

**SDG 6 Country
Acceleration
Case Studies 2023
Ghana**



**United
Nations**



SDG 6 Country Acceleration Case Studies

UN-Water is a coordination mechanism of the United Nations. It is comprised of over 30 United Nations entities (Members) and over 40 other international organizations (Partners) working on water and sanitation issues. UN-Water's role is to ensure that Members and Partners deliver as one in response to water-related challenges.

The latest progress report shows that we are off track to achieve SDG 6. At the current rate of progress, the world will not reach the SDG 6 targets by 2030. In 2021, UN-Water reported that the world – on average – must quadruple current rates of progress to have a chance to achieve SDG 6 by 2030.¹

It is not enough to look at what is not working. There is so much we can learn from the many countries that have made significant progress. Since 2022, UN-Water has therefore commissioned case studies to understand how some countries are advancing towards SDG 6. The case studies highlight achievements and describe processes, enabling conditions and key lessons learned in countries selected for their progress on SDG 6. As such, each case study is a significant recognition of the progress made at the country level on one or several SDG 6 targets.

The case studies are meant to enable the replication of what has worked in other countries and encourage continued action to achieve SDG 6 in the selected countries. The 2030 Agenda for Sustainable Development

forms an overarching lens for the case study to capture interlinkages and opportunities that are relevant across sectors and SDGs.

Three countries are selected every year, starting in 2022. The selection of the case studies is made by the UN-Water Expert Group on the 2030 Agenda for Sustainable Development, based on country progress reporting on the SDG 6 global indicators, compiled by the United Nations custodian agencies. For 2023, the selected countries for case studies are Brazil, Ghana and Singapore.

The contents of the case studies are prepared by UN-Water, based on material shared by UN-Water Members and Partners and representatives from relevant ministries and institutions in the selected countries, including the country monitoring focal points for the SDG 6 global indicators. The 2023 case studies also include inputs from a participatory webinar, as well as background interviews with a variety of stakeholders, conducted online and in person during the UN 2023 Water Conference. The case studies are reviewed and validated by UN-Water Members and Partners before publication.

To enable cross-country comparison and learning, the case studies examine key underlying factors and enabling conditions that brought about the change. Very often these are political, institutional or behavioural, and they span over the five accelerators identified

¹ As evidenced by UN-Water (2021).

in the SDG 6 Global Acceleration Framework:
financing, data and information, capacity
development, innovation and governance.

So far, the following countries have been
selected for country acceleration case studies:

2022: Costa Rica, Pakistan, Senegal

2023: Brazil, Ghana, Singapore

More information: [www.unwater.org/news/
sdg-6-country-acceleration-case-studies](http://www.unwater.org/news/sdg-6-country-acceleration-case-studies)

Table of Contents

Executive summary	6
1. Country context	8
2. What was achieved	11
3. Understanding the achievement	13
Governance: strong institutions and well-managed utilities.....	13
Finance: public funding, international finance and donor support.....	14
People: drilling boreholes and buying bottled and sachet water.....	15
Nature: abundant groundwater, protected wetlands but polluted rivers.....	16
Data and information: monitoring from different sources.....	17
Capacity development: good universities and awareness campaigns.....	18
Innovation: openness to innovative solutions.....	18
4. Role of the global accelerators	20
5. Replicability in other countries.....	21
Opportunities for experience sharing.....	22
References	23
Credits	26

Executive summary

Twenty years ago, Ghana was well below the regional average access to safely managed water services for Sub-Saharan Africa. Today, Ghana surpasses the regional average by more than 10 percentage points. In fact, the population with access to at least basic water services as of 2020 is 86 per cent, with 41 per cent of the population having access to safely managed water services. This was possible thanks to the commitment of public and private partners across the country, as well as donor support. Ghana also shows progress in terms of safely managed sanitation, water use efficiency, integrated water resources management (IWRM) and transboundary engagements through high-level arrangements with neighbouring countries. The monitoring of municipal and industrial wastewater treatment is also improving. The key factors and drivers identified include:

- **Water is high on Ghana's political agenda.** Political candidates often make water part of their campaigns. The government takes pride in its achievements on the water and 'WASH' (water, sanitation and hygiene) agenda;
- **There is a strong and sound legal and policy basis** for IWRM and WASH, which is continuously improved and regularly updated;
- **Water utilities are well managed**, with separation between urban and rural areas, cross-subsidies from wealthier to poorer systems and communities, as well as incentives to achieve key performance indicators;
- **A division of labour is in place**, with the government and development banks focusing on large water systems, mostly in urban areas, whereas the United Nations, non-governmental organizations (NGOs) and other

partners focus on smaller and decentralised water systems, often in rural areas;

- **Donor aid is diminishing**, but the government is stepping up under the "Ghana Beyond Aid" policy and "Water and Sanitation for All Agenda", by investing over 740 million United States dollars (USD) in eight major water supply projects under the "Water for All" programme;
- **Ghanaians are drilling boreholes** and self-supply has developed massively, especially in fast-growing cities and peri-urban areas. The increasing self-supply of water services poses difficulty in monitoring and regulating the quality and quantity of the withdrawn water;
- **Consumption of bottled and sachet water is increasing**; unfortunately, this is also leading to growing levels of plastic pollution;
- **Ghana is endowed with significant water resources**, particularly groundwater; however, this is not the case in all parts of the country, with variable water quality, mainly due to illegal mining, limited treatment of wastewater, as well as natural factors;
- **The wetlands in the south are protected under the Ramsar Convention on Wet-lands**; they are important nature-based solutions for water quality and flood pre-vention, particularly in coastal areas;
- **Data and information, capacity development and innovation** are also key drivers that are being implemented as part of the overall progress towards the attainment of SDG 6.

The experience of Ghana is highly relevant for other medium-sized lower middle-income countries, starting at a low baseline, but with high ambitions. Ghana supports neighbouring countries, including Liberia and Sierra Leone, by sharing experience and capacity development. Ghana is very engaged at the basin, regional and global levels, including the United Nations Economic Commission for Europe (UNECE) Water Convention. Ghana also hosts an SDG Acceleration Lab, run by United Nations Development Programme (UNDP). Ghana participated at a high level in the UN 2023 Water Conference. The Ghana Water Company Limited aspires as part of the Water Action Agenda to increase access to safe water for one million additional residents in low-income urban communities, while current reforms are being implemented in the rural water sector to ensure the sustainability of water supply services in rural areas.

