climate Change. The Strategy provides a framework for gender considerations in six priority sectors: agriculture, water, health, energy, forests, and coastal management. To complement this, the National Climate Change Response Strategy calls for additional approaches, such as gender analysis, audit, and budgeting using gender-disaggregated data in monitoring. It also calls for reporting on all climate change responses to be enhanced and seeks to address these gaps through the adoption of gender-sensitive approaches and activities.

As part of the Water Resources Integration Development Initiative, a five-year IWRM programme funded by Tanzania and USAID on gendered social norms change has established that despite 30 years of women's quotas in all political and social spheres, "when women sit on village water councils, they have little ability to steer decision making towards the gendered-nature of water usage or influence final decisions of water councils" (Mandara et al., 2017). An end-of-project evaluation demonstrated that low-cost investment in gendered social norms change through targeted community facilitation can achieve significant and lasting effects (Eaton et al., 2019).

## References

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## About the Global Water Leadership (GWL) programme

Effective and equitable water management is becoming increasingly complex, and increasingly important, as climate change impacts add new uncertainty to policy decisions and financial investments. The Global Water Leadership in a Changing Climate programme (GWL) is working intensely in ten countries, bringing together key stakeholders and decision makers from two water management pillars – water resources and water and sanitation – to develop holistic, integrated policies and plans to enhance national water and climate resilience. The programme is funded by the UK Foreign, Commonwealth and Development Office (FCDO) and implemented by Global Water Partnership (GWP), the United Nations Children's Fund (UNICEF), the Sanitation and Water for All Partnership (SWA) and the World Health Organization/UNICEF Joint Monitoring Programme (JMP).



## Countries in the GWL programme

1. Bangladesh
2. Central African Republic
3. Chad
4. Madagascar
5. Malawi
6. Nepal
7. Rwanda
8. State of Palestine
9. Tanzania
10. Uganda