1. Country context

Ghana is a medium-sized country located in Western Africa. More than half of its 30 million inhabitants live in urban areas (Table 1). The country has a Gross Domestic Product based on purchase power parity of 5,971 United States dollars (USD) per capita, which is higher than the average for the region. This positions Ghana among lower middle-income countries. The country is a parliamentary democracy with an executive presidency. The government is elected every four years by universal suffrage. The President of the Republic is also the Head of Government. Two major parties have been alternating in power since 1992. The country is divided into sixteen administrative regions.

Water management in Ghana is based on integrated water resources management through the various river basins. The country is drained by three main basin systems, namely the Volta, Southwestern and Coastal basin systems, the largest being the Volta Basin. A Water Resources Commission was established to regulate and manage Ghana's water resources and coordinate relevant government policies. Basin Boards have been established to develop Basin Integrated Water Resources Management (IWRM) Plans for the management of each river basin. The Ministry of Sanitation and Water Resources has been established to ensure the quality delivery of water, sanitation and hygiene services in Ghana. There are two main water utilities: the Ghana Water Company Limited, whose operational mandate is within cities and urban areas, while the Community Water and Sanitation Agency operates in rural towns and small communities.

Ghana has 1,808 m³ of renewable freshwater resources per inhabitant. This is just above the threshold for water stress, according to the so-called Falkenmark indicator.² The combined effect of population growth and climate change has resulted in the progressive reduction of renewable freshwater resources per inhabitant, which was at 1,949 m³ per person in 2017. Some areas in the northern part of the country already face the risk of drought.

About one-third of Ghana's renewable surface freshwater resources originate from neighbouring countries, especially in the Volta River basin, which covers about 70 per cent of the country's land area. Transboundary cooperation is important to reduce the risk of flooding, which is prevalent especially in the northern parts of the country during the rainy season. Ghana has concluded international agreements with neighbouring countries to ensure the transboundary management of water resources. The Volta Basin Authority was established in 2007 to ensure the holistic management of the Volta Basin. Furthermore, Ghana acceded to the 1992 UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki Convention) and the 1997 Convention on the Law of the Non-navigational Uses of International Watercourses (New York Convention) in 2020.

² For the definitions of water scarcity and water stress see inter alia White (2018).

Table 1: Overview of water-related key data

Population	30,832,019 (56% urban) Source: Ghana Statistical Service (2021)
Gross domestic product	5,971 USD per capita/year (PPP, lower middle income) Source: World Bank (2021, current international)
Renewable freshwater resources	1,808 m ³ /habitant/year (30% external) Source: Food and Agriculture Organization of the United Nations (FAO) AQUASTAT (2020), Water Resources Commission (2021)
Surface water	Volta (70%), Southwestern (22%), Coastal (8%) Source: Government of Ghana
Groundwater	26.3 billion m ³ /year Source: FAO AQUASTAT (2020)
Wetlands	10% of land area Source: Government of Ghana
Water withdrawal	73% agriculture, 20% municipal, 7% industry Source: FAO AQUASTAT (2020, rounded)
Irrigated land	0.3% of agricultural land Source: FAO AQUASTAT (2014)
Hydropower	34% of power generation Source: Energy Commission (2021)
Drought risk	Low (except in the north) Source: World Resources Institute (WRI) Aqueduct 3.0
Riverine flood risk	High Source: WRI Aqueduct 3.0

About 10 per cent of the land area is covered by highly productive wetlands and mangroves, particularly along the coast. These ecosystems are of great value for water quality, erosion protection and biodiversity conservation. The country is also endowed with groundwater resources. In the northern part of the country, groundwater levels are reducing and there are high concentrations of fluoride, especially in the north-eastern part. In the southern part, there are high levels of iron and manganese in groundwater resources and high salinity in groundwater resources along the coast.³ Ghana shares a coastal sedimentary aquifer with Togo, Benin and Nigeria.

Hydropower represents about 34 per cent of power generation in the country. There are three large hydropower plants.⁴ They are all located downstream from other Volta River

basin riparian countries. As the country exports power to neighbouring countries, transboundary cooperation along the water-energy nexus is important for the region.

According to FAO, only 0.3 per cent of agricultural land is irrigated, representing less than 40,000 hectares. Still, agriculture represents 73 per cent of water withdrawals in the country. About 20 per cent of water is withdrawn for domestic uses. Industry withdraws the remaining 7 per cent. Environmental flows are estimated at 59 per cent of renewable water resources.

In 2000, Ghana was below the regional average for access to drinking water, sanitation and hygiene (WASH) for safely managed water services. The country surpassed the regional average for safely managed drinking water services in the mid-2000s (Figure 1), but important differences remain across the country, between urban and

³ See Gumma and Pavelic (2013) and Araya et al. (2022).

⁴ For more details, refer to the National Energy Statistics 2022.

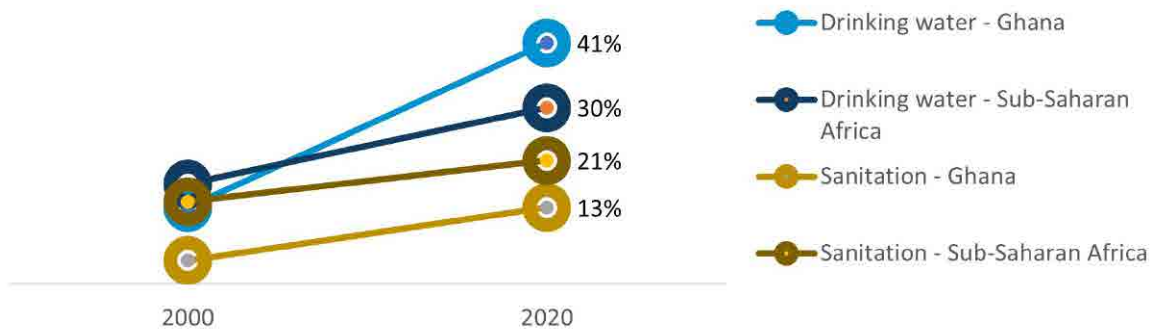


Figure 1: Household WASH trends (2000-2020)

rural areas, between the richest and the poorest and with sanitation and hygiene (Figure 2).

Disaggregated data on coverage of basic services reveal significant inequalities between urban (96 per cent of the population with access to drinking water) and rural areas (72 per cent), between the richest (99 per cent) and poorest (48 per cent) and between different regions (98 per

cent in the capital area of Greater Accra and 44 per cent in the Northern and Upper East region).

According to the United Nations Children’s Fund (UNICEF), there are over 2.5 million people using unimproved water sources. About one-third of water points are non-functional. Moreover, about 18 per cent of the population practise open defecation, while 47.4 per cent use shared toilet facilities.

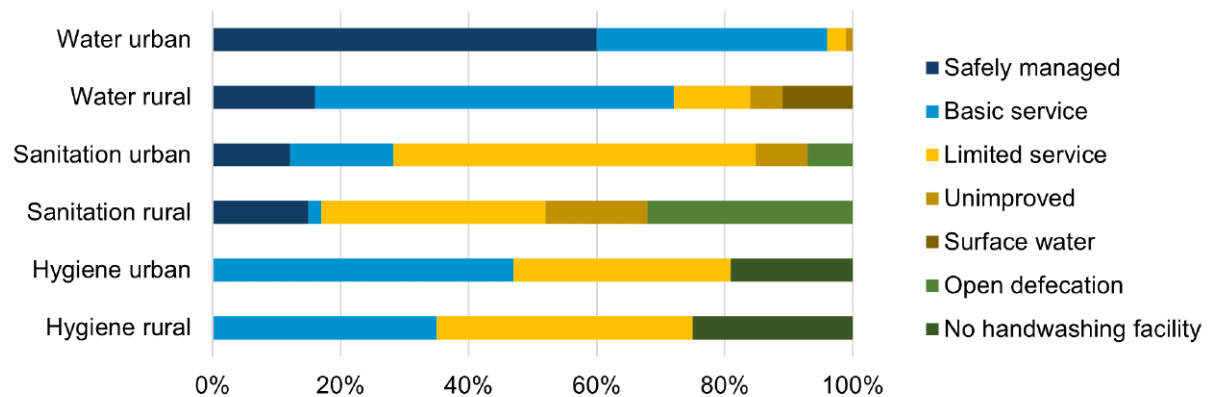


Figure 2: Household WASH coverage (2020)

2. What was achieved

Since 2000, Ghana has seen the fastest improvement in coverage of safely managed drinking water services (SDG 6.1.1) in Sub-Saharan Africa, with coverage increasing by 1.4 percentage points per year. In 2020, 41 per cent of the population had access to such services, compared to only 13 per cent in 2000 (Figure 3). Such progress means the country has outdone the regional average for Sub-Saharan Africa.⁵ Ghana's national drinking water target is to achieve universal access to basic services by 2030. With coverage rising from 64 per cent in 2000 to 86 per cent in 2020 (a yearly increase of 1.1 percentage points), the country is almost on track to achieve this target by 2030 (requiring a yearly increase of 1.4 percentage points).

More than 10 million people gained access to safe drinking water services in 20 years.

Ghana has also shown progress on several other SDG 6 targets, in addition to the progress on drinking water services. The amount of the population with access to improved sanitation increased from 64.7 per cent in 2010 to 71.1 per cent in 2020. While remaining below the regional average, coverage of safely managed sanitation services (SDG 6.2.1a) has also progressed, from 8.8 per cent of the population in 2010 to 13.3 per cent in 2020, representing an increase of 4.5 percentage points. Ghana also shows progress in terms of being able to monitor municipal and industrial wastewater treatment (SDG 6.3.1), with about 40 per cent of monitored municipal and industrial wastewater receiving treatment.⁶ Water use efficiency (SDG 6.4.1), measured as the ratio of USD value added to the volume of water used, has increased by 77 per cent over the last

decade, from 18 USD/m³ in 2010 to 33 USD/m³ in 2019. Moreover, the level of implementation of IWRM is improving (SDG 6.5.1). According to data produced by UNEP, the implementation of IWRM increased from 49 per cent in 2017 to 57 per cent in 2020. Furthermore, Ghana shows high levels of transboundary cooperation (SDG 6.5.2), with 91 per cent of transboundary basins area covered by operational arrangements with riparian countries.

SDG indicator 6.1.1 “Proportion of population using safely managed drinking water services”

monitors the proportion of population using safely managed drinking water services. A safely managed service is defined as an improved drinking water source that is accessible on the premises, available when needed, and free of faecal and priority chemical contamination. Improved water sources include piped water, boreholes or tubewells, protected dug wells, protected springs and packaged or delivered water.

Basic drinking water services. If the improved source does not meet the criteria for accessibility, availability or quality, but less than 30 minutes are required to collect the water, the service is referred to as basic.

⁵ For more detailed information on progress with SDG 6.1.1, see the snapshot by UN-Water, UNICEF and the World Health Organization (WHO) (2023).

⁶ Likewise for SDG 6.3.1, see the relevant snapshot by UN-Water and UN-Habitat (2023).

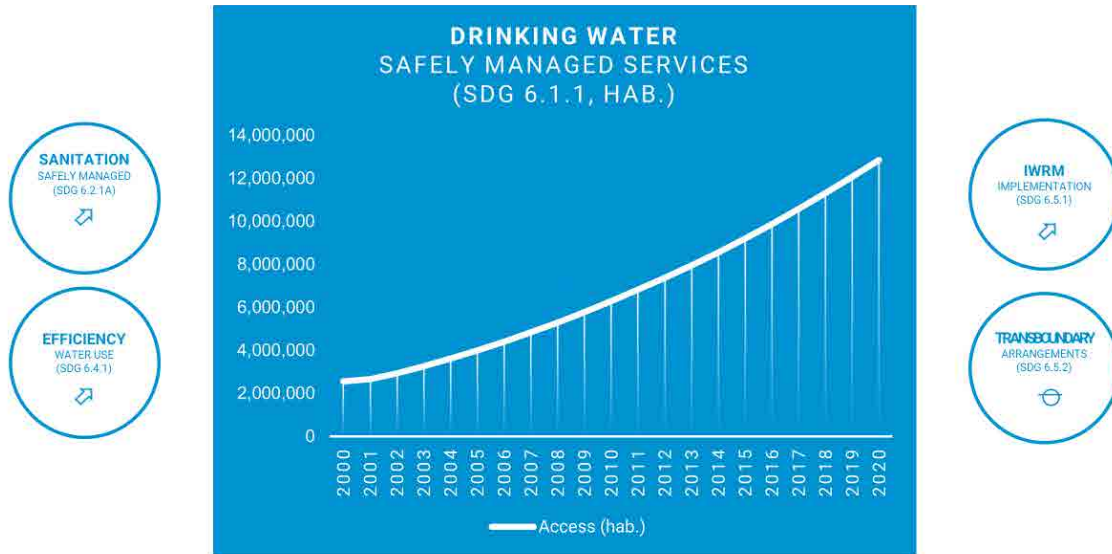


Figure 3: Progress on access to safely managed drinking water service (number of people) (SDG 6.1.1) and other SDG 6 indicators impacting this progress in Ghana.

Source: UN-Water SDG 6 Data Portal, with data from the World Health Organization (WHO) and United Nations Children’s Fund (UNICEF) (6.1.1, 6.2.1, 2000-2020), Food and Agriculture Organization of the United Nations (FAO) (6.4.1, 2010-2020), United Nations Environment Programme (UNEP) (6.5.1, 2017-2020), and United Nations Economic Commission for Europe (UNECE) and United Nations Educational, Scientific and Cultural Organization (UNESCO) (6.5.2, 2017-2020).

3. Understanding the achievement

This section describes how and why the progress took place. It examines the direct and indirect factors that enabled the achievement, paying attention to which factors can perhaps be replicated in other countries. Seven main drivers have been identified in the case of Ghana: governance, financing, people, nature, data and information, capacity development, as well as innovation. They are presented in order of relevance.

Governance: strong institutions and well-managed utilities

Water is high on Ghana's political agenda. It is seen as an enabler of economic growth. During elections, candidates campaign on issues relating to water and sanitation. Water and sanitation are high on the government agenda with the President playing a key role both domestically and at the international level. The government is flexible and adaptive, fostering new ideas and approaches.

There is a strong institutional and policy basis for IWRM and WASH. The country established a Water Resources Commission in 1996 and Boards for each basin, which developed Basin IWRM Plans. The country is now in the process of establishing sub-basin management organizations, which will develop their own IWRM plans, to reflecting the needs and aspirations of the communities and users within the catchment. The Commission issues and manages drilling licences and water use permits. Through the implementation of legislation, compliance with permits, conservation of buffer zones, presence of the Commission throughout the country, improved participation of Basin Boards, enhanced

coordination of established institutional arrangements, coupled with private and public investment, has enabled millions of Ghanaians to gain access to drinking water in recent years. Ghana also adopted a National Water Policy in 2007, which is currently being revised to reflect the current global focus on the WASH agenda, as well as emerging issues in Ghana's water and sanitation sector.

The Ministry of Sanitation and Water Resources was created in 2017, signalling the need to focus on sanitation. However, access to and sustainable management of sanitation remains challenging. Currently, sanitation services are delegated at the local level, where financial resources are more limited and technical capacity in some jurisdictions is low. There are discussions around establishing a National Sanitation Authority which may further boost action and much needed investment.

Urban water utilities are well managed. There is operational delineation in water services delivery for urban and rural areas. The Ghana Water Company Limited is present in cities and urban areas, while the Community Water and Sanitation Agency is responsible for small towns and rural areas. In urban areas, cross-subsidies are in place to expand water services to all neighbourhoods, sometimes transferring resources from wealthier to poorer systems and communities. In urban areas, poorer households are receiving new attention as the Ghana Water Company Limited has established a Low-Income Consumer Support Department to ensure water supply services to low-income users. Incentives are also in place to encourage water utilities to achieve key performance indicators. Ongoing

Fight against illegal mining

A moratorium on small-scale mining was put in place in 2017, as it pollutes water. An Inter-Ministerial Committee on illegal mining and the Operation Vanguard Taskforce were established. The approach is not only to stop illegal mining, reclaim lands and improve livelihoods, but also to move towards community mining with licences at the community level, to regulate small mining structures.



reforms to transition the Community Water and Sanitation Agency from a facilitator to a rural water utility is a key government reform agenda that is expected to help overcome the remaining service delivery challenges that pertain in rural areas. Nevertheless, the legal and economic basis of water utilities in rural areas needs to be strengthened to enable private sector investment and participation towards the attainment of universal access.

Focus on water quality is on the increase. To enhance the continuous supply of safe water within the country, the National Drinking Water Quality Management Framework has been developed for the management of drinking water quality, which focuses on systematic identification of risks, implementation of Water Safety Plans and intensification of household water treatment and safe storage interventions, effective monitoring and evaluation, regulation and coordination of roles and responsibilities of all relevant actors. The framework ensures that multiple barriers are put in place from the catchment to the point-of-use, to effectively manage the risk associated with the exposure of contaminated drinking water to the public and thereby protecting public health. Closer collaboration between government and key stakeholders have led to a formation of a consortium of government, manufacturers and civil society organizations that is currently raising

awareness on a global commitment to achieve lead-free drinking water.

Finance: public funding, international finance and donor support

The Ghana Water Company Limited can service its operational costs from the current tariff structure within its operational areas. However, it is still unable to borrow and service loans on its own books. Nonetheless, it can leverage on investments. Most water systems in small towns and rural communities are not able to meet their operational costs. It is envisaged that the reforms initiated within the rural water subsector will enable the Community Water and Sanitation Agency to effectively manage water systems in small towns and communities and leverage on investments in the near future. A division of labour is in place, with the government and development banks focusing on large water systems, mostly in urban areas, whereas the United Nations, NGOs and other partners focus on smaller and decentralized water systems, typically boreholes and limited mechanized water systems in rural areas.

Current sector funding is about 114 million USD a year but remains insufficient. The World Bank estimates an annual funding requirement of about 946 million USD to achieve SDG 6 by 2030 at the

The GAMA Project

The World Bank is providing a grant of 150 million USD to support the Ghana government's efforts to increase access to improved sanitation and water supply in the Greater Accra Metropolitan Area (GAMA), with emphasis on low-income communities and to strengthen management of environmental sanitation in the area. The project has four components: provision of environmental sanitation and water supply services to priority low-income areas; improvement and expansion of the water distribution network; planning, improvement and expansion of GAMA-wide environmental sanitation services; institutional strengthening of municipal, metropolitan and national institutions.



country level.⁷ However, current sector funding is about 114 million USD a year. This leaves a significant gap to achieve SDG 6, particularly universal access to drinking water and sanitation.⁸ UNICEF estimates the cost of universal access to basic sanitation alone is 180 million USD per year. Households play a significant role, as they currently spend roughly 130 million USD a year for the use of shared toilet facilities.

As the economy keeps growing, donor grants are progressively reducing. Over the last ten years, the amount of water and sanitation related official development assistance (ODA) that was disbursed averaged 88 million USD per year. As the economy keeps growing, donor aid is progressively reducing. However, government spending is increasing, under the “Ghana Beyond Aid” policy. For instance, under the “Water for All” programme, the government is currently investing over 740 million USD in eight water supply projects in the cities of Yendi, Tamale, Bolgatanga, Damongo, Wenchi, Sunyani, Keta and Sekondi-Takoradi. The government reports that an amount of 1.3 billion USD has been invested to expand water and sanitation services benefitting about 5.3 million people.⁹

⁷ Analysis captured in Safe Water Network (2017).

⁸ See Sanitation and Water for All (2019).

⁹ Refer to UNICEF Ghana and Ministry of Water Resource and Sanitation (2019).

Several partners are helping provide water loans on concessional terms, as interest rates remain high. Some NGOs are providing microcredit, but the arrangement needs to be consolidated. Poorer households are often not aware of available subsidies and soft loans. Government subsidies and donor aid need to be better targeted towards poorer households and neighbourhoods, which are often not connected to the piped network.

People: drilling boreholes and buying bottled and sachet water

Ghanaians are playing an active role in the provision of water. Rapid population growth and unplanned urbanization make it difficult for water utilities to meet the expected water demand. As a result, in fast growing cities like Accra, Cape Coast, Kumasi and Tamale, people are gravitating towards self-supply by drilling boreholes. This is a result of these areas having intermittent water supply, being beyond the reach of piped networks, and the ability of the households to afford the drilling of such boreholes. In areas covered by a piped network, self-supply represents a loss of revenue for water utilities. In poorer communities, the drilling of boreholes for communal use is often supported by NGOs, particularly in the northern part of the country. Drilling licenses and water use permits are issued by the Water

Resources Commission, while groundwater levels and quality are monitored by the Water Research Institute of the Council for Scientific and Industrial Research (CSIR). The increasing self-supply however poses difficulty in monitoring and regulation. Also, the quality of handpumps varies, which can be an issue, especially in areas with high levels of acid in the water (pH <7).¹⁰

Ghanaians are also increasingly consuming water in sachets and bottles, which qualifies as access to safely managed services. This non-conventional source of water is licensed by the Food and Drugs Authority, while the Water Resources Commission focuses its efforts on enforcing water use permits on sachet and bottled water producers, as levels of extraction can be high and quality is variable, considering that this water is used by about one-third of the population.¹¹ The use of sachets and bottled water comes at a considerable cost for households and the environment. In fact, a limited number of used sachets and bottles are collected and recycled or safely disposed. This contributes to growing levels of plastic pollution, which is an issue in many cities and other parts of the country. The programmes of the Environmental Protection Agency and the actions of small companies to recover plastic are not sufficient to counter this growing problem, which also clogs drainage canals in urban and rural areas.

Nature: abundant groundwater, protected wetlands but polluted rivers

Ghana is endowed with significant water resources, with particularly abundant groundwater in most of the country. Abstraction and production of bottled and sachet water account

for only 5 per cent of the average annual groundwater recharge in most of the country. Moreover, groundwater is relatively protected as it is quite deep. The average borehole depth is 42 meters.¹² However, in some areas, especially the north, there is less groundwater and in some other areas, the groundwater is not safe. In the north-eastern part of the country, groundwater is not suitable because of high concentrations of fluoride, which causes severe dental and skeletal fluorosis. There is also presence of manganese and iron in groundwater in the middle and the southern part of the country and high salinity of groundwater resources along the coast. Ghana's aquifers can buffer against climate change as predicted higher intensity rainfall is likely to increase groundwater recharge.¹³

Surface water quality is an issue with many rivers being heavily polluted, because of several human activities including illegal mining. According to the government, the proportion of water bodies with good ambient water quality increased from 51.5 per cent in 2017 to 58.2 per cent in 2021, as a result of the work of the Inter-Ministerial Committee on illegal mining and Operation Vanguard Taskforce. The approach is to move towards community mining with licences at the community level. The south-western river system including Pra, Tano, Bia and Ankobra basins, which deteriorated due to illegal mining, has gradually improved, with the water quality index rising from 49.3 per cent in 2017 to 53.0 per cent in 2019.

Ghana has extensive wetlands and mangroves in the south, which are important for aquatic, terrestrial and avian biodiversity. As natural filters, they also play an important role in water quality, flood prevention, erosion protection and carbon sequestration. Therefore, they are important for both climate mitigation and adaptation. These wetlands represent about 10 per cent of the surface of the country. They are protected

¹⁰ For more information, see Danert (2022), as well as Sutton and Butterworth (2021)

¹¹ See Ghana 2021 Population and Housing Census, vol. 3, as well as Mould et al. (2022).

¹² According to the revised National Water Policy (2022, p. 14).

¹³ Confirmed by Cuthbert et al. (2019).

under the Ramsar Convention on Wetlands and relatively well managed. However, in some cities like Accra, where pressure for land is high, people illegally encroach upon wetlands. It is important to strengthen conservation measures, to stop and reverse the trend, also restoring the encroached areas.

Data and information: monitoring from different sources

Data is available from many sources, including good census and survey data, provided by the Ghana Statistical Service and other platforms, such as the WHO-UNICEF Joint Monitoring Programme (JMP). The 2021 Population and Housing Census has disaggregated data, showing significant differences across regions and in urban and rural areas.¹⁴ Unfortunately, this data is not disaggregated by other significant traits such as gender and age group. Water providers also produce data. However, provider, survey and census data do not always align, even if trends are similar. There is a need for cross-validation. A WASH Sector Information System is currently under finalization towards its full operationalization. It aims at providing adequate information on access to drinking water supply and sanitation services, the quality of those services and their

sustainability on a consistent and systematic basis.

The Water Resources Commission and the CSIR Water Research Institute monitor water resources. The Water Resources Commission manages a network of 78 operational water quality monitoring stations, has undertaken 35 hotspot and ecological monitoring activities and manages the permitting system.¹⁵ Within academia, the CSIR Water Research Institute also has a section that monitors groundwater quality. Still, the monitoring of surface water and groundwater quality and quantity remains limited.

Ghana shares data with neighbouring countries. A long-standing data sharing arrangement is in place between Ghana and Burkina Faso, which is located upstream of Ghana. In 2019, the Volta Basin Water Charter was adopted in the framework of the Volta Basin Authority. It aims at working with all riparian countries to standardize data collection and ex-change of data and information for transboundary water management. Ghana also participates actively in the Water and Sanitation Sector Monitoring and Reporting System of the African Ministers' Council on Water (AMCOW).

Monitoring of wastewater flows

Under the leadership of the Environment Protection Agency, the monitoring of wastewater flows started in 2022. A study was produced with the support of UN-HABITAT, showing that 40 per cent of industries and municipal facilities that are registered with the Environment Protection Agency treat wastewater. This figure is significantly higher than previous surveys and estimates, resulting from increased investments, improved legislation and strengthened compliance. However, there are many industries that are not registered.



¹⁴ See the Ghana 2021 Population and Housing Census.

¹⁵ See the Ghana WASH Sector Development Programme 2021-2030.

Developing the sanitation value chain

A demand-led approach is implemented in both urban and rural areas, under the Government of Ghana-UNICEF WASH Programme. More than 60,000 durable household toilets have been built since 2017, using Sanitation Marketing (SanMark). The focus is on training artisans and establishing small businesses for toilet construction complemented by financing facilities where households and small businesses can take sanitation loans at much lower interest rates than the market and pay on flexible terms. This comprehensive approach has addressed the needs of people from different economic quintiles.



Capacity development: good universities and awareness campaigns

Government and development partners carry out capacity development activities at all levels. Decades of projects from development partners provided constant training and capacity development, including short-term courses abroad and exposure trips. As efforts focused on central authorities, gaps persist, particularly within basin offices and district assemblies. District-wide planning and capacity development is being piloted, in collaboration with the National Development Planning Commission. In general, capacity gaps and constraints are high within rural areas. The service quality of water utilities also needs to be strengthened.

Ghanaian universities rank among the best in Africa. Academia plays an important role in the implementation of several projects, often in collaboration with foreign partners. While the sustainability of research projects is limited after their end, they contribute to the transfer of capacity, knowledge and technology across borders and generations.

Public awareness campaigns are carried out through radio and other media to enhance the

public's knowledge and appreciation of water-related issues. Efforts are usually focused on the basin and local levels and on developing capacity in IWRM and WASH.

Innovation: openness to innovative solutions

There is much innovation going on in Ghana, with solutions constantly being tested. The government is open to new ideas to accelerate progress. For instance, water was free for all for nine months during the COVID-19 crisis. Other innovative solutions include:

- A 70 per cent subsidy to install toilets for those who do not have them;
- Revolving loan schemes for households and small and medium-sized enterprises at affordable interest rates and flexible payment terms;
- A toilet construction voucher redemption system, conditional upon quality control, as most households practising open defecation used to own a toilet that collapsed or filled up because of poor quality;
- Water loans on concessional terms by private banks, supported by donors;

- > A saving platform for poor households to access subsidized toilets, based on a 30 per cent household contribution;
- > A flexible water connection payment system, depending on the distance from the network;
- > A high possibility of expanding the innovative financing schemes, such as the Basic Sanitation and District Sanitation Funds, with concessional interest rates, which have already demonstrated willingness to borrow and ability to pay among low-income households;
- > Use of smart meters and tokens on public standpipes, which allows people to have access to water supply services at any point in time, as long as the system is functional;
- > A Water Quality Assurance Fund that allows established laboratories to extend water quality testing services to small rural systems on a fee-for-service basis (if water systems do not pay testing bills, the laboratory can claim reimbursement from an Assurance Fund);
- > Performance-based contracting for rural water services;
- > Transition Management was piloted in Dodowa, Accra, and can build understanding, trust and joint actions between slum residents and authorities to improve access to safe water;
- > Rainwatch and farmer radio to connect groundwater users in rural areas with forecasts and other useful information to strengthen resilience.

The government is currently looking for solutions for non-conventional water, particularly desalinization and water reuse, particularly for arid zones in the northern part of the country. Ghana is also looking for cost-effective solutions to treat groundwater with excessively high concentrations of iron and fluoride. The process of mainstreaming innovations and pilots for effective scale-up may, however, need to be better institutionalized.

4. Role of the global accelerators

Ghana invested in all five global accelerators at the same time. Ghana would not have been able to achieve such impressive progress on SDG 6 if it had not invested in all five accelerators identified in the SDG 6 Global Accelerator Framework, namely: financing, data and information, capacity development, innovation and governance. Census data show that most of the progress achieved in access to drinking water depended on the diffusion of bottled and sachet water and on self-supply through boreholes. This progress was enabled by a conducive policy, regulatory and institutional framework. This is a short-term solution that will help the country partially achieve progress on SDG 6, but that presents serious limits in terms of affordability, reliability and safety.

It is the joint efforts in governance, financing, data, capacity development and innovation that allow the maintenance and expansion of

piped systems, ensure quality control and reach out also to rural areas and underprivileged neighbourhoods in a sustainable manner. To fully achieve SDG 6, the current level of effort needs to more than double. It will probably require the joining of forces not only of the public sector, development partners, NGOs and academia, but also of private investment.

The SDG 6 Global Acceleration Framework is a unifying initiative that aims to deliver fast results, at an increased scale, towards the goal of ensuring the availability and sustainable management of water and sanitation for all by 2030. The Framework contributes to the new Water Action Agenda, an outcome of the UN 2023 Water Conference, held in March 2023. More information: www.unwater.org/our-work/sdg-6-global-acceleration-framework

5. Replicability in other countries

The experience of Ghana is highly relevant for other medium-sized lower middle-income countries, starting with a low baseline but with high ambitions. Key factors and drivers that may be replicated in other countries include:

- > **Water is high on Ghana's political agenda.** Political candidates often make water part of their campaigns. The government takes pride in its achievements on water and WASH agenda;
- > **There is a strong and sound legal and policy basis** for IWRM and WASH, which is continuously improved and regularly updated;
- > **Water utilities are well managed**, with separation between urban and rural areas, cross-subsidies from wealthier to poorer systems and communities, as well as incentives to achieve key performance indicators;
- > **A division of labour is in place**, with the government and development banks focusing on large water systems, mostly in urban areas, whereas the UN, NGOs and other partners focus on smaller and decentralised water systems, often in rural areas;
- > **Donor aid is diminishing, but** the government is stepping up under the "Ghana Beyond Aid" policy and "Water and Sanitation for All Agenda", by investing over 740 million USD in eight major water supply projects under the "Water for All" programme; however, the funding gap remains important and a lot more needs to be done if Ghana wants to achieve the SDG 6 by 2030;
- > **Ghanaians are drilling boreholes** and self-supply has developed massively, especially in fast-growing cities and peri-urban areas. The increasing self-supply

of water services poses difficulty in monitoring and regulating the quality and quantity of the withdrawn water;

- > **Consumption of bottled and sachet water is increasing**; unfortunately, this is also leading to growing levels of plastic pollution;
- > **Ghana is endowed with significant water resources**, particularly groundwater; however, this is not the case in all parts of the country, with variable water quality, mainly due to illegal mining, limited treatment of wastewater, as well as natural and particularly geological factors;
- > **The wetlands in the south are protected under the Ramsar Convention on Wetlands**; they are important nature-based solutions for water quality and flood prevention, particularly in coastal areas;
- > **Data and information, capacity development and innovation** are also key drivers that are being implemented as part of the overall progress towards the attainment of SDG 6; such as the operationalisation of a Sector Information System to provide adequate information on access to water supply and sanitation services, the quality of those services and their sustainability;
- > **Focus on water quality is on the increase.** A National Drinking Water Quality Management Framework was developed and is being implemented. Ghana joined a consortium of governments, manufacturers and civil society organisations that is raising awareness on a global commitment to achieve lead-free drinking water.

Opportunities for experience sharing

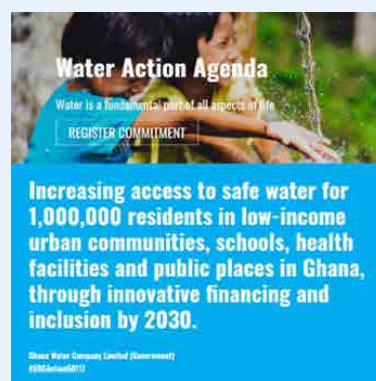
Ghana is sharing experience with neighbouring countries, supporting programmes to help develop capacity in Liberia and Sierra Leone. Ghana could perhaps share its experience with further countries around the world, for instance through South-South cooperation.

Ghana is engaged at the basin and regional levels. It is party to the Convention on the Status of the Volta River Basin and is a member of the Volta Basin Authority. It is working on transboundary river basin agreements with Côte d'Ivoire on the shared Tano and Bia catchments and with Togo on the Todzie catchment. Furthermore, Ghana is a member of AMCOW, the Permanent Framework for Coordination and Monitoring of IWRM under the Economic Community of West African States (ECOWAS), as well as the West African Water Partnership of the Global Water Partnership (GWP). Basin and regional arrangements provide further platforms for experience sharing.

Ghana is a party to and actively participates in global water and environment conventions and processes, such as the Helsinki Convention, the New York Convention, as well as the Ramsar Convention on Wetlands. Moreover, Ghana formulated commitments under Sanitation and Water for All (SWA) and is a member of the newly launched Transboundary Water Cooperation Coalition. An SDG Accelerator Lab operates in Ghana, supported by UNDP. These labs are present also in other countries. These are all potential tools for sharing and scaling-up Ghana's experience at the global level.

Participation in the UN 2023 Water Conference

Ghana took part at a high level in the UN 2023 Water Conference, held in New York in March 2023. The delegation was led by Hon. Mrs. Cecilia Abena Dapaah, Minister of Sanitation and Water Resources. Ghana has contributed to the Water Action Agenda. For instance, the Ghana Water Company Limited presented the ambitious commitment of increasing access to safe drinking water to one million residents in low-income urban communities, schools, health facilities and public places by 2030.



References

Government documents

- Medium-Term National Development Policy Framework 2022-2025
- National Water Policy 2007, 2023 (draft)
- National Environmental Sanitation Strategy and Action Plan 2009
- Environmental Sanitation Policy 2010
- National Integrated Water Resources Management Plan 2012
- Rural Sanitation Model Strategy 2012
- Water Sector Strategic Development Plan 2012-2025
- National Community Water and Sanitation Strategy 2014
- National Drinking Water Quality Management Framework 2015
- National Solid Waste Management Strategy 2020
- National Liquid Waste Management Strategy for Urban 2020
- Population and Housing Census 2021
- Ghana National Implementation Plan for the Convention on the Protection and Use of Transboundary Watercourses and International Lakes 2021
- National Energy Statistics 2022
- Sector Medium Term Development Plan 2022-2025
- National WASH Sector Development Plan 2021-2030 (draft)

United Nations documents

- United Nations Sustainable Development Cooperation Framework for Ghana 2022-2025
- SDG indicator 6.5.1 Implementation of IWRM Reporting Summary Ghana 2020
- UN-Water Country Brief Ghana 2013

- UNICEF WASH Strategic Plan 2016-2030
- UNICEF Ghana and Ministry of Water Resource and Sanitation (2019), *WASH Budget Brief*, Accra.
- UN-HABITAT and EPA Ghana (2022), *Volumes of wastewater and pollutant loads discharged by industrial and municipal facilities in Ghana*, Accra.
- UN-Water, UNICEF and WHO (2023), *SDG 6 Acceleration snapshot: What progress looks like – Ghana – Drinking water*, UN-Water Integrated Monitoring Initiative for SDG 6, Geneva.
- UN-Water and UN-Habitat (2023), *SDG 6 Acceleration snapshot: What monitoring progress looks like – Ghana – Wastewater treatment*, UN-Water Integrated Monitoring Initiative for SDG 6, Geneva.

Other reports

- European Union Water Initiative (EUWI) Finance Working Group (2012), *Financing of Water Resources Management: experiences from Sub-Saharan Africa* (interim report), Stockholm.
- International Water Management Institute (IWMI) (2021), *Circular economy solutions to close water, energy and food loops in West Africa*, Colombo.
- Safe Water Network (2017), *Ghana sector review: scaling small water enterprises*, Accra.
- Sanitation and Water for All (2019), *The Ghana country brief, Sector Ministers' Meeting*, San José, 4-5 April.
- Sanitation and Water for All (2021), *Ghana collaborative behaviour profile*, New York.
- United States Agency for International Development (USAID) (2021), *Understanding impacts of a targeted toilet subsidy in Ghana*, Accra.

Scholarly publications

- Adarkwa, Kwasi Kwafo, ed. (2014), *Human Settlements and Service Delivery in Ghana*, Kwame Nkrumah University of Science and Technology, Kumasi. ISBN: [9789988178765](#).
- Agodozo, Sampson K., Enoch Bessah and Mexoese Nyatuame (2022), A review of the water resources of Ghana in a changing climate and anthropogenic stresses, *Frontiers in Water*, vol. 4. DOI: [10.3389/frwa.2022.973825](#).
- Araya, Dahyann, Joel Podgorski, Michael Kumi, Patrick A. Mainoo and Michael Berg (2022), Fluoride contamination of groundwater resources in Ghana: country-wide hazard modeling and estimated population at risk, *Water Research*, vol. 212, no. 118083. DOI: [10.1016/j.watres.2022.118083](#).
- Cuthbert, Mark O., Richard G. Taylor, Guillaume Favreau et al. (2019), Observed controls on resilience of groundwater to climate variability in sub-Saharan Africa, *Nature*, vol. 572, 230-234. DOI: [10.1038/s41586-019-1441-7](#).

- Danert, Kerstin (2022), *Stop the rot: handpump functionality, corrosion, component quality and supply chains*, Ask for Water GmbH, Skat Foundation and RWSN, St. Gallen.
- Frimpong, Josephine, Ronald Adamtey, Anders Branth Pedersen, Esther Wahaga, Anne Jensen, Emmanuel Obuobie and Ben Ampomah (2021), Review of Ghana’s National *Water Policy*, *Water Policy*, vol. 23, no. 5, 1170-1188. DOI: [10.2166/wp.2021.042](https://doi.org/10.2166/wp.2021.042).
- Grönwall, Jenny, and Sampson Oduro-Kwarteng (2018), Groundwater as a strategic resource for improved resilience: a case study from peri-urban Accra, *Environmental Earth Sciences*, vol. 77, no. 6. DOI: [10.1007/s12665-017-7181-9](https://doi.org/10.1007/s12665-017-7181-9).
- Gumma, Murali Krishna, and Paul Pavelic (2013), Mapping of groundwater potential zones across Ghana using remote sensing, geographic information systems, and spatial modeling, *Environmental Monitoring Assessment*, vol. 185, pp. 3561-3579. DOI: [10.1007/s10661-012-2810-y](https://doi.org/10.1007/s10661-012-2810-y).
- Moulds, Simon, Anson C.H. Chan, Jacob D. Tetteh, Honor Bixby, George Owusu, Samuel Agyei-Mensah, Majid Ezzati, Wouter Buytaert and Michael R. Templeton, Sachet water in Ghana: A spatiotemporal analysis of the recent upward trend in consumption and its relationship with changing household characteristics, 2010–2017, *PLoS ONE*, vol. 17, no. 5, e0265167. DOI: [10.1371/journal.pone.0265167](https://doi.org/10.1371/journal.pone.0265167).
- Sutton, Sally, and John Butterworth (2021), *Self-supply: filling the gaps in public water supply provision*, Practical Action Publishing, Rugby. DOI: [10.3362/9781780448190](https://doi.org/10.3362/9781780448190).
- White, Chris (2018), “Understanding water scarcity: definitions and measurement”, in *Global Water Issues and Insights*, edited by R. Quentin Grafton, Paul Wyrwoll, Chris White and David Allendes, Australian National University (ANU) Press, Canberra, pp. 161-166. DOI: [10.22459/GW.05.2014](https://doi.org/10.22459/GW.05.2014).

Referenced data

- FAO AQUASTAT, last accessed 16 May 2023. URL: www.fao.org/aquastat
- UN-Water SDG 6 Data Portal, last accessed 16 May 2023. URL: www.sdg6data.org
- World Bank Open Data, last accessed 16 May 2023. URL: <https://data.worldbank.org/>
- WRI Aqueduct 3.0, last accessed 16 May 2023. URL: www.wri.org/aqueduct

Credits

Editorial team of the UN-Water Country Acceleration Case Studies: Jon Marco Church (lead writer), Klas Moldeus, William Reidhead, Maria Schade, Tamara Slowik.

Contributing members of the UN-Water Expert Group on the 2030 Agenda: Colin Herron, Sonja Koeppel, Marianne Kjellen.

Contributing members of the UN-Water Task Force on Country Level Engagement: Farai Tunhuma.

Institutions whose representatives participated in the preparatory webinar: Ministry of Sanitation and Water Resources, Water Resources Commission, Environment Protection Agency, Community Water and Sanitation Agency, Ghana Water Company Limited, UNICEF, WHO, World Bank, Ghana Water Partnership, CSIR Food Research Institute, CSIR Water Research Institute, Kwame Nkrumah University of Science and Technology, AM Jensen Consulting LLC, Coalition of NGOs In Water and Sanitation, IRC Ghana.

Acknowledgements: Noah Tumfo, Kwabena Asare Gyasi-Duku, Ronald Adamtey, Abdul-Nashiru Mohammed, Daniel Amofa, Ibrahim Adoko, Bernadette Araba Adjei, Jerry Asumbere, Maxwell Boateng-Gyimah, Clifford Braimah, Vida Duti, Anthony Dzadzra, Harold Esseku, Josephine Frimpong, Solomie Gebrezgabher, Constant Gladzah, Anthony Yaw Karikari, Henry Kwabena Kokofu, Akosua Takyiwa Oduro Kwakye, Basilia Nanbigne, Adwoa Paintsil, Nashiru Salifu, Akwettey Sampson, Worlanyo Siabi, Theophilus Okine, Esther Wahaga, Patrick Apoya, Charles Abani, Fiachra McAsey, Lorretta Roberts, Ramesh Bhusal, Samuel Amoako-Mensah, Rick Johnston, Tom Slaymaker, Sean Furey, Federico Properzi.

Suggested citation: UN-Water (2023), *SDG 6 Country Acceleration Case Study: Ghana*, Geneva.



**United
Nations**

